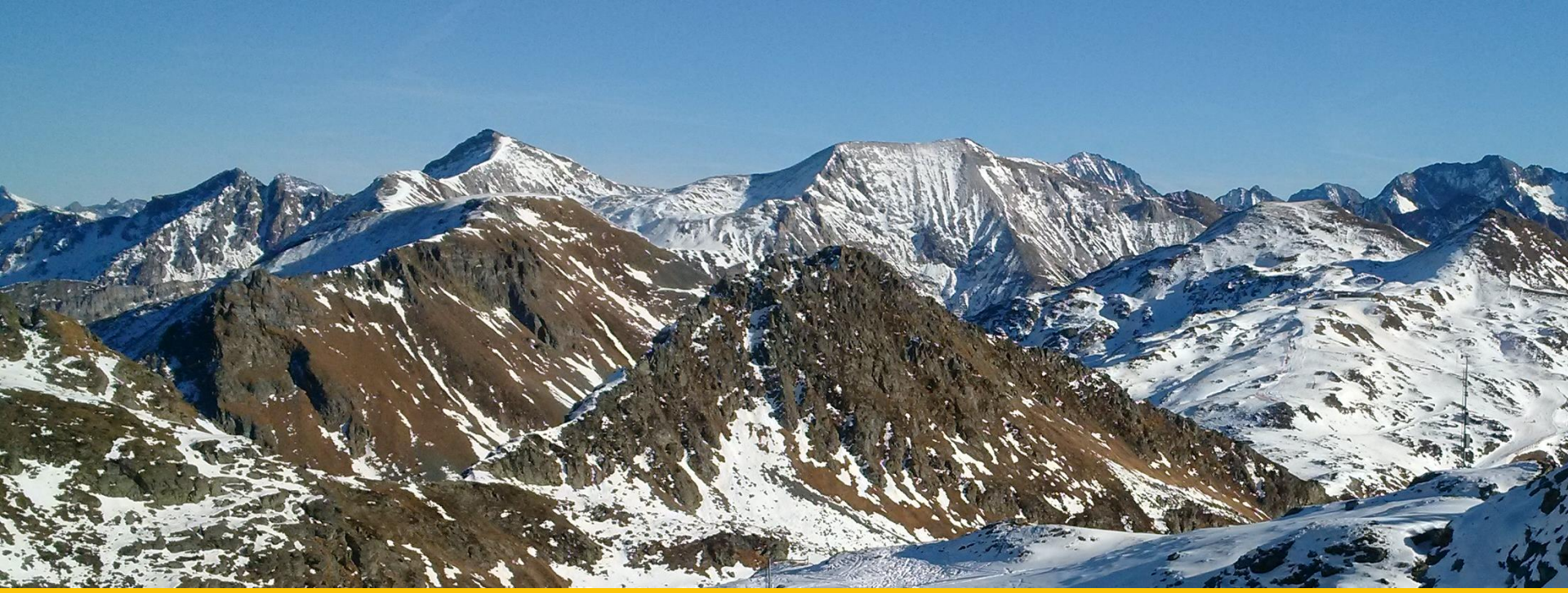

MODULE 1

Understanding the process of business model transformation CAS 0 and DMA 0

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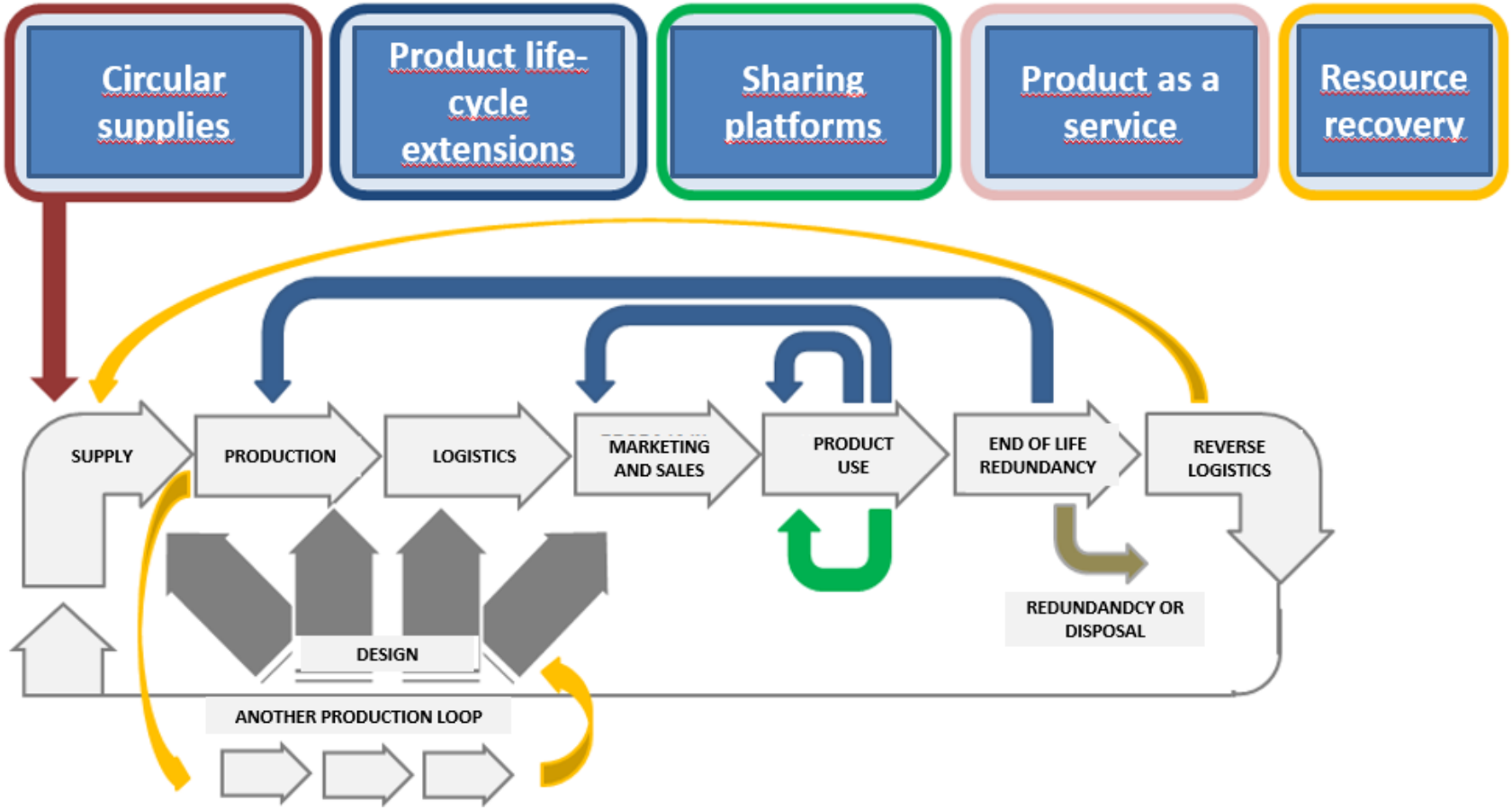
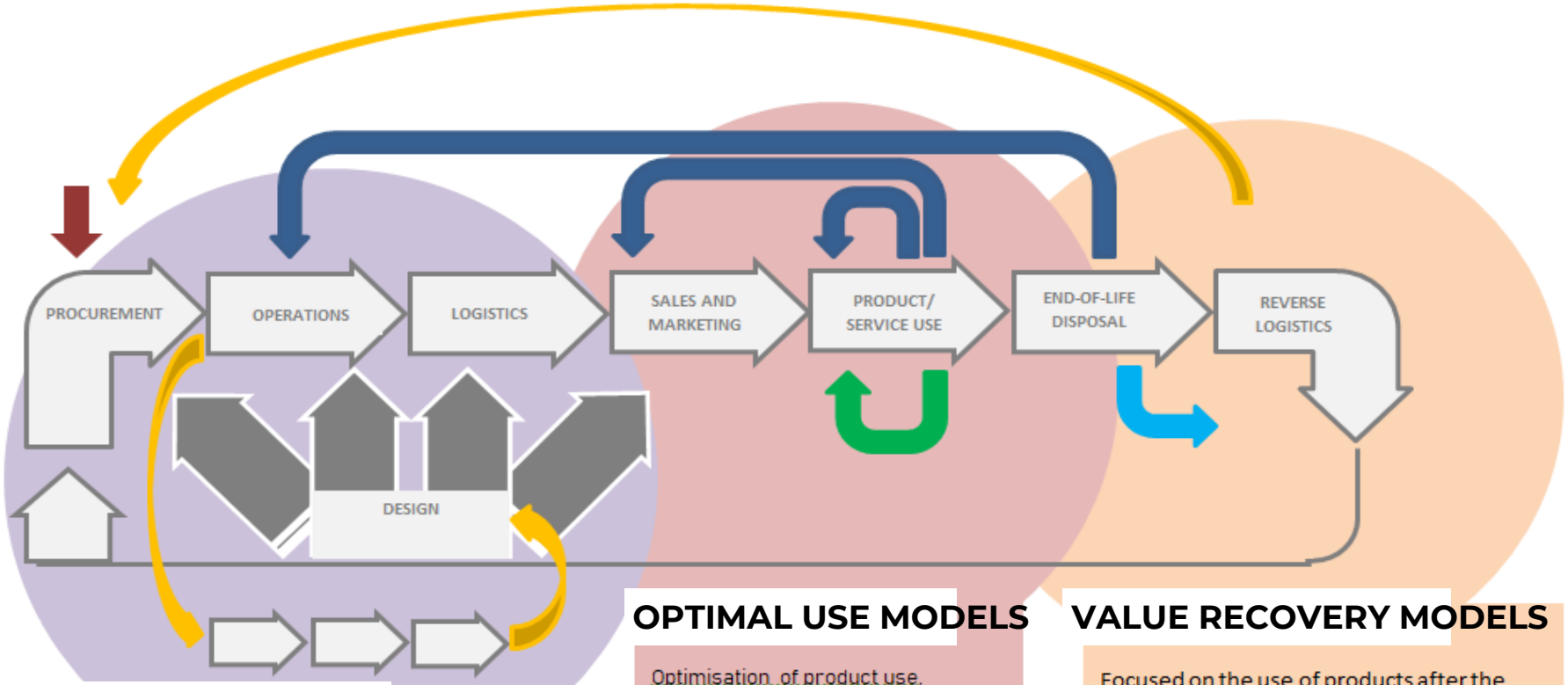
Juri Giacomelli
Circular Business Academy

Five generic circular business models in the value chain



Adapted by Circular Advantage, Accenture, 2014

Five generic business models and three financing profiles in a value chain



CIRCULAR DESIGN MODELS

Product- and process- related innovation, enabling reuse and regeneration of end-of-life disposal from other value chains.

