– GUIDELINES –

CALL FOR INNOVATION PROPOSALS 2014-2

KIC InnoEnergy Innovation Projects

Doc.: CIP14GUI-2

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1. INTRODUCTION

These guidelines have been written primarily to assist those willing to submit an innovation project proposal to the KIC InnoEnergy Call 2014. Secondly, they should serve as guidance to those committees assessing the submitted proposals.

The guidelines presented hereafter, are intended to provide support in two different phases of the project lifetime.

1. Submission of the project proposal
2. Development of WP0- feasibility study, once the project has been selected.

The WP0 – feasibility study is a comprehensive analysis, covering different aspects, that needs to address at least the requirements detailed in Section 3.

Out of this comprehensive analysis, a small subset of questions have been selected for the proposal phase (see *Section 7 - Business Development* in the proposal template). Only those questions that are essential for the assessment of the proposal are included. It is expected that provided answers result from a basic analysis that is already existing or performed during the proposal phase.

During the feasibility study phase, those answers already provided at the submission, shall be reassessed by performing a deeper analysis.

The following table provides an overview of the questions included in both the proposal and WP0-feasibility study phases.

			Proposal	WP0
1	**What problem does my product/service solve?**			
	1.1	What problem does your product/service solve?	x	x
	1.2	Which customer need does it satisfy ?	x	x
2	**Macro- Environment and system analysis**			
	Macro- Environment analysis			
	2.1	How the macro-environmental factors affect your product?	B	D
	Value chain analysis			
	2.2	Describe the value chain related to your product/service. Are the different players available and connected?	x	x
	2.3	Does the value chain need changes in order to introduce your products/ services? If yes, how do you expect to deal with it?		x
3	**Market analysis**			
	Market research			
	3.1	Current market size and growth in next 5 years	x	x
	3.2	Market structure and market share (%)		x
	3.3	Market trends (5 years period) and % of growth (by technology and geography)		x
	3.4	How large will be the Total Addressable Market (TAM) be in the following-5 years?	B	D
	Segmentation- Targeting			
	3.5	Who are your customers and what are their characteristics? Customer analysis	x	x
	3.6	Which are their needs in relation to the product/service? How are they currently covered?		D
	3.7	Which market segments do you identify?		x
	3.8	Which market segments do you target?		x
	Competitive analysis			
	3.9	Are there similar products in the market? Please specify your competitive advantage.	x	x
	3.10	Which are the key players (competitors) in the different market segments?		x
	3.11	Comparison of the competitors' key products by characteristics		x
	3.12	Define the positioning mapping according to the variables that differentiate yourself from competitors and that are valuable for your customers		x
	3.13	Threat of substitute products/ services		x
	3.14	Threat of new entrants . Are you aware about other similar products under development?		x
4	**Value proposition for customer**			
	4.1	Why will the customer buy your solution and what will he sacrifice?	B	x
	4.2	Quantify the impact of your product/service for the customer		x
5	**Product / Service definition**			
	5.1	Specify and quantify the characteristics and attributes of the product/service to be developed in terms of cost, performance, efficiency, etc. When relevant, quantify process overall energy / mass balance.	B	D
	5.2	What is innovative about the product/service? What are the differentiating features of my product/service? To what extent is it unique?		x
	5.3	What will be the state of development of the product at the end of the project?		x
	5.4	Proposed technology solution for product or service?	B	D
6	**IPR Protection**			
	6.1	Provide background IP	B	D
	6.2	How do you intend to protect foreground IP developed in your project?		D
	6.3	Provide "freedom to operate" analysis		x
7	**Initial Business Model**			
	7.1	Exploitation strategy definition		x
	7.2	Initial Business Model		x
8	**Investment and financial return**			
	8.1	What investments are needed?	B	D
	8.2	How do you plan to get such an investment?	x	x
	8.3	Expected P&L for the company and ROI for KIC	x	x
9	**Project plan**			
	9.1	Project duration	x	x
	9.2	List of partners	x	x
	9.3	Project organization (Gantt chart) including Gate reviews (Go/No Go)	x	x
	9.4	List of milestones and deliverables	x	x
	9.5	Budget	x	x
	9.6	Risk analysis with mitigation plan	B	D
	x:	To be delivered		
	B:	To be delivered as a result of basic analysis		
	D:	To be delivered as a result of in-depth analysis		

2. REQUESTED INFORMATION FOR SUBMISSION OF PROJECT PROPOSAL

Those consortia interested in submitting a project proposal need to fill the template available as *Annex 3 to the General Document - Call for Innovation Proposals 2014*. The template in MS Word format, can be used for preparation purposes and for sharing information with other partners in the project consortium.

The final submission needs to be done through the online web site **cfp.kic-innoenergy.com.** For doing this, it is possible either to cut and paste your text and figures directly from the MS word template, or to include them directly in the web site.

According to the admissibility criteria, only proposals that are complete and submitted in time will be considered

In the following, further details about the information requested in the template are given.

1.- LIST OF PARTICIPATING INSTITUTIONS

- **Participant legal name**: State the name of the organization being partner of the consortium. In the case that different departments of the same organization (e.g., University) are involved, consider a single entry. **Take notice**: The first line for the project leader organization
- **Country:** Name of the Country where each organization is located. A CC will be assigned after the project has been approved.
- **Organization type:** Please select among the following options: Large industry, SME, research center, University, business school or start-up/Venture. In case none of these options is suitable, introduce your own type of organization.
- **Existing KIC partner:** If your company participate or has participated in a project with KIC InnoEnergy state Yes. If your company is not participating in a project but is a formal or associate partner fill in Yes, Otherwise fill No.
- **Accountable person:** Name of person empowered by each partner organization to decide on the involvement in the consortium.

2.- EXECUTIVE SUMMARY

2.1. New products, services, processes and associated Total Addressable Market (TAM)

1. List new products and services to be developed in the innovation project.
2. Select what the result of the project is, a product or service. Use more than one line for more than one result. It is possible to select a product and a service for one product.
3. Select if the market introduction of the new product/service is dependent on current or future regulation Select Yes /No.
4. State the degree of innovativeness for each product: incremental or disruptive
5. State the type of impact on market and society expected by each product or service developed in the project. A single product can produce one or several types of impact. This impact should be explained in the Project description (question 3)
6. State who will be the buyer of your product or service. One or several types of buyers are possible.

7. For each of the products/services, please include Total Addressable Market (TAM). For definition of TAM, please see Section 7.2.2.

8. Give the date (year) of the expected Market launch of the product/service

2.2. Narrative summary of proposal

In half a page, please explain **to non-specialists** the problem or need addressed by the project, The solution, the innovation , the value chain, the total project amount, the market value for the commercialization partner.

