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INTRODUCTION

The Winnet Centre of Excellence Series, issued in English, is a continuous publication. Into the hands of readers, we are placing the fifth edition which is a collection of works devoted to three significant issues: entrepreneurship, innovativeness, and women. According to the United Nations agenda 2030, Sustainable Development Goal 5 is to achieve gender equality and empower all women and girls. Based on the United Nations Sustainable Development Goals, UN Women pointed out the significance of women's contribution to economic development as, to undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance, and natural resources, in accordance with national laws and to enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.

This monograph consists of six chapters by Authors from China, Estonia, Finland, Poland, Sri Lanka, and Sweden. The first chapter discusses the selected aspects of entrepreneurship and innovation among rural women in the European Union. The second chapter illustrates the entrepreneurial intentions among university students and graduates. The third chapter answers the question of what feminist technoscience can bring to innovation toward sustainability? The fourth, fifth, and sixth chapters are based on the case of real-world studies from Sweden, Estonia, and Poland. Those chapters are case studies addressing the area of entrepreneurship and innovativeness according to female entrepreneurs. In addition to that, chapter six provides a comparative analysis of the Estonian, Swedish, and Polish female entrepreneurship and innovativeness.

We are honored to express words of gratitude to all co-authors and reviewers for their effort and contribution to this joint international monograph.

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CHAPTER 1

SELECTED ASPECTS OF ENTREPRENEURSHIP AND INNOVATION AMONG RURAL WOMEN IN THE EUROPEAN UNION

1.1. Introduction

The considerable role of women in economic and social development processes, including in rural areas, has long been indicated in the literature (see e.g. Kaur and Sharma 1991). Rural women's main occupation is through farming, employment in multiple sectors, and entrepreneurship while at the same time women are the main household and family caretakers. The literature also emphasizes women's engagement in entrepreneurship activities as the means to not only reduces poverty but to boost dynamic and sustainable economic growth (Markantoni and Hoven, 2012, Aggarwal and Johal 2021).

Despite their immense contributions and gender equality efforts of the decision-maker, as this chapter shows, women are still underrepresented in entrepreneurial and innovative rural Europe. As indicated by Jabeen and Faisal (2018), the national context in entrepreneurship is important as it significantly influences the functioning of women in a given society. Hence, the question arose how large are the differences between the European

Union (EU) countries in terms of entrepreneurship and innovation of rural women. Thus, the aim of the analysis is to assess these differences as well as similarities.

It is worth mentioning that numerous EU policies and regulations have supported the entrepreneurship of rural women for years, therefore the preliminary assumption was that no significant differences between the countries will be found. Especially considering countries are often categorized as similar due to geographical conditions, common history, or similar macroeconomic indexes. In the study, we use data from 2016, which is the most recent available data from the Eruostat's Farm Structure Survey, and the *k*-means as a research method.

1.2. The study backgrounds

Women in Europe have some of the lowest rates of entrepreneurship compared to women in other regions of the world, which is at least partially explained by having other employment options and benefits from large welfare states that buffer workers from unemployment and family care demands (Elam et al., 2021). Moreover, in 2015, women in most EU Member States were half as likely as men to be self-employed (9.9% vs. 17.8%) (European Commission, 2017). The gender gap in the proportion of men and women who were self-employed was the smallest in Luxembourg, and the Netherlands, and the greatest in Ireland and Malta, where men were approximately three times more likely than women to be self-employed (European Commission, 2017).

European Parliament (2017) in its report emphasized the essential role of women in rural areas and the farming sector, but it also acknowledged numerous challenges rural women of the EU must face. A recognized shortcoming is the fact that not all EU funding programs include a gender dimension. Recent Strategic Plans for the Common Agricultural Policy do not support rates for women directly, however, the overall targets include a strategic goal to promote the participation of women in the socio-economic development of rural areas, with special attention to farming, supporting women's key role (EU, 2021). Regardless of joint policies and regulations at the EU level, the level of engagement of rural women in entrepreneurship and innovation differs strongly among the countries.

Innovation can be a significant part of the integration of women in rural entrepreneurship. It entails the cooperation of a variety of rural actors with diverse forms of knowledge and experience to enhance sustainable development (Sumane et al., 2018). There are many available innovation indexes. One of them is the Global Innovation Index run by Cornell University, INSEAD, and the WIPO includes several pillars such as institutions, human capital and research, infrastructure, market sophistication, business sophistication, knowledge and technology outputs, and creative outputs. As much as this index is a good base for international cooperation (see Figure 1.), it does not explicitly rural areas.

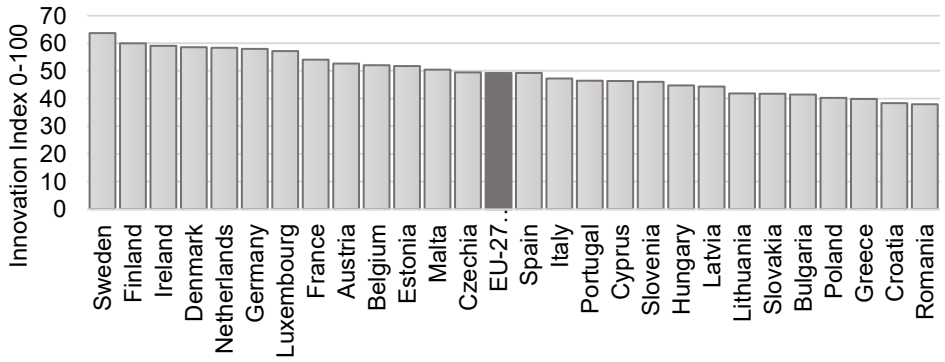


Figure 1.1 Global Innovation Index for EU-27 in 2016. Source: https://www.theglobaleconomy.com/rankings/gii_index/European-union/

Another key index is European Innovation Scoreboard published by the European Commission. The scoreboard provides a comparative analysis of innovation performance in EU countries and assesses the relative strengths and weaknesses of national innovation systems as well as helps countries identify areas they need to address. The Scoreboard is published yearly since 2015 while previous years have joint reports and publications. The European Innovation Scoreboard is based on Summary Innovation Index (SII) a complex index that is calculated based on numerous indicators grouped into several pillars. It is the Human resources pillar of the Enablers category that includes the population's participation in secondary and tertiary education. The index,

however, uses the total population as its base, without division between men and women. In this chapter, we perform a novel analysis of the participation of women in agriculture secondary and tertiary education in order to receive more specific indicators on innovative rural women. Keeping in mind that innovation is a very complex and multi-sectoral aspect, we follow the approach of Wilkes and Burns (2019) who proved the high work-life activity of agricultural graduates, and Mars (2017) who placed attention on graduates' association with innovation and entrepreneurship. Kneight et al. (2010) found that schooling encourages innovation, a potentially risky undertaking, not only directly but also indirectly, through its effect on attitudes toward risk. Last but not the least, Kiełbasa (2017) concluded in her survey-based study that the younger, well-educated farmers are looking for new solutions and are willing to implement innovations. All the research papers show however little if none focus on women.

1.3. Data and applied methods

To achieve the aim of the study, we chose one of the most commonly used algorithms for classification problems, which is k-means (McQueen 1967; Walesiak and Gatnar (eds.) 2004). The assumption is that this method will allow us to aggregate objects (EU countries) in such a way that similar objects (countries) are included in the same cluster and the obtained clusters will be sufficiently different from each other (due to the analyzed characteristics). The classification procedure can be divided into several stages (see Walesiak 2006, Bieszk-Stolorz and Dmytrów, 2019). In the beginning, we determine the research sample (selection of objects and variables). At this stage, we pay attention to the appropriate variability of the variables and the absence of outliers. In the next stage, we choose the normalization formulas, the measures used to determine the distance between objects, and the classification methods/algorithms. We then determine the number of classes and evaluate the classification results. The final stage is the interpretation and profiling of the classes (clusters).

Classification is conducted applying procedures implemented in R package. The following libraries are used for the analysis:

- ClusterSim (used to conduct the main analysis, Walesiak and Dudek 2021),
- RobustHD (used to generate a silhouette width plot, Alfons 2021),
- factoextra (for data visualisation, Kassambara 2020).

The data we use in the analysis refers to 2016 and 26 EU countries (according to the 2016 composition, excluding Malta and Luxembourg, which are excluded from the analysis due to data gaps). The analysis is for the year 2016 because the latest available data from the Farm structure Survey (FSS) is from this year, which forms the basis for the determination of the two key variables. The variables used in the analysis are as follows.

(Variable 1) Share of women among agricultural employees:

$$Emp_{Fi} = \frac{EF_i}{EF_i + EM_i} \tag{1}$$

EF_i – number of women employed in agriculture in the *i*th country,
EM_i – number of men employed in agriculture in the *i*th country.

(Variable 2) Share of women among the group of farm managers:

$$Manager_{Fi} = \frac{MF_i}{MF_i + MM_i} \tag{2}$$

MF_i – number of female farm managers in the *i*th country, – number of male farm managers in the *i*th country.

(Variable 3) The ratio of average standard output in EUR per hectare for farm area excluding special agricultural production) achieved on female-managed farms to the corresponding value achieved on male-managed farms:

$$Out\_Ha_{Fi} = \frac{SOHaF_i}{SOHaM_i} \tag{3a}$$

$SOHaF_i$ – average standard output (EUR) per hectare for farm area excluding special agricultural production areas in farm with female managers (in *i*th country),

$SOHaM_i$ – average standard output (EUR) per hectare for farm area excluding special agricultural production areas in farm with male managers (in *i*th country).

$$SOHaF_i = \frac{SOF_i}{FarmHaM_i} \tag{3b}$$

SOF_i – total standard output (EUR) in farms with female managers in *i*th country;

$FarmHaM_i$ – total farm area (hectare) excluding special agricultural production areas, female managers in *i*th country;

$$SOHaM_i = \frac{SOM_i}{FarmHaM_i} \tag{3c}$$

SOM_i – total standard output (EUR) in farms with male managers in *i*th country;

$FarmHaM_i$ – total farm area (hectare) excluding special agricultural production areas, male managers in *i*th country;

(Variable 4) Participation of women in agricultural secondary education:

$$EduM_{Fi} = \frac{NEduMF_i}{NEduMF_i + NEduMM_i} \quad (4)$$

$NEduMF_i$ – number of female graduates of secondary agricultural education in *i*th country,

$NEduMM_i$ – number of male graduates of secondary agricultural education in *i*th country.

(Variable 5) Participation of women in agricultural tertiary education:

$$EduH_{Fi} = \frac{NEduHF_i}{NEduHF_i + NEduHM_i} \quad (5)$$

$NEduHF_i$ – number of female graduates of agricultural tertiary education in *i*th country,

$NEduHM_i$ – number of male graduates of agricultural tertiary education in *i*th country.

The variable (percentage of women working in agriculture) is the background for the study, and in particular the baseline for (percentage of women farm managers). Variable is a variable that indicates how financially female-managed farms perform compared to male-managed farms. We have identified this variable with female entrepreneurship because for this, a ratio greater than 1 (100%) means that the average income per ha of farms run by women is higher than in farms run by men. That is, in this situation, women are financially doing no worse than men. Variables concerning the percentage of women among agricultural graduates (and) is identified with innovation.

The coefficient of variation for all analysed variables is at a satisfactory level (i.e., higher than 0.1). Tuckey's method (box-and-whisker plot) is used to identify outliers (see Bieszk-Stolorz and Dmytrów, 2019). Outliers are not found in the set of our variables.

Classification is conducted for a different number of clusters *k*. In the presented analysis, the range from k=*2* to *k*=12 is adopted. In experiments we used different methods of variables normalization (standardization, positional standardization, and unitization with zero minimum, see Walesiak 2006) and different approaches to the calculation of distances (Manhattan, Euclidean, square Euclidean – SE, Generalised Distance Method – GDM (see Walesiak 2011; Jajuga, Walesiak & Bak 2003). A total of 144 different classifications were completed. To select the best classification, we use the silhouette index (SI index, see Kaufman & Rousseeuw, 1990; Walesiak, 2006; Dudek, 2020; Roszko-Wójtowicz & Grzelak, 2021). It is worth noting that this method is indicated as one of the best among those used to select the number of *k* clusters (see Vendramin et al. 2010; Arbelaitz et al. 2013). The highest SI index value indicates the best division. Walesiak (2006) or Roszko-Wójtowicz & Grzelak (2021) report that acceptable divisions are characterised by SI index values of at least 0.5.

1.4. Results

In the first step of the analysis, we will conduct clustering using different types of normalisations (standardization – n1, positional standardization – n2, unitization with zero minimum ((x-min)/range) – n4) and different approaches to the calculation of distances (Manhattan, Euclidean, square Euclidean – SE, General Distance Method – GDM) between observations (EU countries). Because in the k-means the number of clusters is assumed in advance, classifications are carried out considering different numbers of clusters: from k=2 to k=12. The SI values for the divisions performed using SE and GDM are presented in the Table 1. We omit the presentation of SI values for divisions obtained using Manhattan and Euclidean distances because they are much smaller, indicating unsatisfactory divisions. The highest SI values are highlighted in bold. The highest SI index value is 0.535, reported in three cases: division into 5 clusters (n2-GDM) and division into 7 clusters (n1-SED and n4-GDM, with group compositions identical in these divisions). We finally decided to select the division into 7 clusters, for the interpretation of the results.

The division into a higher number of clusters allows us to capture greater diversity between the analysed countries. The results (group averages) are presented in the Table 2. In turn, the visualisation of the clustering is presented in the figure 2.

