ECOLABNET

Eco-innovations to drive sustainable development of companies

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Sustainable development

‘‘Development that meets the needs of the present without compromising the ability of future generations to meet their own needs’’
(Our common future, Brundtland Report, 1987)

Ecolabnet

- Project aims to create a network of service providers in the Baltic Sea Region to help companies to develop eco-innovations (https://ecolabnet.org/)
- Funded by the program Interreg Baltic Sea Region
- 11 partners from Denmark, Estonia, Finland, Lithuania, Poland and Sweden

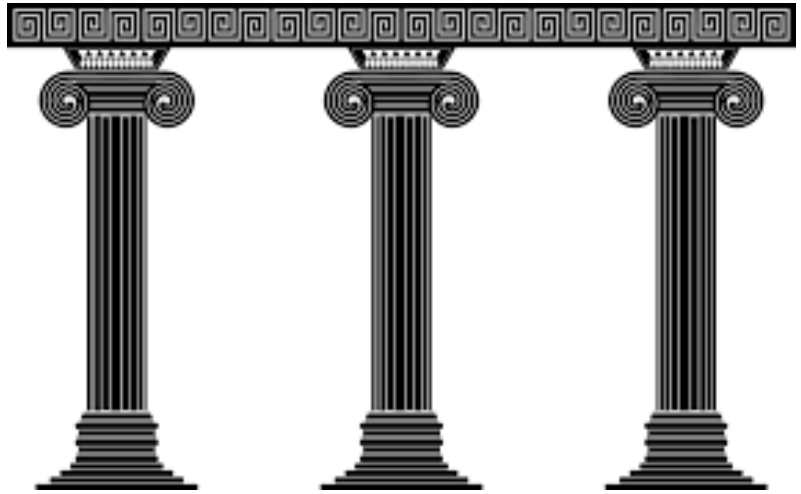
Ecoinnovation

- Eco-Innovation results in new products and processes which provide business value but significantly decrease environmental impacts (Fussler & James, 1996).
- Driven by regulatory push, technology push and market pull (Rennings, 2000)
- It is also related to the concept of sustainable innovation, eco-efficiency (Ehrenfeld, 2005), resource efficiency (Huysman et al., 2015), bioeconomy (European Commision, 2012) and circular economy (Korhonen et.al., 2018) and industrial symbiosis (Kusch, 2015).

Three pillars

According to OECD poilcy brief (2011), eco-innovation consists of three pillars:

- **Targets:** the basic focus areas of eco-innovation including products, processes, marketing methods, organisations and institutions.
- **Mechanisms:** how changes in the target areas are made. They can involve modification of practices, re-design of practices, alternatives to existing practices, or the creation of new practices.
- **Impacts:** which are how the eco-innovation affects environmental conditions.



