

BR.3

Define and prioritise the requirements of the first project

Requires dialogue

The aim of this activity is to define and prioritise the requirements for the first project for eco-innovation from the roadmap.



INPUTS

- Roadmap for eco-innovation implementation from the activity *BR.2 Do a roadmapping workshop with input from value chain partners*.
- Details of the innovation ideas to be implemented within the first project for eco-innovation. This comes from the relevant activities of the step *Generating ideas at the individual building block level*, and the activity *BR.2 Do a roadmapping workshop with input from value chain partners*.

OUTPUTS

- Systematically captured set of requirements for the first project for eco-innovation used in the activity *IM.1 Create a project plan*.

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A 'requirement' is a singular, documented physical and functional need that a particular design, product or process must be able to perform. The level of detail concerning the technical requirements for the innovation ideas that were captured during the *SET BUSINESS MODEL* phase was sufficient to estimate the likely sustainability benefits and investment costs, but at this stage it is necessary to provide a complete set of technical requirements that can be used to guide the development process. Note that for simplicity it is assumed that the first project for eco-innovation involves just one innovation idea.

The *Requirements Specification template* is used to capture the decisions about the technical requirements of the innovation in hand. The purpose of the requirements specification is to define the basic characteristics and properties of the innovation idea in a structured and solution-neutral format. It can also be a helpful communication tool for use with any value chain partners involved in the project to ensure that expectations for the project are aligned. Value chain partners involved in the project should therefore have an opportunity to review and provide feedback on the Requirements Specification before finalization.

Filling in the *Requirements Specification template* is carried out in a structured manner, typically following the life cycle of the innovation that is being developed. The template includes a column for prioritization of the requirements. There are a number of good reasons to create and maintain a prioritized list of requirements such as:

- Prioritization can be used to adjust the scope of the project.
- The initial prioritization can also be used to help plan the work schedule

Guidance on how to complete the *Requirements Specification template* is provided below. This activity can be completed by yourself or with input from relevant members of staff from the company if available to assist you.

HOW TO GO ABOUT IT

1. Work through the life cycle of the emerging project to identify key areas where requirements need to be defined. Record each area for focus in a list.
2. Take the *Requirements Specification template* and begin filling in the fields – one row per key area identified. The fields of the template are as follows:
 - **Number or code:** This simply helps the project manager to keep track of each requirement and creates a reference to check performance against.
 - **Mandatory requirement:** This field is where the requirement is described. Take care to fill in the requirements by stating “what” but not “how” each requirement should perform. Describing the “what” sets a measurable target for the project, whereas describing “how” (even though tempting) may limit the solution space and cut out valuable innovation opportunities.
 - **Comments:** This field leaves room for members of the project to remind themselves of reasons for including the requirement, general questions about the technological elements of the solution, recommendations from other colleagues or similar projects, etc.
 - **Priority:** This field helps to communicate the relative importance of various parameters of the solution.

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M - MUST have this.

S - SHOULD have this if at all possible.

C - COULD have this if it does not affect anything else.

W - WON'T have this time but would like in the future

- **Review date:** This field helps to keep track of the date for review of each parameter.
- **Reviewed/Approved:** This field allows for the assigned reviewer and/or approver to sign off each requirement, which must be completed prior to starting work on that requirement.

Template of Requirements Specification

Requirement specification for:					
Number or code	Requirement	Comments	Priority (MSCW)	Review date	Reviewed / Approved

Requirements specification

Project

Date

Version

Requirement specification for:					
Number or code	Requirement	Comments	Priority (MSCW)	Review date	Reviewed / Approved

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LEARNING CASE STUDY OF REQUIREMENTS SPECIFICATION

Requirements specification for: Tasty Tuna Company - Water usage reduction project 01					
Number or code	Requirement	Comments	Priority (MSCW)	Review date	Reviewed / Approved
Req01	Reduce water consumption in thawing process to 3m3 per tonne of processed fish	Lorenzo method of thawing proven to achieve this level of water saving performance.	S	01/02/15	Mr. Tasty
Req02	Eliminate water usage in filleting operation.	'Filleting' includes all processes from end of thawing to start of canning process.	M	31/03/15	Mrs. Tuna
Req03	Capture >80% of solid organic waste from filleting operation for reprocessing.	Market has been identified for use of entrails and fish scraps in fishmeal products.	S	15/06/15	Mr. Tasty
Req04	Compatible with product output of at least 275kg/hour		M	14/02/15	Mrs. Tuna
Req05	Cleaning requirement of less than 0.5 person hours per 8 hour shift.	Relates to the cleaning of the water saving equipment installed (if any), not the cleaning of the fish product.	S	01/02/15	Mrs. Tuna
Req06	Maintenance requirement of less than 0.5 person hours per week.	Maintenance to be undertaken by unskilled operative.	M	14/02/15	Mr. Tasty

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TIPS & TRICKS

HELP WITH TECHNOLOGY

If the innovation idea that will be tackled during the project involves a significant technology element then it will be useful to read the accompanying publication 'Technologies for Eco-innovation' (UN Environment, 2016), which provides guidance on technology development and technology transfer for eco-innovation.

