

Importance of women and women entrepreneurs education for new technologies: an analysis of policy documents

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Abstract

A great number of texts and papers on women entrepreneurship, women education and entrepreneurial learning as well as various policy documents could be found on the internet. However, majority of public papers deals with information on gap in women entrepreneurship statistics. As an expert and practitioner in the field of information systems development (IS/IT), women entrepreneurship and SME financing author could allege that further efforts should be invested as well to progress in gender statistics in terms of economic valuation and impact of women entrepreneurship on social welfare, added value in the economies, structured business indicators or other gender economic analysis. As far as certain sub statistics on women in creative industries, innovations or business activities based on ICT and new technologies are in question, it could be stated that information are at early stage of development. In this paper very simple approach is used through analysis of policy documents to show importance of women and business women education for new technologies. Elected policy documents are (1) the Strategy of Women Entrepreneurship Development in the Republic of Croatia for the period of 2014-2020 (hereinafter: the Strategy) and (2) EU report "Women Active in the ICT Sector" (hereinafter: the EU Report). Intension of this paper is to accentuate importance of technical knowledge for which evidenced gap in education and skills of women is identified. A systemic overview referring to education in the content of the Strategy is used. Author through elected topics wants to accentuate importance of systemic approach toward entrepreneurial education of women, especially in the field of technical sciences and fields for which there is market demand pending for business success, competitiveness and starting their own innovative businesses. Paper also emphasise a few evidence on women entrepreneurship in Croatia, judgement and opinions of women entrepreneurs participated in focus groups in the period of development of the Strategy 2014-2020 and general information on the Strategy objectives. Abovementioned EU Report is presented by comparative presentation of priorities for action and policy recommendation for member states taking into consideration that Report stated "women participation in the ICT sector is essential for Europe's long-term growth and economic sustainability". Therefore in conclusion is cited paper in which authors (one is lecturer of Management, Organizational Behaviour and Personal Management in HAN University Arnhem, Netherlands) observes the perspective of education related to differences between male and female entrepreneurs in characteristics and competences.

1. Introduction

The Strategy of Women Entrepreneurship Development in the Republic of Croatia for the period of 2014-2020 is a continuation of the same Strategy adopted for the period of 2010-2013. The Republic of Croatia is one of the rare countries that have a Strategy of Women Entrepreneurship Development, and the obligation of applying the gender equality principle is not a novelty;

however, the new EU planning period of 2014-2020 requires an adjustment of the existing document. From the analysis of status assessment of women's economic and entrepreneurial activity in the Republic of Croatia, obstacles can be consolidated in three groups: *structural, economic and "soft"* ones. Among other, structural obstacles are educational choices of women which reduce the possibility for women to start business ventures in technology intensive activities along with stereotypes against women in science and technology. In the scope of "Soft" obstacles are lack of advice, mentorship and lack of training and educational programs and schooling for technology intensive ventures. *Availability of advice, mentorship and training for starting business ventures is still unevenly distributed region-wise, but also insufficient in the field of technology intensive ventures* (Official Gazette 77/2014, page 18-19).

During the first trimester of 2014, an analysis of the implemented Strategy was conducted based on the Report on Implementation of the Strategy of Women Entrepreneurship Development in the Republic of Croatia from 2010-2013. The mentioned Report encompasses an analysis of 62 received reports from the competent authorities and stakeholders of the Strategy - ministries, agencies, institutions, chamber system, associations of women entrepreneurs and employers, organizations and civil sector. Results show that not enough was done in setting up the consultants and mentors for women entrepreneurship. The predominant form of conducting education for entrepreneurship and crafts is within the incentive programs of the responsible ministry for entrepreneurship. At the time of implementing the Strategy 2010-2013, the linking of the official registers in order to include data that would serve in preparing the structural analyses using certain methodology, had not taken place. Therefore, it is not possible to give an analysis of women entrepreneurship dynamics; a reliable analysis of their spatial distribution; business activities on foreign markets; investments in research and development; innovations, and financing of women entrepreneurs. Such limitations when it comes to reliable, available data suggest defining key problems through a limited number of analytical areas, sample-based analyses, and qualitative assessments of status, which are obtained based on opinion polls of the women entrepreneurs and their associations, through public-private dialogue, and focus groups (Official Gazette 77/2014, page 18-19).

