

# RESEARCH CANVAS STEP- BY-STEP-GUIDE

**1. Who are you?** Tell something about yourself : This is me ! Do not limit it to work only: • Where do you come from? • What is your background, education ... ? • What do you want to do 5 years from now? Provide a link to your LinkedIn profile !

**2. The context of your research.** Describe your research domain and give us the big picture of your work. Example • I research the semiconductor properties and the photovoltaic behaviour of CIGS for BIPV modules. • CIGS: Copper indium gallium (di)selenide • BIPV: Building Integrated Photovoltaic modules Now try this: • My research domain is in new materials research and its applications for solar energy. • We research the performance of new types of solar cells and their production process.

**3. The research problem.** What is the question you are trying to solve? Example • How do we make solar energy economically feasible and more scalable? • The performance of solar cells is too low: only 15% to 20% of the incident solar energy is transformed into electrical energy. • In addition the production process is not efficient: it requires many steps and high energy. • This combination makes investments in solar energy not economically feasible and the cost of solar energy is today higher than wind or natural gas.

**4. Your solution.** Here you have to describe what you have or do and how you plan to solve the problem. Example • We produce solar cells prototypes using a different semiconductor material than silicon: CIGS. • It is a semiconductor that allows different and cheaper production processes. • The production process allows to create solar cells in many different forms and formats and could be integrated in building materials such as metal foils, tiles and façade decoration. ‘

Position of your solution. What are the technological differentiators of your solution? Try to identify 2 or 3 unique differentiators, tell us why they are unique and how this can be measured or proven. Example • CIGS solar cells can be deposited on any type of substrate from metal foil to plastics. As such they reduce the installation costs of solar power installations with at least 50%. • The production of CIGS solar cells can be done in continuous processing. This allows for better scaling and higher production volumes at lower prices.

**5. Intellectual Property.** Intellectual property (IP) can come in different forms: • Patents • Copyright on software, data, designs • Open source software You need to know who is the owner and what you need to do to use this IP in your application. Example Solar energy patents. • The production process of the new solar cells is protected by a family of patents shared between the university and a research institute. • We will need an exclusive license.

**6. Alternative solutions.** What other ways are there to solve the same problem? Example • Improvements to the classical solar cell that can already reach 25% efficiency. • New production processes for classical solar cells. • Advances in wind energy.