



**THEME ALLOCATED: Engineering: Resilience**

**TITLE OF**

**THE WEBQUEST: Rebooting your Career**

**INTRODUCTION**

The field of engineering offers a variety of career options and upholds a known reputation for analytical thinking, problem-solving, and optimisation. The field of study has the opportunity to open many doors from mechanics to economics, chemistry to computer science. Engineering is continuously evolving as new developments emerge as it offers everchanging solutions to the world's challenges and modernisation.

Engineering is typically a profession that is often thought to be male-orientated. However, did you know that history is marked by female engineers whose contributions have been the key to understanding the world as we do today. In the present day, many female engineers play a fundamental role in the development of cities and their societies.

Currently, in Ireland there is a 9:1 ration of male: female engineers in the industry. (Engineers Ireland, 2020). This underrepresentation of women in this field leads to gender gaps and often sets unfavourable stereotypes where men gain better opportunities than women in this sector. However, this can be combatted through confidence, motivation, and resilience. Building strong resilience can help you to confront adversity in under representation and achieve all that you can!

Resilience boosts your professional career. Resilience is not only limited to your personal life, but it is extremely beneficial in the workplace too! Being resilient shapes your actions to be mor flexible, create new working methods and be openminded when overcoming challenges. Adaptability is a key component of resilience as it allows you to understand,





process and react to changing situations. Resilient people are often creative, trust their potential, they learn from difficulties and mistakes, take initiative, focus their attention on the present, they communicate correctly, show empathy, they are optimistic, they seek teamwork.

## TASKS

Do you have an interest in engineering and want to be pursue a career in this field? Do you want to career plan and find out what you could gain from this STEAM sector?

Women have excellent problem-solving techniques which are vitally important in this field and can help you to be resilient in your workplace!

In order to begin thinking about a career in Engineering, why not assess your abilities, desires, and resilience through a Career Management Tool? A Career Model Canvas will guide you through the most important elements in career management and will help you to evaluate if a career in engineering is for you!

Through a process of steps outlined in this WebQuest, you will be guided to evaluate your competences in the sector of engineering. These competencies include:

- Competences of the Self – Being able to know your own worth and what you can provide to a company, organisation, or society.
- Competences of Strength – Being able to acquire and build upon own abilities and strengths that can be applied to both education and working lives.
- Horizons Competences – Being able to creatively think about career prospects by imagining, planning and act upon career ambitions.





- Network Competences – Being able to develop important relationships and networks that can provide support or opportunities.

(Skills Development Scotland, 2012)

Assessing your career goals and options is a great first step in pursuing your future. Through this WebQuest, you will gain an insight into the many different elements of career management and goal setting. Let's get started!

## PROCESS

### Step 1: Engineering Enquiry

The first step in your career planning is to find out information about the **field of engineering**. Engineering is *the study of science and technology concerned with the design, building and use of engines, machines, and structures* (Cambridge Dictionary, 2021). So, what does that entail? What jobs could you be interested in with a career in engineering?

Below, you will find a collection of links relating to **different careers** you could follow in **the field of engineering**.

**What jobs come from an engineering degree?**

<https://gradireland.com/careers-advice/jobs-with-your-degree/what-can-i-do-with-an-engineering-degree>

**More about the engineering sector:** [https://careersportal.ie/sectors/sectors.php?sector\\_id=19](https://careersportal.ie/sectors/sectors.php?sector_id=19)

**What are the different types of engineering careers?**

<https://www.youtube.com/watch?v=YZX58k1vmSw>

**Engineering careers list:** <http://careerswithstem.com.au/engineering-careers-list/>





**Reasons to become an engineer:**

<https://interestingengineering.com/top-9-reasons-to-become-an-engineer>

The art of being an engineer: <https://www.youtube.com/watch?v=cOIJGGaSIY>

For more information on **women in STEM (engineering)**, click on the following links:

**Inspirational female engineers:**

<https://www.mouser.com/blog/international-women-in-engineering-day-2018-10-inspirational-female-engineers>

**Irish female engineers:**

<https://www.siliconrepublic.com/machines/women-engineering-ireland-iwd-2017>

**Women in engineering:**

<https://www.prospects.ac.uk/jobs-and-work-experience/job-sectors/engineering-and-manufacturing/opportunities-for-women-in-engineering>

**Engineering female talent:**

<https://www.everywoman.com/my-development/learning-areas/articles/female-talent-engineering>

**Women in STEM:**

<https://www.engineersireland.ie/News/irelands-new-women-in-engineering-group-to-add-engineers-voices-to-the-growing-movement-addressing-gender-imbalance>

**Step 2: Upskill and Fulfil**

Now that you know all about the fantastic opportunities about engineering, why not get started on your career management plan? What type of engineering grasps your interest? What skills do you think you have that suit this sector?

A key priority in career planning is discovering why you want to pursue a particular career, what skills you have and how you can apply them to the field of work. Engineering is a skill-based field that requires hard work, determination, and perseverance!