2. Some evidence on women entrepreneurship and education in Croatia

Inclusion of the Republic of Croatia in the international GEM Project since 2002 enables the longitudinal monitoring of changes in women's entrepreneurial activity, but also international comparison, using a standardized research approach. The TEA indicator determined the existence of a significantly bigger gap in entrepreneurial activity between men and women in the Republic of Croatia compared to GEM countries. To illustrate, in the Republic of Croatia, in 2013, there were 2.24 times more men active in entrepreneurship than women, while in the EU, 1.86 more men were active in entrepreneurship than women (excluding Austria, Bulgaria, Cyprus, Denmark and Malta), (Official Gazette 77/2014, page 20).

In the structure of employed persons, with regard to gender, there are great differences depending on the industry. There are "male" industries (e.g. construction, mining, water supply and wastewater management, where the share of women is from 12.3%, 15.2% to 19.4%), and "female" industries (e.g. healthcare and social welfare - 79.1%, and education - 76.8% share of wom-

en in total employed persons). These differences are largely connected with the patterns in educational choices of male and female children as well, and significantly based on stereotypes regarding what "female" and "male" jobs are. Educational choices influence the formation of workforce structure, and it is important to identify them in order to reduce differences at later stages in life, with regard to possibility to access certain professions (Official Gazette 77/2014, page 21).

The share of female population among graduate pupils/students rises from elementary education to higher education: of 48.7% of female graduate pupils of elementary education, over 50.1% enters the structure of graduate students of secondary education, to 58.5% of women among graduate students of higher education, 56.9% with a Master's Degree, and 56.8% with PhD. At a tertiary educational level and above, differences between certain disciplines and scientific fields are great (Official Gazette 77/2014, page 21):

- *At a higher education level from 15.5% of female population among graduate students of computer science and 16.1% of engineering, to 67.9% of business and administration, 94.4% in the educator/teacher profession, and 94.8% in social welfare services,*
- *At a Master's Degree level from 23.3% of female population among Master's Degree holders in the field of technical sciences, to 63.1% in the field of social sciences, to 73.2% in biomedicine and healthcare, and 84.2% in natural sciences,*
- *At a PhD level from 23.1% of female population among holders of PhD in the field of technical sciences, across 50.8% in the field of social sciences, to 60.4% in biomedicine and healthcare, and 71.9% in natural sciences.*

The latest data on representation of women and men at executive and managerial positions in business entities in the Republic of Croatia is available on published results of the Progress Project of Gender Equality Ombudsman, "Removing the Glass Maze - Equality of Opportunities to Access Positions of Economic Decision-Making in Croatia" in 2014. Quantitative research was conducted electronically - of the top 500 companies per revenue (rankings for 2012, FINA), 168 companies responded (33.60%). Fields of significant overrepresentation of women (>60%) are Finance (64.41%) and Quality control (65.79%). Field with gender balanced representation is Procurement (52.31% F; 47.69%M). Research results match the predominant indicators on the position of women and men on the Croatian labour market. Underrepresentation of women at a management level matches their underrepresentation in number of labour market participants (male or female). Women enter management functions at a later point in life, and leave the same earlier, which matches the later entry of women into the labour market and earlier leave of the same. This happens despite the fact that the share of women with higher education on the labour market is greater than the share of men, and that the share of women with higher education in companies that participated in research is greater than the share of men. The situation is opposite in management bodies and division of jobs at the executive level according to traditional gender roles matches the horizontal segregation of activity fields on the labour market (Official Gazette 77/2014, page 23).

The decline in presence of women in the hierarchy pyramid is present also outside the business sector, and only additionally supports conclusions on the existence of structural obstacles (stereotypes and women being burdened by the profession of organizing family life). The data in continuation relates to 2011(Official Gazette 77/2014, page 23):

At the university:

- among assistants, 55.2% of women
- among full professors, 28% of women

In the judiciary:

- Municipal court judges, 70.4% women
- Misdemeanour court judges, 72.0% women
- County court judges, 58.0% women
- Commercial court judges, 68.0% women
- Supreme court judges, 48.0% women
- Constitutional court judges, 38.5% women

At the State's Attorney's Office:

- municipal attorneys, 69.2% women
- county attorneys, 55.8% women
- state's attorneys, 47.8% women

The example of educational field illustrates well the stereotypes on what "female" fields are, because within ONE field and ONE profession, there are differences in share of women in total employed educators:

- In elementary education 84.8% women
- In secondary education 65.9% women
- In higher education 47.3% women