Table 1.1 The SI values for the selected divisions (applied distance methods: SE and GDM)

Number of	**Squared Euclidean Distance – SED**			**Generalised Distance Method – GDM**		
clusters	n1	n2	n4	n1	n2	n4
2	0.396	0.360	0.396	0.403	0.426	0.396
3	0.471	0.471	0.483	0.482	0.442	0.483
4	0.459	0.480	0.422	0.462	0.483	0.422
5	0.493	**0.493**	0.503	0.495	***0.535***	0.503
6	0.529	0.441	**0.529**	**0.527**	0.486	0.529
7	***0.535***	0.451	0.466	0.452	0.476	***0.535***
8	0.419	0.376	0.471	0.374	0.409	0.446
9	0.382	0.394	0.382	0.375	0.419	0.401
10	0.437	0.404	0.437	0.4 32	0.410	0.395
11	0.479	0.426	0.479	0.470	0.361	0.479
12	0.456	0.335	0.476	0.447	0.393	0.463

Source: Own calculation in R package.

Table 1.2 Results of EU countries clustering – group average (%)

Cluster k	**Countries**	**Emp**	**Manager**	**Out_Ha**	**EduM**	**EduH**
1	Croatia, Slovenia, Sweden	37.0%	20.6%	86.4%	**61.0%**	**64.3%**
2	Germany, Ireland, Spain, France	25.0%	16.1%	85.7%	*20.5%*	*33.4%*
3	Bulgaria, Hungary	29.0%	26.0%	**122.1%**	45.6%	52.2%
4	Estonia, Italy, Cyprus	27.3%	29.1%	*70.6%*	26.8%	55.3%
5	Belgium, Denmark, Netherlands, UK	25.7%	*10.6%*	80.3%	32.6%	56.5%

Table 1.2 Results of EU countries... (cont.)

Cluster k	Countries	Emp	Manager	Out_Ha	EduM	EduH
6	Greece, Latvia, Lithuania, Austria, Poland, Portugal, Romania	**40.5%**	**34.6%**	97.2%	33.2%	47.1%
7	Czech Rep., Slovakia, Finland	28.4%	14.4%	**141.3%**	**60.8%**	**68.4%**

Source: Own calculation in R package (library clusterSim).

The most numerous group listed in the Table 2 is cluster #6. The algorithm classified as many as 7 countries in this group (Greece, Latvia, Lithuania, Austria, Poland, Portugal, Romania). The highest means of the *Emp* (where k is the number of the selected group) and *Manager* variables characterise this group. In this group a high percentage of women working in agriculture is observed (40.5%) and this is linked to a high percentage of women among farm managers (34.6%). It is also worth noting that the group average *Out_Ha* ratio is close to 100%. This means that in these countries the standard output achieved on farms managed by women is very close to the standard of output achieved on farms managed by men.

The group with the highest average *Out_Ha* (cluster #7: Czech Rep., Slovakia, Finland) also has the highest female share among agricultural fields of education graduates (60.8% on average at secondary level and 68.4% at tertiary level). However, this group is characterised by a very low share of women among agricultural employees and farm managers (28.4% and 14.4% respectively). We interpret this finding that the few women who take up farming in these countries have significantly better outcomes than men.

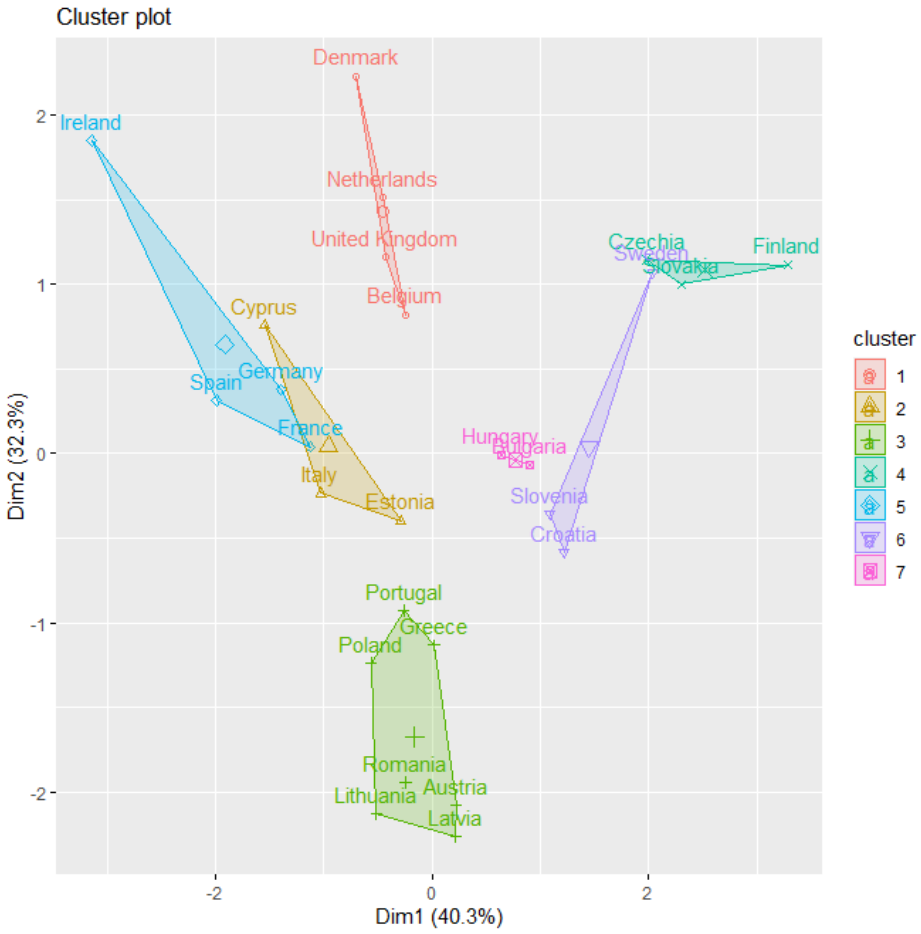
The group with similarly high feminisation rates in the group of agricultural fields of education graduates is group #1 (Croatia, Slovenia, Sweden, *EduM*=61.0%, *EduH*=64.3%). However, despite the rather high proportion of women among employees (Emp = 37%) the average percentage of women in the group of managers is just 20.6% and the average of the variable

Out_Ha is only 86.4%. That is, farms run by women have on average a lower standard output per hectare by 13.6% than those officially managed by men.

At a similar level, the average value of the *Out_Ha* ratio (85.7%) is reported for group #2 (Germany, Ireland, Spain, France). This group is also characterised by the lowest feminisation rates of the agricultural graduate group (*EduM*=20.5%, *EduH*=33.4%), and low employment rates (*Emp*=25.0%), and low percentage of female managers (*Manager*=16.1%).

The lowest mean values of the *Out_Ha* variable are obtained for groups #5 (80.3%, Belgium, Denmark, Netherlands, UK) and #4 (70.6%, Estonia, Italy, Cyprus). Group #5 is also distinguished by the lowest average share of women in the group of managers (10.6) and the associated low share of women among agricultural employees (25.7%). Group #4, on the other hand, is distinguished by the lower average shares of women among agricultural secondary school graduates (*EduM*=26.8%) and a rather high share of women in the group of managers (29.1%). For this last variable, only in group #6 do we have, on average, a higher proportion of women among farm managers.

Figure 1.2 The visualisation of the EU country classification



Source: Own calculation in R package (library factoextra).

1.5. Results and discussion

The geographic similarities of the countries that were grouped in one cluster is present, which differs from our expectations. For example, cluster #7 included the Czech Rep., Slovakia, and Finland. While the Czech Rep. and Slovakia are neighbouring countries belonging to the EU new member states group (NM10), Finland geographically differs highly as being representative of the far North. A similar situation occurs in the case of countries classified to cluster # 1 (Croatia, Slovenia, Sweden), where Sweden differs highly representing

the Scandinavia, or in the case of cluster # 4, where two countries from South Europe (Italy, Cyprus) have been joined by a Baltic state – Estonia. These results show, first of all, that the entrepreneurship and innovativeness of women in the agricultural sector (measured by the analysed indicators) is highly diversified in the EU and is triggered by different mechanisms in different countries. There is a clear lack of evidence for geographical – base grouping of the EU states in the case of rural women entrepreneurs. The problem of entrepreneurship and innovation of women in the agricultural sector should be approached in a more individualized way, first considering the national context (Jabeen and Faisal 2018).

One of the objectives of the EU policy is to improve the situation of women working in the agricultural sector. Effective national practices are the best recommendation for actions undertaken in this direction. The analysis shows that the best financial results (compared to men) are achieved by women in the countries classified to group # 7 (Czech Rep., Slovakia, and Finland). In these countries, despite the relatively low employment of women in the agricultural sector and not too high percentage of women in the group of managers, there is a high percentage of female graduates of agricultural schools and faculties. This prompts us to interpret the fact that in these countries' agricultural education (which directly correlates with innovation) effectively helps women in their professional work. Another example of direct support is the vast activity of third sector in this topic. For example, in Finland the Rural Women's Advisory Organisation is a nationwide expert organisation and an extensive women's network in the rural areas.

In a contrast, we do not observe a similar relationship between high percentage of women among graduates of agricultural education and the average income in farms managed by women, e.g., in group # 1 (Croatia, Slovenia, Sweden).

The research presented in this chapter does not fully present the subject of comparisons of female entrepreneurship in the agricultural sector across European Union. However, it acts as an introduction to a larger study to be continued. In the next step, we are going to analyse the innovation of

rural women towards sustainable development, including organic farming with a particular focus on the conditions provided for the development of women's entrepreneurship in each country.

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Jinyue Yang
An independent scholar, China

CHAPTER 2

ENTREPRENEURIAL INTENTIONS AMONG UNIVERSITY STUDENTS AND GRADUATES

2.1. Introduction

There has been an active discussion about entrepreneurship among young people especially university students and university graduates. The study of entrepreneurship among this group of people has gained the high attention of society throughout the world, owing to the fact that it is associated with education, which is both a private and public good. As a result, the development of entrepreneurship is highly correlated with the economic development in a country or region.

The main objective of this chapter is to explore the entrepreneurial intentions of people with a higher education background in China and Poland. These two countries were chosen for this study since they had seen significant economic growth over the last decade. Furthermore, there are many other aspects to compare between China and Poland owing to their geographic location as well as the differences in culture and education systems. It is interesting to know the entrepreneurial intentions as well as obstacles of being an entrepreneur among people with higher education in the chosen countries.

The body of this chapter is arranged as follows: The theoretical section begins with an overview of the concept and essence of entrepreneurial intentions, followed by the comparison and distinction of the notion of entrepreneurship, entrepreneur, entrepreneurial intentions, pull motivating factors, and push motivating factors of entrepreneurship. Afterward, in the empirical section, the author examined the variations in entrepreneurial intention in

comparison to country of origin, gender, and educational levels using the data collected throughout the research. The results were presented after an introduction of the methodology used for the research. Finally, the findings were examined in regard to the hypothesis, and the conclusions were drawn.

In terms of the research methodology, the study applied a quantitative questionnaire to obtain a better knowledge of the entrepreneurial intentions of students who are currently enrolled in Higher education institutions (HEIs), and students who have completed their studies in China and Poland. Data was collected through internet platforms in terms of the Covid epidemic as well as geographic distance. Google questionnaire and the WeChat[1] e-questionnaire program were chosen as the online platforms for collecting data during the research. The data were collected within the aforementioned online platforms.

In order to have a better understanding of the entrepreneurial intentions in chosen countries, the author posed two research questions regarding the topic in this chapter. They are as follows:

1. Is there a larger proportion of university students and graduates who have entrepreneurial intentions than those who do not?
2. Are entrepreneurial intentions differ by nation due to varied motivating factors and obstacles?

2.2. The concept and essence of entrepreneurial intentions

When looking at existing literature, the studies about entrepreneurship and entrepreneur are already well advanced, yet the concept of entrepreneurial intentions is unfamiliar to the vast majority of individuals. According to Kanbur, entrepreneurship is not completely comprehended by the general public, despite the fact that it has gained great attention from economists (S.M. Kanbur, quoted by Montanye, 2006, pp. 560–569). In order to have in-depth knowledge about entrepreneurial intentions, the need of knowing more about entrepreneurship is necessary.

1 Wechat is a Chinese multi-functional instant messaging, social media and mobile payment app developed by Tencent.

For the last two centuries, numerous scholars have emphasized the significance of entrepreneurship and the acknowledgment of the entrepreneur's position in the economy. Entrepreneurship has been highlighted as one of the critical success factors for national development over a long period of time (Smith, 2010, pp. 1–19). A large number of scholars have characterized entrepreneurship in one form or another in the current studies. Hence, there is no single, absolute definition of entrepreneurship in the literature of economics and its regarded sciences. As a result, the theory and policy of economics regarding entrepreneurship have become ambiguous (Hébert, Link, 1988, pp. 17–20). However, according to Patharkar, entrepreneurship is the ability and willingness of starting and running an own business, which is essentially a new firm that provides innovative products or services (Patharkar, 2021, pp. 1–6). Missias and Brugar suggested that "deploying a broader interpretation of innovation is one example of entrepreneurship that includes not only economic interests but also political and social interests which benefit the large society" (Missias and Brugar, 2018, pp. 261–271). According to the National Council for the Social Studies (NCSS), entrepreneurship was defined as "A characteristic of people who assume the risk of organizing productive resources to produce goods and services to make profits" (NCSS, 2013, pp. 99).

The term "entrepreneur" originally comes from the French word "entreprendre," which means "to undertake." It has been used in English to relate to types of business owners since the 18th century. It is clear that entrepreneur is more connected to people. "In Merriam-Webster's dictionary (2022), it means one who organizes, manages, and assumes the risks of a business or enterprise." Worth to mention that an entrepreneur is not only a person who begins their own business and is prepared to undertake risks in order to generate profit, it also implies business vision, strategy, innovation, and creativity. Originally, the term entrepreneur referred to anybody who started a business, but it has now come to indicate a merchant, employer, or manager (Hébert and Link, 1988, pp. 45–46). Schumpeter argued that entrepreneurs are a critical component of economic development, and are people who provide new improvements in a business (Schumpeter, 1991, pp. 406–408).