Click on the following links to find out the **relevant skills** related to the **field of engineering**:

**Essential engineering skills:**

<https://www.indeed.com/career-advice/resumes-cover-letters/essential-engineering-skills>

**Skills every engineer should have:** <https://www.youtube.com/watch?v=PR8IEVUeNWU>

**Skills required for engineering:**

<https://interestingengineering.com/10-essential-skills-that-hiring-managers-look-for-in-engineers>

Being aware of your self-image and your strengths is a fundamental step in your career management plan. This helps you to identify what skills you have, need, and can develop to pursue your dream career.

Identifying your strengths, abilities and competences are a great first step in the right direction in planning your Career Model Canvas. Being a resilient employee has shown to have a great impact on employees in the workplace. It is known to lead to greater job satisfaction, organisational commitment, employee engagement and overall work happiness.

For more information on how you can be more resilient at work, click on the following links:

**Resilience skills:** <https://positivepsychology.com/resilience-skills/>

**Resilience at work:** <http://workplacementalhealth.org/Mental-Health-Topics/Resilience>

**Building workplace resilience:**

<https://hbr.org/2016/06/627-building-resilience-ic-5-ways-to-build-your-personal-resilience-at-work>

**5 top reasons for resilience at work:**

<https://www.forbes.com/sites/brentgleeson/2020/11/04/5-top-reasons-resilience-at-work-matters/?sh=197c7b8e69ce>





**Strategies for building resilience at work:**

<https://www.youtube.com/watch?v=zUzguvsTbC4>

In this step, why not create a mind map of good practices that you could implement to strengthen your resilience in the workplace. Mind maps can be a great way to get all of your ideas onto paper and brainstorm.

For more information on **how to write productive mind-maps for your career planning**, click on the following links:

**Online Mind map:** <https://www.mindmup.com/>

**Brainstorm: Mind mapping:**

<https://www.monash.edu/rlo/quick-study-guides/brainstorming-and-mind-mapping>

**How-to Mind map:**

<https://thepeakperformancecenter.com/educational-learning/thinking/brainstorming/>

**Step 3: Why me?**

The great step in your career planning, is to do a self-assessment. Knowing your strengths and abilities can help you to become resilient in your line of work and can help you to establish networks within your team. Being resilient helps you to overcome the barriers you may face in your professional life.

Facing challenges with great flexibility and perspective can further your career prospects and motivation. Resilience can help you to have a greater openness to learn from mistakes and failures. To help you identify these skills, why not copy, and complete the following table? In doing so, you can recognise which skills are your strongest and which you can apply to this field!

Skill	Rating	Skill Strength	Strategy	Importance
Competency				





Problem Solving				
Teamwork				
Creativity				
Communication				
Attention to Detail				
Leadership				
Educational Commitment				
Works well under pressure				
Technical Skills				
Interpersonal Skills				
Analytical Skills				

The most important steps in your career management plans is to:

- 1) Set realistic objectives. Setting unattainable goals will only generate frustration. Break them down into small achievable goals.
- 2) Make sure your objectives are quantifiable. If you set yourself deadlines, then your success can be measured.
- 3) Goals must be flexible – You must adapt to the situation, the pace, and the needs.

**Step 4: Analyse the Labour Market**





The next step in your career planning, is to analyse the labour market. Understanding the labour market in regard to engineering is essential to finding a job within this sector. In Ireland, there are many jobs that constantly recruit engineers.

In order to get your engineering career started, you will have to check out the **requirements of engineering jobs**. Click on the links below for more information:

**Engineer job requirements: How to become an engineer:**

<https://www.thebalancecareers.com/how-to-become-an-engineer-525606>

**How to become an engineer with any background:**

<https://online-engineering.case.edu/blog/how-to-become-an-engineer>

**Accredited engineering courses:**

<https://www.engineersireland.ie/Professionals/Membership/Become-a-member/Accredited-third-level-courses>

**Find a third level engineering course:**

<https://www.engineersireland.ie/Professionals/Membership/Become-a-member/Accredited-third-level-courses/Find-accredited-programme/>

For more information on engineering jobs in Ireland, check out the following links:

**Engineering courses in Ireland:** <https://www.courses.ie/course-category/engineering/>

**Irish jobs in the field of engineering:** <https://www.engineersireland.ie/Find-a-job/>

**Engineering Salary Survey:** <https://www.engineersireland.ie/listings/resource/553>

From these links you can check out which jobs you like the sound of or which pique your interest. This will be important when completing your Career Model Canvas as it will help you evaluate and identify which career routes you would like to venture. This works to determine your horizons and your future career path.

**Step 5: Time for Action: *Career Model Canvas***







Now that you have identified your strengths, networks, and horizons of your career in engineering, the time has come to plan out your Career Model Canvas. This tool will play a fundamental role in your career planning and will help you to have a thorough plan of action! Assessing your career through a Career Model Canvas will help you to become involved in an interactive process which emphasises the benefit of career development (Skills Development Scotland, 2012).

You have reached the final step! Well done! Now it's time to use this resource to get you started in your new career path. This resource will work as a visual aid in your career management and will help you to plan for the future. With the document below, make your own Career Model Canvas and fill out the sections with the information you have gathered in the previous steps of this WebQuest.