3. Women entrepreneurs' judgement and opinions

In the Strategy is stated that scientific Study prepared by SMEs & Entrepreneurship Policy Centre (CEPOR) was used for Strategy preparation (Official Gazette 77/2014, page 18). In order to additionally analyse the status of women entrepreneurship, CEPOR organized focus groups in Zagreb and Osijek, where a total of 32 women entrepreneurs answered to prepared survey questionnaire, with targeted questions on obstacles and solutions for equalizing women and men in entrepreneurial activities. Focus group answers show that most frequent problems and obstacles in the area of insufficient social support lays in education of members of the family and marital partners/ men, and traditionally/patriarchy-oriented women. However, women entrepreneurs commented that education related to development of women entrepreneurship and self-employment is too low or insufficient and that *there is a lack of training and educational programs, especially in the field of technical sciences and fields for which there is market demand*. Also, their opinion is that entrepreneurship courses should be introduced in elementary schools, which can positively change attitudes and opinions on entrepreneurs in wider society. Conclusion was to urge actions and implementation of continuous education of women through various workshops, especially in smaller environments. They emphasise that entrepreneurship courses in elementary and high schools should be introduced with additional, practical knowledge and best practice examples. To conclude – *women entrepreneurs adduces radical education system reform* (Official Gazette 77/2014, page 26).

The results of focus groups confirm opinions from the conducted promotional activities and public-private dialogue in the previous period (which took place through Inter-Ministerial coordination and its accompanying expert body, consisting of representatives of the chamber system, employers, women's associations, organizations and civil sector), i.e. that the open issues of women entrepreneurship can be resolved through public policy, interests and needs of women, and institutional infrastructure. In the Strategy 2010-2013, priorities and measures were determined in such a manner. With regards to assessing obstacles, the biggest number of points was

assigned to obstacles related to lack of support in terms of balancing professional and family life, *lack of role models – especially in technology intensive activities, followed by equally assessed obstacles in education and training*, traditional views on the role of women, and obstacles in accessing financial resources (Official Gazette 77/2014, page 26).

4. Education for entrepreneurship incentives

In the Report on implementation of the Strategy for the period 2010-2013 (available on the web site of Croatian Government www.vlada.hr, page 34), measures for entrepreneurial learning are explained in the framework of the national SME incentives programmes. They were implemented on the counties level in collaboration with entrepreneurial centres, incubators, educational and other training institutions. On the basis of monitoring measures were improved throughout years of implementation in quality and targeted topics, comprising single application plan of education and training, defined contents, methodology and standards. Activities corresponded to actual national and EU SME documents. In the stated Report Agreement between responsible ministry for entrepreneurship and Croatian Chamber of Economy on Training needs analysis (TNA) for SMEs is mentioned for the period 2008-2011. It is emphasized that turning point was 2010 when, with the aim of better transparency stipulation on the competent education realizers was introduced and formal list of them created. In 2010 Croatia adopted national Strategy of Entrepreneurial Learning 2010-2014. The following table on educational activities and trainings is published:

Table 1. Incentives for entrepreneurial learning by number and amount, number of seminars and attendees 2002-2012

Period	Number of incentives	Amount in HRK	Number of seminars	Number of attendees
2002-2003	141	3,458.700.00	336	5.040
2004-2007	249	18,465.359.00	1554	22.626
2008-2010	413	15,037.450.00	706	10.585
Year average = 3.528 attendees				
2011-2012	57	3,749.300.00	Number of programmes 265	2.800
			Number of hours 4096	3.200
Total	860	40,710.879.00	2861	44.251

Source: Report on implementation of the Strategy of Women Entrepreneurship Development 2010-2013, page 34, <https://vlada.gov.hr/UserDocsImages//Sjednice/2014/170%20sjednica%20Vlade//170%20-%208c.pdf>

The Report stated that in activities of education, in relation to monitored years, high share of women was evidenced (aprox. 70%) in entrepreneurial supporting institutions. Estimations are that in the educational programs participated more than 60% women.

5. Croatian Strategy of Women Entrepreneurship Development 2014-2020

The Strategy has a long-term orientation towards continuous implementation of activities that will have an impact on changes in value system, behaviour and environment: factors which the strengthening of women's entrepreneurial activity depends on. The Strategy also has a medium-term orientation - by 2020 - to increase the number of women starting a business venture, and number of women - owners of growing business ventures - in order to achieve the level of women's entrepreneurial activity at the level that is achieved on average in the EU, measured by the TEA indicator, for male and female. The target value of this Strategy is in reducing the gap to the value of the TEA indicator in the EU, which is 1.86 (Official Gazette 77/2014, page 20).