An entrepreneur is a person who can think creatively, is a leader, and is willing to take risks (Antoncic and Hisrich, 2003, pp. 7–24). “According to Baumol (2002, PP.1–10), an entrepreneur is a person who can manage or own a firm, and be involved in productive activity, but the defining criterion is “innovative behavior.” The entrepreneur is also someone who makes investments in the face of uncertainty and has a low degree of resilience to it.” An entrepreneur is a creator who transforms the means of production to come up with something new (Montanye, 2006, pp. 547–548). Furthermore, entrepreneurs were defined by the National Council for the Social Studies (NCSS) as “individuals who are willing to take risks in order to develop new products and start new businesses. They recognize opportunities, enjoy working for themselves, and accept challenges” (NCSS, 2013, pp. 99).

However, when it comes to the distinctions between the terms entrepreneurship and entrepreneur, Cadar and Badulescu give a simple and straightforward explanation, that is: “The entrepreneur is the main actor of entrepreneurship and intrapreneurship” (Cadar and Badulescu, 2015, pp. 659).

“According to the Cambridge Dictionary (2022), “intention” refers to something for which a person has an extreme passion or desire, such as an aim, a hobby, activities, and so on.” Passion has also been invoked in a number of studies to illustrate entrepreneurial behaviors. Referring to a study by Bird, suggested that entrepreneurial behavior can be “passionate, full of emotional energy, drive, and spirit” (Melissa, 2009, pp. 511–532).

The present literature is vague in defining entrepreneurial intentions, yet, the idea of entrepreneurial intentions refers to the passion and motivation of people who want to establish their own business, as evidenced by the studies mentioned above. Further, according to Bird, entrepreneurial intentions are closely linked to the social, political, and economic context, along with personal values and other characteristics such as personality, interest, skills, abilities, motivating factors, and so on. Hence, the integration of these factors has a critical impact on entrepreneurial intentions (Bird, 1988, pp. 442–453).

The motivations of entrepreneurship can be divided into two categories: pull and push motivating factors (Bianchi, 2012, pp. 273–286). All of the pull

driving factors seem to be positive, such as the desire to accomplish a goal, prove one's value, meet greater human needs, and the ambition to increase incomes. Push motivational factors, on the contrary, are more closely linked to negative variables like unemployment, family or personal financial difficulties, gender bias in the labor market, and so on.

2.3. Research methodology

The quantitative questionnaire was considered the best approach for this study due to the demand for the comparison of quantitative data within international research. The data was collected through online platforms, namely, the Google questionnaire and the WeChat e-questionnaire program. The data collecting procedure began on 27th, December 2021 to 15th, February 2022 in China and Poland. The questionnaire was translated into both Chinese and Polish due to the fact that not everyone is able to respond to the questionnaire in English. The translated questionnaire was tested in terms of its comprehensibility by the author with additional supervision of Dr. Misiak-Kwit. Participants were provided explanations of the topic in question prompts when it comes to the closed questions on pull and push motivating factors of entrepreneurial intentions, and they were then asked to select one of the available alternatives based on how well they understood the concept. The questionnaire was completely voluntary, anonymous, and confidential. The data gathered throughout the research were then thoroughly studied and evaluated.

There were seven questions about basic information and entrepreneurial intentions among university students and university graduates in China and Poland. The respondents were first asked to indicate their country of the region, gender, and education level. Then, there was the main question about their entrepreneurial intentions, whether they want to start an enterprise or not. Afterward, the participants were asked to select up to three pull and push motivational factors that were significant to them. Finally, the respondents were asked to indicate the three biggest obstacles for them to starting their own business. In order to have comparable results, the same amount of respondents in the analyzed countries was invited to participate in the survey,

which was 110 in each. However, the number of respondents who responded to the questionnaire was slightly different.

Table 2.1 shows the statistical results of the respondents from the analyzed countries.

Table 2.1 The characteristics of respondents

Country of region	China		Poland	
	No.	%	No.	%
Total number of respondents	109	99.1	104	94.6
Gender (male)	50	45.9	50	48.07
Gender (female)	54	49.5	51	49.03
Gender (Prefer not to say)	5	4.6	3	2.9
Education level (high school diploma)	6	5.5	21	20.2
Education level (bachelor's degree & specialized degree)	81	74.3	55	52.9
Education level (master's degree)	20	18.3	24	23.1
Education level (Doctoral degree)	2	1.9	4	3.8

Source: own compilation on the basis of research data.

Table 2.1 demonstrates the fundamental information of the respondents from analyzed countries. The proportion of male and female respondents in China and Poland was relatively close based on the data gathered. The data also suggests that the level of education in the analyzed countries were comparable. The majority of people in both countries hold bachelor's degrees.

The main aim of this chapter is to study the entrepreneurial intentions of university students and graduates in China and Poland. To achieve the aims of this chapter, the author posed two research questions, one of which was whether entrepreneurial ambitions differ from country to country due to a variety of motivating factors and obstacles, as evidenced by the data gathered throughout the study. Another question is whether entrepreneurial intentions among university students and graduates in both countries were greater than unfavorable attitudes.

2.4. Entrepreneurial intentions among university students and university graduates in China and Poland

2.4.1. Entrepreneurial intentions among university students and university graduates in China

In this section, the author examines the respondents' entrepreneurial intentions, pull motivating factors, push motivating factors, and obstacles in China and Poland.

Table 2.2 shows the results of Chinese respondents' entrepreneurial intentions after the obtained data has been analyzed and computed.

Table 2.2 Entrepreneurial intentions of Chinese respondents

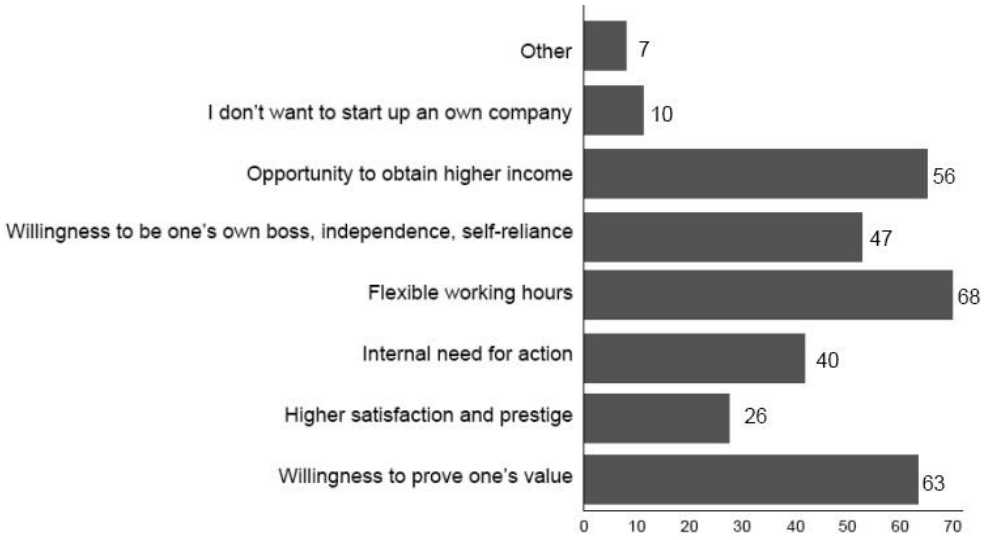
Entrepreneurial intentions	No.	%
Yes	58	53.2
No	25	22.9
Maybe	26	23.9

Source: own compilation on the basis of research data.

It is clear from the table above that 53.2 percent of Chinese respondents showed great intentions for entrepreneurship while 22.9 percent gave a negative attitude toward starting up their own business. In addition, 23.9 percent of respondents were not sure about their future decisions towards opening a firm. The results demonstrate a positive trend of entrepreneurial intentions among university students and university graduates in China.

Figure 2.1 illustrates the pull motivating factors of the entrepreneurial intentions of respondents from China.

Figure 2.1 Pull motivating factors of the entrepreneurial intentions of Chinese respondents



Source: own compilation on the basis of research data.

The bar chat shows that the three most popular pull motivating factors for Chinese respondents were: flexible working hours, the opportunity to obtain higher income, and the willingness to prove one's value. Worth to mention that the least important pull motivating factor for Chinese respondents was higher satisfaction and prestige.

Figure 2.2 shows the three most important push motivating factors for Chinese respondents.

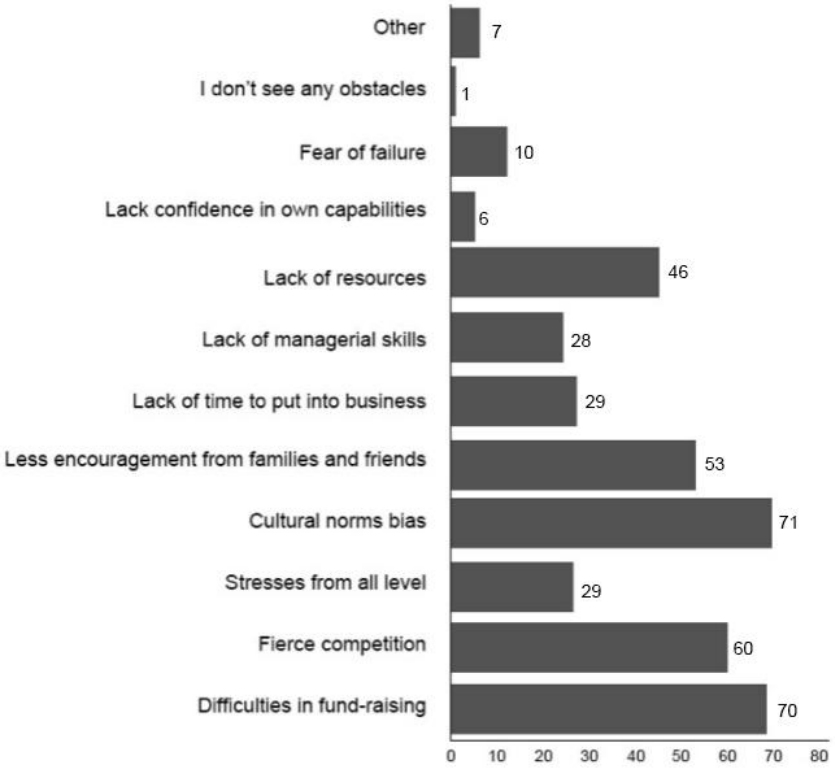
Figure 2.2 Push motivating factors of the entrepreneurial intentions of Chinese respondents

Source: own compilation on the basis of research data.

According to the statistics, the three most frequently selected push motivating factors were: the Impossibility to get a full-time job, the difficult financial situation in the family, and unemployment. Meanwhile, the partner's redundancy and the inability to return to work following maternity leave were seen as rather minor push motivating factors.

Further, Figure 2.3 illustrates the obstacles to starting an own business for Chinese respondents. The respondents were asked to select the three biggest obstacles among the ten most common obstacles of entrepreneurship.

Figure 2.3 Obstacles for Chinese respondents to start their own business



Source: own compilation on the basis of research data.

As demonstrated in the figure above, 71 Chinese respondents identified the cultural norm bias as the most significant barrier to establishing an enterprise, accounting for 65.1 percent of the total number of respondents. The other two major obstacles to starting an own business were difficulties in fund-raising (64.2 percent), and the fierce competition in the market (55.0 percent). The least important obstacle for Chinese respondents, however, was the lack of confidence in their own capabilities.

2.4.2. Entrepreneurial intentions among university students and university graduates in Poland

Further, the statistics were also obtained after evaluating the responses of Polish respondents' entrepreneurial intentions. Table 2.3 shows the results.

Table 2.3 Entrepreneurial intentions of Polish respondents

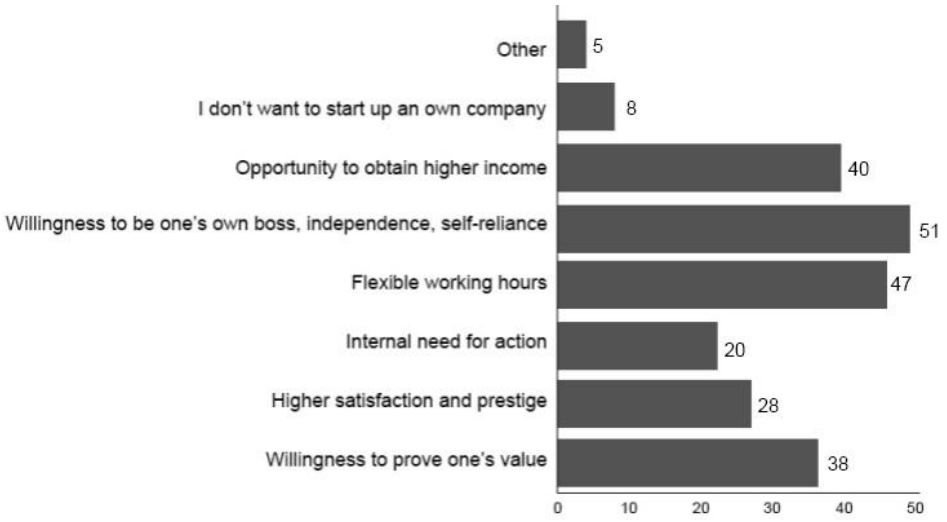
Entrepreneurial intentions	No.	%
Yes	52	50.0
No	19	18.3
Maybe	33	31.7

Source: own compilation on the basis of research data.

The findings suggested that the majority of the respondents from Poland (about 50 percent) wanted to start their own firm, while 18.3 percent of surveyed students have no desire of being an entrepreneur, and 31.7 percent of respondents were not sure about it.

