

# WOMEN ENTREPRENEURS IN STEM

## VET Business Partnership ACTION PLAN N Ireland



Erasmus+

This project has been funded with support from the European Commission

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## PREFACE

This publication has been produced under the Erasmus+ Women Entrepreneurs in STEM (WISE) project 2017 - 2019. It is led by Omagh Enterprise Company with support from Canice Consulting. WISE strives to a clear aim: increase the number of female entrepreneurs working in science, technology, engineering and maths (STEM) as a result of improved access to and quality of support from the entrepreneurship education ecosystem. It was developed in response to the 2015 paper 'Women Entrepreneurs, Women in Technology, Skills Needs and Balanced Regional Development which called for entrepreneurship training to be introduced in scientific and technical colleges, universities, research centres and academia. It also cited the need to improve women's self confidence in entrepreneurship by providing specific training in leadership, assertiveness and negotiation.

### Snapshot of the benefits of WISE...

#### ✓ For the Region:

- *Increased number of female entrepreneurs in STEM by transforming their access to and the quality of the training they receive from entrepreneurship VET institutions*
- *Economic growth and a win-win for businesses*

#### ✓ VET Business Alliances

- *More effective career guidance and work placement*
- *Access to untapped talent and competence-skills workforce*

#### ✓ For Female Entrepreneurs

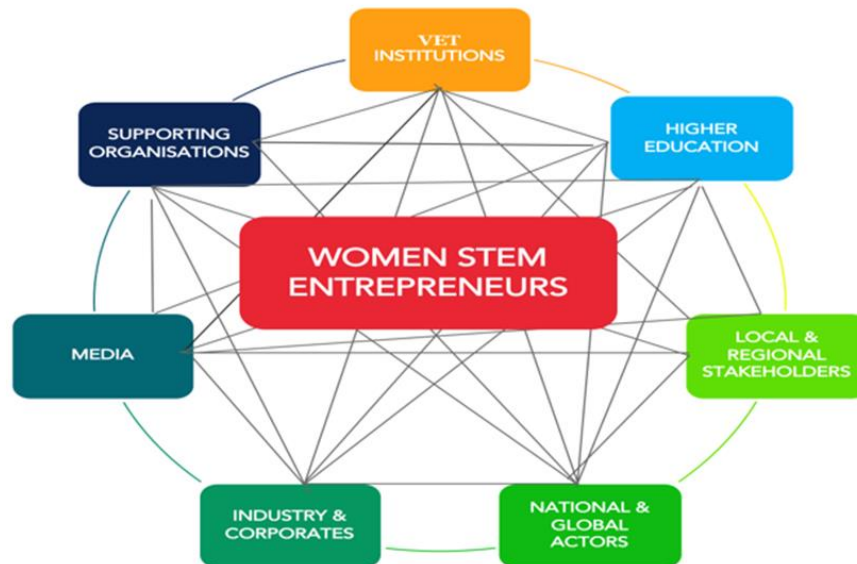
- *Experience work in a high growth STEM enterprise for a structured 4-week placement period.*
- *Access to a STEM support toolkit & Community*

### Why a Regional Partnership Plan approach?

WISE places VET business partnerships at the heart of the project creating a conduit between actors in the STEM entrepreneurship development ecosystem in UK, Germany, Norway and Ireland. By creating a VET Regional Partnership Plan (O1) in each region, we respond to the need to develop more strategic and integrated use of open education resources in education and training systems. Our Regional Partnership approach seeks to provide an important platform to create and deepen ongoing relationships between diverse institutions working in vocational education and training in innovation and entrepreneurship. It nurtures a shared commitment to increase the number of female entrepreneurs in STEM by transforming their access to and the quality of the training they receive from entrepreneurship VET institutions. In particular Regional Partnerships have the capacity to support and disseminate the project's presence and reach within our region and fulfills the EU Commission thinking on regional partnership structures: -

*"Any public intervention aiming to further develop a sector calls for cross-sectoral fertilisation. This requires the development and testing of better business support instruments and policies that aim to facilitate cross-sectoral linkages and spill-overs. It implies fostering change amongst the sectors themselves while adding new skills and competencies." - EU Commission*

This Regional Partnership Plan can be utilized by academic actors, higher education policy makers as well as by business actors, organizations and chambers. It facilitates the creation of the conditions and organizational connections that are essential for the processes promoting Women Entrepreneurs in STEM.



Additional useful materials will be also produced in the framework of the Erasmus+ Women Entrepreneurs in STEM programme. These will be available free of charge on the following address [www.stementrepreneurs.eu](http://www.stementrepreneurs.eu) We recommend that those who are interested in this topic visit our website to access our resources.