The Strategy is conducted through the Action Plan, which is in the Annex, and is an umbrella document for women entrepreneurship. In realization, in terms of time, finances and organization, it leans on the Strategy of Entrepreneurship Development in the Republic of Croatia for 2013-2020, programs for stimulating entrepreneurship and crafts of the responsible ministry, and other sectors' programs, as well as operational programs that will be conducted for utilization of structural funds in the program period for 2014-2020. Objectives are derived from the status analysis of women entrepreneurship in the Republic of Croatia, and are based on continuing the implementation of measures and priority action areas of the Strategy from the previous period, containing a time dimension and competent authorities/stakeholders, as follows (Official Gazette 77/2014, page 30):

Priority action areas from the aspect of

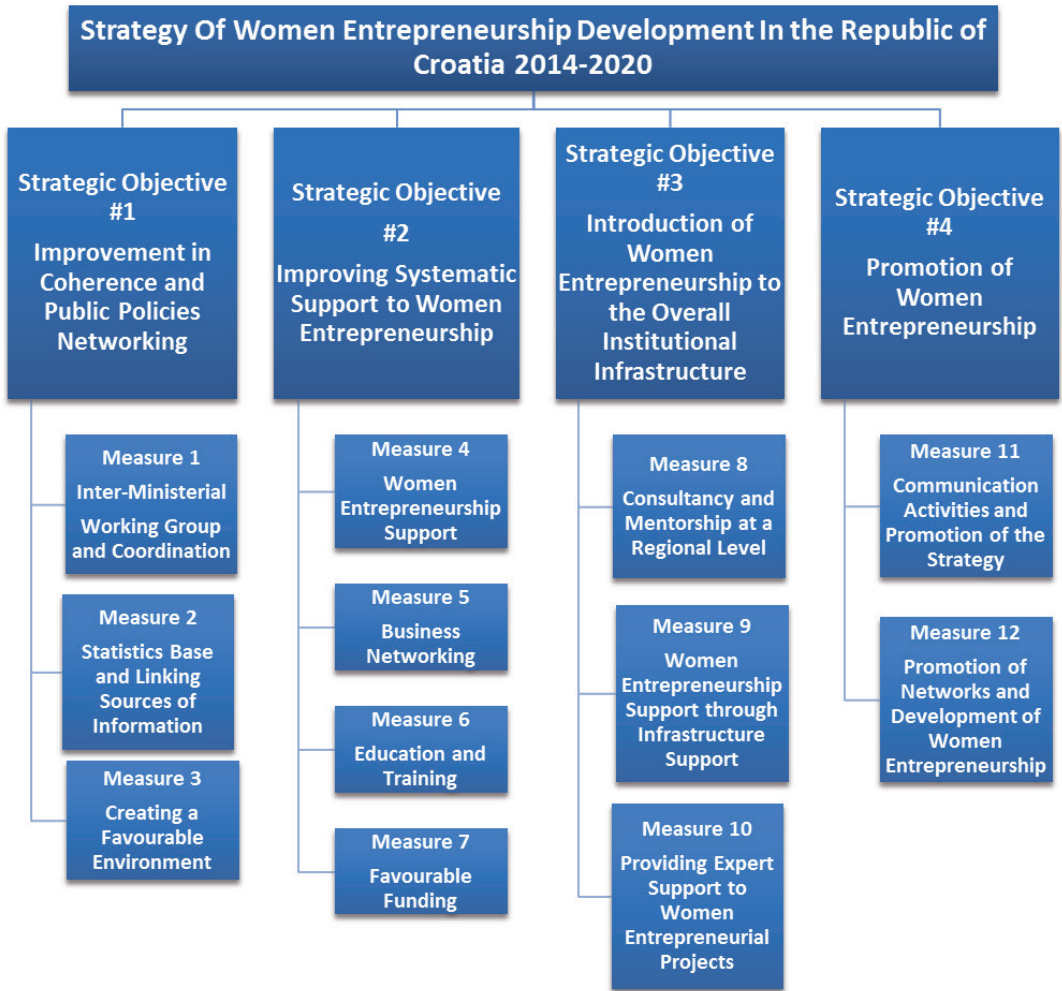
- Public policy
- Interests and needs of women
- Institutional infrastructure