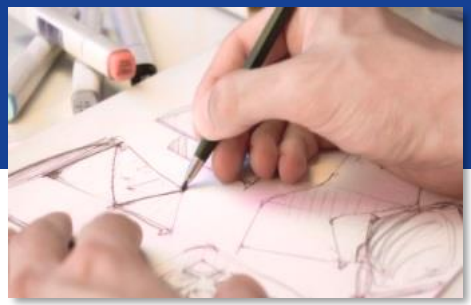
OPTIMAL USE MODELS

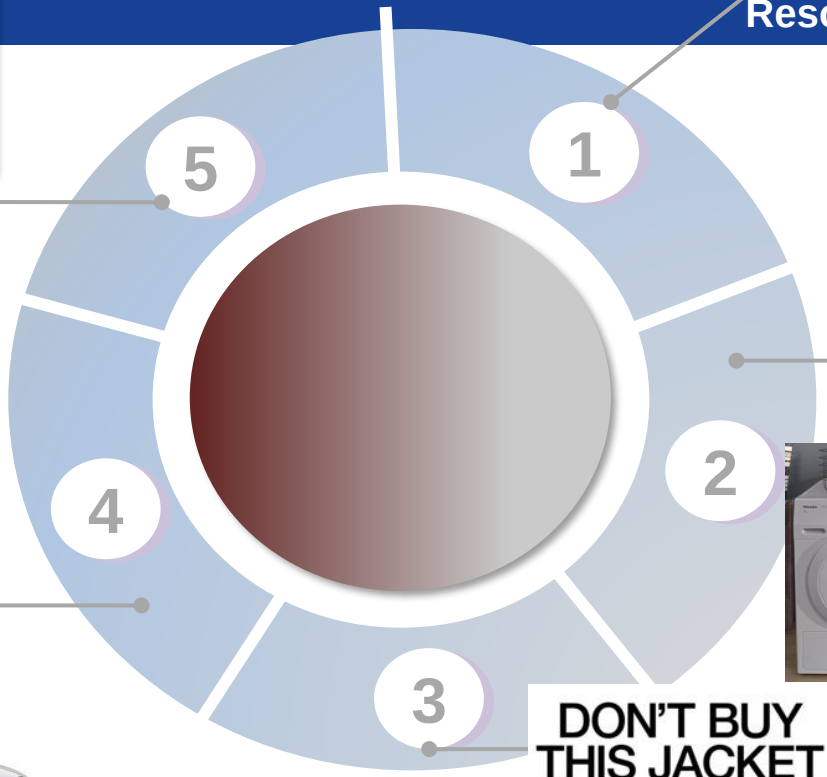
Optimisation of product use, maintenance of the added value of the product (life extensions, maintenance); focused on total lifecycle ownership and liability; or product-service systems or sale-and-lease-back models.

VALUE RECOVERY MODELS

Focused on the use of products after the end of their life cycle, regeneration and reuse in subsequent value chains.

Examples of five generic circular business models





Resource Recovery & recycling

Sustainable design

Product as service

Sharing platforms

DON'T BUY THIS JACKET

Product life extension

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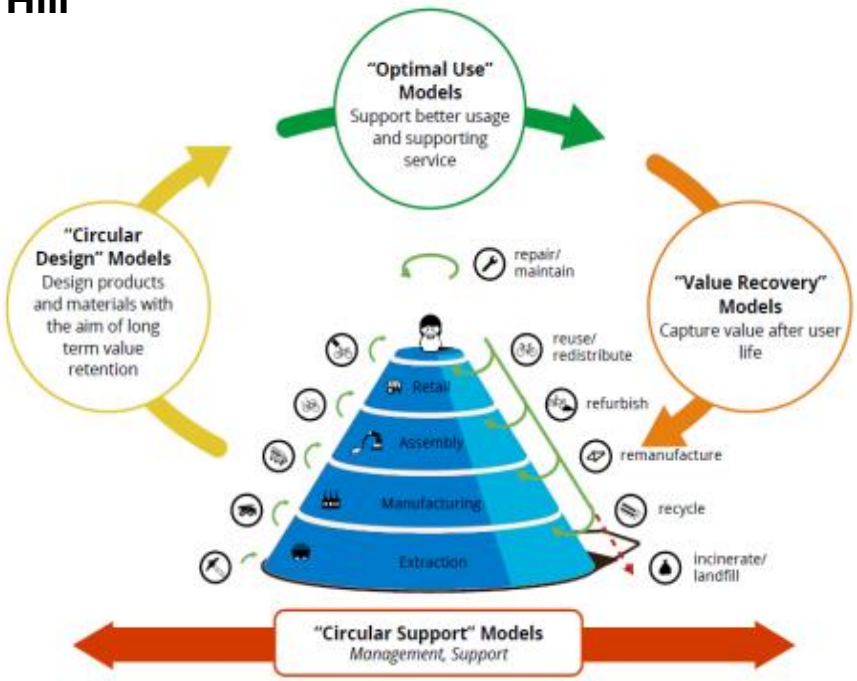
Some more examples

Business Model	Description	Examples
Circular Supply-chain	▪ Provide renewable energy, bio based- or fully recyclable input material to replace single-lifecycle inputs	DSM, Coca-Cola, AeroFarms, DELL
Recovery & Recycling	▪ Recover useful resources / energy out of disposed products or by-products	H&M, GM, JAGUAR, DESSO
Product Life-Extension	▪ Extend working lifecycle of products and components by repairing, upgrading and reselling	CATERPILLAR, amazon.com, CISCO, M&S
Sharing Platform	▪ Enable increased utilisation rate of products by making possible shared use / access / ownership	airbnb, DHL, spare TO share
Product as a Service	▪ Offer product access and retain ownership to internalise benefits of circular resource productivity	PHILIPS, CAR 2GO, MICHELIN, vodafone, MUD JEANS

Source: From *Waste to Wealth*, Accenture 2015

Circular business model transformation, digitalisation and Industry 4.0 technologies

Typology of business models in a „Value Hill“



Source: Achterberg Elisa, Jeroen Hinfelaar, Nancy Bocken: The Value Hill Business Model Tool: identifying gaps and opportunities in a circular network, 2016

„4.0 technologies“ are either enablers or disruptors of the implmentation of circular business models thanks to the process connectivity, traceability and innovations in design.

At the same time, new technologies underlay the development of the fourth type, „Circular Support“ models, related to management and process support.

Managing linear and circular risks along the value chain

Conventional risk assessment models underestimate or neglect linear risks while they over-emphaise circular risks.

Each business model type is distinguished by a specific risk profile and specific financing requirements.

Exhibit 1: Circular risks and linear risks

Circular risk	Linear risk
Shift of mind-set needed to see (used) products as valuable sets of modules and/or materials instead of waste.	Dependency on virgin resources (risk of supply chain disruption).
Required initial investment can cause deterioration in short-term margins.	Exposure to resource price volatility.
Balance of short-term margin versus long-term stability.	Increasing environmental legislation.
Market demand for the offered products: customers and companies are currently used to owning products.	Growing population and increasing financial wealth.
Dependency on supply chain collaboration.	Effects of climate change.
Unknown residual value of many products, due to small market of circular output companies (i.e. companies that upcycle, re-use, remanufacture or refurbish).	Demand for environmentally sound products.
Supply chain lock-in risk.	Businesses/products that become obsolete by holding onto old linear business practices (stranded assets).

Source: Money makes the world go round (and will it help to make the economy circular as well?); Working Group FINANCE, March 2016, The Netherlands, available through Ellen MacArthur Foundation: https://www.ellenmacarthurfoundation.org/assets/downloads/ce100/FinanCE.pdf, page 74.

When is a firm considered circular?

Unlike the economy as a whole, for a firm to be considered circular, that is, **to practice a circular business model**, it does not need to maximise its capability to recover and regenerate resources deployed within its own value-creating processes.

It should be rather evaluated against its potential cababilities to integrate into a circular economy and the actual level of such performance.

Note the difference: measuring against assessing circularity

Measuring or assessing circularity?

Note the difference: measuring against assessing circularity

MEASURING	ASSESSING
'Determining how big, how long or how wide something is.'	'Having an opinion about something.'
Quantitative	Qualitative
Clear yardstick	Judgement-based, no clear yardstick
Objective	Partly subjective

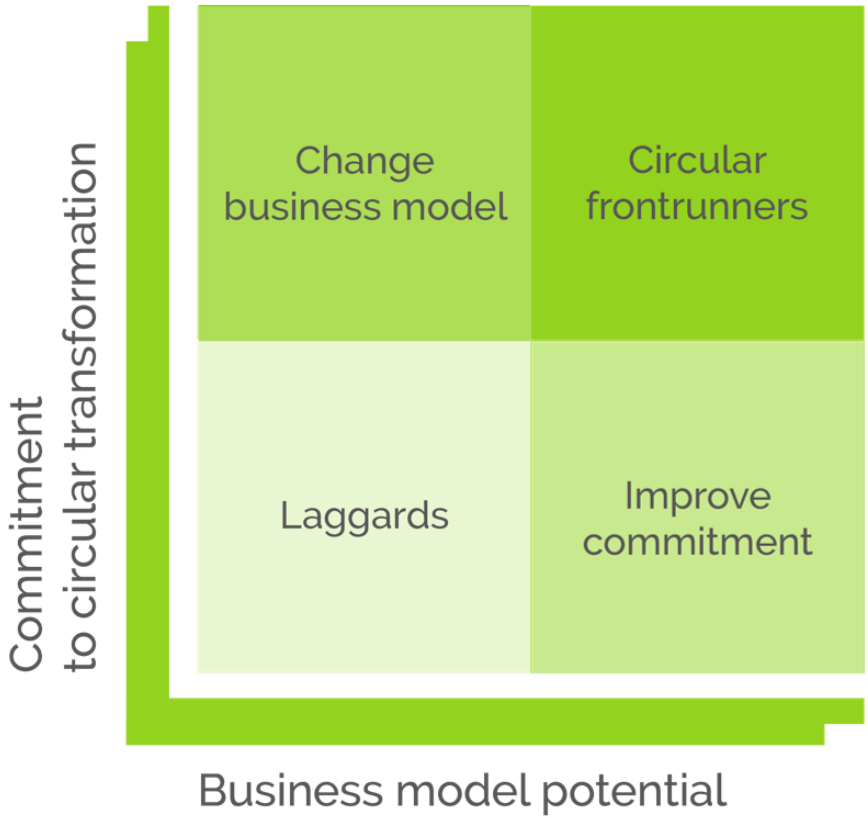
Source: Van Oppen Cécile, Croon G., Bijl de Vroe D. (2018). Circular Procurement in 8 Steps. First edition, Copper, 2018.