KEEP PRIORITIES FOCUSED

When prioritising the requirements, it is important to be disciplined and avoid making every requirement a 'must'. Keep in mind that there may be deadlines for the development and implementation of the innovation idea and it is usually better to deliver on time with a limited set of requirements fulfilled than late with more requirements fulfilled.

UPDATE PRIORITIES REGULARLY

Once the project has started, the requirement prioritization should be regularly updated.

BACKGROUND INFORMATION

References and resources:

- MoSCoW method: Coley, P. 2012. 'MoSCoW Prioritization' [Online]. Available from: <http://www.coleyconsulting.co.uk/moscow.htm>
- UN Environment (2016). Technologies for Eco-innovation. UN Environment DTIE, Paris

→ Further information in the Agri-foods, Chemicals and Metals Supplements

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TIPS & TRICKS

START WITH A PROJECT THAT OFFERS LOW IMPLEMENTATION EFFORT AND HIGH IMPACT

Below you will find an example of a Kenyan tea manufacturer that set strategic goals of improving their position on the international tea market as well as their sustainability performance. To achieve these goals the company created a roadmap of projects and activities that could be implemented within 12 months. The case study below highlights the scope and benefits of the first project on the roadmap to achieving their long-term strategic goals.

Industry example 4: Kitumbe Tea Factory (Kenya)

Declining yields in tea production due to climate change and inefficient processing had left Kitumbe Tea Factory unable to compete in the tea market, which is driven by low prices. Working with the Kenya National Cleaner Production Centre, they developed an eco-innovation roadmap aimed at becoming a strong competitor on the international tea market. An innovative solar powered ropeway transportation system ropeway system was chosen as their first project for eco-innovation. The system has now been implemented and is used to transport the tea from the plantations to the factory. Among the many benefits of the ropeway system was the immediate saving of almost 300,000 USD in only 9 months. By eliminating the need for transportation by truck, the ropeway system has also significantly reduced greenhouse gas emissions linked to transportation and reduced congestion on local roads.

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LEARNING CASE STUDY OF REQUIREMENTS SPECIFICATION

The technical requirements for projects can be defined using the *Requirements Specification* template. An example is given where the MoSCoW approach was used for prioritization - see the Eco-

innovation Manual for further information. In this example, the goal of the project is helping Mango Pulp Co. to implement an out-grower scheme.

Requirements specification for TipTop Textiles Company					
Reduction and substitution of hazardous wet textile processing chemicals					
Number or code	Requirement	Comments	Priority (MSCW)	Review date (Project Month)	Reviewed / Approved (All Managers)
Req01	Secure funds for farmers during the transitional period	The farmers will need finance for the period between the start of the new arrangement and the first harvest	M	24/02/2015	CEO
Req02	Outreach and recruitment of farmers	Direct personal contact with local farmers is preferable to start with	M	26/03/2015	CEO
Req03	Develop contracting and pricing strategy	The arrangement between Mango Pulp Co. and out-growers is long a term commitment (~ 15 years) - a clear strategy for contracting and pricing is needed	M	01/10/2015	Marketing manager
Req03	Selection of suitable mango cultivars	Mangoes currently grown have poor agricultural yields and are prone to pest and diseases	S	01/10/2015	Operations manager
Req04	Training of farmers in conservational agriculture	Training will be held several times a year and regular problem-solving workshops will be conducted	M	13/04/2015	Operations manager
Req05	Selection of other crops for diversification		S	21/1/2015	CEO
Req06	Development of routines for control of farms	Unannounced, on-site inspections could be conducted to guarantee that the farmers are following sustainable farming practices	S	25/07/2015	Operations manager
Req07	Development of routines for grading and quality control of incoming raw materials	More effort needs to be put into the pre-processing stages as Mango Pulp Co. will procure all crop from out-grower farms	S	14/08/2015	Marketing manager
Req08	Develop channels for procurement and distribution of inputs	Cold transportation or transportation in early morning and evening could be used to minimize post-harvest waste	M	16/11/2015	CEO

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LEARNING CASE STUDY OF REQUIREMENTS SPECIFICATION

Requirements specification for TipTop Textiles Company Reduction and substitution of hazardous wet textile processing chemicals					
Number or code	Requirement	Comments	Priority (MSCW)	Review date (Project Month)	Reviewed / Approved (All Managers)
Req01	Determine essential properties and characteristics required for textile processing to product and customer segment (e.g. strength, comfort, colour, wrinkle-resistant, etc.)	Important to confirm the priorities for different customer segments	M	1	Technical Sales, Quality Control, Production, Marketing
Req02	Screen industry Restricted Substances List (RSL) and other relevant ecolabel RSL (e.g. Oekotext 100 RSL) and cross-reference with the company's chemical inventory and SOP's	Currently NPE's and formaldehyde are used in the process and are on most RSL issued by brand names	M	3	Quality Control, Production, Purchasing
Req03	Introduce counter current scouring and rinsing processes	Potential to reduce chemical and water consumption and decrease variable costs	S	5	Production, R&D
Req04	Obtain contractual commitment from chemical suppliers to ensure compliance with Restricted Substances List	Important to work with suppliers in a transparent way to guarantee compliance.	S	7	Quality Control, Production, Purchasing
Req05	Pilot test substitute chemicals for quality performance	E.g. melamine is used in the finishing stage to reduce wrinkling and shrinkage of corporate wear. One solution would be to switch from Formaldehyde to a formaldehyde-free cross-linkers	M	8	Quality Control, Production, R&D
Req06	Replace chemicals on Restricted Substances List in commercial scale-up	E.g. replace NPEO surfactant ingredient with sodium lauryl sulphate (complies with RSL).	M	12	Quality Control, Production, R&D