3.- PROJECT DESCRIPTION

In maximum three pages, please provide a detailed free-style description of the project.

Include a clear description of the product or service that will be developed and commercialized.

4.- KEY ACTIVITIES OF EACH PARTNER WITHIN THE PROJECT

Start for all the organizations (except for universities) with the following information:

- Revenue the last 3 years, - Number of current employees. - Date of establishment. - Holding organization (if any)

Please describe the role of each partner within the project. Explain which are the main tasks per Work package in which each partner is involved.

5.- OVERALL PROJECT PLAN

Provide a plan for the whole duration of the project in the form of a Gantt chart (or other type of graphical representation), broken down into different **work packages**. Include in your plan most relevant **deliverables, milestones and gate reviews**. The plan should be scheduled in Years, and Month's.

Gate reviews shall be considered as **effective risk management mechanisms** to be implemented by the consortium in order to **check feasibility** of the project along the way to the market. A first gate review addressing the content detailed in Section 3 (WP0 gate review) shall be scheduled before the end of June 2015.

Other gate reviews related to the achievement of certain milestones should be considered in the project plan.

6.- WORK PACKAGES

There are two compulsory work packages:

WP0 – Feasibility study

KIC InnoEnergy requires all consortia to perform a detailed feasibility study before the end of 2014. **The content and details of the feasibility study are described in Section 3 of this document.**

Upon delivery of the feasibility study, KIC InnoEnergy will perform a gate review of the project. Those projects not showing convincing feasibility will be stopped.

WP1 – Project Management

All projects shall include a work package, devoted to project management. The role of the project management is described in Annex 5 of the *General Document – Call for Proposals 2014*. This work package may include other horizontal actions such as communication and dissemination, PSB meetings, KIC reviews, etc.

For each of the different work packages included in your project plan, please provide further detail using the following chart.

WORK PACKAGE DESCRIPTION		WP No	XXX
Work package Title		*[Select]* **KAVA** *or* **KCA**	
Institution(s): **Task leader**	*… can be more than one*		
Objectives:			
Tasks: Task i.1 (institution) Task i.2 (institution)			
Deliverables: D i.1 *(with date)* D i.2			

Objectives: The tangible end results of the work packages.

Tasks: Which company has to do what in which sequence to come to the result of the WP

Deliverables: The tangible detail results with name and delivery date (in month). The deliverable must be able to upload in the reporting system. (Documents, pictures, scan's etc)

7.- BUSINESS DEVELOPMENT

7.1.- Purpose of product/service?

7.1.1. What problem does your product/service solve?

Definition of the problem that is going to be solved by the product/service to be developed from a customer perspective.

7.1.2. Which customer need does it satisfy?

Answer this question not from a technology perspective, but putting yourself in the shoes of your customer

7.2.- Market analysis

7.2.1. Describe the value chain related to your product/service. Are the different players available and connected?

The value chain (also known as supply chain) is the sequence of different processes and actors that are involved in producing goods (and services), starting with raw materials and ending with the delivered product. The commercialization company who will sell the product/service should be in the consortium. Plot the consortium partners in the value chain.

7.2.2. How large will be the Total Addressable Market (TAM) be in the following 5 years?

The TAM (Total Addressable Market) is an estimate of how much a company would make in sales if there were no other competitors. It can be calculated like:

*TAM = Market size in units * price of your product*

Please take as the starting point the year when the product(s) will be launched.

7.2.3. Who are your customers and what are their characteristics? (customer analysis)

Provide customers' profile and their needs (what are they searching for?)

7.2.4. Are there similar products in the market? Please specify your competitive advantage.

List existing products in the market that solve the same need as your product/service. Why will a client buy your solution instead of another one? What are your USP's (Unique selling points? Or show a SWOT of your prodyuct))

Put this comparison preferable in a table for easy overview.

7.3.- Value proposition for customer

7.3.1 Why will the customer buy your solution and what will he sacrifice? (cost-benefit analysis, list benefits provided to consumers vs. "sacrifices" required)

The value proposition consists in thinking about the searched benefits for your customer. The added value you are creating to your customer should be contrasted with the required costs as well as knowledge adaptation. Are benefits higher than costs?

7.4.- Product/service definition

7.4.1. Specify and quantify the characteristics and attributes of the product/service to be developed in terms of cost, performance, efficiency, etc. When relevant, quantify process overall energy / mass balance.

Define the expected applications of the product or service and its main attributes including formal product specifications comprising (i) target production cost, (ii) performance, (iii) lifetime, etc. If the product is build out of a or several processes give the energy or mass balance to explain the added value of your solution.

7.4.2.- What is the underlying technology for the new product/service to be developed?

Explain the technology that is used for the development of this product/service. The explanation should give information how the transfer of the technology will be kep in the product.

7.5.- Intellectual Property

7.5.1.Provide background IP (list only the main IP assets)

Provide the background Patents, copyrights or secret know-how of this innovation project. (name and numbers.)

7.5.2.- How do you intend to protect IP generated in your project?

Foreground Intellectual Property				**Adoption /Transference to Industrial Process**		
Type	**IP description**	**Identification date**	**Filing plan date**	**Process description**	**Planned adoption / transfer date**	**Receiving industry name(s)**
Patent	...					
Secret KH	...	n.a.	n.a.			
Copyright	...	n.a.	n.a.			

IP KPI: For the IP the KIC recognize 3 types: Patents, secret know how and copyright. Here is only the foreground IP required to mention. For the proposal it is enough to describe the area where the IP will be created. The filling and registration dates will be planned dates.

Adoption /Transference to Industrial Process: Where and when in which production process and by which company will the IP be used?

7.6.- Investment and financial return

7.6.1. .- Expected product specific P&L for the 5 years after the completion of the project. Quantify the required yearly investments since beginning of project until positive cash flow

Estimate what is the approximate investment needed from the start of the project to the moment that this developed product/service has a positive cash flow

7.6.2. Please provide a sensitivity analysis for the revenues.

What vectors will affect the revenue of this product/service. E.g. governmental regulation, market price, CO2 price stc.

7.6.3 How do you plan to get the required investment?

Describe which are the intended sources of funding to reach such an total investment of 7.6.1.