Circularity assessment in the CAS model

The circularity of a firm assessed through its application of a circular business model is manifested by its **potential** to sustainably contribute to the circular economy and **capabilities** of a firm to seize it.

So, the circularity as a firm's strategic orientation, exercised through its organisation according to circular business models, is manifested by a set of criteria demonstrating to what extent a firm uses its capabilities to contribute to the circular economy.

The CAS Matrix



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Circular business model potential and firm‘s commitment to the circular transformation

While business model potential can be consistently **evaluated across the firm’s value chain (circular potential)**, the actual level of competencies and practices depends on the **managerial abilities and overall organisational practices to seize the business model potential (commitment)**.

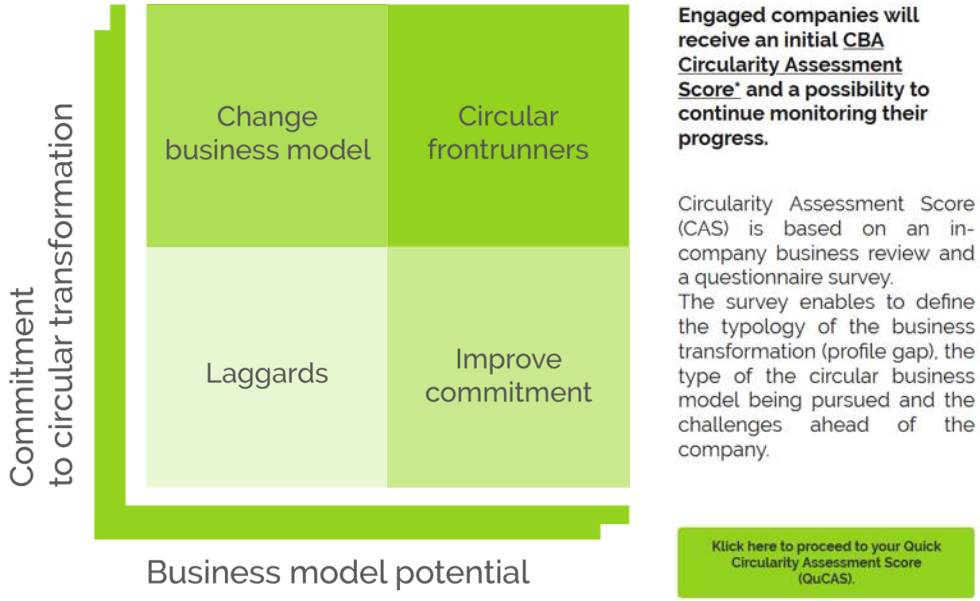
Here is why the Circularity assessment model figures as a useful assessment construct (or a tool) of the firm’s circularity, considered its composite characteristic, represented by a score, which is a result of this measurement, **focused on the** evaluation of a firm’s business model.

An extended CAS questionnaire attuned to the CIRCULAR 4.0 project is available among thereadings to this Step. The tool is freely available here:

https://www.circularbusiness.academy/#score

How the Circularity Assessment Score is composed

In order to evaluate the relationship between the circular transformation of a business model and the value creation in a firm, we have to understand the nature of the circular transformation and its impact on the economic value creation.



Engaged companies will receive an initial CBA Circularity Assessment Score* and a possibility to continue monitoring their progress.

Circularity Assessment Score (CAS) is based on an in-company business review and a questionnaire survey.
The survey enables to define the typology of the business transformation (profile gap), the type of the circular business model being pursued and the challenges ahead of the company.

Klick here to proceed to your Quick Circularity Assessment Score (QuCAS).

We can assess the increase of the economic value with the improvement of the firms' profitability (multiple measures), competitiveness, level of internationalisation and the total factor productivity. However, to evaluate the degree of circularity, we the apply Circularity assessment model.
Unlike the economy as a whole, for a firm to be considered circular, that is, to practice a circular business model, it does not need to maximise its capability to recover and regenerate resources deployed within its own value-creating processes. Circularity as a firm's strategic orientation, exercised through the functioning of an organisation according to circular business models, is manifested by a set of capabilities to contribute to the circular economy.

Circularity Assessment Score is intellectual property of Gm (CBA).

Linking CAS and DMA (Circular potential): Traceability of supplies and inputs

2. Does your organisation trace the origin of material inputs (primary and secondary sources) by digital means:

a) before the acquisition

0 - No

1 - In a minor part of supplies (less than 20%)

2 - In significant or predominant quantities (20% or more)

b) through its own internal processes (production, inbound logistics, etc.)

0 - No

1 - In a minor part of supplies (less than 20%)

2 - In significant or predominant quantities (20% or more)

c) after the outputs are sold to buyers and/or enter the consumption phase

0 - No

1 - In a minor part of supplies (less than 20%)

2 - In significant or predominant quantities (20% or more)

Linking CAS and DMA (Commitment): Traceability of supplies and inputs

8. Does the applied technology (-ies) that supports the core business model allow the production process to be adapted to circular principles (modularity, reproducibility and degradability, reducing product size or material use)?

0 - No

1 - To a minor degree (tied to less than 20% of revenues)

2 - To a significant degree (tied to 20% of revenues or more)

3 - Yes, predominantly or completely (tied to over 80% of revenues)

9. Please, assess the level of digitalisation maturity of your organisation

0 – Very low (basic or no connectivity)

1 – Low (basic connectivity supporting information flow among organisational units, partially autonomous maintenance of digital (IT) systems

2 – Middle (standard connectivity, mainly autonomous maintenance of digital (IT) systems

3 – High (autonomously supported processes mainly autonomous maintenance of digital (IT) systems and active involvement in digital development)

4 – Very high (own digital development of supported processes, mainly autonomous maintenance of digital (IT) systems)

Workshop: filling in the CAS

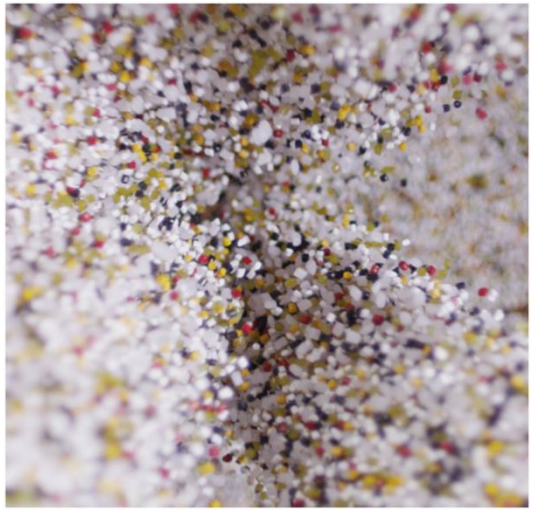
Case Study: Aquafil Group

Please, observe the folowing phenomena:

- Circularity of a firm in relation to the advancement of the circular transformation and the overall path to sustainability

- Both dimensions of circularity assessment:
  - Boosting the circularity potential of a business model
  - Seizing the circularity potential: organisational commitment to the circular transformation

Aquafil‘s road to sustainability



Aquafil Worldwide

USA
Cartersville (Georgia)
Aquafil USA

CHINA
Jiaxing
Aquafil Jiaxing

THAILAND
Rayong
Aquafil Asia Pacific

ITALY
Arco (TN)
Aquafil (Headquarter)