According to the data obtained, when it comes to the pull motivating factors of the entrepreneurial intentions, the responses of Polish respondents were slightly different from Chinese respondents. As shown in Figure 2.6.

Figure 2.4 Pull motivating factors of the entrepreneurial intentions of Polish respondents



Source: own compilation on the basis of research data.

The findings indicated that the three most important pull motivating factors were: the willingness to be one's own boss, independence, self-reliance, flexible working hours; and the opportunity to obtain higher income.

Furthermore, Figure 2.5 shows the three most critical push motivating factors for Polish respondents.

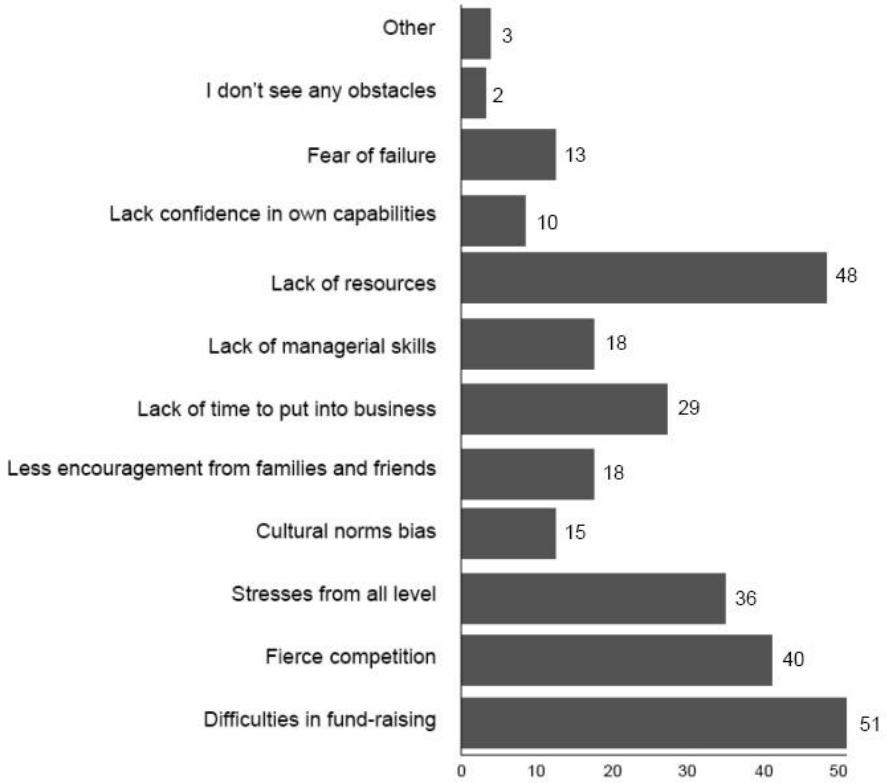
Figure 2.5 Push motivating factors of the entrepreneurial intentions of the Polish respondents

Source: own compilation on the basis of research data.

As shown in Figure 2.5, the most important push motivating factors for university students and graduates from Poland include the impossibility to get a full-time job, the difficult financial situation in the family, as well as redundancy.

Finally, Figure 2.6 demonstrates the three biggest obstacles for Polish respondents.

Figure 2.6 Obstacles factors of entrepreneurial intentions for Polish respondents



Source: own compilation on the basis of research data.

The results suggested that the three most concerned obstacles for Polish respondents were: difficulties in fund-raising, fierce competition, and the shortage of resources. In addition, the stresses from all levels also tended to be a big challenge for Polish respondents.

2.5. Discussion

In this section, the author's intention is to present the current situation in China and Poland regarding entrepreneurial intentions.

The research results presented that a large number (over 50 percent) of the university students and graduates intended to start their own businesses in China, while comparatively fewer (about one-fifth) of respondents

showed no intentions of entrepreneurship. When looking at the recent literature, the number of enterprises in China has increased significantly since the economic reform in 1978. Small-to-medium-sized businesses (SMEs) have grown significantly in size and number since 1993, and the transition of state-owned companies into private-sector businesses has increased (Sun, Lu, 2013, pp. 79–84). Furthermore, the number of private start-ups has rapidly increased from 45.3 percent in 2001 to 65.7 percent in 2007 (Guo, Qi, 2016, pp. 2584–606). Meanwhile, the education level of the population has improved significantly. According to the Education Promotion Action Plan 2003–2007 in China, the Chinese government emphasized the significance of education and announced a number of important education development plans. Despite the emphasis on compulsory education for nine years, the educational system also prioritized the development of high-level universities and critical scientific fields, especially the implementation of "a program that encourages high-level innovation and individual's skills development" program (State Council of China, 2004). Furthermore, according to a survey conducted by the National Bureau of Statistics of China in 2016, over 18,6 percent (615,000 out of the total number of around 3,2 million) of the university students registered their own businesses in 2016, and there was a significant growth compared to ten years ago. Moreover, the survey also indicated that up to 60 percent of university students were interested in starting their own business after graduation, however, the difficulties of fund-raising were considered one of the biggest challenges of entrepreneurship (National Bureau of Statistics, 2017, pp. 38–45). As mentioned above, the number of university students and graduates has largely increased since 2003. The entrepreneurship of university students has also increased in the same period. This also has a connection with the authors' second hypothesis and the findings of the research, namely, that university students and university graduates are the driving force of Chinese entrepreneurship.

According to the research findings in this chapter, nearly half of the respondents from Poland showed great enthusiasm about starting their own businesses. When looking at the results of this research and previous studies

on the same topic, there are significant commonalities. According to a study from the University of Economics in Katowice, the results of the study suggested that 41 percent of university students were motivated and interested in beginning their own firms after graduation and especially after a few years of work experience, while about 12 percent wanted to start their own enterprise right away (Sołek-Borowska, Laskowska-Chudy, 2017, pp. 141–150). In addition, according to another research about university students and their entrepreneurial propensity, the overall entrepreneurial propensity index of university students in Poland reached 0.412, which was also about 41 percent (Dvorský, Petráková, Zapletalíková, Rózsa, 2019, pp. 173–175). Furthermore, according to Tredevi, university students play an important role in the development of a country's economic atmosphere and entrepreneurship (Tredevi, 2016, pp. 790–811). Overall, when comparing the findings of this research to previous studies, it is clear that entrepreneurial intentions among university students and graduates in Poland are quite strong. Despite the fact that many university students and graduates would like to start their own enterprises, they generally face numerous obstacles and challenges. Among the many other challenges faced by university students and graduates, difficulties in generating funds and hurdles related to a lack of resources stood up as the most significant obstacles (Sołek-Borowska, Laskowska-Chudy, 2017, pp. 145–147).

To summarize, the findings in this chapter showed large compatibility with the aforementioned studies. The number of university students and graduates who wish to establish their own business is larger than the number of those who do not in analyzed countries. The statistics also show that there has been a large increase in the proportion of university students and graduates in both countries who are entrepreneurs, have engaged in entrepreneurial activities, or intend to become entrepreneurs over the past decades. However, there are variances between respondents from China and Poland regarding the pull and push factors that motivate them starting an own business.

2.6. Conclusions

The main objective of this research was to learn more about the entrepreneurial intentions of university students and graduates in China and Poland, as well as the pull and push motivating factors, challenges, and obstacles they might face.

According to the research statistics, the number of respondents who intended to have their own start-ups in both countries was greater than those who hold a negative opinion about it (about 51.8% in China and 50% in Poland showed strong intentions and 22.3% in China and 18.3% in Poland showed no interest in entrepreneurship). The data suggested that the answer to the first research question is confirmed.

When it comes to motivating factors, “flexible working hours” was the major pull motivating factor for Chinese respondents, on the other hand, the Polish respondents were most motivated by “being their own boss and being independent”. Furthermore, the findings suggested that the most selected push motivating factor for Chinese respondents was “difficult financial situation in families”, while the most frequently chosen push motivating factor for Polish respondents was “impossibility to get a full-time job”. Another interesting finding suggested that Chinese respondents took “cultural norm bias” as the main obstacle to being an entrepreneur, which is highly linked to the conventional Chinese culture. Although the old standards that have historically valued men over women are no longer applicable to millennials, this norm bias still exists in the Chinese society. However, “difficulties in fund-raising” was mostly selected obstacles for Polish respondents. Due to the various pull and push motivating factors, as well as the obstacles faced by respondents from the analyzed countries, it is obvious that their entrepreneurial intentions differed between the two countries. Hence, the author’s second research question has been answered.

Furthermore, according to the respondents’ views, entrepreneurial intentions are also strongly connected with the social and economic background, as well as an individual’s own values and ambitions. Nevertheless,

there were some common grounds among the respondents from the analyzed countries. For instance, the respondents from both countries valued the flexibility of working hours, and the willingness to prove one's value over other motivating factors. In addition, all respondents felt the difficulties in fund-raising were the biggest challenge for starting an enterprise.

Overall, the findings also indicated that nearly half of the university students and university graduates from both countries would like to participate in entrepreneurial activities or become an entrepreneur. Based on the data collected during the study, the author came to the conclusion that the entrepreneurial intentions among university students and graduates in both countries were strong. Moreover, the entrepreneurial intentions of the respondents vary by country due to educational and cultural variations. Since entrepreneurship has a tremendous influence on economic development, the assistance and cooperation from the government and the society for individuals who have entrepreneurial intentions seem to be essential.

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CHAPTER 3

What Feminist Technoscience can bring to Innovation towards Sustainability

3.1. Introduction

To contribute to deeper learning about innovation towards sustainability, we must acknowledge that all innovations have directionality as well as be clear about what and for whom our sustainability discussions concern. Whatever consequences of innovation results, it implicates reality production.

My research interest is situated in resource-scarce environments in the Global South focused on issues of sustainability, responsibility, and inclusive innovation.

The frames of my understanding are developed within feminist technoscience linked to practitioners and writers of mode 2 knowledge production. I use epistemological considerations for theories and methodologies to understand and broaden knowledge and practices within the field of Innovation and Development. How can feminist technoscience as well as other research areas, which involves a critical view of research-development-innovation, mobilize the transformative potential needed for sustainable conditions especially so in scarce resources contexts?

3.2. Transforming Innovation

We are witnessing how the meaning of the term innovation is transforming and now seems to be more tightly linked to sustainable development. Innovations expand beyond the linear transferring technical solutions as

technologies are not neutral artifacts. This has been emphasized for a long time by e.g. Donna Haraway when she 1997 states that “[t]echnology is not neutral. We’re inside what we make, and it’s inside us. We’re living in a world of connections – and it matters which ones get made and unmade.” (Haraway cited in Kunzru, 1997).

Lundvall et al. (2002) are acknowledging innovation as playing a significant role in a nation’s capability to improve its economic situation and competitiveness. If competitiveness means some should remain inferior or be left behind to be able to achieve success, we have a pressing issue in contexts of scarce resources. In resource-scarce settings, like in low-income countries, it is momentous to mobilize recourses available. For any socio-economic development benefiting poor people engaged in small firms and farms, knowledge and innovation is not only a condition for development but can be an issue of survival. Thus, the research context of the Global South demands and offers additional perspectives to the study of innovation such as the importance of collaboration in innovation processes. Within the innovative cluster development in East Africa (Trojer et al. 2014), the innovation processes have been developed to emphasize a balance between competition and collaboration to avoid some of these negative consequences.

Focusing on low-income countries, real and sustainable development can only be achieved, when innovation and technological development is domestic and locally-driven (Fu et al 2011). Innovation imported in a ready-made form does not necessarily lead to further improvements or sustainable development in these contexts. As Hornborg (2022) is arguing “most technological innovations have been contingent on asymmetric flows of resources in the colonial and neo-colonial world-system... ignoring that the very existence of those technologies is a manifestation of abysmally unequal world order.”

3.3. Responsible Research and Innovation

If our innovation focus is on sustainable socio-economic contexts, the concept of Responsible Research and Innovation (RRI) has been considered to carry possibilities for transformative potential. We see examples throughout

history, where the research community hesitates to acknowledge its weaker, destructive sides. That is why Ravetz (1975, p. 46) finds one of the roots of RRI expressed as “Science takes credit for penicillin, while Society takes the blame for the Bomb.” Ari Rip (2014) indicates that RRI is a social innovation, which creates an opening in existing (and evolving) divisions of moral labor.

RRI became an issue in the European Commission’s Horizon 2020 Program. The European Commission defines RRI as an approach to anticipating and assessing societal expectations to foster inclusive and sustainable innovation. Different societal actors are supposed to work together throughout the entire innovation cycle to encounter the needs and expectations of society. RRI has been viewed as a kind of “bridging” concept on the interfaces among science and society pointing to the enhancement of open, inclusive innovation. RRI is further defined as comprising six thematic elements – public engagement, open access, gender equality, ethics, science education, and governance.

In 2013 the first state-of-the-art book about RRI was published (Owen, Bessant & Heintz 2013). In the foreword, Jack Stilgoe highlights that the gap between the global rich and global poor has expanded, while the productivity of science has exponentially increased. We have thus to ask where the responsibilities for unrealized promises are placed if science and innovation are allowed to take credit for their productivity.

The chance increases drastically for the status quo and no transformation however needed, if researchers and practitioners offer little or no substantial critique of the use of RRI.

3.4. Towards Sustainability

As mentioned in the introduction all innovations have directionality. Melissa Leach is discussing pathways of sustainability (Leach 2022), where she states that “technological innovation is not scalar–as in narratives of “more,” “bigger,” “better,” or indeed linear progress–but, always and everywhere, directional.” The various actors involved in innovation processes define transformation and value systems in different ways, which will imply different outcomes

depending on the context, in which they are embedded. The questions Leach appeals to be asked to highlight opportunities and threats, are the following (Leach 2022).