## OUR DEFINED REGION & STAKEHOLDERS

The N Ireland WISE VET Regional Partnership covers the geographic region of the counties of Fermanagh and Omagh District council region in the North West of Northern Ireland.

Following the agreed methodology Omagh Enterprise engaged with a group of stakeholders from the regions education and business support eco system, drawing on established strategic level connections with key stakeholders and getting an appropriate mix of organizations and individuals in the region including

- VET providers from the public, private and not-for-profit sectors, such as regional colleges, technical schools, enterprise centres, business incubators etc.
- Higher Education Institutions – universities and colleges with a strong STEM and entrepreneurship focus
- Local enterprise agencies and business development services providers
- Small Firms’ representatives (Chambers of Commerce, Small Business Federation etc)
- Women in business networks
- Statutory organizations responsible for enterprise and economic development
- Local government and regional development authorities
- Emerging and existing women entrepreneurs in STEM

Stakeholder – organisation name	What the individual and organisation can contribute to the Partnership?	Reach (International, National, Regional, Local)	Impact on VET Business Partnership (High, Medium, Low)	How can they benefit from the VET Business Partnership? What is in it for them?
Secondary School	Access to student base and perception of career opportunities	Regional	High	The school can promote the project in their own environment and make vital links with hosts through the school network. Can use Start up in STEM Course in a classroom setting.
Regional College	Regional innovation college	Regional	High	The SWC will have useful contacts with VET teachers and stakeholders in the region. The college will benefit from networking with Small Firms' representatives in the business VET partnerships.
Strule Campus Group	Access to a wide range of students from various schools throughout the region.	Regional	High	The Strule Campus Group will benefit from local and regional links.
Digital Networking group	Access to la large number of Technology companies	Regional	High	Will be an important stakeholder in the business VET partnership to assist with placement and help with initial research stage. Digital Omagh will benefit from the accesses to the Knowledge Exchange Platform with access to successful role models in the region.
Economic Development Agency	Strong links with all SMEs in the region – STEM focused and female industries	Regional	High	Invest NI will help with assessing current trends and also good links to role models. Invest NI can work with hosts who can benefit from their support network and funds available.
Women Support Programme	Direct links to females in business.	Regional	High	Will benefit from pilot testing and will contribute to the content for perceptions and current barriers for women in STEM.

Chamber of Commerce	Strong links with the business community and a good sense of what is needed within businesses	Regional	High	Beneficial creating links with schools and businesses in the area. Omagh Chamber of Commerce will find the partnership beneficial for research and getting direct information from businesses
Engineering Company	An engineering company that directly employs females in STEM	Regional	High	The business will benefit from creating contacts and introducing the dedicated focus on women in STEM in the workplace
Consultancy Business	Female Stem entrepreneur- can provide lots of input to training materials and research	Regional	High	The business will assist with training modules and placements. The business will benefit from the contribution and accesses to the Knowledge Exchange Platform and Online Course.
Existing Women in STEM	Start-up female stem entrepreneur – can give actual life experience in setting up and the challenges encountered	Regional	High	Emma Gormley will benefit by making links with schools and Omagh chamber of Commerce for the support as she is a STEM entrepreneur. Emma will also benefit from having a input into the course development.
Engineering Company	Engineering firm with lots of female STEM staff, can provide actual examples of issues or barriers	Regional	High	The business will benefit from creating contacts and introducing the dedicated focus on women in STEM in the workplace
STEM Centre	Initiatives that currently or previously existed to assist females in STEM	Regional	High	Benefit from the placement process and having access to the research and development of the project.
Enterprise Agency	Organisation deals with start-up companies on a daily basis and knows the challenges	Regional	High	Access to research information and having real life examples of female STEM entrepreneurs while working with clients as they are setting up businesses.
Women in Business Network	Organisation deals exclusively with women in business and know the challenges.	Regional	High	The organisation will benefit from the access to case studies and to research issues. The organisation can use all outputs for promoting women in business.
Disability access group	A view of what females with disabilities need to	Regional	High	The business will benefit from creating links within the

	assist with starting business			business vet partnership and by having access to information on barriers and perceptions.
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## OBJECTIVES

The WISE VET Regional Partnerships set out to bring together the diverse actors in the entrepreneurship development to create this Action Plan that would yield a more inclusive and STEM -friendly VET sector and long-term support for female entrepreneurs in our region. Specifically, the Partnership sought to:

- help overcome information failures. Much of the STEM expertise and the knowledge of female entrepreneurship already exists in the hands of HEIs (public) and specialist training providers (private and non-profit). The Partnership will enable effective multi actor knowledge sharing and shorten the learning path.
- devise formative assessment of learning gaps, learning objectives and pedagogical recommendations for the Start up in STEM open education resources.
- build social capital. As well as the firm commitments in the form of Action Plans, the Partnership is an ongoing space for collaborative work, contributing significantly to the dissemination and sustainability aspects of the project.
- Identify which specific skills and competences could transform access to and the quality of the training for women entrepreneurs in STEM and
- How can these skills and competences be delivered in an inclusive and accessible way



### How this Action Plan evolved?

The principle feature of the Partnership building process was stakeholders' participation in plenary meetings, and in a series of follow up multilateral meetings. The following schedule of activities was undertaken:-

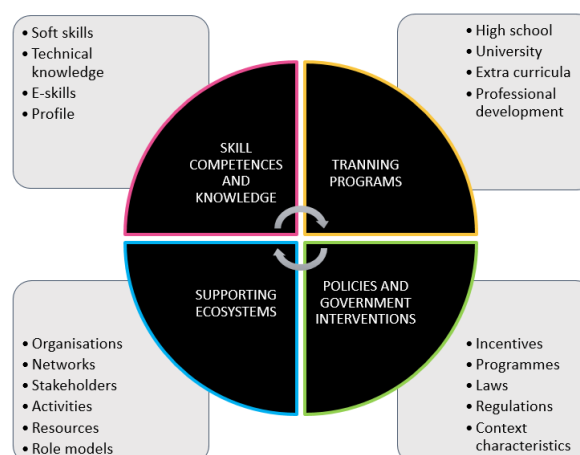
Activity	Timeframe	Description
<b>5 Partnership Meetings</b>	From 1/09/2017 to 31/10/18	
<b>1st meeting</b>		<ul style="list-style-type: none"> <li>• Task 1: <b>Skills Competences &amp; Knowledge or Women in STEM, Women in Enterprise and Entrepreneurship in STEM:</b> General overview of WISE and future agenda, feedback from participants and their ideas</li> <li>• Task 2: <b>Formative Assessment of current skills gap + existing pathways and training programmes for women in STEM.</b> Assessment of current support for each topic above: Review of scan cards analysis and identification of gaps that would lead the interviews/surveys.</li> <li>• Task 3: <b>What specific support is needed to assist women entrepreneurs in STEM</b> – Looking at current systems in place and advise on changes needed</li> </ul>
<b>2nd meeting</b>		<p>Action: Gain an understanding of Policies and Government Interventions in place</p> <ul style="list-style-type: none"> <li>• Task 1: <b>Policies recommendations and time frame of implementing policies</b> Information from stakeholders on what already existed and what was missing from current policy interventions. WIB partner to reflect views back to larger Council Stakeholder group.</li> <li>• Task 2: <b>Guest speaker – Emma Gormley</b></li> <li>• Presentation to the group on the barriers and issues that she encountered as a female STEM entrepreneur</li> </ul>
<b>3<sup>rd</sup> meeting</b>		<ul style="list-style-type: none"> <li>• Task 1: <b>Evaluating how can we transform access to and the quality of the training women in STEM</b></li> <li>• Reviewed results and findings from all previous meeting, moving forward with the accessibility of training women in Stem to create curriculum and content guidelines for the open</li> </ul>

	<p>educational resource (IO2). Review of first drafts of training materials and suggested amendments</p> <ul style="list-style-type: none"> <li>• Good robust feedback into the look and feel of the modules and suggestions for improvement</li> </ul>
4 <sup>th</sup> meeting	<p>Action: WISE Open Online Collaborative Learning and Knowledge Exchange Platform</p> <ul style="list-style-type: none"> <li>• <b>Task 1: Pilot testing of the learning resources on the Open Online Collaborative Learning and Knowledge Exchange Platform</b></li> <li>• Interactive activity online and remotely to test the materials and review draft materials</li> <li>• 15 Participants test components including content delivery, functionality, learning experience to assist the development of IO3</li> <li>• All data sent to LCC for analysing</li> </ul>
5 <sup>th</sup> Meeting	<ul style="list-style-type: none"> <li>• Review of Learning placement specification and</li> <li>• Review of completed training materials</li> <li>• Agreed to continue to meet post project</li> <li>• All invited to Regional Multiplier Event</li> </ul>

## Scan Cards

As part of our overall Action Plan partners have developed 122 Best Practice Scan cards. The WISE scan cards aims to collect information that provides an overall view of the current state of a specific topic presented in the scope wheel. The process is simple:

1. Choose a topic from the Scope Wheel



2. Search for sources that contain facts and information about the topic (See sources below)
3. Summarise the information and identify the relevance for our project