Cares (TN)
Tessilquattro

Rovereto (TN)
Aquaspace and Waste Water Treatment

Varallo Pombia (NO)
Borgolon

GERMANY
Leuna
Aqualeuna

UK
Kilbirnie
Aquafil UK

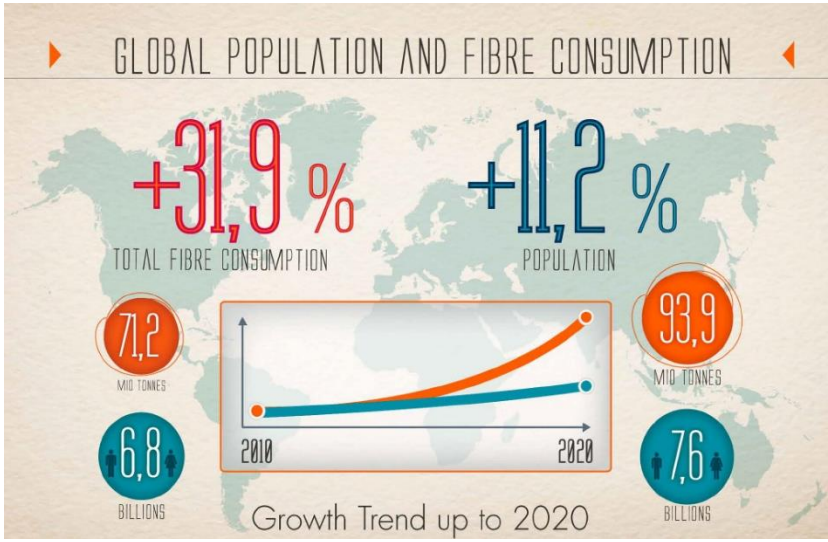
SLOVENIA
Ljubljana
AquafilSLO

Senozece
Julon Senožeče

Store
Julon Štore

Ajdovščina
Julon Ajdovščina

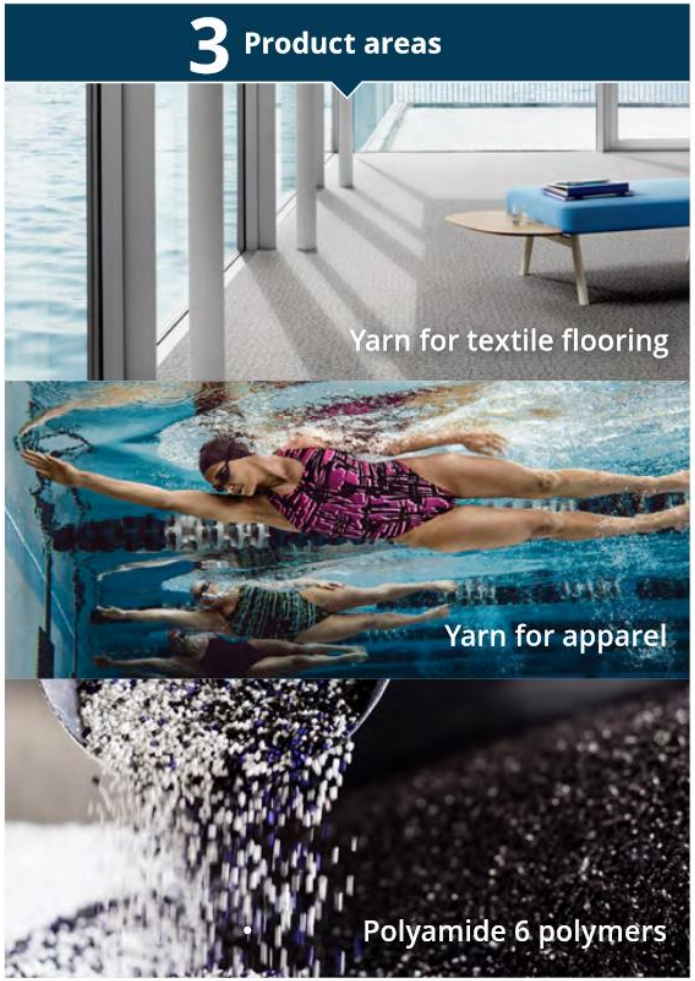
CROATIA
Oroslavje
Aquafil CRO



Aquafil Sustainability Report 2019

2019
An overview

For more than 50 years Aquafil has been a **key player in the production of synthetic fibers, in particular polyamide 6**. The continuous search for excellence and innovation, combined with the commitment to sustainability, make it a point of reference for the entire sector.



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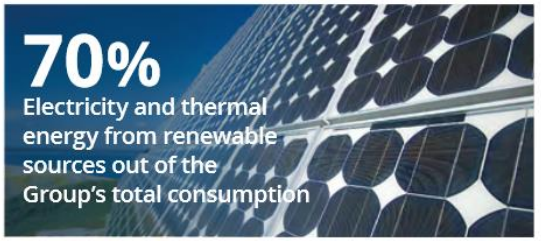
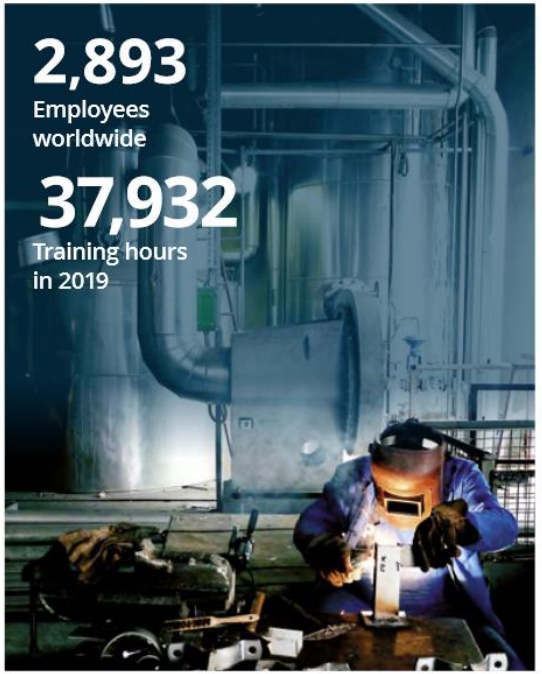
Aquafil Sustainability Report 2019





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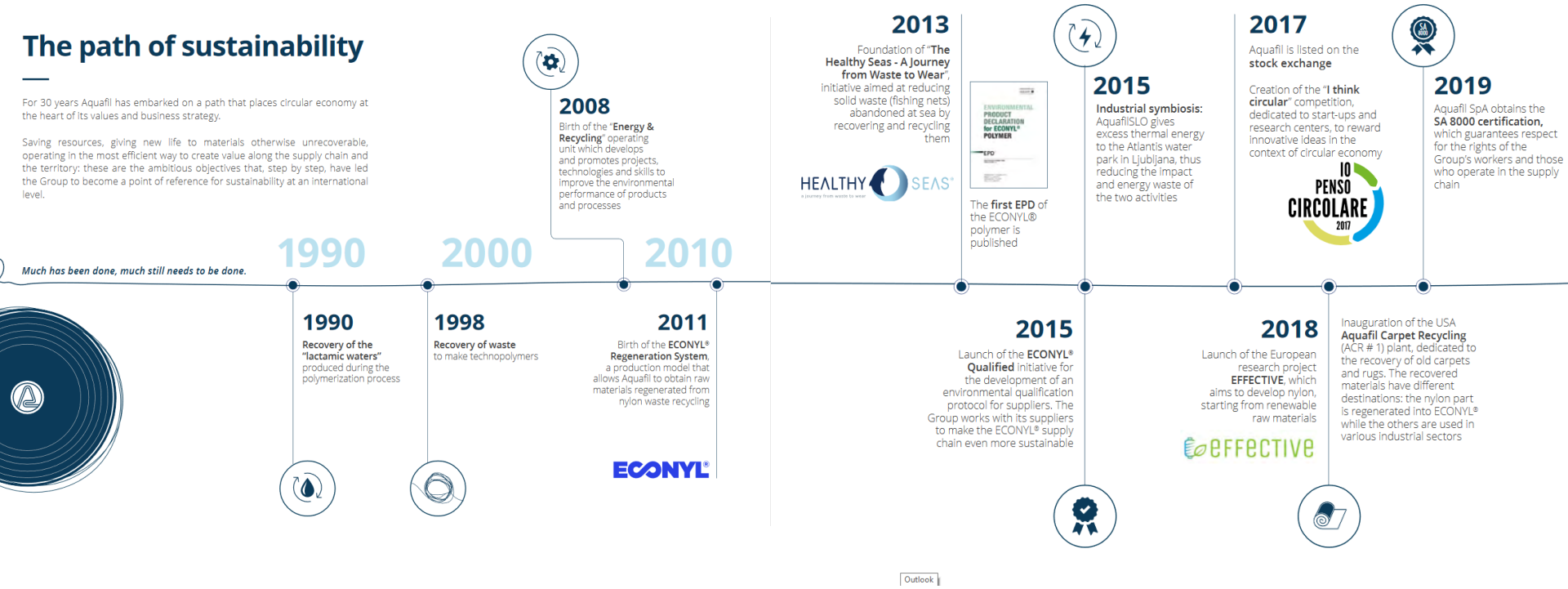
Aquafil's path to sustainability

The path of sustainability

For 30 years Aquafil has embarked on a path that places circular economy at the heart of its values and business strategy.

Saving resources, giving new life to materials otherwise unrecoverable, operating in the most efficient way to create value along the supply chain and the territory: these are the ambitious objectives that, step by step, have led the Group to become a point of reference for sustainability at an international level.



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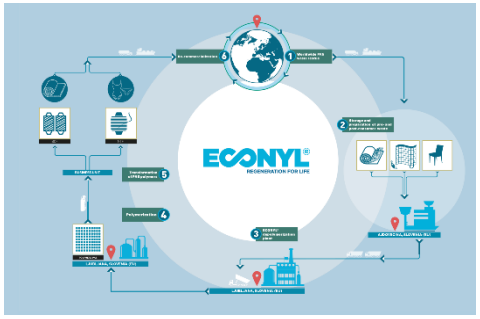
EUROPEAN UNION

Econyl:
The circular innovation

Econyl: Circular innovation allowing for the regeneration of used nylon.

What type of a circular business model is this?

Value recovery business model



Where others see waste, we see treasures.

The ECONYL® regeneration system transforms what was once waste, such as fishing nets, old carpets and textile production waste, into a new source of opportunity. ECONYL® nylon has the same quality characteristics as virgin nylon, with a much lower environmental impact.

FOR EVERY 10,000 TONS OF RAW MATERIAL, WITH ECONYL® WE CAN:

Save **70,000** **Barrels** of crude oil

Avoid **57,100** Tons of CO_2eq emissions

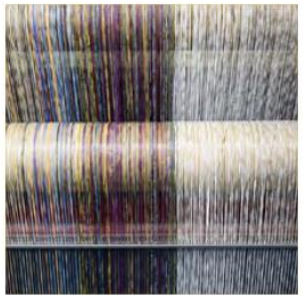
Four steps for a circular future

01_Recover

We begin by recovering and cleaning nylon waste from landfills and oceans around the world.

02_Regenerate

Waste is regenerated through a process that is unique in the world. This is how ECONYL® nylon is born.



03_Remake

ECONYL® nylon is transformed into yarn for the garment, carpet and textile flooring industries.

04_Re-imagine

ECONYL® regenerated nylon gives life to completely new products. Nylon itself can be recycled endlessly, without ever losing its qualities.

For more information, see www.econyl.com

Interreg Alpine Space Circular4.0

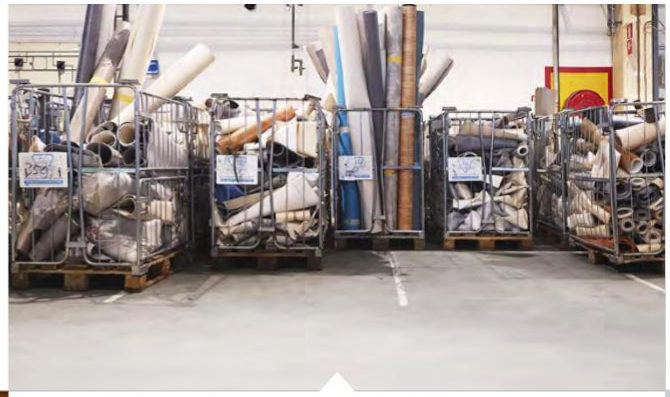
Rethinking products in cooperation with suppliers and buyers

OUR COMMITMENT

Rethinking products

Embracing circular economy does not just mean recycling, rather rethinking the product by adopting a broader, more visionary perspective and collaborating with various stakeholders.
Aquafil based its way of doing business on this concept, creating high quality products from recovered resources and giving new life to materials that still have infinite lives to live.

For more information, see the 2019 Group Consolidated Financial Statements, pages 67, 85



NAPAPIJRI
Skidoo Infinity, the first circular jacket

The collaboration between Aquafil and Napapijri has allowed to create a completely circular product.