"• What *Directions* are different pathways headed in? What goals, values, interests, and power relations are driving particular pathways [...]?
- Is there a sufficient *Diversity* of pathways? Are these diverse enough to resist powerful processes of lock-in [...]?
- What are the implications for *Distribution*? Who stands to gain or lose from current or proposed pathways, or alternatives?
- What are the implications for *Democracy*–broadly understood to encompass equity of opportunity for voice and inclusion and processes that enable and enhance this, whether formal or informal?"

3.5. Feminist Technoscience and Innovation

3.5.1. Feminist Technoscience

The joint merit of feminist technoscience is its research transforming ambitions. In many ways, this is an obvious basis. From an international perspective, we are dealing with an increasingly radical project of transformation. It is not good enough for a researcher to discover and map awaiting reality "out there" – that is to stay in the context of discovery. Research must focus on the context of the application as well as the context of implication (Nowotny et al. 2001, 2003). As stated by Elisabeth Gulbrandsen (Trojer, Gulbrandsen 1996) "Time is ripe for us as partakers in the modern research complexes, to develop a readiness to think and feel as part of the problem, and learn how to use this, our implicatedness, as resources for transformative projects."

The appropriate questions of boundaries and the transgression of the boundaries between science, technology, politics, and society insist on terminology like technoscience. We must keep in mind that boundaries "do not sit still" (Barad 2003, p. 817) underscoring our complex realities. "Technoscience is about worldly, materialized, signifying and significant power" (Haraway 1997 p. 51).

3.5.2. Why Feminist Technoscience and Innovation

Feminist technoscience can be recognized to contribute to the understanding of innovation and innovation systems focusing not only on the market economy context but on relevant societal contexts, especially in the Global South. This is illustrated by Helga Nowotny (2005) who states that “Innovation is the collective bet on a common fragile future and no side, neither science nor society, knows the secret of how to cope with its inherent uncertainties. It has to be done in some sort of alliance and a sense of direction which is shared.”

Relevant knowledge for innovation processes is founded on a process of ongoing critical interpretations among several interpreters. As Haraway (1991) notes “Relevant knowledge includes power-sensitive conversations. The world and its phenomenon neither speaks itself nor disappears in favour of one particular chosen interpreter or master decoder... The codes of the world do not find themselves silently waiting to be read.”

My why-question is strongly linked to onto / epistemological perspectives at the same time as our R&D&I work is explicitly practice-driven. My epistemological positionings are illustrated below by some key concepts for Feminist Technoscience and Innovation.

3.5.3. WHAT

What can Feminist technoscience and Innovation more precisely be about? Based on research and development work in East Africa, Bolivia, and Scandinavia for two decades, my conclusion is that Feminist technoscience and Innovation move around understandings of and practice in

– co-evolving processes
– situated knowledges
– technologies of humility
– socially robust knowledge, innovation, and technology.

It cannot come as a surprise that precisely these elements are linked to the substantially critical voices in Global South as well as in Global North in terms of sustainable economic and ecological systems for earthly survival.

Concrete examples to illustrate the four elements are presented in Trojer (2018, part IV). I choose to present some key concepts for the transdisciplinary practices of Feminist Technoscience, which have a bearing on the focus of Innovation, notably in scarce resource environments.

3.6. Concepts in use

In academic settings, I still find confusion about the distinction between a new research result (invention) and an innovation[1]. For clarity, the invention is the creation of something new. Innovation happens

only when this invention is successfully introduced to and used in a marketplace, or in any other useful application. To paraphrase Haraway (2016), it matters what concepts we think to think the concept of innovation with. In the following, I present the concepts situated knowledge, reality production, technologies of humility, and co-evolving processes and mode 2 to explain innovation processes from a feminist technoscientific perspective.

3.6.1. Situated knowledge

Situated knowledge is a basic concept in feminist technoscience (Haraway 1988, 1997) and fosters our understanding of innovation processes. The term 'situated knowledges' was coined by Donna Haraway as part of her epistemological work to provide alternatives to "… developing at home that voice of entitlement, the voice of control, that accompanies the conquest of empires far from home". Haraway views all knowledge as locally, historically, and culturally dependent. The significance of the local, the situated, is also expressed by Reijo Miettinen (2002) in the following: "... innovation is about adapting to changing circumstances and making new things in new ways. New ways to do things always emerge locally."

1 Innovation can be a product, process, system or service, that is novel, or with the quality of being striking especially in conception or style, or in the state of being and not resembling something formerly known or used, or with the quality or state of being original.

Situated knowledge confirms knowledge production for innovation development to be distributed involving knowledge-producing actors outside the research institutions. Situated knowledge is thus at the center of the conditions for socially robust innovations.

3.6.2. Reality production

As indicated in the introduction whatever we are doing in science and innovation we produce realities (worlds) for ourselves and others.

Birgitta Rydhagen (2002) points to the importance of the knowledge producer to be accountable for her/his knowledge and to "cast our lot with some ways of life on this planet, and not with other ways" (Haraway 1997 p. 51) and claims that every justification of knowledge must be motivated for what ways of life it supports.

The context of implication (Nowotny et al. 2001) is critical in the increasingly open systems for knowledge production with its direct reality-producing effects. According to Donna Haraway (1997, p. 68), there is neither time nor space to develop research's relations with society "… after all the serious epistemological action is over". Neither sustainability nor other values that we would like to realize can be secured retrospectively.

3.6.3. Technologies of humility

There are strong links between Haraway's urging to stay with the trouble (Haraway 2016) and Jasanoff's technologies of humility (Jasanoff 2003, 2007). Jasanoff (2003, p. 227) develops her concept as "methods, or better yet institutionalized habits of thought, that try to come to grips with the ragged fringes of human understanding – the unknown, the uncertain, the ambiguous, and the uncontrollable." This concept is thus challenging the predictive 'technologies of hubris', on which political decision-makers are wasting a lot of time.

If we are to alleviate known causes of people's vulnerability to harm and pay attention to the distribution of risks and benefits, humility offers directionality. It is not to be naïve to take seriously the risks in the great challenges of our time by focusing on technologies of humility.

3.6.4 Co-evolving processes and mode 2

The discussion presented elucidates how boundaries between society and research, society and innovation are not straightforward and clear. Nowotny et al. (2001) have for decades claimed that research and society are co-produced or co-evolved, which is a long way from the simple, linear understanding of this relationship that has been dominating in these 2 spheres. The frame of co-evolving processes is best characterized by the concept and practice of mode 2 knowledge production (Gibbons et al. 1994, Nowotny et al. 2001).

It is in the field of technoscience (like information and communication technology, bio- and gene-technology, and material technology) that scientists are most clearly pushing the boundaries between science and society, research and politics, thereby illuminating the obsolescence of a linear understanding (Gulbrandsen 2004). It seems easier to dissolve the linear paradigm in low-income countries, where the public good is a question of survival more than the commercial benefit of a few. Illustrative examples are also found in Bolivia in the work of Acevedo (2018).

Jasanoff (2003, p. 225) addresses the driving force for society to speak back to science in stating that uncertainties and risks are “part of the modern human condition, woven into the very fabric of progress. The problem we urgently face is how to live democratically and at peace with the knowledge that our societies are inevitably ‘at risk’.”

The need to develop, integrate and embed competencies for anticipation, inclusion, and responsiveness in the policies, processes, and institutions of science, technology, and innovation is described also by Stilgoe et al. (2013). This indicates a strongly inter-and transdisciplinary approach to co-creation, co-production, and mutual learning.

3.7. Conclusion

The experiences and theories from feminist technoscience to be used in inclusive innovation processes are witnessing relevant and efficient results in environments dominated by scarce resources. Bearing in mind that innovations hold different implications, the following conditions for innovation and sustainable outcomes, particularly in circumstances of scarcity, are applicable.

The innovation processes should take place within a collaborative frame for co-evolving and with trust-building among involved actors. Furthermore, collaborative practices are advised to follow the mode 2 knowledge production approach with distributed knowledge processes and use contexts of application and implication as cornerstones. For inclusive innovation, participatory action research, where the problem-owners initiate and set the agenda, is recommended.

Vital for context-specific learning fostering inclusive innovation is the acknowledgment of situated knowledges as well as the reality-producing aspects involving technologies of humility. For RRI to be a living and functional practice and policy tool, understanding technologies of humility is critical.

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CHAPTER 4

ENTREPRENEURSHIP AND INNOVATIVENESS ACCORDING TO FEMALE ENTREPRENEURS – THE CASE OF SWEDEN

4.1. Introduction

Entrepreneurship and innovativeness are crucial issues that contribute to the development of each country or region. The potential to be innovative and become an entrepreneur should be equally enhanced for both women and men. The untapped potential of human capital means losses not only for individuals and companies but also for entire economies. Unlocking this potential is a current global challenge. For this reason, promoting good practices stressing the role of women in the development of the region can be considered important and constitutes the added value of this chapter.

The aim of this chapter is to present a case study from Sweden concerning entrepreneurship and innovativeness according to female entrepreneurs. The chapter consists of five sections, starting with the introduction. In the second section, the authors share general knowledge and statistical data on entrepreneurship and innovativeness in Sweden in regard to gender aspects. The third part contains materials and methods and the fourth is the research results. The authors are the European Baltic Sea Region Forum for Gender Equality and Growth, 3.0 project participants. The qualitative study conducted in Estonia, Poland, and Sweden in 2021 was part of this project.

This chapter focuses on summarising the results of the interview with Hanna Bruce, a female entrepreneur from Sweden. The chapter finishes with conclusions.

4.2. Entrepreneurship and Innovativeness in Sweden

Swedish policy for gender equality has as its overall objective to ensure that women and men have equal power to shape society and their own lives. This implies among other things economic equality between women and men understood as individual women and men having the same opportunities and conditions with regard to education and paid work that provides them with the means to achieve lifelong economic independence. Entrepreneurship is included here stating that women shall have the same conditions as men to start and run a business that can grow and generate an income (Regeringens proposition 2005/06:155a).

In recent years the number of entrepreneurs in Sweden has increased, but the entrepreneur's share of all employed is nevertheless the same as before since the labor market in Sweden also has grown. In March 2022 the labor force was in total 5 545000 aged 15–74 whereof women were 2 619000 and men 2 927000 (Statistikmyndigheten SCB, 2022a).

In the 2021 fourth quarter, the economic activity rate for persons aged 20–64 was for women 83,8 percent and for men 89,9 percent (Statistikmyndigheten SCB, 2022b).

Statistics Sweden's Business register running since 1963 is a register of companies and contains all legal persons summing up to 1 674 052 companies in 2021. 99,7 percent of them are owned by private persons. 42 percent of the companies are run as a sole proprietorship and 37 percent as limited companies. (Statistikmyndigheten SCB, 2022c).

In March 2022 a total of 504600 persons aged 15–74 were listed as entrepreneurs which sum up to 9,9 percent of all persons in gainful employment. (Ekonomifakta, 2022a). Most companies in Sweden are small, only 0,1 percent have more than 250 employees which means that 99,9 percent are classified as SMEs (Small and Medium-sized Enterprises). Almost 900000 enterprises

were one-man firms with no employees. Växbo Lin, the Swedish company in the study, with more than 10 employees, is one out of almost 40000 enterprises with 10–49 employees (Ekonomifakta, 2022b).

In 2021 some 26 percent of all entrepreneurs in Sweden were women (Ekonomifakta, 2022c). Of all limited companies with a turnover of more than 500 000 SEK (approximately 49000 Euro) women ran 18 percent. In 2021 almost 74000 companies started running whereof 24000 were started by women, which is 32 percent (Företagarna, 2021a). Women and men run to great extent companies in different branches though they are also overlapping for instance in agriculture and forestry. Most common for women are business services, personal and cultural services, and a growing percentage in care. For men also business services are common together with the construction industry as well as agriculture, forestry, and fishing and growing in IT, finance, insurance, and transportation (Ekonomifakta, 2022d).

An investigation made by Företagarna (the entrepreneurs) in 2021 found there are different definitions of a successful company. Men listed growth, turnover, and number of employed while women stressed balance in life, freedom, independence, and being your own boss. Women were also more aware of risks. (Företagarna, 2021b)

A comprehensive mapping of the distribution to women and men of public financing to entrepreneurship between 2015 and 2020 showed no clear indications of changes over time. The introduction of gender mainstreaming in the agencies and a new strategy to increase the possibilities for sectors previously disadvantaged had not shown a positive effect.

Results showed that male-dominated sectors were given first-hand preference, sectors with equal representation of women and men second preference, and last preference was given to sectors dominated by women both regarding the sum of funding and the percentage of applications approved. The conclusion was that male-dominated sectors receive more extensive support than sectors dominated by women. Most funds gave approximately 30 percent to women and 70 percent to men. The report emphasized that unequal access to finances maintains unequal patterns in society and obstructs

innovations and improvements in sectors dominated by women as well as negatively affecting the possibilities for growth and income of women (Malmström, Wincent, 2022).

Researchers using Personal Construct Theory (PCT) and the Repertory Grid methodology to investigate deeper differences in the way government venture capital financiers cognitively process to evaluate 77 investment proposals from women and men entrepreneurs, in short, showed that there is unconscious gender bias among actors in the innovation system and that women entrepreneurs deviate from the stereotype of an entrepreneur (Johansson, Malmström, Lahti, et al. 2021).

Agriculture and forestry are sectors of growing importance due to green industrialization and turnover. Though the sector is described as male-dominated there are more women as owners and entrepreneurs here than in general. 40 percent of all private owners of farms and forests are women but with smaller average acreage (Lantbrukarnas Riksförbund, Jämställdhetsakademin, 2020). Better financing and support of innovations in this sector are foreseen as having potential for new industrialization (Sveriges Kvinnolobby, 2022).

4.3. Materials and methods

In order to gain knowledge on what entrepreneurship and innovativeness means according to women conducting a business, a qualitative study was conducted in Estonia, Poland, and Sweden. This study fulfilled one of the aims of the European Baltic Sea Region Forum for Gender Equality and Growth, 3.0 project. This chapter puts focus on sharing good practices from Sweden, which is an additional value for promoting the benefits of conducting an own business by women.