Time dimension for achieving results

- Medium and long-term

Competent authorities for activities

- Inter-Ministerial coordination (government office for gender equality, ministries in charge of entrepreneurship and crafts, foreign and European affairs, science, education and sports, regional development and EU funds, economy, agriculture, labour and pension system, and social policy and youth)
- Stakeholders (chamber system, associations of women entrepreneurs, employers, entrepreneurial support infrastructure, units of local and regional self-government)
- Academic sector, civil society



(Source: Official Gazette 77/2014, page 34 – Action Plan for Implementation of the Strategy)

Image 1 – Strategic objectives and measures of Croatian Strategy

6. Women entrepreneurs' education in the Strategy

Different factors affect the decision to start women's entrepreneurial activity, as well as the successful development of women entrepreneurship: level and type of education, specific knowledge and skills, value system and stereotypes of women entrepreneurs in society in general, possibility to balance private/family and professional life, availability of different forms of support in the reproductive phase of women's lives, support from family and society, and the financial construction necessary for entrepreneurial activity (Official Gazette 77/2014, page 29).

Structural obstacles are the most demanding ones, because they are the result of cultural heritage (values base), absence of political willingness for consistent implementation of a political-regulatory framework, and infrastructural insufficiency to support family life. In order for this to

be remedied, the following are necessary: political consensus, *long-term activities in the field of education* (value system, including responsibility for family life), changes in regulatory framework (facilitating different forms of employment and performing business activities), and more significant support for development of institutions for childcare and eldercare (also including systematic financial support for women for using childcare services, if they are engaging in educational programs and training for starting a business venture). Besides this, it is of *great importance to incessantly and constantly work on gender sensitization of the public* (education, media), but also consistently adding in the gender dimension into the functioning of a society (Official Gazette 77/2014, page 19).

Potential woman entrepreneur may have a business idea, but not know how to realize it. Potential women entrepreneurs should be provided access, *through various trainings, to the basic business skills*, marketing and financial tools, which they could use in assessing whether their idea is of market value as well. Continuous consulting and support are crucial in the initial stages of starting a business, given that women are more cautious and less prone to risk-taking. On the other hand, women entrepreneurs who are already established on the market may simply wish to improve their business activities in a certain segment, and they need professional advice, knowledge and experience. For that purpose, it is necessary to organize the exchange of experience between already successful women entrepreneurs and women start-ups entrepreneurs, by introducing mentorship, and public presentations of successful women entrepreneurs' own experiences (Official Gazette 77/2014, page 29).

Women entrepreneurs should be provided with access to on-line mentorship, consulting and educational support, and a platform for business networking that will gather national ambassadors and on-line women mentors and strengthen their availability. Accessibility and support for women entrepreneurship should be created, both at a national and regional level, and exchange of best practices should be promoted (Official Gazette 77/2014, page 29).

Considering complex and specific circumstances in which women make a decision on inclusion and/or participation in entrepreneurial activities, of great importance is the knowledge and experience of women already involved in the world of entrepreneurship. Numerous examples from the world of women entrepreneurship in the Republic of Croatia testify to the undisputed enthusiasm of some women entrepreneurs in passing their experiences and examples on how they started their entrepreneurial activity, i.e. how they developed their businesses (Official Gazette 77/2014, page 29).

However, for the purpose of ensuring as much quality support in resolving complex circumstances in which women entrepreneurship is developing, *it is necessary to create new models* which would additionally motivate and mobilize active women entrepreneurs to provide consultancy services and/or mentorship to women entrepreneurs/start-ups, but also for the exchange of knowledge and experience among already active women entrepreneurs (Official Gazette 77/2014, page 29).

Institutional infrastructure is territorially distributed throughout the entire territory of the Republic of Croatia, and easily available to future and active women entrepreneurs. Further activities need to be directed at introducing appropriate measures aimed at the development of women entrepreneurship to local/regional development plans, as well as at strengthening their capacity for providing services of passing knowledge and experience to women entrepreneurs (Official Gazette 77/2014, page 29).

Here it is necessary to sensitize service providers, to the highest possible extent, towards those gender differences and specifics related to women entrepreneurship, initiate development of modules according to the interests and needs of women entrepreneurs, stimulate the setting up of local/regional events to function towards the development of women entrepreneurship, and periodically organize public-private dialogue at a local and regional level (Official Gazette 77/2014, page 29).