The Skidoo Infinity jacket is made with ECONYL® yarn (100% regenerated polyamide) and standard nylon and designed to be completely recycled because it is composed of a single material. In addition, thanks to a take back program, it can be returned after two years of use and recycled into new ECONYL® yarn.

TARKETT
Circular economy: closing the circle

Thanks to the pioneering collaboration with Aquafil, Tarkett closes the circle in the production of carpet tiles in Europe.

Tarkett has developed an innovative technology that separates carpet tiles at the end of life into two main components, maintaining over 95% purity of the yarn. This level of purity is fundamental to ensure that the polyamide 6 (PA6) yarn can be recycled from Aquafil and transformed into new ECONYL® regenerated nylon.

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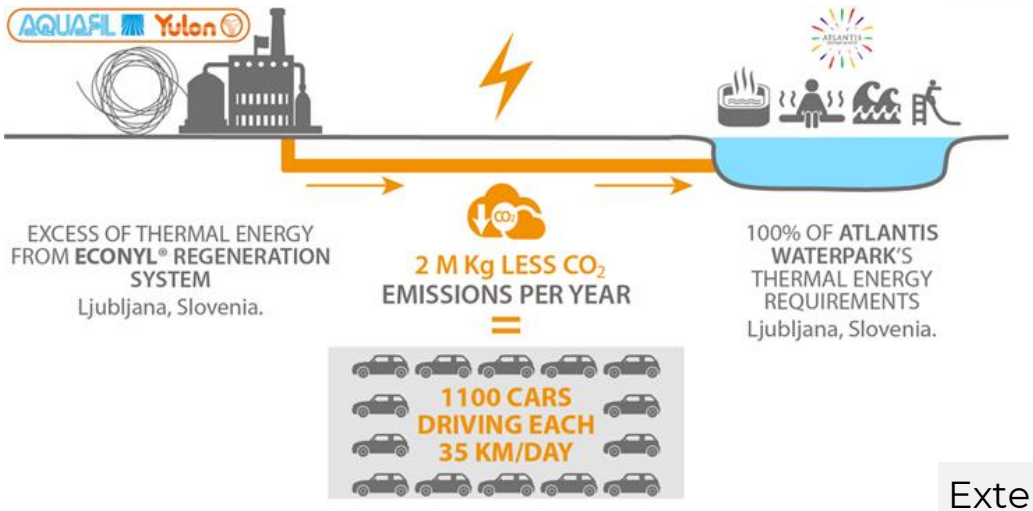
Two excellent examples of a cross-sector collaboration

Regenerating heating energy; AquafilSLO in cooperaton with Atlantic, BTC, Ljubljana

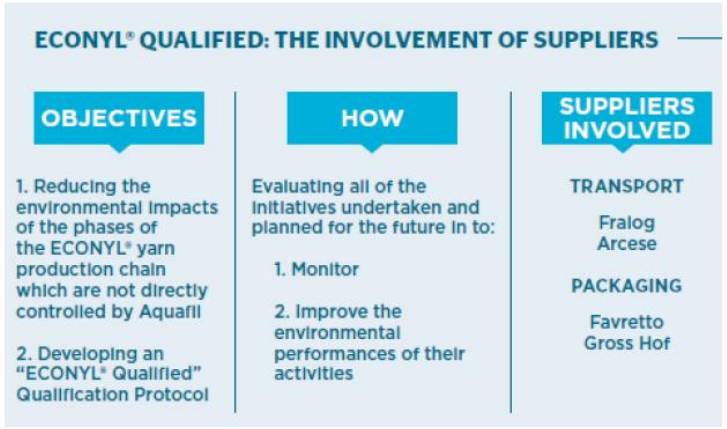


ECONYL® Qualified: the involvement of suppliers

AIM OF THE PROJECT:

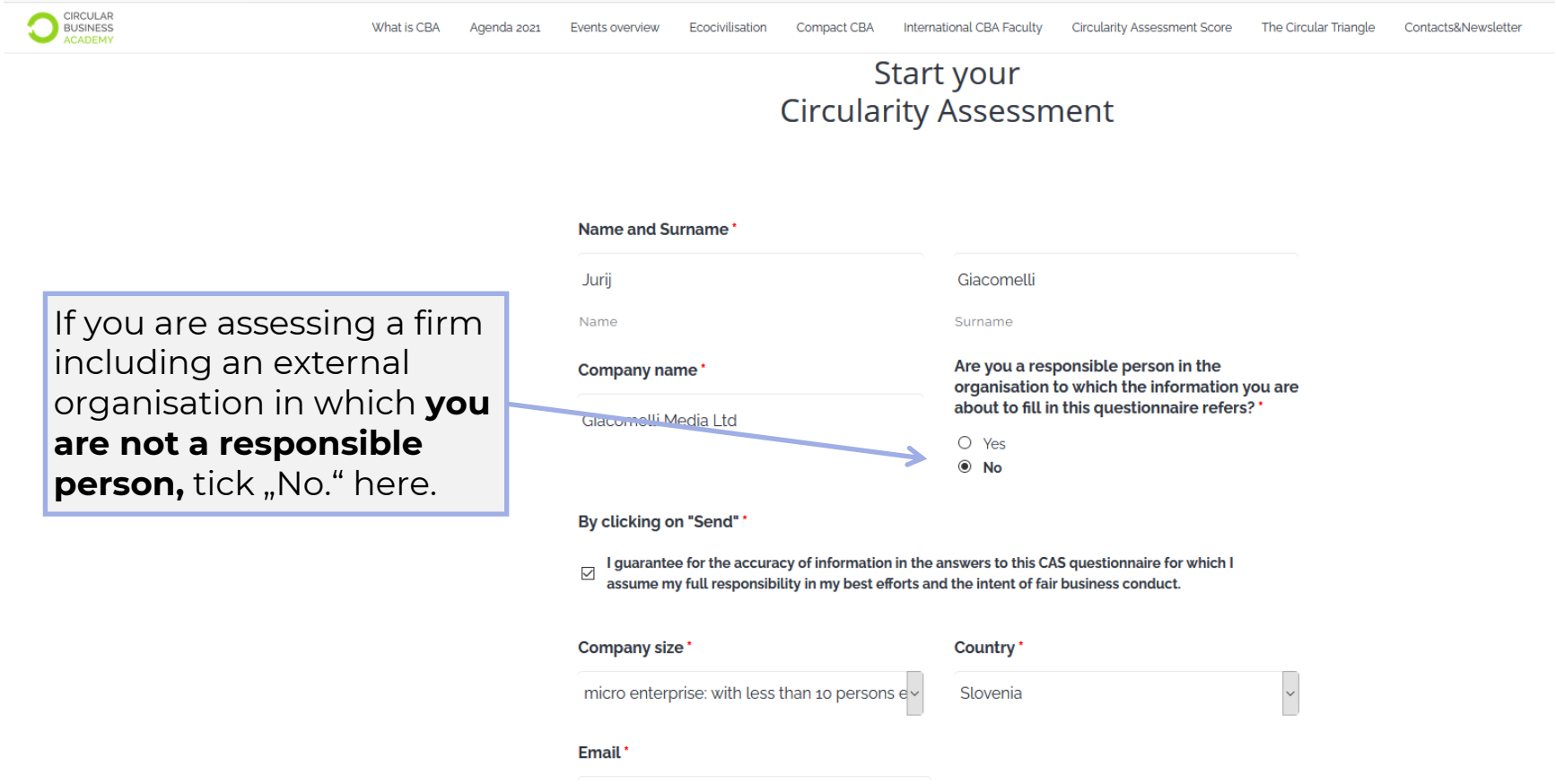
Develop a **qualification protocol** to award the excellence of companies that supply Aquafil with goods or services for the manufacturing of ECONYL® yarn.

The qualification process is based on specific guidelines, aimed at **encouraging excellence and bringing innovation into the supply chain**.



Extending sustainability beyond the boundaries of theri own organisation: collaboration with suppliers upstream the value chain.

Aquafil circularity assessment (1)



If you are assessing a firm including an external organisation in which **you are not a responsible person,** tick „No.“ here.

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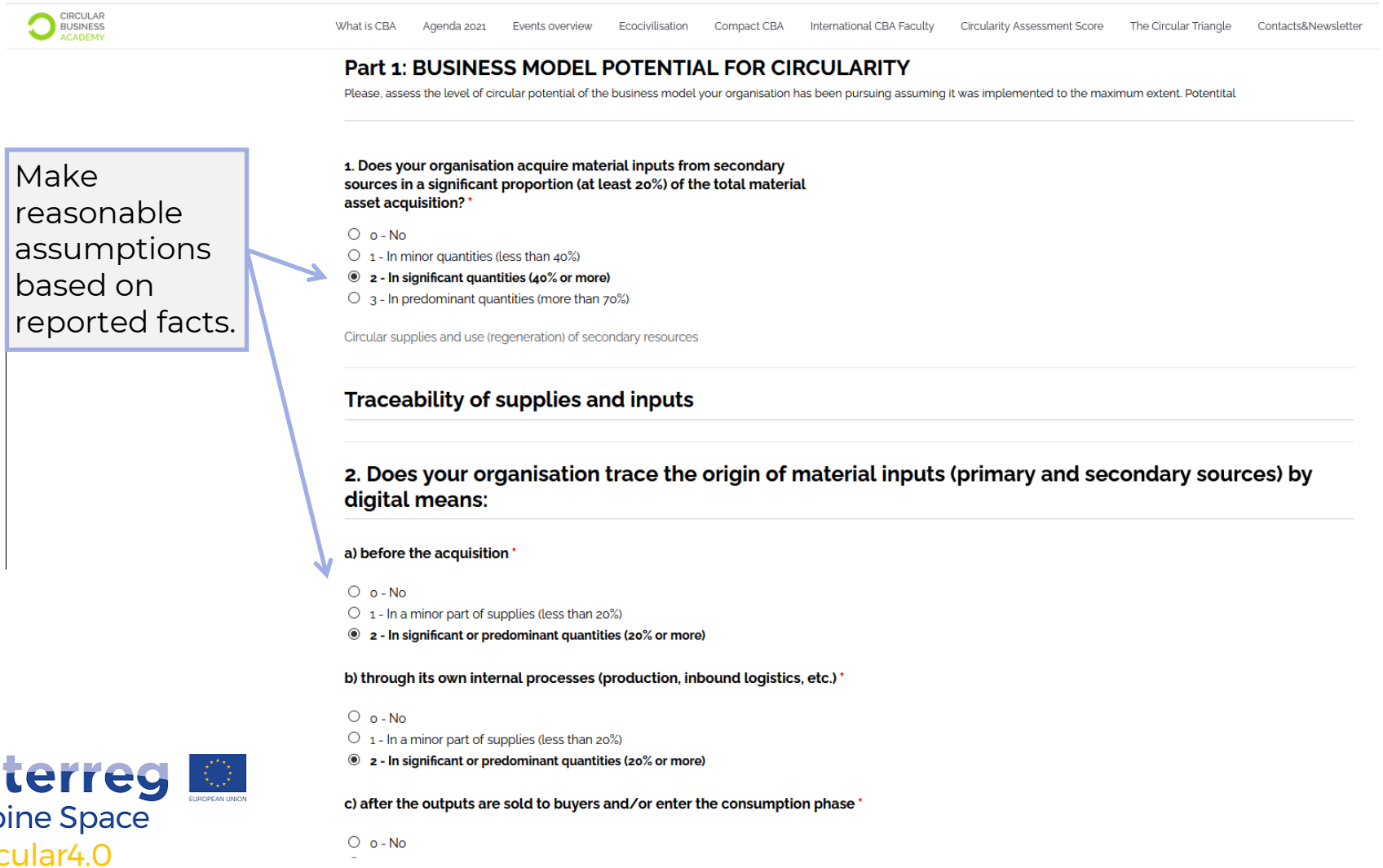
Aquafil circularity assessment (2)

Make reasonable assumptions based on reported facts.