On the basis of the literature, it can be concluded that the use of qualitative studies in the development of management sciences is gaining importance (Glinka, Czakon, 2021). In relation to the topic of this chapter few discoveries should be mentioned as a basis for further qualitative and quantitative analysis, i.e. focus on the role of women in management (Kanter, 1997), recognition

of implemented innovations (Chesbrough, 2002), and the role of emotions during the innovation process (Vuori, Huy, 2016). Qualitative research results described in this chapter contribute to the development of knowledge, due to the fact that participants present and interpret the phenomenon of entrepreneurship and innovativeness (Bluhm, Harman, Lee, et al., 2011).

According to Rashid et al. (2019), the five-step case study method was used. The primary data was collected from women that fulfilled three qualitative parameters – owning a business venture, being a local leader in organizational decision-making, and implementing an innovative business model.

To model, the relationship between gender equality and economic growth the case study in Sweden took into account the Swedish gender equality goal of economic equality between women and men. The definition of innovation and criteria for choosing a company for the study were based on the goal which includes entrepreneurship stating that women shall have the same conditions as men to start and run a business that can grow and generate an income. Since the 1970s the definition in the Swedish gender equality policy of economic independence through income has been that women and men shall have the same opportunities to support themselves and their families through gainful work (Regeringens proposition 2005/06:155, 2006b).

The Swedish partners decided on the following criteria for choosing a company as a case: A limited company, some years in operation, showing positive results regarding profit and loss accounts, development of operations and number of employees, revenues at least some millions (SEK). All criteria can be found in The Swedish Companies Registration Office (public open access). Companies based solely on income from taxes were excluded.

The Swedish partners also decided on a definition of innovation as a starting point for developing questions that could shed light on the relationship between gender equality and economic growth. Innovation is an idea on a commodity, or service, or production, or process, that is new, or used in a new context, or in new co-operations, or is conducted in a new way, and is carried through and reaches a market and users (EUSBSR Gender Equality & Economic Growth, 2021).

In order to conduct an interview that covered four key areas the structured questionnaire was used as a main primary data collection tool. The four areas covered questions related to general information about the company and its owner, entrepreneurship, innovativeness and satisfaction, and plans. The interviewee signed the written consent to participate in the study and for the interview to be recorded. The interview with Hanna Bruce, the entrepreneur from Sweden, was conducted in Swedish and translated into English for reporting purposes.

The researchers put focus on collecting the most accurate and relevant data, which is a significant part of interview-based data collection. In order to achieve this, a number of techniques were used. As a first and basic step, a prior appointment to conduct the interview was made to ensure that the interviewee will be free from other tasks. The important part of the whole process was also a peaceful environment. Establishing a cordial relationship with the interviewee helped to create a safe and friendly atmosphere. The researchers also shared the basic information about the project with the interviewed entrepreneur. The final technique was too grand permission to ask questions during the interview.

4.4. Research Results

Hanna Bruce is 45 years old, majoring in Human Resources. She is married and has three children, a dog, and a cat. She spends a lot of time in the mountains – snowboarding, skiing, and doing excursions. Together with the family they also renovate houses. By a mutual decision, Hanna and her husband bought a textile factory Växbo Lin in 2006. The company was set up in 1990. The aim of the company is to expand further on and preserve and renew the flax tradition while contributing to the development of the countryside. What is crucial for the development, is they combine the tourism and hospitality industry together with the flax industry, and manufacturing industry. Consequently, a customer may visit not only the factory but also a factory shop (Växbo Lin, 2022). The store is a significant part of the business as it gives 50% of the companiy's turnover. Visiting the store and at the same time experiencing the factory allows one to build a net of loyal customers and to maintain positive relations.

An entrepreneurial person, according to Hanna, is not satisfied with just doing his or her own thing, but also envisages himself or herself in a broader way. Entrepreneurship focuses on pushing forward and developing the company. Hanna also relates entrepreneurship with societal commitment, where helping and developing a society really matters. She believes in taking responsibility and contributing to the creation of an enduring society. She also stresses that it is a great responsibility to have people employed.

Being the owner of a company, Hanna considers herself an entrepreneur. According to her, this is a prerequisite for being an entrepreneur – being an owner. She has also a capacity for multitasking, a high energy level, and naivety. This approach takes naivety as an advantage because seeing too many obstacles, in the beginning, enhances the probability of never getting started. If a person sets up a business, he or she faces difficulties, overcomes them, and solves them. Hanna believes she proves to be an entrepreneurial person every time she shows the factory to visitors, but especially when she has a meeting about the money i.e. with banks.

Buying a Växbo Lin factory was Hanna's dream since she was 15 years old and had a summer job there. She has been related to manufacturing since childhood. Her grandfather had a furniture factory. Further on, she worked as an HR manager at SCA, a paper mill group of companies. When the opportunity arose, she did not hesitate and bought Växbo Lin spontaneously. She listened to her instinct, she also believed that it was the appropriate time for changes – to pack, get going and move.

The biggest obstacle was financing. No bank agreed to give her a loan, everyone advised against the purchase. Without the help of a business angel and owner of Växbo Lin – Rolf Åkerlund, she would not be able to buy it. Due to the fact that he wanted her and her husband to be the owners, he decided to give them a loan. She did not see obstacles, just her dreams, having a factory of her own, vision and image of their future life – in the factory. She focused only on the good things. From this point of view it is important to stress not only the naivety but more importantly courage, taking risks, passion, having a vision, and believing in it. After the purchase, work on the

company's image and profile began (pictures, shop, website). Their aim was to reach a new target group of younger people. Hanna had not run a company before, so she needed to learn a lot of new things, including those related to the administration (orders, deliveries, packages, invoicing). For her, the most boring thing was getting into and understanding the paperwork.

When analyzing obstacles, she observes that women are often more responsible for families. As an entrepreneur, one needs to vouch for every little thing, so there might be a feeling that family security is jeopardized. To overcome such feelings a woman needs to have a very strong will. Without any certainty that the decision of buying a factory will be a success and the awareness that she will personally take economic responsibility for an economic situation, such life choices are scary, especially if one has children. She knew that this was something she had to handle herself.

According to Hanna's point of view, 99% of ordinary entrepreneurs are not part of the innovative world, if one takes into consideration innovativeness related to cutting-edge tech companies. She strongly emphasizes that the interpretation of innovation is too narrow. It considers mostly the tech industry, where actors are mostly men and most funding goes to them. Nevertheless, it cannot be said that other companies are not innovative. According to Hanna, a company can be considered as innovative when the owner is proud but never satisfied with what is achieved. She, as an innovative entrepreneur, always thinks about how they can improve the way they do things, how can they reach even more customers, and how can they get a product to become just a tiny bit smarter. It requires searching for answers to such questions as – can we cut it differently, hem up differently, can we alter materials so that the fabric can absorb liquids better, can we skip the dyed and use undyed warp instead to increase its ability to absorb.

It might be said that the innovation strategy for Växbo Lin can be formulated as a mission: "that we have a drive in the company to make the best of what we have" and it should be considered the most important part of innovation. Such a mission makes the company develop and continuously go well. The key factor for being successful in the long run is to be innovative every

day in your own world to be seen as up-to-date, hungry, and interesting. An example of innovation for Växbo Lin is the usage of the customer response to make alterations in the factory shop. All the production workers also have contact with the final customer. This is an advantage for the company and Hanna considers it rather unique to get that kind of feedback on what the customer thinks about the product. A source for innovative ideas is also weekly meetings where employees discuss what has happened during the week. On the top of the agenda is sharing the knowledge about new ideas from customers and all employees.

The barriers to innovation are financial resources, inadequate support, and lack of knowledge of formal processes required to apply for support and time. Hanna stresses that support systems seldom start from the needs identified by the entrepreneur. More often they stem from political decisions with given direction and prerequisites. An excellent example of how to overcome those is what Bollnäs municipality has done. They hired at the Business Office a person with experience in dealing with applications for business support. The purpose of such an occupation was to get to know all local enterprises, understand what they are doing and provide help i.e. during filling in an application form for Investment Support. Such a solution saves time, provides adequate support, and gives the opportunity to receive financial support. Success depends on finding an advisor with both local knowledge and knowledge about processes of applying for support, who comes to the enterprises and listens to their needs. Moreover, after purchasing the company, whenever Hanna applied for financial support, she received it. She received financial support mostly from the County Administrative Board and from the Region, but also from the Swedish Agency for Economic and Regional Growth and Ahlgren Foundation. Being a female entrepreneur and the CEO was definitely an advantage while applying for support.

Due to the fact that her company is located in the countryside, people are rather not satisfied with the infrastructure. Hanna considers it lousy. Having a driving license and a car is a necessity. Otherwise, one cannot get to the job. This regulation goes not only for employees but also for tourists

and is considered a significant obstacle to the development of the company. However, she assessed social infrastructure highly, especially in terms of childcare. It has been stressed that successful business, particularly in the rural area, needs to be built on personal contacts – collaboration, mutual help, and benevolence. She believes that people living in the countryside are experts in finding innovative cooperations with different entrepreneurs because it is a necessity.

Hanna confirms that she achieved success. After some hard starting years the turnover has increased (quadrupled), the company is showing positive results and the number of employees has increased. At the same time, she claims that she is proud and happy but not satisfied. The reason for that is the need to move forward. Her strongest driving force is having full responsibility and full authority to do what she wants. As a successful female entrepreneur, she needs a husband who takes more responsibility at home. According to her, if not for him, it would not be possible for her to spend so much time running the company. The purchase of Växbo Lin gave her and her family not only freedom but also improved their quality of life in all aspects (financial and non-financial). She describes running her business as more free, creative, and wonderful.

4.5. Conclusions

The aim of this chapter was to present a case study from Sweden concerning entrepreneurship and innovativeness according to female entrepreneurs. The additional value was to promote good practices among women that show the benefits of conducting an own business and participating in the development of the region. Such activities enhance achieving the overall objective of Swedish policy for gender equality, which is to ensure that both, women and men, can equally contribute to shaping society and their own lives. Taking into consideration the fact that in Sweden male-dominated sectors receive more extensive support than sectors dominated by women, dissemination of knowledge related to entrepreneurship and innovativeness among women becomes increasingly important.

For Hanna entrepreneurship is associated not only with conducting an own business but also with social commitment, the crucial part of which is helping and developing society. During the interview she also mentioned key entrepreneurial attitudes like capacity for multitasking, pushing forward, energy and naivety.

It is worth stressing that according to the interviewee, women need to have a very strong will to overcome all barriers, sometimes related to stereotypes, being responsible for the whole family, or unequal devising of funding and support.

Inequalities in funding often result in a too narrow understanding of the term innovativeness. Växbo Lin can also be considered an innovative company, especially taking into account constantly implemented improvements. Among different sources of innovativeness, the company strongly focuses on its customers. Their initiatives might be considered the beginning of the formalized co-creation process. One of the recommendations for the company to be more innovative would be to develop and implement the process of value, process, and product co-creation with different stakeholders.

The selection of Växbo Lin with CEO Hanna Bruce followed the criteria set up by the Swedish team. The criteria in turn were matching the gender equality goal on women and men having the same opportunities to start and run a business providing them with economic independence. Thus the total environment for entrepreneurship should, on equal terms for women and men, enable an innovative business to grow. This was also reflected in the study questionnaire.

Starting a business needs both human and financial capital to invest. The case show that financial institutions did not come to a positive conclusion in their risk analysis neither on human nor on financial prerequisites. Instead public social and financial infrastructure, private background and financial support made it possible. Public child care, parental leave, municipal targeted services and local cooperation on logistic services together with support from the previous owner being their business angel and also a grandfather having had a factory, parents with local connection enabling cheap living and loans

if needed to the CEOs strong will and smartness form the success. Policy recommendations for a policy on entrepreneurship based on the survey results should be a further step to investigate. The capital (human, structural, public and private financial) that showed developing capacity in the study should be condensed. These results should in the Swedish case be tested in the context of new industrialisation on sectors which, as shown in the case, have a potential to grow and become a factor of importance for regional and labor market development. An important step would be to investigate how new applications of innovation and innovativeness from a gender perspective could form a partnership together with other actors involved in the rapid green change where talking about a holistic perspective so far is very much only a talk but with a surge for real action.

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CHAPTER 5

ENTREPRENEURSHIP AND INNOVATIVENESS ACCORDING TO FEMALE ENTREPRENEURS – THE CASE OF ESTONIA

5.1. Introduction

In this paper, the authors discuss the real-world women's entrepreneurial experiences by reviewing one of the Estonian women entrepreneurs. As an approach, the authors began this paper with a related literature review. The second part of the paper is allocated to discuss the methodology and the third part of the paper describes the Estonian case study. Women's entrepreneurship behavior, women's entrepreneurial innovation, and how women's entrepreneurship can contribute to achieving sustainable development goals in the Estonian context can be considered as a scope of the study. The fundamental objective of the study was to understand the nature of Estonian women's entrepreneurship behavior, properties, challenges, and opportunities by applying the case study research method.

A "Women Entrepreneur" is a person who accepts a challenging role to meet her personal needs and become economically independent. As a result of that increasing numbers of women are becoming leaders of their businesses. However, many are struggling to achieve success. Nevertheless,

Women's entrepreneurship is considered an important tool in enabling women's empowerment (Maheshwari & Sodani, 2015).

The women's entrepreneurial motivation factors and their impact on entrepreneurial success. According to them, ambition, skills, knowledge, family support, market opportunities, independence, government subsidy, and satisfaction are the most essential entrepreneurial motivational factors. Furthermore, among the women's entrepreneurial motivation factors ambition, knowledge, skill, and independence are significant in entrepreneurial success (Krishnamoorthy & Balasubramani, 2014).