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7.6.4 .- Expected return on investment for KIC. PRECISE MECHANISM AND FORESEEN YEARLY AMOUNTS (in kEURO)

Which is the Return on Investment (ROI) for KIC InnoEnergy? Please fill the template it is a excel form so DoubleClick to open the format and fill in.:

	Year 1 *Market introd.*	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Beyond Year 10 (cumul.)	Total ROI KIC InnoE.
	(enter year)											
Amount paid to KIC InnoEnergy (kEURO)	0	0	0	0	0	0	0	0	0	0	0	0

Total amount KIC requested funding (kEURO)	0
KIC Return multiplier after 5 years	**0,0**

7.6.5 Please describe what is the base for the ROI payments. E.g., revenue share, equity, license royalties, or any other means.

This template should be filled as follows: The year of he expected market entry is Year 1. Fill in the years after.

Fill in per year what the expected return is to KIC InnoEnergy. Fill in the total amount of KIC funding your consortium is requesting. Fill in the base of the return of investment to KIC. Such as revenue sharing royalties, license, shares, etc.

Please note that KIC InnoEnergy expects the return of their total investment in the project within 3-5 years after market introduction. This shall by no means be interpreted as a limitation of the total proposed ROI to KIC InnoEnergy

8.- COMPLIANCE WITH ADDITIONAL KIC REQUIREMENTS

8.1.- How does the project take care for the integration of students, academics and educational organizations? (If any, please specify links with KIC InnoEnergy education programs. http://www.kic-innoenergy.com/education/)

Here you have to address the participation of the education part of the Knowledge triangle. It can be student work, master thesis, PhD study, internship, etc.

8.2 Describe previous and planned activities of the SME partners involved in the project in relation with the products and services to be developed. (If any, please specify links with KIC InnoEnergy business creation activities. http://www.kic-innoenergy.com/businesscreationservices/)

There is the need to explain the existing and planned business activities of SME's. This is needed to understand the capabilities af such a company.

This can be an existing SME or a new Start-up in this project. In case the SME is a newly created venture, this will have to enter the KIC InnoEnergy Highway program

. 9. RISK ASSESSMENT:

9.1.- Self-assessment of risks of project with mitigation per risks

Describe which are the main risks in your project due to internal aspects such as technical, financial, team competences, etc. What actions are planned to mitigate such risks? Fill this in the table.

Nature of risk	Likelihood	Impact	Severity	Mitigation measures
Add lines if required				

Likelihood: 1 = improbable; 2 = unlikely; 3 = possible; 4 = likely; 5 = probable
Impact: 1 = light; 2 = serious; 3 = major; 4 = catastrophic
Severity = Likelihood x Impact

9.2.- About the partnership (added-value of the co-operation-complementarities between partners)

Explain:

- Why is each partner required?
- Why are these the right partners? What competences do they bring?
- Why are the partners complementary in terms of value chain and background knowledge?
- Which type of partner is not in the consortium and what are the risk related to that

10 BUDGET BREAKDOWN

The budget needs to be constructed according to the information requested in the CIP14 – Annex 3C Budget.xls file. This file consists of several tabs where different types of information are requested.

If additional information is required please contact the KIC InnoEnergy Office near to you to ask for support of the country CFO.

10.1.- Overall Project Information

- *Partners & Work Packages* – Start introducing the information about the partners and work package structure of your project. This information will automatically feed other tabs.
- *Exhibit 1.3* – Do not fill. This is automatically generated as an aggregation of each partner's budget information.
- *KAVA by nature* – Do not fill. This is automatically generated as an aggregation of each partner's budget information.

10.2.- Individual Partner Budget Information

Budget for each partner shall be specified:

- *Part. X KAVA* – For partner X and each year, provide for every Work Package, costs broken down into the different cost categories. For indirect costs, ask your finance officer.
- Part. X Compl. Activities – For partner X and each year, provide information related to complementary activities
- Part. X Fundings – For partner X and each year, provide how you will fund the KAVA activities. Note that by default, all the KAVA cost is considered to be funded by partner own resources. Funding allocated to other types of sources is automatically deducted from the "partner own resources" category.
  For complementary funding the same approach as for KAVA shall be followed.

11. CV OF PROJECT MANAGER

Please attach file with the CV of the proposed project manager.

Please SEE THE REQUIREMENTS OF THE PROJECT MANAGER IN THE RELATED DOCUMENTS

If such a project manager is not available in the consortium state in your proposal that the KIC InnoEnergy should propose a project manager.

3. FEASIBILITY STUDY – WP0

Introduction

Why?

The aim of KIC InnoEnergy Innovation Projects is to launch new products and services to the market. This implies paying attention not only to the technology but also to market, IP and financial issues that could be the deciding factors for the feasibility of the project.

The "*Feasibility Work Package*" has been developed to have a holistic perspective about the opportunities of the project. It offers guidelines for Innovation Projects' leaders and participants, by posing the key questions that need to tackled from the very beginning of the projects.

What?

This "*Feasibility Work Package*" (under the acronym of WP0) offers guidelines to understand the different questions required by KIC InnoEnergy to assess the feasibility of the project.

The "*Feasibility Work Package*" is composed of 9 chapters with various questions related to *market analysis, IPR protection, initial business model, investment analysis, etc.* Each chapter goes with an explanation about each question that need to be answered. This should help project participants to properly understand what is demanded.

Instructions

The "*Feasibility Work Package*" (WP0) shall include all the information demanded in this present document. Therefore, all questions shall be answered and properly analyzed. Performed analyses should be robust and convincing, in order **to show evidence of the feasibility of launching your product/service into the market successfully**.

Feasibility Work Package Questionnaire for Innovation Projects

I. SECTION 1: WHAT PROBLEM DOES MY PRODUCT/SERVICE SOLVE?

***THE OBJECTIVE OF THIS SECTION IS**: Understand why this project is relevant and the existence of unanswered needs that could be fulfilled.*

Questions

1.1. What problem does your product/service solve?

Definition of the problem that is going to be solved by the product/service under development.

E.g.: *Crystalline silicon technologies dominate the Photovoltaic market with an 85% to 90% market share, in terms of value. But they present some disadvantages, for example: (i) high material and processing costs and (ii) high stiffness.*

The problems to be solved are the huge costs of these technologies and the high stiffness which limits the installation in complex buildings' shapes.

1.2. Which customer need does it satisfy?

Behind a problem, there is someone (individual and/or organization) with an unsatisfied or unsolved need. In this case, the main objective of a technology under development is to satisfy uncovered or poorly covered needs for a group of customers. It is key to know who is your customer and his/her needs, to launch a product/service successfully to the market.

You should answer this question not under a technology perspective, but putting yourself in the shoes of your customer.