CIRCULAR BUSINESS ACADEMY

What is CBA | Agenda 2021 | Events overview | Ecocivilisation | Compact CBA | International CBA Faculty | Circularity Assessment Score | The Circular Triangle | Contacts&Newsletter

Part 1: BUSINESS MODEL POTENTIAL FOR CIRCULARITY

Please, assess the level of circular potential of the business model your organisation has been pursuing assuming it was implemented to the maximum extent. Potentital

1. Does your organisation acquire material inputs from secondary sources in a significant proportion (at least 20%) of the total material asset acquisition? *

- ○ 0 - No
- ○ 1 - In minor quantities (less than 40%)
- ◉ **2 - In significant quantities (40% or more)**
- ○ 3 - In predominant quantities (more than 70%)

Circular supplies and use (regeneration) of secondary resources

Traceability of supplies and inputs

2. Does your organisation trace the origin of material inputs (primary and secondary sources) by digital means:

a) before the acquisition *

- ○ 0 - No
- ○ 1 - In a minor part of supplies (less than 20%)
- ◉ **2 - In significant or predominant quantities (20% or more)**

b) through its own internal processes (production, inbound logistics, etc.) *

- ○ 0 - No
- ○ 1 - In a minor part of supplies (less than 20%)
- ◉ **2 - In significant or predominant quantities (20% or more)**

c) after the outputs are sold to buyers and/or enter the consumption phase *

- ○ 0 - No

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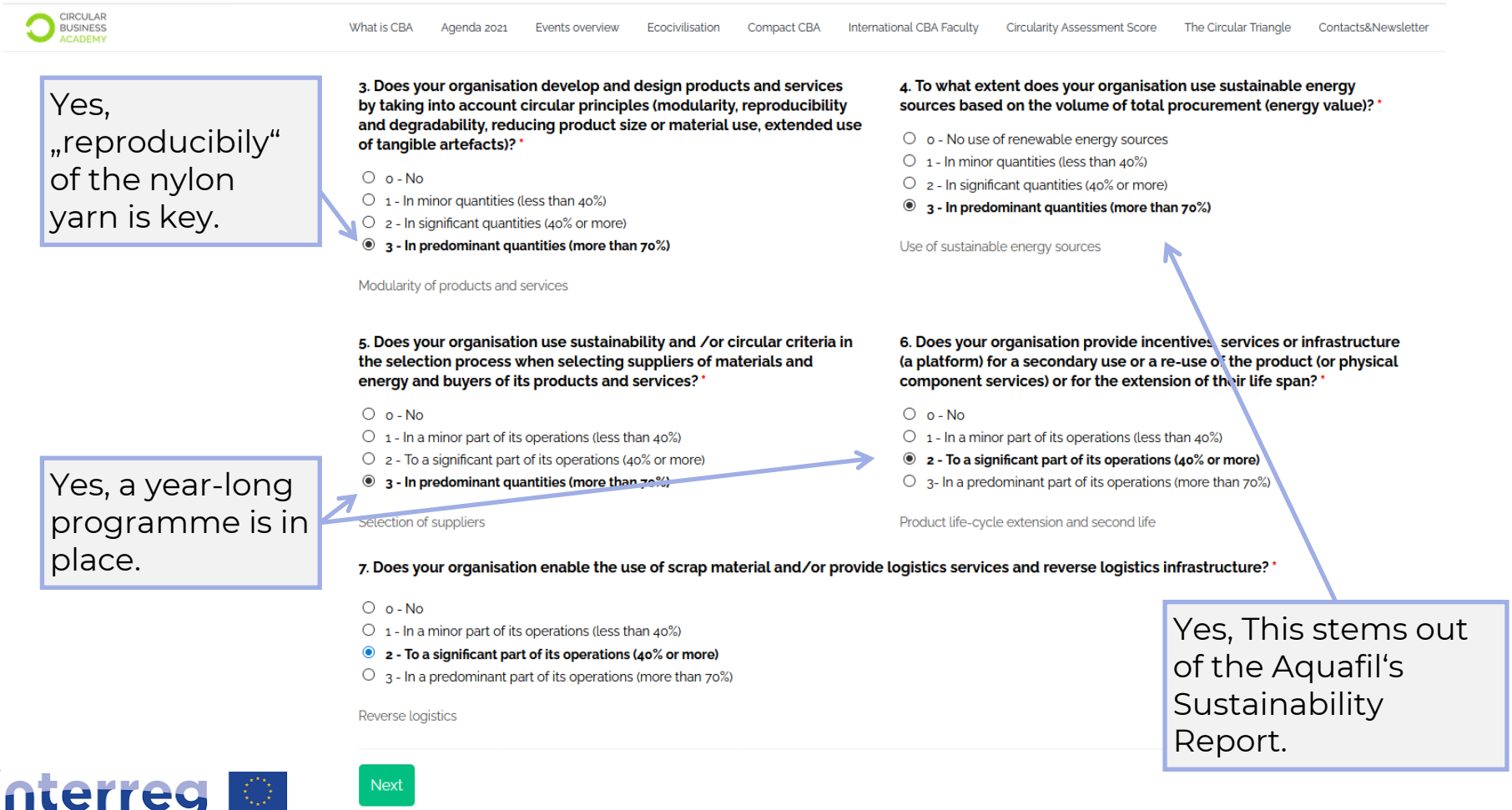
Aquafil circularity assessment (3)



Yes, „reproducibily“ of the nylon yarn is key.

Yes, a year-long programme is in place.

Yes, This stems out of the Aquafil‘s Sustainability Report.

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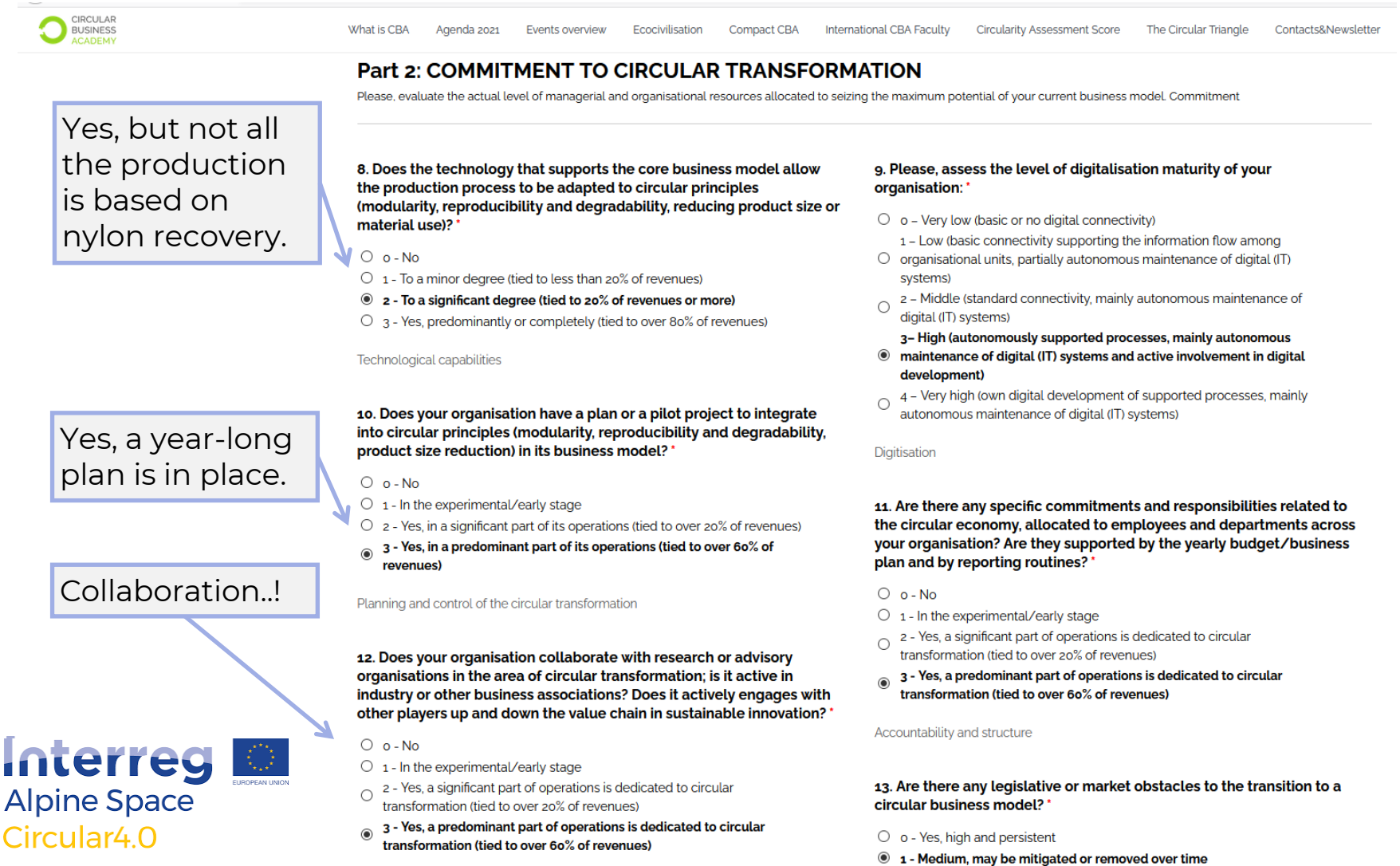
Aquafil circularity assessment (4)



CIRCULAR BUSINESS ACADEMY

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Part 2: COMMITMENT TO CIRCULAR TRANSFORMATION

Please, evaluate the actual level of managerial and organisational resources allocated to seizing the maximum potential of your current business model. Commitment

Yes, but not all the production is based on nylon recovery.