Projects of women entrepreneurs contribute to the overall growth and development of the economy of the Republic of Croatia. Providing expert support to these projects is necessary not only for the quicker and easier economic strengthening of women, but also to establish new entities of small and medium-sized enterprises and create new jobs (Official Gazette 77/2014, page 29).

Therefore, special attention in implementation of the Strategy should be given to providing expert support in the fields of new technologies and innovation, i.e. stimulate the institutional infrastructure to strengthen financial and administrative capacities for providing these types of services (Official Gazette 77/2014, page 29).

Institutional infrastructure functions on the entire territory of the Republic of Croatia, and in order to stimulate uniform regional development, it is necessary to especially stimulate development of women entrepreneurship in rural areas, as well as on the islands and in karst areas, by creating special programs which, to the highest possible extent, take into consideration the specifics of these areas (Official Gazette 77/2014, page 29).

The successful encouragement of women entrepreneurship can be achieved by ensuring implementation of incentive measures which have an effect on the entrepreneurial capacity which at the same time solves the issue of women entrepreneurs. In that sense, it is important with regard to the current state of women's unemployment, to make a transition from social welfare to self-employment, i.e. generate a program of self-employment, especially for single mothers. Widespread knowledge on the self-employment program in all institutions for support in development of entrepreneurship will increase the number of interested unemployed women who are using the possibilities of the self-employment program (Official Gazette 77/2014, page 28).

Also, it is necessary to make a transition from self-employment to employer, i.e. generate a program for growing business ventures, especially for single mothers, i.e. *ensure specialized teaching programs for training in management of fast-growing business ventures, i.e. increase the number of interested women entrepreneurs for development/growth of their business ventures.* For the successful inclusion of women in entrepreneurship, there are also obstacles related to attitudes that need to be overcome in terms of the wider social environment. It is considered that women do not have enough self-confidence or even readiness for risk-taking, and that they lack initiative. However, this is about lack of logistics support, such as full-day kindergartens or child-care, which would make it easier for them to be mothers and successful entrepreneurs at the same time (Official Gazette 77/2014, page 28).

In numbers, Strategy consists of 4 strategic objectives, 12 measures and 65 activities, out of which the following is earmarked to education (following strategic objectives, Official Gazette 77/2014, page 31):

Strategic Objective #2 - Improving Systematic Support to Women Entrepreneurship**Measure 4 – Support for Women Entrepreneurship**

- ensure support for transition from social welfare to self-employment
- ensure support for transition from self-employment to employer

Measure 6 – Education and Training

- strengthen education for entrepreneurship and entrepreneurial competencies for company management, family businesses and growth management
- develop new models of education and training and development of women in business management (ICT systems, new technologies, creative industries, applying innovations, cluster management, etc.)

Strategic Objective #3 – Introduction of Women Entrepreneurship to the Overall Institutional Infrastructure**Measure 8 – Consultancy and Mentorship at a Regional Level**

- build capacities for providing services of training and consultancy for women, from start-ups to women entrepreneurs who lead their own growing business ventures
- organize seminars and stimulate projects for women entrepreneurs with experience who would like to engage in mentorship
- determine quality standards for providing business services

Measure 9 – Women Entrepreneurship Support through Infrastructure Support

- improve cooperation with units of local and regional self-government and development agencies to include development of women entrepreneurship in development strategies

Measure 10 – Providing expert support to women entrepreneurial projects

- strengthen support institutions to increase expert support for women entrepreneurial projects in the field of new technologies and innovations
- prepare special programs for expert support to the specifics of rural, island and karst entrepreneurship

The Strategy emphasizes the necessity of a connection between the academic community and small and medium-sized enterprises at a regional level, and strengthening training and educational programs for entrepreneurship. The lack of role models in women entrepreneurship, from start-ups to women entrepreneurs in growing enterprises, from labour intensive to knowledge intensive ventures, is a significant issue in strengthening women's entrepreneurial activity, given that learning from local role models is the most effective. The academic community needs to be included in research of women's entrepreneurial ventures, describe examples of success and failure, and the use of case study from such research needs to be included in educational and training materials, as used by entrepreneurship supporting institutions (Official Gazette 77/2014, page 30).