E.g.: *I am a manufacturer of OPV thin films and my targeted customers are real state companies and construction companies. These customers have the following needs (i) to have a photovoltaic product that can be installed in complex buildings (with complex shapes) and (ii) at a lower cost than silicon cells; without decreasing efficiency provided by silicon solar cells.*

II. SECTION 2: MACRO-ENVIRONMENTAL ANALYSIS

Macro - Environment analysis

THE OBJECTIVE OF THIS SUB-SECTION IS: *To prove that the macro aspects are not a serious threat and/or an opportunity. Assures sustainability of the opportunity or indicates actions that will have to be taken in the future in order to protect you from that environment (if possible).*

Questions:

2.1. How do macro-environmental factors affect your product, in terms of political factors, economic factors, social factors, technological factors, environmental factors and legal factors?

Analysis of the macro-environmental factors that can have an influence (positive or negative) on the development of your product/service, as the example below:

Political Factors	Analysis of the political factors that will have an influence on the technology (E.g.: Directive 2009/28/EC of the European Parliament)
Economic Factors	Analysis of the economic factors that will have an influence on the technology (E.g.: oil prices, interest rates, unemployment rate, etc.)
Social and Environmental Factors	Analysis of the social factors that will have an influence on the technology (E.g.: public acceptance, ethic energy generation, etc.) Analysis of the environmental awareness (E.g.: risk of disrupting animals, etc.).
Technological Factors	Analysis of the different technologies' development (E.g.: different products development, investment in R&D, etc.)
Legal Factors	Regulatory framework (regulatory and legal issues)

It is important to perform this analysis not only in an EU framework but also by the regions/countries where you are interested to launch your product/service.

Value chain analysis

THE OBJECTIVE OF THIS SUB-SECTION IS: *To be able to identify strengths in a partnership and/or potential partners, as well as bottlenecks in the value chain.*

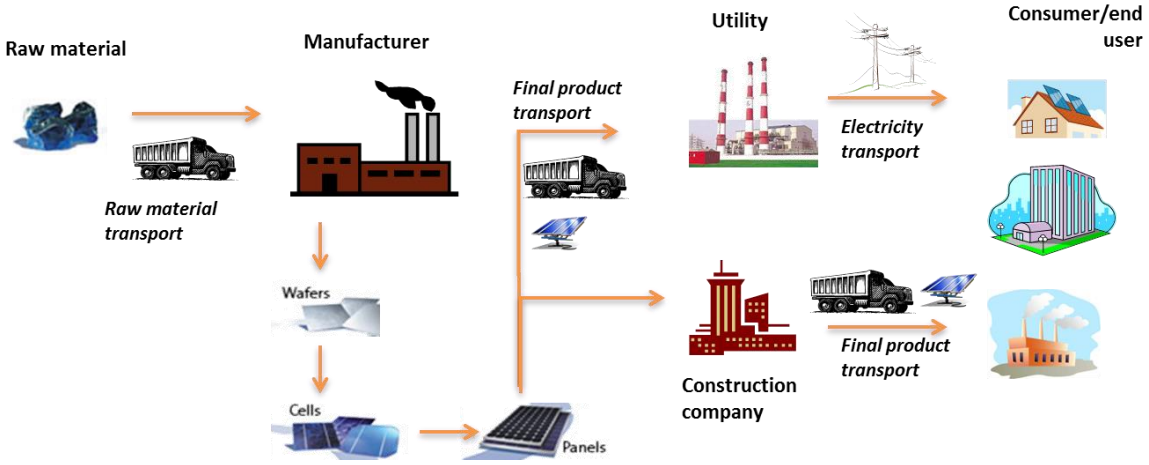
Questions

2.2. Describe the value chain related to your product/service. Are the different players available and connected?

The value chain (also known as supply chain) is the sequence of different processes and actors that are involved in producing goods, starting with raw materials and ending with the delivered product.

- Do all elements in the value chain exist? If not, how are you going to tackle this?
- Are the elements in the value chain already connected, as per the identified chain? Do you need to introduce new connections?
- Is there any bottleneck or potential risk at any of the elements of the value chain that may affect your product, its performance, quality, price, etc.? (e.g., monopolies, resources located in one country with constraining market policies or high political instability, potential situations of under-supply / over-demand, high price volatility, etc.)

E.g.: *The following representation of the value chain is related to the solar energy industry. Here current or potential partnerships should be identified as well as bottlenecks or constraints that can affect your product/service.*



2.3. Does the value chain need changes in order to introduce your products/ services? If yes, how do you expect to deal with it?

Even if all elements in the value chain exist, you many need to manage some changes in the way these elements currently operate, in order to produce or commercialize your product.

E.g.: *New PV panels to be commercialized require that silicon wafers are delivered in a size and format that is different from current industry standard.*

III. SECTION 3: MARKET ANALYSIS

Market research

Overview of the specific market: Market size (in M€), market structure (number of players in the market and its market share in %), tendencies of the market (which % of yearly growth is forecasted); and TAM quantification. If there is more than one market, please answer the questions for each of the markets. If the market doesn't exist already: what will my product generate (in €)?

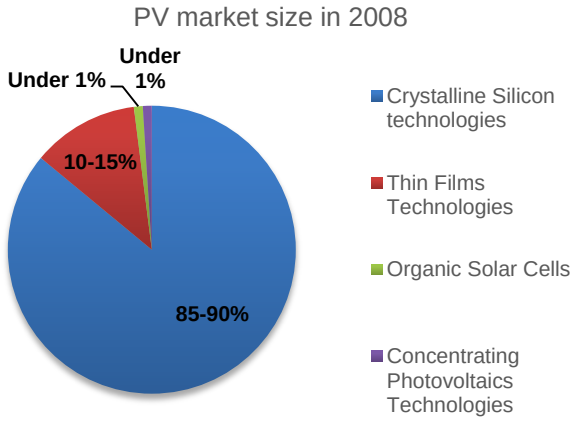
THE OBJECTIVE OF THIS SUB-SECTION IS: To prove how much attractive is the opportunity and economic impact.

Questions

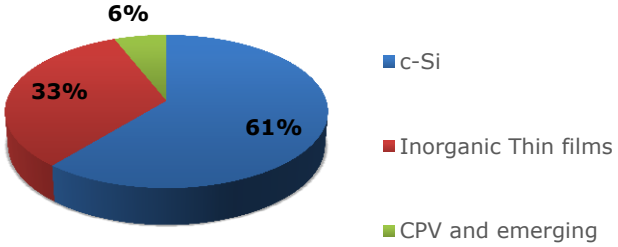
3.1. Current market size and growth in next 5 years

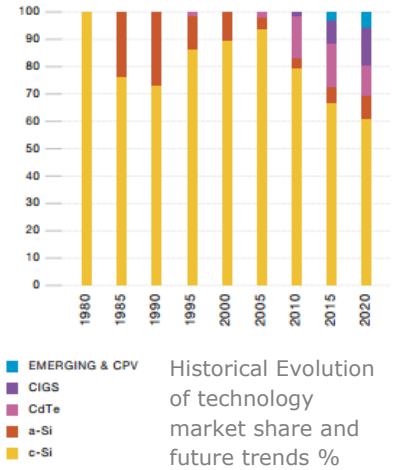
Please take as starting point the year when the products will be launched.