8. Does the technology that supports the core business model allow the production process to be adapted to circular principles (modularity, reproducibility and degradability, reducing product size or material use)? *

- 0 - No
- 1 - To a minor degree (tied to less than 20% of revenues)
- **2 - To a significant degree (tied to 20% of revenues or more)**
- 3 - Yes, predominantly or completely (tied to over 80% of revenues)

Technological capabilities

9. Please, assess the level of digitalisation maturity of your organisation: *

- 0 – Very low (basic or no digital connectivity)
- 1 – Low (basic connectivity supporting the information flow among organisational units, partially autonomous maintenance of digital (IT) systems)
- 2 – Middle (standard connectivity, mainly autonomous maintenance of digital (IT) systems)
- **3– High (autonomously supported processes, mainly autonomous maintenance of digital (IT) systems and active involvement in digital development)**
- 4 – Very high (own digital development of supported processes, mainly autonomous maintenance of digital (IT) systems)

Digitisation

Yes, a year-long plan is in place.

10. Does your organisation have a plan or a pilot project to integrate into circular principles (modularity, reproducibility and degradability, product size reduction) in its business model? *

- 0 - No
- 1 - In the experimental/early stage
- 2 - Yes, in a significant part of its operations (tied to over 20% of revenues)
- **3 - Yes, in a predominant part of its operations (tied to over 60% of revenues)**

Planning and control of the circular transformation

11. Are there any specific commitments and responsibilities related to the circular economy, allocated to employees and departments across your organisation? Are they supported by the yearly budget/business plan and by reporting routines? *

- 0 - No
- 1 - In the experimental/early stage
- 2 - Yes, a significant part of operations is dedicated to circular transformation (tied to over 20% of revenues)
- **3 - Yes, a predominant part of operations is dedicated to circular transformation (tied to over 60% of revenues)**

Accountability and structure

Collaboration..!

12. Does your organisation collaborate with research or advisory organisations in the area of circular transformation; is it active in industry or other business associations? Does it actively engages with other players up and down the value chain in sustainable innovation? *

- 0 - No
- 1 - In the experimental/early stage
- 2 - Yes, a significant part of operations is dedicated to circular transformation (tied to over 20% of revenues)
- **3 - Yes, a predominant part of operations is dedicated to circular transformation (tied to over 60% of revenues)**

13. Are there any legislative or market obstacles to the transition to a circular business model? *

- 0 - Yes, high and persistent
- **1 - Medium, may be mitigated or removed over time**

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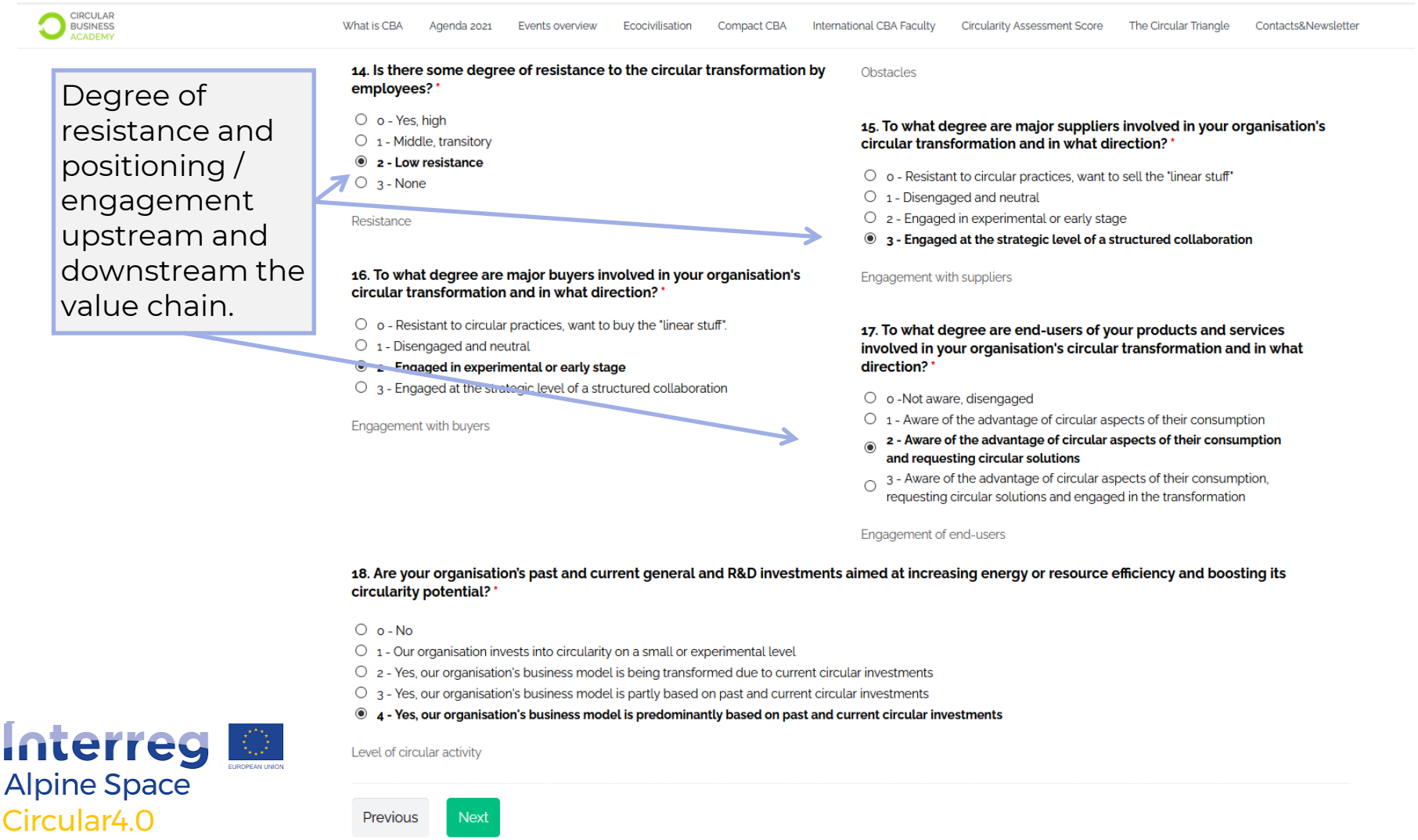
Aquafil circularity assessment (5)



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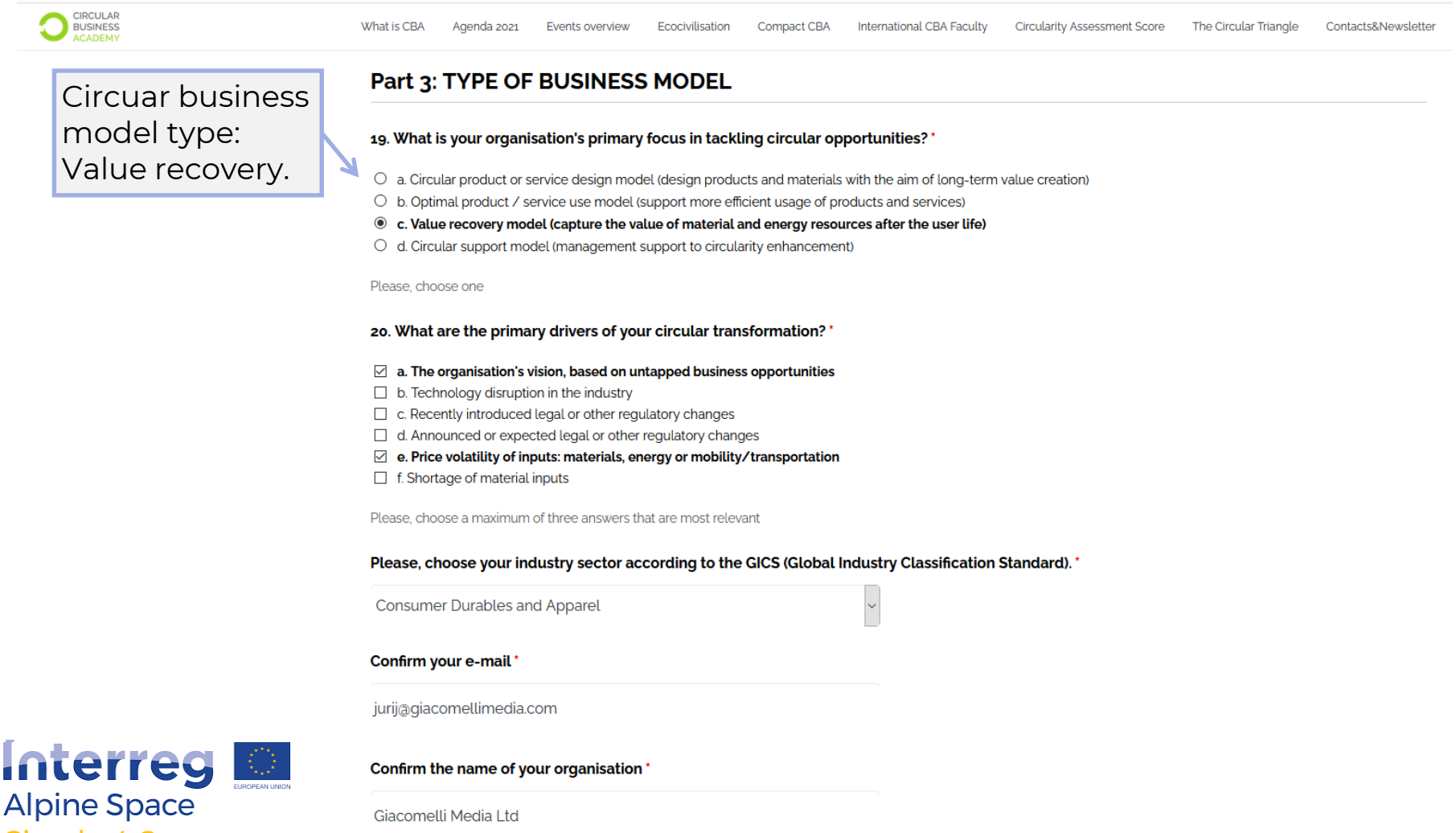
Aquafil circularity assessment (6)



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CAS Report

CIRCULAR BUSINESS ACADEMY

QuCAS Report

Company: Valtex

Country: Slovenia

Appraiser's name and surname: Niko Kumar

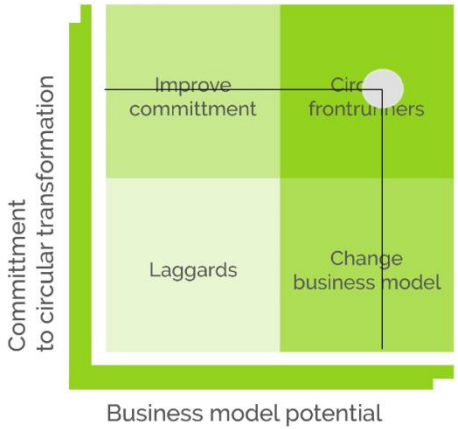
Circular Assessment Score

Circular business model potential:	40,2 out of 50
Commitment to the circular transformation:	37,5 out of 50
Total QuCAS :	77,7 out of 100

Your company is advanced in circular transformation.

uCAS score it is characterised as a **Circular Frontrunner**. Your organisation's
monstrates high potential and at the same time there has been a significant
to the accomplishment of the circular transformation objectives.