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TIPS & TRICKS

START WITH LOW HANGING FRUITS TOWARDS OF AN AMBITIOUS PATH

Ideally the first project should not focus on incremental improvements within the company, but rather a kick-start to the eco-innovation process moving towards a sustainable business model. If possible, you can consider incorporating profitable quick-wins into the first project in order to demonstrate early success to team members and management. KPIs should be defined to measure and monitor the progress of the project and its sustainability impact.

LEARNING CASE STUDY OF REQUIREMENTS SPECIFICATION

Value Management project 01

The value management project engages value chain actors (suppliers and customers) and integrates them in the process of designing and manufacturing the new bicycle as well as the specific "Return&Reuse" business model elements such as types of services to be provided. In particular, workshops will be used to identify customer priorities with respect to primary and secondary functions and engage the value chain in providing sustainable solutions.

This project will also provide opportunities for BikeBizz to establish deeper links with the value chain with the possibility for training suppliers on green procurement principles and improving their own sustainability performance.

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Requirements specification for TipTop Textiles Company Reduction and substitution of hazardous wet textile processing chemicals					
Number or code	Requirement	Comments	Priority (MSCW)	Review date (Project Month)	Reviewed / Approved (All Managers)
Req01	Training on VAVE, Value Stream Mapping and Lean Manufacturing best practices	<ul style="list-style-type: none"> Provides background to conduct a Value Analysis/Value Engineering activity Provides background to conduct a Value Stream Mapping activity 		1	<ul style="list-style-type: none"> Senior Production Engineer HSE Officer Production Manager
Req02	Identification of important business and production goals and definition of representative Key Performance Indicators (KPIs)	<ul style="list-style-type: none"> The business and production goals will be taken from the new Business Strategy Key Performance Indicators must be defined so that the input data are accessible and reliable. Furthermore, the KPI's must be "fit for purpose". Acceptable variance in KPI outputs should also be defined E.g. for Process Cycle Efficiency (= Value added time / Total Lead Time), this KPI should be defined for different products including variance of the KPI. Based on the required data needed for the KPI's, identify contractors necessary for specialized measurements (e.g. for BikeBiz, VOC concentration, amount of swarf from cutting process). 		1	<ul style="list-style-type: none"> Lean Project Manager BikeBizz CEO Production and HSE managers Financial, purchasing, logistics, sales officers

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Number or code	Requirement	Comments	Priority (MSCW)	Review date (Project Month)	Reviewed / Approved (All Managers)
Req03	Identification of priority product/service functions (VAVE)	<ul style="list-style-type: none"> • Conduct a VAVE workshop with customers and network of suppliers • Define Product/Service KPIs to translate customer values to product functionality. Distinguish between the use, aesthetic, basic and secondary functions. • Identify specific customer segments and their valued products & services, and suitable revenue streams • Engage suppliers in sustainability measures to reduce material loss during production and improve durability of metal components during bike use. 		1	<ul style="list-style-type: none"> • Designer • Production Engineer • Sales and marketing • Purchasing, CEO
Req04	Data measurement for Value Stream Mapping, calculation of KPI's, identification of key areas for cost and waste reduction	<ul style="list-style-type: none"> • Purchase thermocouple for measuring parts temperature in oven • Contract necessary external companies to measure e.g. VOC concentrations, submit analysis of overspray sludge to lab, etc. • Record relevant Value Stream Mapping data (e.g. cycle time, turnover time, waste produced, # employees, inventory, energy, etc) for each process step and calculate KPI's. 		2	<ul style="list-style-type: none"> • Lean Project Manager • Support from: Production HSE, purchasing, sales, logistics
Req05	Verification of KPI accuracy and fit-for-purpose	<ul style="list-style-type: none"> • The Value Stream Mapping and the developed and calculated KPI's should guide and verify the effectiveness of most future business decisions (e.g. investment in new technologies) 		3	<ul style="list-style-type: none"> • Lean Project Manager • BikeBizz CEO • Production and HSE managers • Financial, purchasing, logistics, sales officers

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Number or code	Requirement	Comments	Priority (MSCW)	Review date (Project Month)	Reviewed / Approved (All Managers)
Req06	Design and build prototypes for specific customer segments and validate with Workshop	<ul style="list-style-type: none"> • Work together with suppliers to complete different prototypes based on VAVE approach incorporating customer and supplier inputs • Conduct a feedback workshop to validate product/service offerings with customers 		3	<ul style="list-style-type: none"> • Customers, suppliers • Designer • Production Engineer • Sales and marketing • Purchasing, CEO