## 4. Record the summarised information in form of a scan card

<b>TOPIC FROM THE SCOPE WHEEL</b>	
<b>Name or brief description of the information found</b>	
<b>DESCRIPTION</b> Describe the information found	<b>RELEVANCE</b> Describe how it affects our project
<b>SOURCE</b> <small>Include a source</small>	<b>SCANNING TECHNIQUE</b> <small>Secondary data</small>

Comprehensive research was undertaken by all partners, possible sources include Reports, Papers, Statistics, Internal reports and Information from other organisations. This leads to the development of on-line resource that looked in detail at the following

- Policies and Government Interventions
- Training Programme
- Skills Competences and Knowledge
- Supporting Ecosystems.

A detailed breakdown of 122 Best Practice Scan cards can be found on the WISE Website.

## SUPPORTING THE PARTNERSHIP

### Role of Omagh Enterprise Company

Omagh Enterprise lead the WISE VET Business Partnership in N Ireland and undertook the following roles in order to optimize impact in the short and long term:

1. Communication.
2. Meeting facilitation.
3. Course content evaluation, testing and delivery optimization.
4. Course and Toolkit promotion

<b>Communications</b>	Omagh Enterprise is responsible for coordination of communication among participating stakeholders as well as enabling outward communication to wider stakeholders in general.
<b>Meeting facilitation</b>	Omagh Enterprise is responsible for meeting agendas, facilitation and logistics (meeting spaces, technical support, catering etc), as well as circulating key documents.
<b>Course Content Evaluation, Testing and Delivery</b>	Omagh Enterprise worked with the local VET partnership group to ensure robust testing of training materials.
<b>Course promotion</b>	Ensuring the Business VET Partnership, training materials and the Placements are widely promoted throughout the various organisations locally, regionally and nationally.

## THE ACTION PLAN – Summary

In N Ireland, the vested stakeholders have agreed to implement the following actions:-

### Action 1 – Inspiration

*How can we inspire more women to become STEM entrepreneurs and to inspire other girls and women?*

- Early and ongoing stimulus and encouragement for girls and women on an entrepreneurial STEM career
- Girls and women are constantly facing existing and new challenges on their career path in STEM. We need to inspire what it means to be a STEM entrepreneur.
- To inspire girls and women, a change in the way people think about women entrepreneurs and in STEM is needed. Stories about women entrepreneurs in STEM who are running companies and creating jobs deserve to be heard.
- Family members who work in science and business related fields serve as an important inspiration for young girls. They act as role models to whom girls and women can ask questions and relate to.
- Schools, colleagues and businesses will pledge to support women on an ongoing basis
- Schools & Colleges will use the 'Start Up in STEM' Course with inspiration videos, case studies supported by modules. This has been pilot tested and will be implemented in the next academic year 2020
- Reaching out to organisations and professional networks outside the listed regions to share ideas and approach inspiring women in a similar way. This has been implemented from the beginning of the project.

### Action 2 Unconscious Thought Process

*How can we support a more conscious re-thinking in society?*

*Gender distribution in entrepreneurial STEM careers is often due to unconscious stereotypes*

- Most people still associate STEM with a masculine image, based on the stereotypes created early in childhood. They judge women to be less competent than men, unless they show proven success in what they are doing.
- Developed in early childhood, those stereotypes lead to fewer girls even considering a STEM career and questioning the abilities of those who consider a STEM career.
- Knowing about these unconscious stereotypes will help women to better manage them, and general society to and overcome social disapproval
- Showcase successful female STEM Entrepreneurs on WISE Open Online Collaborative Learning and Knowledge Exchange Platform. This will be widely available on the WISE project website which will be free to access and open to all and maintained for at least 3 years after project completion.
- Use WISE Open Online Collaborative Learning and Knowledge Exchange Platform at events to promote successful women.
- Business VET Partnerships will be the core of the project as they have the knowledge, tools & motivation to encourage successful women in each region. The partnerships are formed at the beginning of the project and will continually to network together as relationships have been formed.