E.g.: *In 2008, crystalline silicon technologies dominated the Photovoltaic market with an 85% to 90% market share, in terms of value.*



EPIA expects that by 2020 silicon wafer-based technologies will account for about 61% of sales, while Thin Films will account for around 33%. CPV and emerging technologies (OPV, DSSC, among others) will account for the remaining 6%.





Historical Evolution of technology market share and future trends %

3.2. Market structure and market share (%)

In this question, number of total players in the market should be stated and its market share (%) identified.

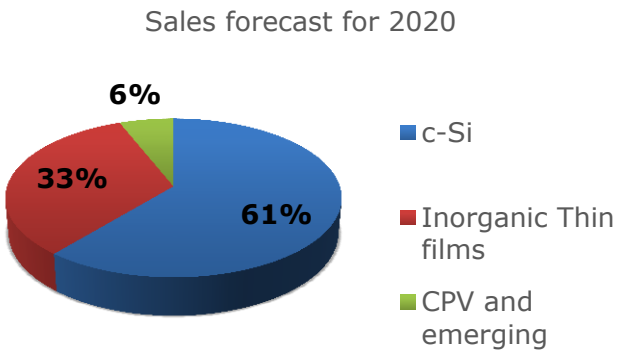
E.g.:, *current manufacturers of OPV and CIGS are still developing their products. Therefore, it is not possible to talk about market share.*

Current players are:

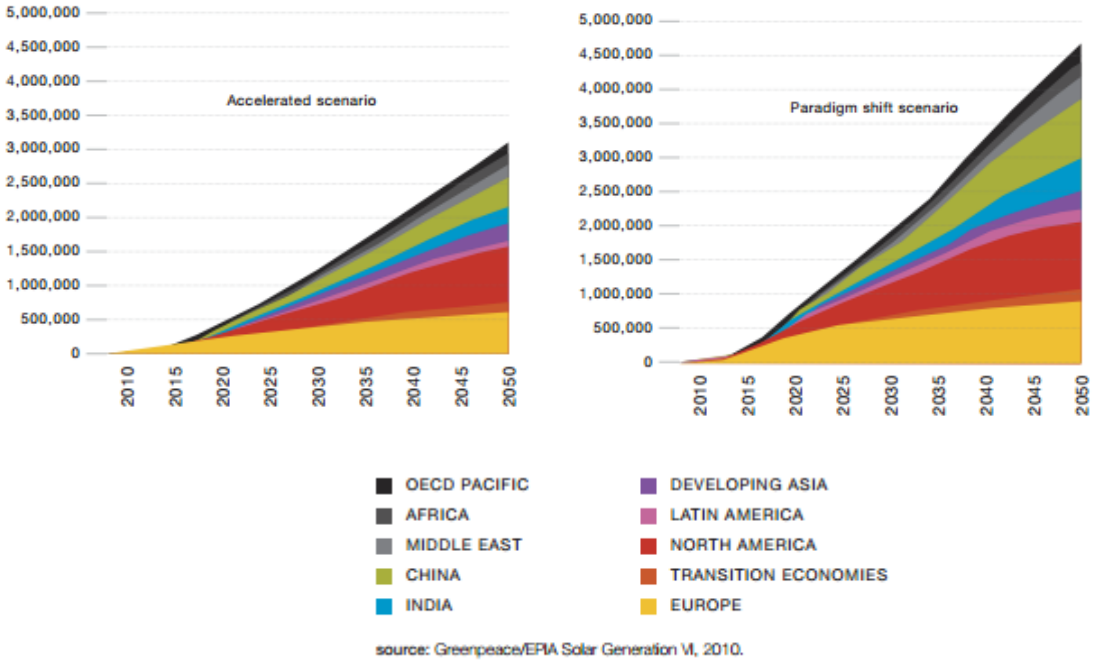
OPV & CIGS manufacturers
Ascent Solar
Nanosolar
Konarka
Solarmer
Solarpress
Solopower

3.3. Market trends (5 years period) and % of growth (by technology and geography)

This question covers in depth what is requested in question 3.1. This means that more data is needed (e.g.: which countries would experiment more growth in the market of study, explanations on how the market is going to experiment this growth, etc.).



Evolution of Cummulative Installed Capacityby Region under two Scenarios (MW)



source: Greenpeace/EPIA Solar Generation VI, 2010.

3.4. How large will be the Total Addressable Market (TAM) be in the following 5 years?

The TAM (Total Addressable Market) is an estimate of how much a company would make in sales per year if there were no other competitors. It can be calculated like:

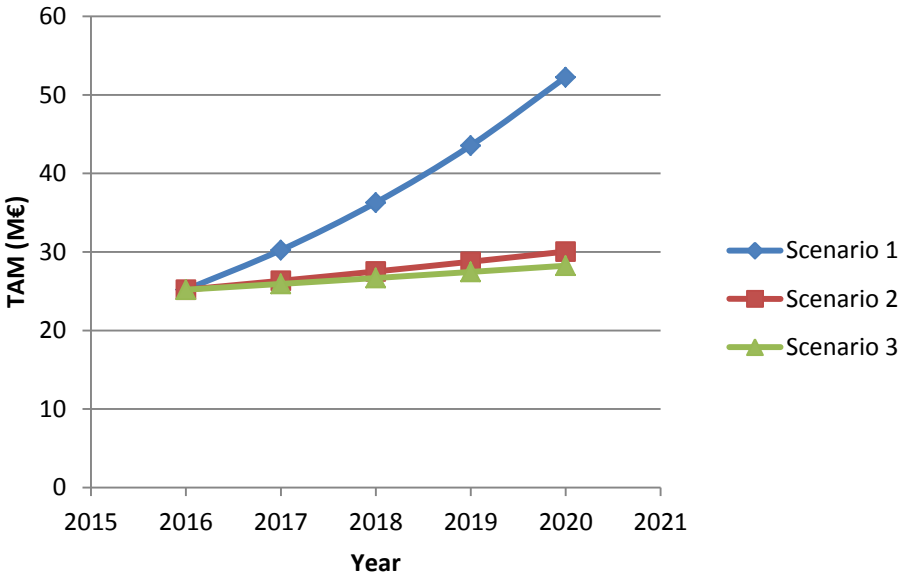
*TAM = Market size in units * price of your product*

E.g.: *If one year 210.000 m2 of thin films are sold, and the price of your product is 120 €/m2, your TAM will be 25,2 million €.*

For the following years it is possible to make a forecast by applying estimated growth rates. It is advisable to provide different scenarios: optimistic, prudent and pessimistic. The first year to be considered is the one when you will start selling your product.