In your own Career Model Canvas you will detail:



## CREATE YOUR OWN CAREER MODEL CANVAS



CAREER OR JOB TITLE:

<p><b>Key Partners</b> (Networks)</p> <p><i>Include an overview of networks in your region, nationally and across Europe where you can access advice on this potential career.</i></p>	<p><b>Key Attributes</b> (Self)</p> <p><i>List here the key personal attributes that you have, that are particularly useful for your new career. Describe who you are and what you can bring to this role.</i></p>	<p><b>Value Proposition</b> (Strengths)</p> <p><i>List your key strengths, highlighting the skills and experiences that you can bring to this new career. Try to answer the question: "What sets me apart from other candidates in this role?"</i></p>	<p><b>Soft Skills</b> (Strengths)</p> <p><i>List here the soft skills (communication, teamwork, collaboration, etc.) that you have and identify how they can be used in this new career.</i></p>
<p><b>Key Values</b> (Self)</p> <p><i>List here what is important to you in a career, and in life. List your intrinsic and extrinsic motivations, and state what your personal goals are for this new career.</i></p>		<p><b>Transferrable Skills</b> (Strengths)</p> <p><i>List here the main transferrable skills that you have from other experiences and life roles. Include an example of how these skills can be applied in your new career.</i></p>	
<p><b>Revenue</b> (Horizons)</p> <p><i>Research and summarise the salary potential of this role and estimate the opportunities for advancement in this sector for your own career.</i></p>		<p><b>Growth Potential</b> (Horizons)</p> <p><i>Research and estimate the potential growth in this sector in your country, across Europe and globally.</i></p>	

Click on the following link to **develop and complete your personal Career Model Canvas**:

Your own Career Model Canvas: **\*Insert link**





**EVALUATION**

On completion of this WebQuest, you will have achieved the following learning outcomes:

Engineering	Knowledge	Skills	Attitude
	<ul style="list-style-type: none"> <li>● Factual knowledge of available career pathways into Engineering careers.</li> <li>● Factual knowledge of national and European career options in Engineering.</li> <li>● Factual knowledge of national and EU programmes for women in Engineering roles.</li> <li>● Theoretical knowledge of personal attributes required for career</li> </ul>	<ul style="list-style-type: none"> <li>● Discuss career options in the Engineering sector.</li> <li>● Self-evaluate personal suitability to careers in this sector.</li> <li>● Self-assess skill deficits for a successful career in Engineering.</li> <li>● Develop an education and career plan for success in the Science sector.</li> <li>● Discuss different careers within Engineering – Civil, Structural, etc.</li> </ul>	<ul style="list-style-type: none"> <li>● Willingness to assess one’s own motivation to pursue a career in Engineering.</li> <li>● Awareness of the important role that women play in Engineering.</li> <li>● Openness to exploring career options in Engineering.</li> <li>● Willingness to share what has been learned with other female professionals in a network.</li> <li>● Openness to engaging in female networks in the</li> </ul>





	success in this sector.	<ul style="list-style-type: none"><li>• Research successful female role models in Engineering.</li><li>• Solve challenges to build resilience when planning a career in Engineering.</li></ul>	Engineering sector. <ul style="list-style-type: none"><li>• Willingness to self-evaluate to identify skills and attributes needed to succeed in Engineering careers.</li></ul>
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As a self-assessment for this WebQuest, complete the following questions below:

1. Engineering is defined as *the branch of science and technology concerned with the design, building and use of engines, machines, and structures.* – True or False?

Answer: True

2. Resilience is beneficial in the workplace?
  - a) It enables confrontation in the workplace.
  - b) It creates managerial positions
  - c) It enables a positive approach to work, leading to problem-solving and maintaining motivation
  - d) It encourages employees to be unproductive

Answer: (c)

3. Which of the following countries has the most female engineers?
  - a) Ireland
  - b) Spain
  - c) Morocco





d) Algeria

Answer: (d)

4. Which of the following is a female engineer?

- a) Edith Corr
- b) Edith Clarke
- c) Edith Crawley
- d) Edith Crete

Answer: (b)

5. Which of the following traits are common among engineers?

- a) Critical thinking
- b) Creativity
- c) Problem-solving
- d) All of the above

Answer: (d)

## CONCLUSION

Congratulations! Career planning is a strategy that helps you to identify, plan and achieve your goals. This strategy always begins with the definition of objective which are based on your interests, competences, and skills. It is vital to have clear and concise objectives and an appropriate plan to achieve them. By creating your own Career Model Canvas, you have managed to draw up a career plan and reflect on what you plan to achieve.

In completion of this WebQuest, you have gained relevant information and experience in how to plan your own career in engineering. This sector is an interesting and exciting industry to work in and you have the power to bring innovation, creativity and so much more to the table. Female engineers have the power to revolutionise the engineering sector and bring new ideas, insights, and solutions to worldwide challenges. As an





engineer, you could have the opportunity to design and produce innovative products that can make a difference to the world! So, what's stopping you? Why not get started on your new career move today!



Photo by Idara Ekph on *Unsplash*

*"We have an opportunity to create the future and decide what that's like."*

- Mae Jemison