7. Women in ICT

In 2013, the EU prepared a report titled **Women Active in the ICT Sector** which points to the importance of women in the IT sector for long-term growth, as well as for sustainability of the European economy. Women are still under-represented, and of 1000 women with higher education, only 29 have a diploma in an ICT field (compared to 95 men), while only 4 of 1000 women work in that sector. Under-representation of women is particularly evident at executive positions, where their share is significantly smaller than in other sectors. The main economic argument for the importance of women's presence in this sector points to the fact that the European GDP would increase every year by approximately EUR 9 billion, if women were represented in the ICT sector in equal number as men. According to the Report, the most significant problems that impact the presence of women in the ICT sector are: stereotypes on the role of women in society; internal barriers and socio-psychological factors that drive women away from the sector (lack of self-confidence, lack of negotiating skills); and external barriers (strong male predomination in the sector and lack of role models) (Official Gazette 77/2014, page 24).

According to the First release of statistical survey on ICT (source: Croatian Bureau of Statistics: "Usage of information and communication technologies (ICT) in enterprises" 2013) tendencies are: high level of ICT integration in business conduct; 98% of enterprises used computers; 98% had the internet access, usage of broadband internet access prevails; 77% of enterprises used some type of fixed broadband internet connection; 54% of enterprises use mobile broadband internet access; 68% of enterprises owned a web site; 92% of enterprises used e-government services, *Internet sales covered only 11% of the total sales of goods and services*, social internet media usage was not widespread, used by 33% of enterprises.

The integration of business processes and communication between business entities via the internet allow for a more efficient offer of goods and services and their purchase and sale on the market. The volume of e-commerce compared to conventional commerce was still rather low and barely 11% of sales were conducted via the internet. Two thirds of transactions were completed via electronic data interchange systems (EDIs), while one third was completed by selling via web pages. The social internet media usage is monitored in order to determine their influence on business processes and business results. The survey shows that the social media are mostly used for advertising and exchanging information with customers. They are predominantly used in small enterprises, while medium-sized and large enterprises used the social internet media quite rarely. *No data are available on women owned enterprises using ICT.*

In the following table priorities for action and policy recommendation as well as transversal problems in the EU Report are systematically presented pointed out concrete actions for member states as follows (breakdown/review from pages 48-77):

PRIORITIES	CONCRETE ACTIONS/MEMBER STATES
Priority 1. Build a renewed image of the sector among women and mainstream society	<ul style="list-style-type: none"> - Create a partnership with the EC for all institutional campaigns suggested. - Establish national targets in the frame of the Europe 2020 Strategy regarding women and ICT. - Revise, together with the industry, all ICT-related syllabuses at primary and secondary education levels. - Create a national programme of dissemination of ICT in school with visits to companies and public events (both for men and women). - Organize schools' challenges (competitions) widely disseminated (national broadcasters) for young students (10-16 years old) on ICT topics, with at least 50% of girls participating. - Focus existing training resources for unemployed people to encourage women into the sector (even if with a different background), e.g.: SAP certifications, ITIL, CISCO, etc.
Priority 1.2. Promote a "diversity" approach	<ul style="list-style-type: none"> - Disseminate existing evidence of the economic benefits of diversity in the workforce through mass media. - Use an approach focused on diversity in all communication campaigns about gender issues. - Involve men in all discussions on the topic from a diversity point of view. - Incentivise and promote companies that are examples of best practices. - Ensure Diversity exists in educational contexts.
Priority 2. Empower women in the sector	<ul style="list-style-type: none"> - Create bridge programmes linking tertiary education institutions with the industry: <ul style="list-style-type: none"> ▪ Mentoring programs at schools (Success proven by the case study of Hannover University) ▪ Guidance for teachers and career advisors on the need of girls and the sector. - Revise syllabus to include management, negotiation and entrepreneurial skills designed from the gender perspective.
Priority 3. Increase the number of women entrepreneurs in the ICT sector	<ul style="list-style-type: none"> - Create specific funds for women entrepreneurs in ICT. - Support business angels who assist women entrepreneurs. - Revise the regulatory framework to favour entrepreneurs and reduce administrative burdens in the sector. - Include in syllabuses entrepreneurship skills designed taking into account the gender perspective.
Priority 4. Improve working conditions in the sector	<ul style="list-style-type: none"> - Improve access to affordable child care facilities by facilitating funding (grants, tax, reductions, etc.) and facilitate the procedure of establishing company kindergartens and nurseries. - Legislate to promote the use of paternity leave. - Improve the regulatory framework to enhance flexible working arrangements. - Establish quotas on candidates for PhDs at technology universities and research institutions (following German case).
Transversal action 1. Improve data availability	<ul style="list-style-type: none"> - Coordinate with EC the elaboration of new statistics.