According to the analysis, women have been successful in breaking their walls within the limits of their homes by arriving into various kinds of professionals and services. According to the analysis, mainly skill, knowledge, and adaptability in business are the main motives for women to emerge into business (Palaniappan et al. 2012).

The study presented a detailed examination of women entrepreneurs' motivations, backgrounds, and experiences. According to their study, financial and psychological factors motivate women to become entrepreneurs. Meaning, that women desire to become wealthy by capitalizing on the business ideas they had. Moreover, the study concluded that women are much more concerned about protecting intellectual capital than their counterparts.

5.2. Women entrepreneurship in Estonia

Estonia was a socialist economy and Soviet republic. In the 1990s, Estonia adopted comprehensive structural and institutional reforms to the economy. Estonia's journey to the market economy was enhanced after became a member of the European Union in 2004 (Lumiste et al. 2008).

As an overview the women entrepreneurship data in Estonia is quite surprising, Women entrepreneurs constituted 5% of the women in the active labor force in 2012. This was significantly lower than the EU-28 average entrepreneurship rate (10%) and one of the lowest in Europe. (European Commission 2014). Since 2008 the number of women entrepreneurs in Estonia has even decreased by 3% (European Commission 2014).

Due to the lack of research activities and measurements, it is hard to conclude the specific reasons for the observed low number of women entrepreneurs in the Estonian economy (Rozeik 2014). European Commission report on encouraging female entrepreneurship in Estonia suggests that there are still relatively strong gender stereotypes supported by Estonians. This scenario results in a gender gap in the labor market (Rozeik 2014).

5.3. Research methodology

The qualitative branch was dominant in this study. More precisely case study method was applied to collect, analyze and interpret the phenomena. A structured interview technique was used to collect the primary data. Structured-interview conducted in the Estonian language. To create a better relationship between the interviewee and the interviewer interview was pre-planned. The purpose of the structured interview informed the interviewee before the interview. The discussion was recorded in electronic format. The interview was conducted in a hassle-free environment (Cohoon et al. 2010).

5.4. Estonian Case Study

Her name is Ülle Vahtra. She is 58 years old, and a zoo technician by profession. She is married and has two adult children and three grandchildren. In her free time, she takes care of her grandchildren, family, house, and garden. She is the founder of Lõnga Liisu OÜ, a handicraft company in 2000 in Lääne-Viru County, Estonia.

Ülle Vahtra believes that entrepreneurship is formulating and running a company. At the same time, entrepreneurship should include taking responsibility, making decisions, trial and error, and fulfilling personal wants. She specifically pointed out that an entrepreneurial person can also be a non-entrepreneur. However, they have the same qualities.

When focusing on Ülle Vahtra, She has been doing many things from a young age. She has always thought ahead, that I have to do something all the time, and I think about what I'm going to do next, and that is my goal. Not

only that how to achieve it? Based on that principles she is in the process of developing her company continuously. In this case, she is focusing on internal organizational communication, and overall business management. According to her management philosophy, people are different. Thus, we should be positive and tolerant of others.

The opening of Lõnga Liisu OÜ came as a natural thought because Ülle Vahtra would like to look for new challenges. Lõnga Liisu OÜ commenced as a handicraft business because Ülle Vahtra does handicrafts all the time besides her main job. At the very beginning of Lõnga Liisu OÜ's lifecycle, Ülle Vahtra and her business partner worked for another entrepreneur in Tallinn. Then the breakthrough. One day they thought why work for another person? Can't, we try it by ourselves? Even though they did not predict how complicated these things are? However, they realized that it was not difficult at all. In the beginning, they were sole proprietors, they affiliated at home and finally, they couldn't fit the piles of sweaters that they went to sell. They were very interested. Everything was exciting and the offer for current premises was founded in 2000. They formed the company in 2004. They got the legal company name Lõnga Liisu in 2004. Until 2017, the business was a partnership. Since 2017 Ülle Vahtra is managing the firm alone. Currently, Lõnga Liisu OÜ has 5 employees at work.

When discussing the new business startup process in Estonia, According to Ülle Vahtra's own experience, the establishment process of Lõnga Liisu OÜ was not a hard job. However, her experience was opposite to others' general opinions. She specifically mentions that starting up a new business in Estonia is not a difficult process because many supporters would like to provide help to establish a new business in Estonia. Lõnga Liisu OÜ was able to utilize the unemployment fund benefits offered by Enterprise Estonia. At the same time, Lõnga Liisu OÜ used benefits offered by The Agricultural Registers and Information Board (ARIB).

According to Ülle Vahtra's business philosophy, quality is the most significant factor for any business. It doesn't mean that the product should not be attractive to the end customer. Due to the sustainability concern, Lõnga Liisu

OÜ has prohibited to use of plastic bags. Lõnga Liisu OÜ's business model is based on the Marketing approach combined with the e-commerce practices. However, more than anything Lõnga Liisu OÜ's employees are a significant asset to its success story.

Ülle Vahtra pointed out that the biggest obstacle to startup a new business is financial resources. She has not been a man was also challenging. However, she does not perceive any gender barriers.

Lõnga Liisu OÜ's innovation primarily focused on improving the total productivity of the manufacturing process. The machinery was upgraded to improve the ergonomics and user-friendliness. Lõnga Liisu OÜ steps onto the cyber marketplace with the concept of e-shop. Continous web development with a customer-centric approach, and launching marketing campaigns via social media elements can be identified as Lõnga Liisu OÜ's grand innovation strategy.

Ülle Vahtra mentions that financial resources are the main obstacle to continuous innovation. Especially, when it comes to Information and communication technology matters, a lack of ICT skills also can be identified as a barrier. The time factor is also a barrier because Ülle Vahtra realizes that ICT innovations consume more time.

Ülle Vahtra highlights that her business is a small entity in terms of its capacity. However, she is proud of herself because she could contribute to the Estonian economy even if the business output is microscopic. Estonia is a small country. Thus, the role of small businesses is highly significant. She is a taxpayer, she can create jobs via her business. Thus, she feels she is contributing to the economy.

According to Ülle Vahtra's exposure, In Estonia Business supportive physical infrastructures are ideal, and the accessibility is also very high. When it comes to Social infrastructure, family, and working life, family members' support is important. She is thinking of the team Lõnga Liisu OÜ itself as a family.

Ülle Vahtra's opinion is that her business is a successful one. Because of her business strategies, even in Covid-19 conditions, her company is still alive. She has never taken too many risks that she cannot manage on her

own. Meaning as entrepreneurs, we should be more rational. She is always selected what is necessary and avoids what is not necessary. According to her, this principle leads her to move forward as a businesswoman.

Ülle Vahtra is a satisfied, self-sufficient, entrepreneurial woman. She would love to continue her business, and she would look happy beyond the monetary factor. According to her doing business as a woman in Estonia is not a challenge. However, she pointed out communication and networking as key elements to achieving women's business success.

5.5. Discussion and Conclusions

When summarizing the characteristics of women Entrepreneurs such as accepting a challenging role and expecting to become economically independent is demonstrated throughout the Ülle Vahtra case. Women entrepreneurs' motivational factors such as ambition, skills, knowledge, adaptability, family support, market opportunities, independence, government subsidy, and satisfaction are also demonstrated throughout the Ülle Vahtra case. According to the case study, In the Estonian context, the government support for women entrepreneurs is significantly high. meaning, that women who would prefer to step into the business world in Estonia have a powerful helping hand from the government side. This evidence indicates that the Estonian policy framework toward the women's business is progressive. However, according to the case study, the success of the business is depending on competitiveness in the market and effective business management practices.

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CHAPTER 6

ENTREPRENEURSHIP AND INNOVATIVENESS ACCORDING TO FEMALE ENTREPRENEURS – THE CASE OF POLAND AND COMPARATIVE ANALYSIS

6.1. Introduction

This chapter contains two parts, which are description of a polish case study and cross-country analysis. Similarly to the other cases (chapter 4 and chapter 5), the interview was chosen as a research tool. It is one of the most effective instruments in obtaining information and it provides a researcher with the freedom of conducting an interview and finding the information that is significant from the point of view of the research objective. Additional aim of this chapter is to provide the comparative analysis of the three countries Estonia, Sweden and Poland on female entrepreneurship and innovativeness.

In Poland women enjoy full and equal access to starting their own business. Furthermore, the society demonstrates a positive attitude to women's professional activity. According to research, 0.79 m of women conduct their own business activity, which constitutes 51% of all business people. Women seat on 48% of the management boards of various companies. More than 34% of company presidents in 2020 were female (Report, 2020).

The above-cited data demonstrate that although women do run their own businesses, inequality of females holding management positions still persists. Therefore, it is important to study and analyse women's business activity, and in particular any barriers and limitations causing unequal access to positions and functions. In the conducted study the focus was placed on learning the opinions of professionally active women in three countries: Poland, Sweden

and Estonia. The participants of the study are company owners who run and develop their businesses. The subject matter of the study concerned entrepreneurship and innovativeness. The objective of the study involved determining how women perceive entrepreneurship and innovativeness as well as what chances do female entrepreneurs have in accessing innovations.

This chapter contains the results of a qualitative study conducted in Poland with a representative of the female business scene. In Poland the businesswoman interviewed was Katarzyna, a 48-year-old marketing agency owner. Katarzyna's company has been operating on the market for 20 years, offering customers advertising services and services involving the development of plans and promotional campaign strategies. The agency creates, inter alia, leaflets, catalogues, web sites, online promotional activities.

Privately, she is a mother bringing up her 14-year-old son on her own. She comes from an entrepreneurial family. Which is why, she has always known that she would run her own company. However, it was her employer who forced her to make the final decision when he made their further cooperation conditional upon her starting her own business activity. Katarzyna perceives this event as a positive impulse that has only accelerated her decision regarding opening up her own company. She believes in the motto "one needs to take matters into one's own hands" and organize on one's own. She is a person who is not afraid of challenges. She treats any problems and downfalls as an important lesson, she does not give up, and often such problems and downfalls give her an impetus for further action.

Yet, before she started operating in her own sector, for a short time she was working as a sales representative for a cosmetics company. This experience enabled her to support herself, but also to gain contacts – customers for the marketing services of her company. Within one year she managed to achieve the goal she set for herself – she won companies willing to cooperate and orders for her advertising services. What is important about the respondent is the fact that she considers her work as her hobby, while having other interests as well.

6.2. Entrepreneurship and Innovativeness in Poland

Entrepreneurship can be discussed in various aspects. It may involve a profit-bearing activity (Pauceanu et al., 2018). Additionally, entrepreneurship can be an individual's character trait, which signifies a resourceful person, but which does not necessarily need to mean owning one's own business (Meek and Williams, 2017). Entrepreneurship may also be applied as a term signifying professional activity that entails running one's own business activity. The multiple meanings of the word 'entrepreneurship' have had an impact on the responses received, since the respondents defined the meaning of entrepreneurship themselves.

In the literature of the subject for several decades now there has also existed a concept of intrapreneurship, also called corporate entrepreneurship. Such activity refers to undertaking entrepreneurial activity on one's own but for the benefit of an employer (Antoncic and Antoncic, 2011). It is an entrepreneurial initiative of employees developing the areas of a company's operation (Gawke et al., 2019, pp. 806–817).

The Global Entrepreneurship Monitor report (Kosińska, et al., 2021). demonstrates that the motivation to start up a company is linked to two factors: first of all – the degree of a country's economic development and to a lesser degree – the gender. Both men and women are motivated to improved their financial situation. In the report an increasing difference in the number of companies established by women and men is stressed. To women's disadvantage. It refers both to mature and young companies, Polish women assess their entrepreneurial skills lower than men and they experience a greater fear of failure. For Polish women having their own business is perceived as an opportunity, but in the face of the pandemic their participation in the population of adults conducting business activity has decreased. According to Forbes, Polish women fear opening their own business, since they are afraid that they do not have the right idea, finances or that they will fail (Forbes, 2021). According to a report of the foundation of the Lipstick Written Success for 2021, 2/3 of service-providing companies is owned by women and they are companies

employing up to 9 people (Kozierowska, 2021). More than half of Polish women that do not operate their own business would like to do so. Merely 9% of women indicate that they do not lack courage to undertake new challenges. Research demonstrates that Polish women have interesting ideas for their own business activity, but they are blocked by their internal fears as to whether they are good enough (more than 25% of the study respondents). Financial limitations constitute an obstacle to approximately 20% of the women surveyed. Another significant feature is the sense of insecurity reported by 16.5%, and fear of bureaucracy, which poses a block to 9% of the female respondents.

Innovativeness can be divided into two categories: process-related innovations and product-related innovations. Innovations may also have various scope, i.e., they are introduced in a given company or they are market-scale innovations. According to PARP (the Polish Agency for Enterprise Development), Polish companies implement business processes innovations more frequently (24.5%) than product-related innovations (13.1%). According to the research, every third company in Poland is an innovative one, and increasingly more companies notice the benefits of implementing innovations. The last two years further confirmed that trend, since the companies open to innovation have handled the challenges of the Covid-19 pandemic better. However, finances still pose a barrier to implementing innovations and it is large enterprises that most frequently introduce innovations (57%) (Nieć, et al., 2021).

According to “Forbes” 2018, Polish women were on the list of the founders of the most promising start-ups operating in the technological sector (Zdunowska, 2019). According to a report entitled “Women write the future”, only 40% of women holding higher positions in companies have ever been implementing innovative projects, while 32% indicate that they have not dealt with innovation in their work (Zdunowska, 2019).

Among the nominated Ambassadors of Polish Innovations of 2021, three out of ten nominees were innovative women (Fundacja Plugin, 2021).

The limitations to women implementing innovativeness in a company most typically involve their lack of knowledge about trainings. It arises from the lack of interest demonstrated by female entrepreneurs.