QuCAS Map



Comment

Your company's circular model potential and the organisation's commitment justify substantial focus and investment in the implementation of its circular business model and demonstrates **low circular risk**.

Thank you for your participation at the Quick Circular Assessment.

Yours sincerely,

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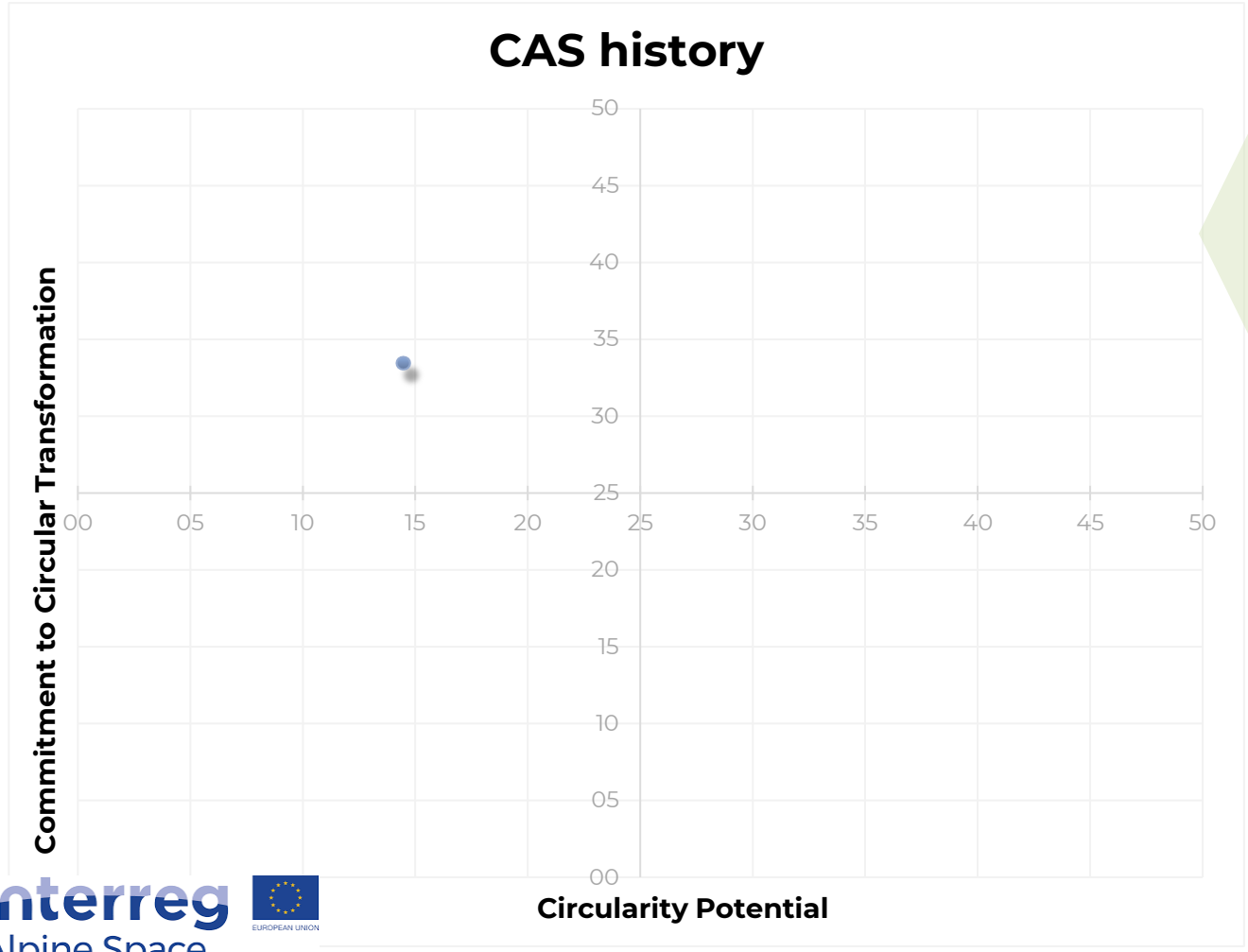
The CAS Matrix



Unexplored territory above partial scores of 40.0 points

Positive correlation
Correlation coef. = 0.56

Average score of Commitment to circular transformation = 22.2/50

Average score of Business model potential = 23.7/50

Average total QuCAS Score
= 45.9/100

Number of Circular frontrunners
= (26%)

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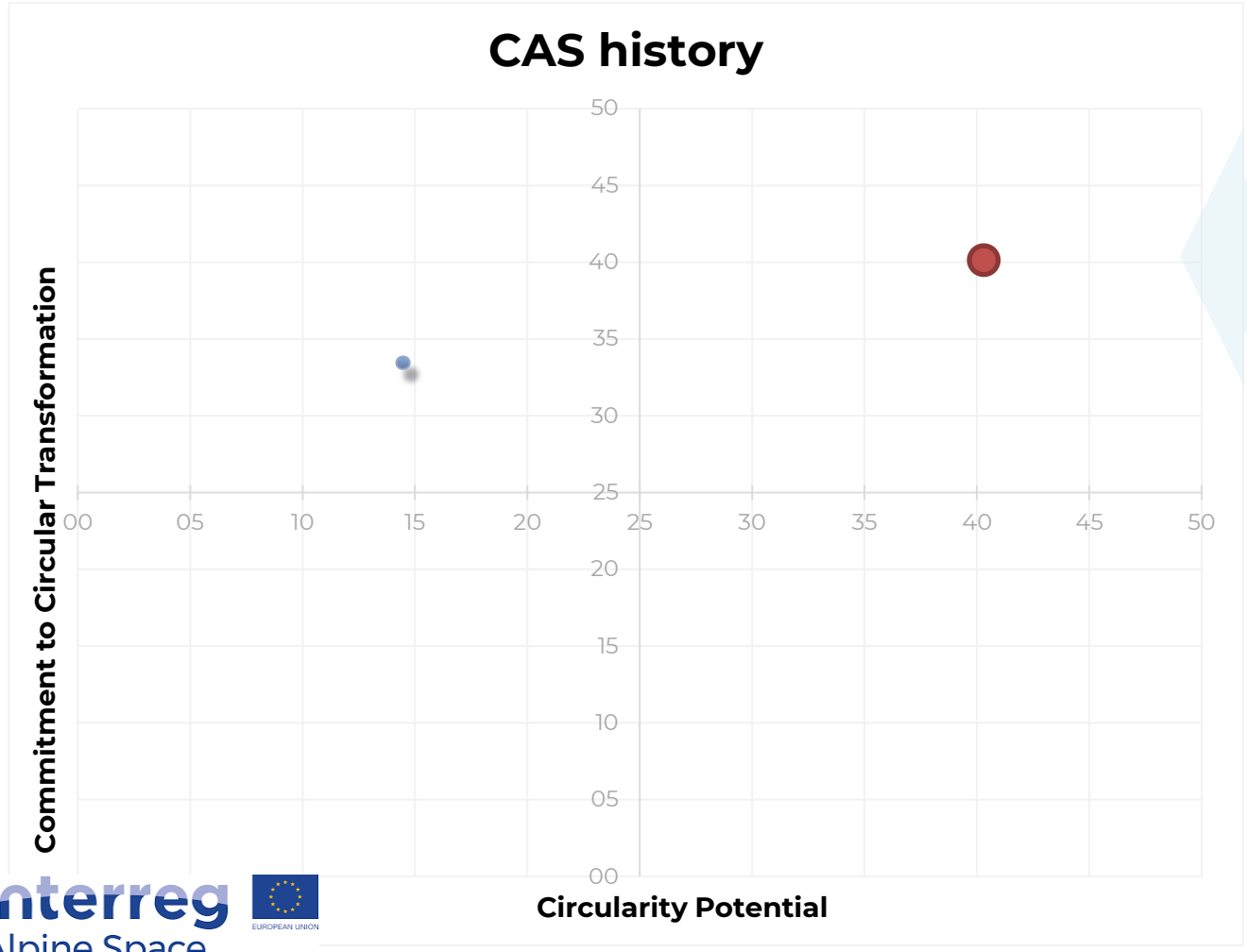
Aquafil in the CAS Matrix



Aquafil's CAS score

Aquafil score

Circularity potential: 41.7/50

Commitment to Circular Transformation: 40/50

Total Score: 81.7/100

Aquafil is a circular frontrunner...!

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Q&A before filling in the CAS

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Homework
Filling in your initial CAS 2.0

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Homework:
Filling in CAS for your organisation of choice

An extended CAS questionnaire attuned to the CIRCULAR 4.0 project and a DMA questionnaire are freely available here:

https://circular40.eu/

To do

1. Please, assess the level of circularity your oganisation by filling in the CAS.
2. Please, assess your DMA by the filling in a recommended questrionnaire.
3. When you will have received the CAS Report and the DMA Result, please:
4. Send the reports to us
5. Respond to a short questionnaire aout your break-through project on the Talent LMS platform.
6. You will be ready to for the next step.

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CIRCULARITY
ACCELERATION
TRAINING
4.0

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