<p>Transversal action 2. Identify and exchange best practices</p>	<p>Best practices should be analysed and publicised on a continuous basis at the European and national levels. An annual award praising the best initiatives should be established. Awards should be designed for at least the following areas:</p> <ul style="list-style-type: none"> – Best 3rd sector initiative. – Best industry initiative. – Best public or governmental initiative: political commitment has proven to be a main driver for change. <p>Best practices and case studies should be monitored in the mid-term in order to truly analyse its impacts and identify areas of improvement.</p>
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In the EU Report among many useful information and evidence, author in this paper points out the following (pages 15-17):

“Despite the evidence which proves that women’s access to an ICT career is essential for the sector’s long-term growth and the sustainability of the European economy, there remains a large gender gap in Europe’s ICT sector.

Several problems prevent women from fully participating in the ICT sector:

1. Cultural traditions and stereotypes about women’s role in society and about the sector.
2. Internal barriers, socio-psychological factors pulling back women from the sector and its top positions: lack of self-confidence, lack of bargaining skills, risk-aversion and negative attitudes towards competition.
3. External barriers, ICT sector features strengthening the gender gap: strongly male dominated environment, complex reconciliation between personal and professional life, and lack of role models in the sector.

In the priority 3. Increase the number of women entrepreneurs in the ICT sector the EU Report stated: “The number of female entrepreneurs in the ICT sector is low compared to other sectors. Women constitute 53.9% of entrepreneurs in non-ICT sectors and 31.1% of all European self/employed while accounting for a mere 19.2% of ICT entrepreneurs. Promoting entrepreneurship in Europe, both among men and women, is critical for the European economy.

Top recommendations:

1. Improve access to funding for women entrepreneurs, particularly seed and venture capital programmes.
2. Promote the idea of entrepreneurship in the ICT sector as easier than in other sectors: programming can be done from a PC anywhere and requires low initial investment! Use role models as examples.”

8. Conclusion

Author conducted desk top survey on women entrepreneurship and education which show a numerous texts and papers. For conclusion of this paper the author points out an interesting paper developed by Félice van Hooff and Sharda Nandram published under title “Female entrepreneurship; A new perspective for entrepreneurship and the implications for entrepreneurship education”. The authors, among other, observe the perspective of education related to differences between male and female entrepreneurs in characteristics and competences. The paper pre-

sented researchers who examined and confirmed that some entrepreneurial skills are in general considered as masculine e.g. power, competitiveness and confidentiality, while other found that female entrepreneurs scored significantly higher on traits related to autonomy and change. Furthermore, authors cite some studies which reveal that women are more opened to ideas, they give higher score on trust and they are socially warmer compared to men, and studies which have shown that women value and excel in consensus-building, cooperation, nurturance, charisma and interpersonal relationships, more than men do while men put higher value on perseverance and risk. According to the paper and cited researchers, women use five leadership behaviours (“People development”, “Expectation and rewards”, “Role model”, “Inspiration”, and “Participative decision making”) more frequently than men – particularly the first three. Men adopt two behaviours (“Control and corrective action” and “Individualistic decision making”) more often than women. Authors emphasised that this could also be applied to the entrepreneurship. They see that entrepreneurial activity is dependent upon whether individuals can identify with the characteristics and behaviours that are associated with entrepreneurship and allege that when entrepreneurship is strongly linked to masculine characteristics, such as autonomy, perseverance, high energy levels, self-confidence and decisiveness, this may negatively affect the entrepreneurial self-perception of women. Interesting in the paper is stated indications that women perceive themselves as less entrepreneurial, independent of activities undertaken and that participation in business activities does not guarantee that the individual perceives him/herself as an entrepreneur. “Women speak more of a lifestyle choice generally not associated with entrepreneurship as such. The male norm of entrepreneurship (and the way in which this is adhered to in current education) might negatively affect women’s willingness and self-confidence in choosing self-employment. This way female entrepreneurship could remain in secondary position”. Authors accentuate that future research can focus on how more female behaviours can be integrated and fostered in entrepreneurial education. “This gender-aware, holistic norm, combining both male and female attitudes, characteristics and competences, could then also be integrated in entrepreneurial education. In this way women might identify themselves more easily with entrepreneurship and with that consider it more as a future career option”.

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