### Action 3 Confidence and Decision Making

#### How can we support a more conscious re-thinking in society?

*Confidence, trust and self-perception play an important role in career decisions.*

- Research has shown that girls have a lower self-confidence in science skills than boys. At an early stage, many girls are unsettled and do not trust themselves to perform well in STEM related subjects.
- Based on roles assigned by society, friends, family and colleagues, women tend to question their ability to perform well.
- More support needed in schools for developing the confidence of females from an early age.
- Gender specific training to be introduced to schools and colleges and enterprise agencies
- Start up in STEM course ample will allow the individual to self-test so they can control the pace of their progress throughout the course

### Action 4 Attitude towards STEM abilities

#### How do we ensure that more girls and women enter STEM-related education and stay in STEM-related jobs?

- **Biological characteristics** do not seem to affect the levels of achievement and ability of an individual related to STEM (e.g. quantitative thinking, math and science). However, growing up, skill **differences** between men and women were observed.
- STEM-related jobs require often **ICT skills**. Women entering STEM majors tend to be well qualified but still many leave their majors. Also, women are under-represented in ICT.
- Not only the expansion of education in the desired field is important, but also other factors such as self-efficacy, support and inspiration for **better understanding the own skills** should be analysed.
- Need more encourage and support for females through universities and colleges to enter and stay in the industry – partners will be looking at women in business networks and small firm representatives.
- Gender specific STEM forum development and the importance of networking - through Digital Omagh
- WISE Placements will be matching learners with host organizations' leading to increased experience and supporting the learners every step of their placements and promoting STEM related jobs.

### Action 5 Entrepreneurship Traits

#### How do we support women in STEM with entrepreneurial skills and resources they will need for a successful career?

- Women seem to have a higher emotional intelligence, a success factor in entrepreneurship.
- Women need to prove to be successful in STEM-related areas, as people judge them to be less competent. Admitting **failure in STEM entrepreneurship is even less an option**.
- Additionally, government support is needed to provide female entrepreneurs with the **same resources** as their male colleagues, such as **access to financing**.
- More research needs to be done on the **different traits** and how to support women with training and resources.
- More gender specific support through Enterprise Centres looking at the Start Up in STEM Course for women considering starting a business looking at the Myths and Realities of Business Planning

- WISE Placements will help learners benefit from an acceleration of their entrepreneurial skills and mindset,

### Action 6 Career Path

**How do we achieve a more transparent and supportive career path for women in STEM to reduce the turnover rates?**

*Women encounter challenges on their career path and their work environment*

- The career path starts at a very early stage by communicating the variety of **career opportunities** in STEM. Despite education in STEM is offered to both genders, many women do not know what opportunities a STEM career offers.
- Isolation, an unsupportive work environment, demanding work schedules and non-transparent rules about **career advancement**, many women leave their STEM career.
- Women's access to – often male dominated – **networks** is limited.
- The so called **family penalty** also plays a role: when both partners are working, the man's career is given priority considering family responsibilities.
- Need more support within the workplace for females to advance their career
- Specific support forums and examples of successful case studies focusing on the WISE Open Online Collaborative Learning and Knowledge Exchange Platform
- Start up in STEM course focuses on self-confidence, assertiveness and risk-taking for women to not fear challenges and embrace them.

**How WISE has assisted with these Actions**

- **Development of VET Partnerships – bringing together all the necessary partners who have a role to play in encouraging female STEM entrepreneurs.**
- **Development of an On-line collaborative Learning and Knowledge Exchange platform has been kept in ensuring that all the above actions have been addressed.**
- **Development of a bespoke Educational Resource that can be accessed on-line will be implemented and used immediately by Enterprise Agencies in N Ireland.**
- **Development of WISE Learning Placement – the practical exercise of placing female stem learners with STEM entrepreneurs addressed directly the actions identified.**
- **Raising awareness of the issue – the promotion of the project throughout the past 2 years cumulated with Regional and national Showcase Multiplier events has ensured that there is a recognition that this is an area that needs continued support.**

## SUSTAINABILITY

The WISE VET Partnership aims to uphold many results after the WISE project funding lifetime ends. Omagh Enterprise Company with the support of Canice Consulting Ltd will support the project for the foreseeable future and ensure all outputs are widely disseminating the achieved outputs. The project has developed valuable resources designed to stimulate more business starts by women in STEM.. The main Strategies of Sustainability employed include the following

### **Project Website/Online Platform**

The project website will be maintained and updated for at least 3 years after the project end, so that interested stakeholders have access to the main deliverables of the project, fostering the easy implementation of the results.

### **WISE UK VET Partnership**

All our WISE UK VET Partnership have already expressed interest to work together by signing the projects pledge card, showing their commitment to the project and driving to create a more entrepreneurial environment for women in STEM, including young women graduates. We are committed to actively continue promoting after the official closing date of the project. OEC will act as the national contact point for the WISE project post funding,

### **Sustained dissemination**

We will continue to promote WISE outputs post funding including convening or attending 1 – 2 national/international conferences or seminars to disseminate the project.

### **IPR Agreement**

OEC and CCL will enforce the Partner Intellectual Property Rights (IPR) Agreement, to establish partners' intellectual rights and ensure open access to digital resources, even after funding period is completed