E.g.: *Scenario 1: 20% market annual growth & same price; Scenario 2: 10% market annual growth & 5% price decrease; Scenario 3: 5% market annual growth & 2% price decrease*

			TAM Evolution (M€)				
	Δ Market Growth	Δ Price	2016	2017	2018	2019	2020
Scenario 1	20%	0%	25,2	30,2	36,3	43,5	52,3
Scenario 2	10%	-5%	25,2	26,3	27,5	28,8	30,1
Scenario 3	5%	-2%	25,2	25,9	26,7	27,5	28,3



Segmentation and Targeting

THE OBJECTIVE OF THIS SUB-SECTION IS: To show a general understanding of the market structure and prove that you are targeting at a good "fishing pond"; and to show a deep understanding of your customer and therefore, provide confidence that the product will be "tailored" to its needs.

Some of these questions can be answered by a qualitative analysis based on interviews or surveys to potential customers. Also research from secondary sources such as reports, articles, etc. can help.

Questions

3.5. Who are your customers and what are their characteristics? (Customer analysis)

The information required is: (i) customers' profile, (ii) customers' needs (what are they searching for), (iii) which products/services do they purchase to meet their needs (from competitors, if they exist), (iv) what they think that can be improved, (v) purchase decisions making (by price, efficiency, etc.), ...

E.g.: *In this case, real estate and construction companies interested in solar energy for complex buildings should be identified and its profile described. How big are these companies? What percentage of their works are related to complex buildings with the need of solar energy installation? Etc.*

3.6. Which are their needs in relation to the product/service? How are they currently covered?

This consists on an analysis about how current demand is being satisfied, in terms of suppliers and product types.

E.g.: *The need has not yet been covered. The current efficiency of thin films is not comparable to silicon solar cells, and therefore it is not applicable for buildings. But the product under development is a high efficiency thin film to be installed in complex shape buildings at a lower cost than silicon solar cells.*

OVERVIEW OF COMMERCIAL PV TECHNOLOGIES

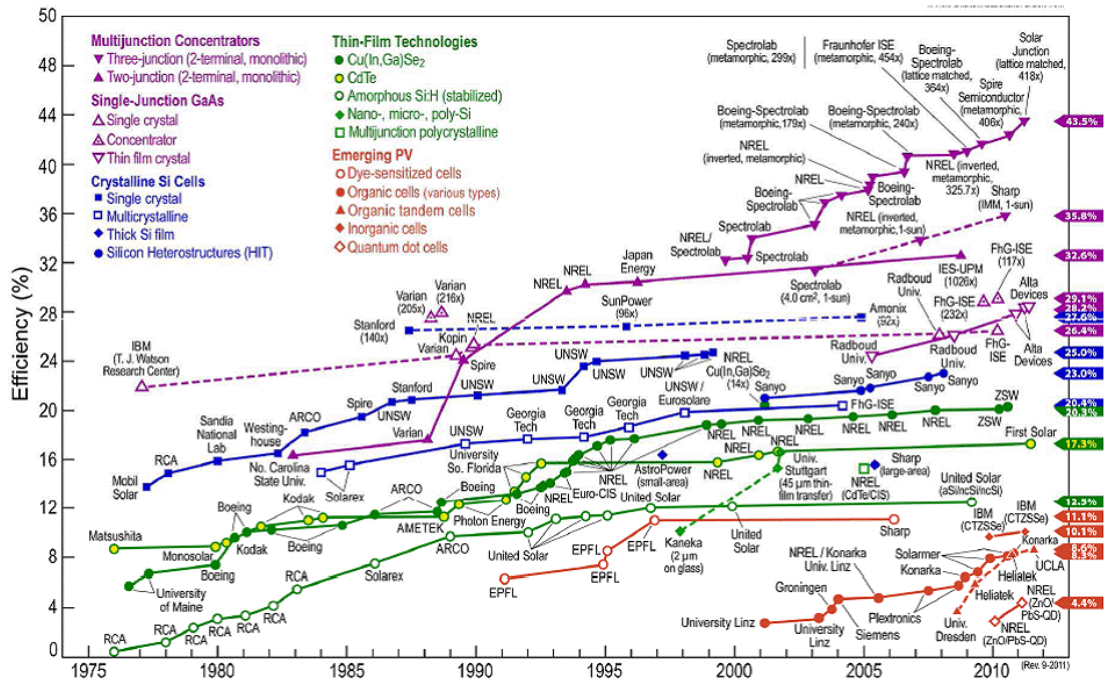
Commercial Module Efficiency

Technology	Thin Film					Crystalline Silicon		CPV
	(a-Si)	(CdTe)	CI(G)S	a-Si/µc-Si	Dye s. cells	Mono	Multi	III-V Multi-junction
Cell efficiency	4-8%	10-11%	7-12%	7-9%	2-4%	16-22%	14-18%	30-38%
Module efficiency						13-19%	11-15%	~25%
Area needed per KW (for modules)	~15m²	~10m²	~10m²	~12m²		~7m²	~8m²	

source: EPIA 2010. Photon international, March 2010, EPIA analysis. Efficiency based on Standard Test conditions.

The organic thin film technologies have registered the following efficiencies:

- *The graph below illustrates that OPV is a young technology with a constant efficiency increase, being the current lab record 9,1% (polymer, polyera)*
- *Laboratory and manufactured products efficiencies are quite different, Konarka has been the only manufacturer of OPV modules with an efficiency of 2,5%.*



3.7. Which market segments do you identify?

Market segmentation is to divide the total market into different segments or groups according to criteria such as:

- Technology and/or
- Customer/demand and/or
- Geography

In the energy sector, it is interesting to consider demand segmentation or technology segmentation (also geographical can be useful, if your product/service is going to be launched in a specific region).