Additionally, they point to the state policy, which does not encourage female entrepreneurship. In the study women talked of social stereotypes, for instance the ones concerning the role of women and the resultant internal and external obligation of caring over home hearth.

6.3. Methods and Research Results

The research was conducted in three countries (Estonia, Poland and Sweden) in the second half of 2021. The research was of qualitative nature, and the interview was used as a research tool. The interview scenario was composed of four parts: general information about the respondent (introduction), followed by entrepreneurship in the respondent's assessment and perception as well as with what tools and how is innovativeness realized in a company. The last part of the study entailed assessing the respondents' satisfaction as well as their future plans. However, this study focused on analysing research results concerning entrepreneurship and innovativeness. Since the study is of qualitative nature, the results obtained cannot be recognized as representative, but only as the respondent's personal opinion. In Poland the businesswoman interviewed was Katarzyna, a 48-year-old marketing agency owner.

For Katarzyna being an entrepreneurial individual means running her own company and taking responsibility for herself and potential employees. Then she recognized that an employee who has the initiative, proposes his or her own goals and seeks solutions to existing problems should also be considered as being entrepreneurial person. According to Katarzyna, the traits of an entrepreneurial individual involve "courage, ability to make independent decisions, striving to reach a goal", but also "indomitability, not giving up, willingness to learn, seeking new solutions, resourcefulness".

Katarzyna deemed herself to be an entrepreneurial person. However, evaluating her own entrepreneurial attitude, Katarzyna pointed out that she needs to work on "time management". She would like to combine all those traits and be able to finish work on time. The incentive for starting her own business was to be "her own boss" and to decide about her time schedule and work organization on her own, to be independent. According to Katarzyna,

the process of starting up a company is not complicated, it only has a rather formalized form, since the business activity must be registered with the Social Security Company, the Chief Statistical Office and the City Hall.

The innovativeness of E-sense company is its basis, since the firm has been operating online for 15 years. Other innovations include product-related solutions which must be applied, owing to keen competition and the need for quick order fulfilment. The advertising sector features a high participation of innovative tools, which change from day to day. They appear as an update or a completely new tools, e.g., Facebook, LinkedIn. In turn, when considering the organization of an innovative company, Katarzyna has been operating on the outsourcing principle from the start.

Development of services and search for new solutions are of great importance in this sector. Katarzyna draws her inspiration from conversations with clients, whom she listens to attentively, but she also reads about novel solutions and observes the market. She finds ideas for company growth in conversations with her clients, but she draws the energy and ideas for business expansion from people surrounding her. In expanding her company, she created together with a business partner an internet store offering ladders, scaffolding and lifts.

Katarzyna believes that such forms of support offered by the state as e.g., exemption from Social Security Company contributions may facilitate innovation growth. In her opinion, complicated and complex law poses a limitation to running one's own company. But to her, as a woman – a single mother – it is the lack of support from the state, the city that constituted the greatest barrier in running and expanding her business. When her child was little, a place at a state-run nursery was not available. Her son had to attend a private kindergarten, which entailed higher costs. Lack of free educational infrastructure for the development of child's abilities and for work with demanding children was an obstacle, too. Katarzyna believes that pregnancy and care over her small baby constituted a strong limitation to her professional activity. For her it was a time of "lost" opportunities and possibilities.

6.4. Cross country analysis

In this part the opinions of three women were presented, representing various sectors, nations and age groups.

The examined businesswomen come from Estonia, Poland and Sweden. The respondents have been operating in their respective sectors for a dozen years or so, which allows for the assumption that that they have long-term experience in running their own business activity (Table 6.1)

Table 6.1 Characteristics of the examined respondents

Estonia	**Poland**	**Sweden**
Lõnga Liisu OÜ	E-sense	Växbo Lin
Handicraft company since 2000	Marketing agency since 2001	Textile factory since 2006
Hobby became source of income	To combine work with passion	The full responsibility and full authority to do what she wants

Source: own elaboration on the grounds of own research

Table 6.2 contains the most important traits of an entrepreneurial individual, in the respondents' view. One may notice that each of the examined women listed that independent decision-making and risk-taking as a material trait of an entrepreneurial individual.

Table 6.2 Traits of an entrepreneurial individual in the opinion of the examined group

Estonia	Poland	Sweden
Make decisions	Courage	Capacity for multitasking
Responsibility	Willingness to learn	Taking risk
Seeking high quality	Commitment and adaptability	Passion / energy
Personal wants fulfilment	Striving to reach a goal	Having a vision

Source: own elaboration on the grounds of own research

The above table contains the steps that the respondents took in order to establish their business activity. Despite the fact that each of the women interviewed undertook seemingly different activities, what becomes evident is their independence and their search for an answer to the question: “how can I operate effectively?” None of the women interviewed took advantage of any aid programmes or financial support.

Table 6.3 First steps in starting up a business

Estonia	Poland	Sweden
Established Partnership	Employer forced her to self-employment	The company was bought
They got the legal company name	Purchase a Book	To change the image (pictures / website)
Produce and sell handicrafts (quality)	Advices of her entrepreneurial parents	To reach new target group
Accounting + Marketing	Created cards and leaflets, and logo	To get into and understand paperwork

Source: own elaboration on the grounds of own research

In the conversation with the Polish businesswoman, it was determined that in the years when she was starting her own business there was no support available to those opening a company, and even less so for women (see Table 6.3).

In table number 6.4 the results of research concerning the obstacles encountered by businesswomen were presented.

Table 6.4 Entrepreneur obstacles

Estonia	**Poland**	**Sweden**
Money	Single mother	Financial resources (loan from previous owner)
No obstacle for women	‚Lost' opportunities and possibilities	Inadequate support
Partner's attitude	Low income in the first months	Family responsibilities
Covid	Plans vs. changes	Important – not to see obstacles (naivety)

Source: own elaboration on the grounds of own research

Apart from financial problems related to the creation of one's own business, there are also problems arising from lack of any institutional support offered to women in order to enable them to balance family life with professional life (see Table 6.4).

Table 6.5 Understanding of innovativeness

Estonia	Poland	Sweden
Sustainability = innovativeness	First solution then profit	To be proud but never satisfied with achievements
Improvement of total productivity	Outsourcing	To make the best of what you have
E-commerce / e-shop	Product-related solutions	Continuous development and improvement
Customer-centric approach	Co-creation with clients and partners	Co-creation with employees and clients

Source: own elaboration on the grounds of own research

Barriers to implementing innovation experienced by the women interviewed are similar in all cases. Both the respondents from Sweden and from Estonia mentioned financial barriers. The Polish businesswoman pointed out to bureaucracy and excessively complicated legal aspects (see Table 6.6)

Table 6.6 Barriers to innovativeness

Estonia	Poland	Sweden
Financial resources and time	Bureaucracy	Traditional view toward definition of innovativeness
Lack of ICT skills	Lack of awareness	Financial support goes mainly to cutting-edge tech industry
Time management during the technological developments	Past: No support possibilities – Currently: lack of time	‚We have to stick to what we got money for'
Maintaining website	Complicated and complex law	Time and location

Source: own elaboration on the grounds of own research

Innovation implementation is perceived in different ways by the respondents. However, one may observe that external support would be important, be it in financial form, or as a partnership, or as participation in a dedicated programme.

Table 6.7 Innovativeness – conditions

Estonia	Poland	Sweden
Financial support	Faster response	Finding innovative co-operations
Customer satisfaction	Usage of ready-made template solutions	Adequate support from municipality
Process, manufacturing productivity and ergonomics	New programs and applications	Starting with the needs and to think new
Social media marketing	Follow the trends	It is easier for women to get financial support

Source: own elaboration on the grounds of own research

It needs to be emphasised that each of the women in the study is independent and prepared to take actions that will contribute to the innovativeness of her company (see Table 6.7).

6.4. Conclusions

The changing environment and the fact of women becoming increasingly more active professionally start to change the structure of the Polish business. More and more women decide to run their own company. Both the qualitative research as well as the quoted statistical data demonstrate that two areas require improvement. The first one concerns educating women on the available programmes supporting the process of starting up a business and modernising a company. Such education ought to include trainings, webinars, seminars that may be offered either online or in a traditional stationary

format. It will enable women to gain knowledge on the opportunities of starting their own business. In the case analysed what becomes evident is the need for an exchange of experience and openness to other people's knowledge. Creating a network of contacts and exchanging knowledge as well as sharing experiences may occur to be the major component eliminating women's fear of starting up their own business.

The second area entails providing information about the programmes offering financial support to women who start in business, but also the ones who wish to make process- or product-related changes and implement innovations. From the conducted interview it occurs that a woman with a family also finds the social and welfare structure to be significant, e.g., nurseries, kindergartens and other organizations that help women secure the well-being of their family. The Polish female entrepreneur stressed that such institutions are lacking in Poland.

The comparison of all three women enables noticing multiple similarities, both in the fields of entrepreneurship as well as innovativeness. In the conducted interviews each of the women claimed they would wish to maintain a balance between being an entrepreneur and the role they fulfil in their family. They further emphasised that innovativeness constitutes a major component of their company's development.

SUMMARY

Women's contribution to economic development is still under debate and discussion among economists and policy-makers. However, all those debates and discussions related to women's contribution to economic development are based on different ideologies. Simply, based on the normative approach than the positive approach. However, the reality is that women's entrepreneurship can identify as a positive push toward the journey of sustainable economic development. If an economic entity utilizes its available resources for the production processes, then there is no opportunity cost. Therefore women's contribution toward economic development can illustrate as the utilization of available human resources for the production process.

How women's entrepreneurship can contribute to achieving sustainable economic development? Women's entrepreneurship contributes to reducing unemployment, value addition to the national resource base, and contributing to the gross domestic product. Moreover, women's businesses identify unlimited market opportunities, create new solutions, and utilize technological innovations while competing with their rivals.

However, because of the existing social norms, traditions, and stereotypes, women's entrepreneurship is much more challenging than men's entrepreneurship. Thus, it's a international priority to formulate better access for women's entrepreneurship through the policy process, education, and social dialog.

Editors

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WINNET
CENTRE OF EXCELLENCE®

Winnet Centre of Excellence® (WCE®) is a platform created for the purpose of doing and promoting teaching, policy making and research on Gender, Innovation and Sustainable Development. WCE® operates through the international network of researchers from universities in Lithuania, Poland, Sweden, Finland, Estonia, Latvia, Sri Lanka, China, Georgia and Armenia. This initiative is possible thanks to the cooperation with the WINNET Sweden. Our activities were financed by the Swedish Institute under the project TP Winnet BSR (Thematic Partnership Winnet Baltic Sea Region, Winnet BSR, Swedish Institute: 2013–2016). WCE® has been established in November 2014 at the Faculty of Economics and Management, University of Szczecin by a decision of partners of the Thematic Partnership Winnet BSR. WCE® Coordinators are: dr Marta Hozer-Kocmiel and dr Sandra Misiak-Kwit, University of Szczecin.

The concept of the WCE® draws on a Winnet Model which combines theory and practice and is based on cooperation between public administration, policy and decision makers, business, non-governmental organizations and academia in order to improve social and economic situation of women at all levels (Quadruple Helix principle). So far, the Winnet model was implemented through Winnet Women's Resource Centers (WRCs), a non profit womens movement and institution created in Sweden in the nineties. The WRCs have contributed to increase women`s participation on a broad and not segretated labor market, female entrepreneurship and innovation, incuding in ICT sector, in crossborder co-operation and in rural development. Establishing the WCE® has strengthen Winnet organisations at local, regional, national and European levels providing support through policy oriented research and recommendations.

Joint projects implemented by members of the Winnet Center of Excellence®:

- EquaStream project (2022–2023), financed by Swedish Institute, 10381/2021. The overall goal of the project is to strive for excellence in research through gender-equal and inclusive collaborations and strategic partnerships and thus increase funding opportunities in academia.
- European Baltic Sea Region Forum for Gender Equality and Growth, 3.0 (2020–2022), financed by Swedish Institute, 01284/2020. The goal of this project is to investigate and improve gender equality between women and men in economic models and methods used for Innovation in entrepreneurship for growth.
- Doing Gender for Sustainable Change in startups and innovation – boosting change!, IGG project, Innovation and Gender for Growth! (2017–2018), financed by Swedish Institute, SI 10241/2017. Overall objective is: Closing the Gender Gap within new business and to boost and initiating a feministic foreign politics through activities within the area of Economic Empowerment in Business/Innovation and Development for Sustainable Growth.
- Winnet Eastern Partnership (2016–2017), Swedish Institute Baltic Sea Cooperation. The main objective is the implementation of the Winnet Model in the EAP countries.
- Thematic Partnership Winnet Baltic Sea Region, Winnet BSR, Swedish Institute (2013–2016) – One of the aim is to create the BSR Partnership Platform for Gender, Innovation and Sustainable Development.
- Going abroad, South Baltic Programme (2011–2012) – Project aimed to strengthen the position of female entrepreneurs with micro-businesses.
- FEM – Female Entrepreneurs Meetings in the Baltic Sea Region, Baltic Sea Region Interreg III B (August 2004–July 2007) – The aim of FEM was to strengthen the structures that support women's entrepreneurship through co-operation and the exchange of knowledge and best practices.
- W.IN.NET Europe, Interreg IIIC (2006–2008) – The aim was to create WINNET Europe – the European Association of Women Resource Centres.

- Women In Net 8, WINNET8, Interreg IVC (2010–2011) – The objective was to contribute to regional growth by improving women's participation in the labour market, focusing on: the lack of women in innovation and technology, the lack of women in entrepreneurship.

More information about us and our activities can be found on the web-site: http://wce.usz.edu.pl/

If you would like to be a member or an associated partner of WCE® or have any question concerning our activities, please contact us. You can reach us under the addresses given below.

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