



Research Summary Sheet

Deliverable n°: 5.1 (Task 5.1)

“Innovative approaches to turn agricultural waste into ecological and economic assets”

Context and Challenges

The NoAW project’s goal is driven by a “near zero-waste” society requirement and focuses in the development of innovative efficient approaches that allow the conversion of growing agricultural waste (called by-products in this Deliverable) issues into eco-efficient bio-based products. These approaches aim for direct benefits for the environment, the economy and the EU consumer. Nonetheless, one major challenge is to design new business and marketing concepts for cross-sectorial valorisation of agro by-products. In order to benefit from previous experiences in this field, we provide a review and analysis of existing business concepts designed for efficient use of resources.

The objective of this deliverable is to describe existing business models designed for cross-sectorial valorisation of by-products, and to highlight their respective key success and risk factors.

Results and Applications

The following steps have been followed, leading to user-friendly deliverables:

- Listing of international existing initiatives designed for cross-sectorial valorisation of by-products (excel tool designed for this purpose)
- For each initiative: business model assessment to highlight external and internal factors that have influenced the development of such businesses over time (assessment framework designed for this purpose).
- For each business concept analyzed, development of a user-friendly factsheet with the key learning from the assessment
- A summary of the key learning that are transversal to the concepts analyzed, and that we should keep in mind when developing the NoAW case studies.

Breakthroughs, benefits and added value






These insights from previous experiences can be useful to avoid mistakes or valorize success factors in NoAW Case Studies. These examples can be inspiring in terms of Business Model generation in our NoAW case studies. The documents and tool have been designed to facilitate this exercise.



The key messages per initiative are easily accessible; illustration below with one factsheet (33 available):

NoAW Fact sheets – an example

Biorefinery Bazancourt-Pomacle / Reims, France / Agro by-products valorization with agro-food actors up-stream and other industries downstream (energy, cosmetics) – regional scope, clustered / On-going / Current jobs: 1'200
INNOVATIVE ECOSYSTEM TO DEVELOP THE CIRCULAR AND THE BIO-ECONOMY


Picture source: [Ecolinoviera_Bazancourt](#)

ORIGINATION





Key triggers of the initiative at origin: farming cooperation, vast agricultural area, huge bio-based feedstock, vertical integration, high willingness to collaborate to innovate

Key objectives of the initiative at origin: value creation trough non-food applications

Key historical milestones between origin and today: expertise in plant fractionation and bio-refining, white biotechnology, bio-based chemistry and agro-materials / **development of an open technological platform for industrial scaling-up of biotechnology processes / Competitiveness Cluster "Industry and Agro Resources"**



KEY IMPACTS (current)

-  **Agro By-product valorized per year**
From 1.2 to 5 million tons Sugar Beet
From 1 million tons Wheat
-  **Approximate cumulated CAPEX**
1 billion € consolidated investment
-  **Job created**
1'200 for the overall ecosystem
-  **Other impacts**
European benchmark in bio-refining

KEY ACTORS & PARTNERS

Category/Expertise	Interest(s)/influence	Responsibility in initiative
Regional farming cooperatives (agriculture, transformation)	Vertical integration, Create added value through non-food applications	Raw material procurement, Creation of a shared infrastructure, ARD (Agro-Industries R&D)
Foundation Jacques de Bohan	Economic development of the site, branding	Site promotion
French Ministry for Industry and Regional Institutions, local authorities	French industrial competitiveness	Cluster Industry and Agro Resources (I.A.R.), Open technological platform
Academia	Innovation	Synergies with applied research and companies

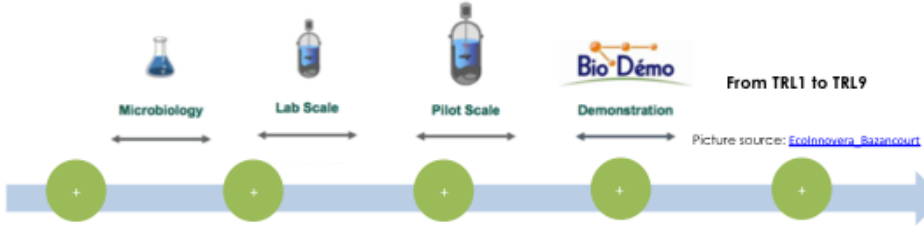
ORGANIZATIONAL MODEL

Governance / coordination	Mutualized infrastructure (ARD) and governance
Shared infrastructure	Mutualized private Research center (ARD)
Cooperation with Science & technology	Very strong due to geographical proximity of academic actors
Support mechanisms	Competitiveness cluster, National fund to develop an open innovation platform (5 million €)

KEY SIDE-STREAM VALORIZATION (Agro by-products)

By-products typology / Yearly volume	From production and transformation of wheat and sugar beet
Valorization processes / key technologies	Indirect energy and material recovery
Maturity of technologies used	A few proven applications world-wide
Key outputs and markets	Ethanol first and second generation, actives for cosmetics, bio-based acid succinic

ILLUSTRATION



Picture source: [Ecolinoviera_Bazancourt](#)

SUCCESS & FAILURE FACTORS

	Organizational / Spatial	Technical / Logistic	Economic / Financial / Market	Environmental / Social / Cultural	Institutional / Legal / Others
	Geographical proximity of 3 ecosystems : industries, applied R&D and academia	Huge quantity of feedstock available High storage capacity (1 million tons)	Strong open to the world promotion strategy (Foundation J. de Bohan) Strong private and public cooperation Advanced industrial symbiosis at park level European benchmark in biorefining		Strong public support in the long run. At the forefront of the national cluster strategy.

Key links: [An Original Business Model - Integrated BioRefinery](#) ; <http://www.a-r-d.fr/en/>

H2020 NoAW project
WP 5.1. International benchmark

Further information on NoAW project: <http://noaw2020.eu>

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