E.g.: *The OPV technology's advantages make it competitive for a range of niche applications, such as the following, where the criteria segmentation is the demand:*

Segmentation Criteria: Demand (niche applications classification)	
Application	Description
Defense	Portable power for soldiers (uniforms) and tents
Portable electronics	Mobile phones, MP3 players, PDAs, digital cameras, toys, remote controls, GPS navigation systems, Bluetooth devices.
Smart fabrics	Bags and backpacks, awnings, suitcases, jackets and vests, cases and sleeves, tents, sails.
Building-integrated systems	Windows, roof, garage doors, skylights, walls, decorations, facades, tiles and shingles.
Outdoor recreational and remote applications	Signage, etc.
On-grid electrical energy production	

3.8. Which market segments do you target?

Which of the different identified segments is the most attractive? Explain which segment/s are you going to address with your product/service and why. Here is where you take a decision, which can be based on different variables: most attractive in terms of price, less competition (freedom to operate), etc.

E.g.: *The targeted market segment chosen has been BIPV (Building Integrated Photovoltaics). The reason is twofold:*

- *The developed product presents most competitive advantages in this demand segment where large surfaces of PV systems need to be integrated at a competitive cost.*
- *This segment is expected to be the largest one among all*

Niche applications classification		
Time to market	Application	Description
Short term	**Building-integrated systems**	**Windows, roof, garage doors, skylights, walls, decorations, facades, tiles and shingles.**

Competitive analysis

THE OBJECTIVE OF THIS SUB-SECTION IS: To show data about how fierce competition is and how your product is going to be positioned in front of the existing offering. This will serve as input for the competitive advantage definition.

Questions

3.9. Are there similar products in the market? Please specify your competitive advantage.

Analyze information of existing products in the market that solve the same need as your product/service. Comparison of competitors' products by characteristics is needed to identify your competitive advantage, i.e. why a client will buy your solution instead of another one.

E.g.: *Solarmer's plastic solar panels for BIPV applications will be available in 2013. The product under development will have a higher efficiency (12%) but maintaining costs at 100€/m^2. In this case, we know that clients are more interested in efficiency than costs (extracted from in-depth interviews), and that is why we are focused on increasing efficiency.*

3.10. Which are the key players (competitors) in the different market segments?

Comparative analysis of the competitors, including information like: annual sales, market share (%), key products, comparison between competitors' key products by sales, etc.

Company	Current Market Segment
Ascent Solar	CIGS for **building integrated products (BIPV)**, electronic integrated and **electronic portable** power products (EIPV), **defense**, **space** and more.
Nanosolar	CIGS for solar panels
Konarka	**Defense:** Konarka was supplying the US Army with solar-powered battery chargers based on **OPV** – (Nanomarkets) Seven standard panels suitable for **microelectronics**, **portable power** and **remote power applications**
Solarmer	Solarmer's **OPV portable electronics** will be available in 2011-2012 Solarmer's plastic solar panels for **smart fabrics** applications will be available in 2011-2012 Solarmer's plastic solar panels for **BIPV** applications will be available in 2013.
Solarpress	OPV
Solopower	CIGS

3.11. Comparison of the competitors' key products by characteristics (price, cost structure, performance, etc.)

E.g.: *Solarmer's OPV panels characteristics:*

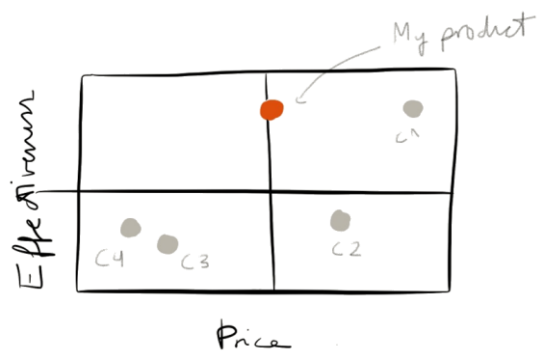
- *Cost: 30-50$/m2*
- *Lifetime: 1-3 years*
- *Transparency: up to 45%*
- *Size: Customizable*

The same exercise should be done for all competitors.

3.12. Define the positioning mapping according to the variables that differentiate yourself from competitors and that are valuable for your customers.

The positioning strategy consists on the location of all competitors' products and yours, usually in 2-axis-charts, using two variables that are important for your customers and related to your product.

E.g.: *2 critical variables are: price and effectiveness. According to those, competitors' products have been positioned (C1, C2, C3, C4). Then yours is also put in the matrix.*



Where is my competitive advantage? I am as efficient as my competitor C1 but much cheaper!!

3.13. Threat of substitute products/ services

Identify those products or services that are different from the one developed that can satisfy the same need. Describe the properties of the substitute products, the level of substitution and the differences, their competitive advantage.

Analyze the threat that these products can represent.

E.g.: *Substitute products for Building Integrated Photovoltaic flexible cells are other renewable energy technologies that can be integrated in buildings*

- *Product: XY flexible solar cells*
- *Competitors: Konarka, Solmer, etc.*
- *Need: Renewable energy generation integrated in buildings*
- *Substitute products: Micro wind turbines, biomass based micro turbines, solar thermal + Stirling engine, solar thermal + Organic Rankine Cycle (ORC)*
- *Market: Energy*

3.14. Threat of new entrants. Are you aware about other similar products under development?

The barriers for new entrants can be: (i) patents, (ii) rights, (iii) R&D expenditures, (iv) customer loyalty to determined products/services, (v) others. How can you deal with these barriers? Are you aware about other similar products under development? Is the risk of new entrants high or low? Why?

E.g.*: In this case, there are few players in this market, and therefore few patents. But, R&D expenditures are quite high because these kind of technologies are in a very early stage of R&D. In conclusion, and analyzing all the products under development, barriers are still low.*

IV. CHAPTER 4: VALUE PROPOSITION FOR CUSTOMER

THE OBJECTIVE OF THIS SECTION IS*: To convince that you are unique, that you have something that is valued, that you have a chance because everything is coherent and interwoven as a system.*

4.1. Why will the customer buy your solution and what will he sacrifice?

Perform a cost-benefit analysis. List benefits provided to customers vs. "sacrifices" required.

The value proposition consists in thinking about the searched benefits for your customer. The added value you are creating to your customer should be contrasted with the required costs as well as knowledge adaptation. Are benefits higher than costs?

E.g.: *Generate in your own building, emission-free, renewable energy, with an attractive return on investment independent of any governmental subsidy, without any hassle and with no visual impact.*

4.2. Quantify the impact of your product/service for the customer.

You can quantify the impact in terms of:

- Cost reductions. E.g., savings for CAPEX or OPEX vis-à-vis current solutions, calculating the reduction of levelized cost of energy, or
- Reduction of Green House Gas emissions, or
- Reduction of dependency from resource holders (e.g., import of tons of oil, gas, etc.)
- Etc.

E.g[1].: *For a location with an annual irradiance of 1400 kWh/m^2, and considering a 3 kWp solar panel field:*

[1] Provided data is not real. There may be inconsistencies in the figures related to the financial analysis.

- *The ROI for the customer is 12% considering a 10 time period (estimated lifetime of the product)*
- *The break-even point occurs in year 5*
- *The levelized cost of energy is 14,5 c€/kWh*
- *The required investment amounts to 1,025 €/kWp*
- *The GHG emissions avoided during a 10 year period: 32 Tons of CO_2, 44 kg of SO_2 and 68 kg of NO_x*

V. CHAPTER 5: PRODUCT / SERVICE DEFINITION

***THE OBJECTIVE OF THIS SECTION IS**: To prove that your offering is sound, technically possible and it fulfills customer requirements.*

Questions

5.1. Specify the characteristics and attributes of the product/ service to be developed.

Define the expected applications of the product or service and its main attributes including formal product specifications comprising (i) target production cost, (ii) performance, (iii) lifetime, etc. In fact, the characteristics and attributes of the product should be the result of a strategic analysis to position it in the market.

5.2. What is innovative about the product/service to be developed? To what extent is the product/service unique?

Describe how innovative is the product vis-à-vis other solutions in the market. State if the innovation can be considered incremental or disruptive.

5.3. What will be the state of development at the end of the project?

***E.g.:** Ready to be commercialized, first version for trial with customer, etc. State when the product will be readily available for commercialization.*

VI. CHAPTER 6: IPR PROTECTION

***THE OBJECTIVE OF THIS SECTION IS**: To prove that there is freedom to operate. Our technology is "safe" to be sold, licensed etc. It also defines the protection plan.*

Questions

6.1. Provide background IP

Background IP shall be provided according to KIC InnoEnergy *Guidelines for background identification* version 1. The following text is an excerpt of the guidelines.

Background (BG) IP can include:

- Patents or utility models (e.g. the German "Gebrauchsmuster");
- copyrights for software (should be associated with an external proof of date of creation); and
- secret know-how: not patented information, resulting from experience and tested, and which is: secret, substantial, and identifiable (i.e. codified in reports).

This means that any results or information which is published cannot be considered as secret know-how.

It is explicitly stressed that secret know-how and therefore BG does not include:

- Publications of any kind;
- skills which are not codified in writing;
- posters open to the public, e.g. in a conference or in halls or corridors open to the public; or
- talks before any audience with unrestricted access, e. g. in a conference.

The technical function of a software can also be patented (computer implemented inventions). This means that software can have a double protection by copyright and as a patent.

Generally, Access Rights for (some) partners to the listed background are required:

- either for the implementation of the Project: if without the grant of such Access Rights, carrying out the tasks assigned to the recipient Party would be impossible, significantly delayed, or require significant additional financial or human resources; or
- for future Commercial Use of own Foreground: if without the grant of such Access Rights, the Commercial Use of own Foreground would be technically or legally impossible.

As a result, in the BG list only BG with unrestricted or at least limited access should be included. In the case of limited access, the existing limitations should also be mentioned in the BG list.

For listing your background IP, please use the following table format:

1) Patents

	State (Office)	Number	Title	Publication date	Inventor(s)	Applicant(s)	Classification
Patent N°1							
Patent N°2							
Patent N°3							
Patent N°4							

This list should include all relevant patent applications which are already filed irrespective of the fact whether they are already published or not.

2) Copyrights

	Title	Author(s)	Owner	Proof of the date of creation: only when deposited in a skilled organisation		
				Date	Deposit number	Name of organisation
Software N°1						
Software Patent N°2						
Data baseN°1						
Data Base N°2						

3) Secret know-how

Internal technical reports

	Title of the report	Internal identification number	Author(s) of the report	Internal Date of circulation of the report
Know-how N°1				

6.2. How do you intend to protect foreground IP developed in your project?

Please specify how you intend to protect the different foreground parts in terms of patents, copyrights or secret know-how.

6.3.Provide "freedom to operate" analysis

Ensure freedom to operate from two perspectives:

1. The internal IP agreement among partners for contributing background required to commercialize the product/service
2. No constraint from external IP to commercialize the product/service. For this aspect an IP mapping is required. It should comprise detailed analysis of validity of patent and extensions, geographical coverage, etc.

VII. CHAPTER 7: INITIAL BUSINESS MODEL

***THE OBJECTIVE OF THIS SECTION IS**: To provide confidence about the implementation plan and show how the process of making profits works.*

Questions

7.1. Exploitation strategy definition

The exploitation strategy consists on defining who is going to commercialize your product (a partner being in charge of the commercialization or through a start-up) and how. Different options for commercialization your product / service include:

- Sale of product /service
- IP sale
- IP licensing
- Usage fee
- Subscription fee
- Lending/renting or leasing
- Brokerage fee
- Advertising
- Other

7.2. Initial Business Model

An initial business model shall be defined. A Business Model is a useful tool to describe and establish interrelations between many different decisions/aspects previously tackled. One possible model is the Canvas Model[2] that describes and interrelates the following aspects: i) customers segments, (ii) value propositions, (iii) channels, (iv) customer relationships, (v) revenue streams, (vi) key resources, (vii) key activities, (viii) key partnerships and (ix) cost structure

[2] http://www.businessmodelgeneration.com/canvas

VIII. CHAPTER 8: INVESTMENT AND FINANCIAL RETURN

***THE OBJECTIVE OF THIS SECTION IS**: To show that it is economically viable. It shows future investment needs and shows how much the commercializing company, the consortium and KIC InnoEnergy will obtain as financial return.*

Questions

8.1. What investments are needed?

Define what is the investment needed to launch the product/service to the market.

8.2. How do you plan to get such an investment?

Describe which are the intended sources of funding to reach such an investment. Are they available? What do you need to do in order to secure them?

8.3. Expected P&L for the company and ROI for KIC

Calculate the expected P&L (Profit and Loss) statements for the 5 year period after commercializing the product /service and derive the cash flows.

Explain and calculate which will be the Return on Investment (ROI) for KIC InnoEnergy.

ROI (%) = (Net profit (€) / Investment (€)) × 100

IX. CHAPTER 9: PROJECT PLAN

***THE OBJECTIVE OF THIS SECTION IS** to update the project plan delivered at the submission phase, after the completion of the feasibility study.*

Questions

9.1. Project duration

9.2. List of partners

9.3. Project organization (Gantt chart) including Gate reviews (Go/No Go)

9.4. List of milestones and deliverables

9.5. Budget

According to provided KIC InnoEnergy template.