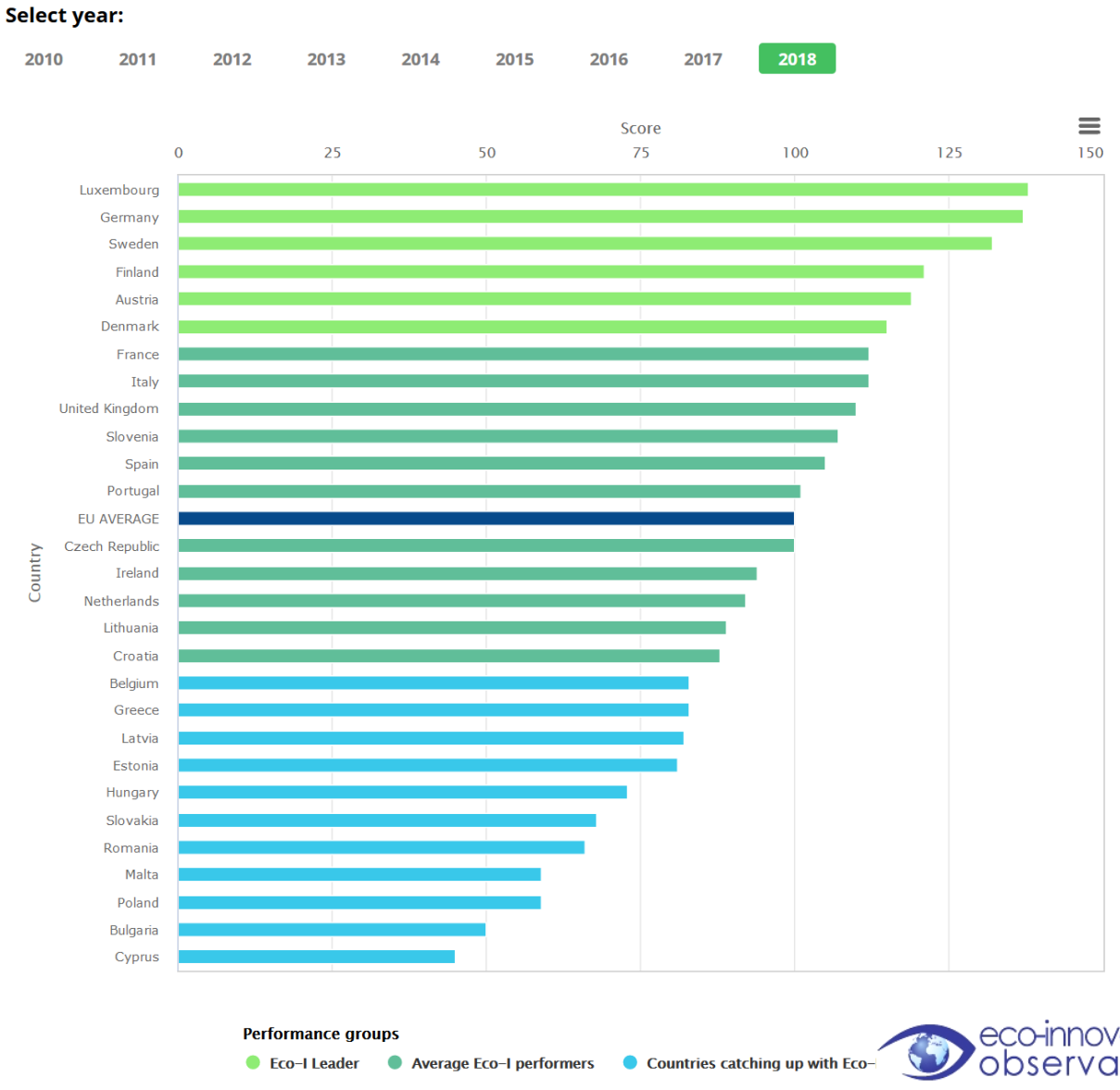
Business case for eco-innovation

- Sustainability to address environmental and social risks
- Scarcity and high prices of resources
- Customer demand
- Government regulations
- Better growth
- Cost savings
- Improve brand and reputation
- Strengthen stakeholder relations

Ecoinnovations in Europe

- Eco-innovation is at the center of European policies.
- The eco-innovation index of EU is calcluated since 2010.
- The index values of 2018 indicates that Sweden and Finland are ecoleaders, whereas Baltic countries are perfoming below the EU average.
- Hence collaboration in this field is very important for the future.

https://ec.europa.eu/environment/ecoap/indicators/index_en



Ecoinnovations in Finland

- Solved.fi , the digital expert service for sustainbaility was formed in 2013.
- Strategy to Promote Cleantech business in Finland in 2014.
- Finnish Bioeconomy Strategy (2014), the Finnish Material Efficiency Programme (2014), and the new Circular Economy focus area (2016) in Sitra, the Finnish Innovation Fund.
- Strategy to achieve carbon neutrality by 2035.

Eco-innovation examples – Model 3 water heater

Model 3 Electric water heater

- Patented technology
- Mobile app to monitor hot water usage and energy usage
- Reduce energy usage for heating water by 40%

Eco-innovation examples- Final straw

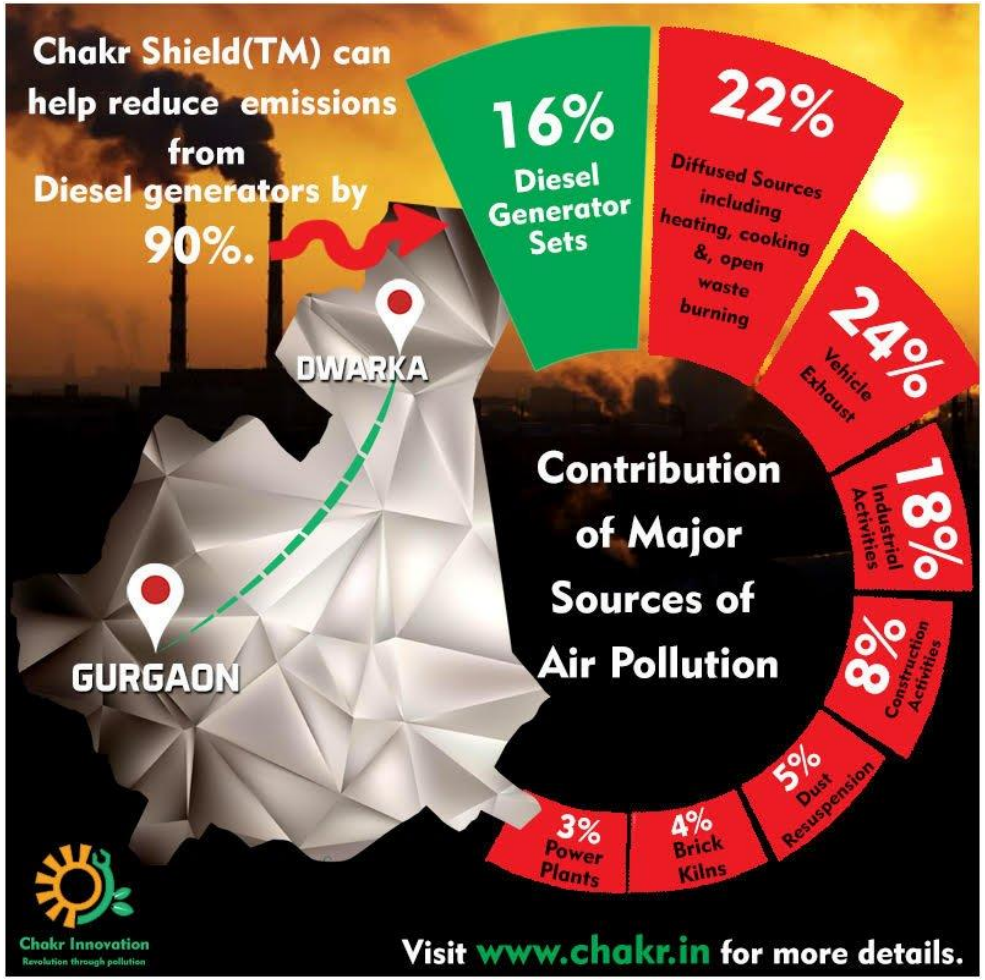
Reusable metallic straw

- Collapsable
- Can be stored on a keychain
- Drying rack & specialized squeegee

Eco-innovation examples- Circular Systems

- Convert agricultural waste such as pineapple leaves, banana tree trunks and sugar cane to clothing
- Recycling of textiles to make new products
- New yarn technology for producing high-performance yarns using recycled fibres

Eco-innovation examples- Chakr Shield TM



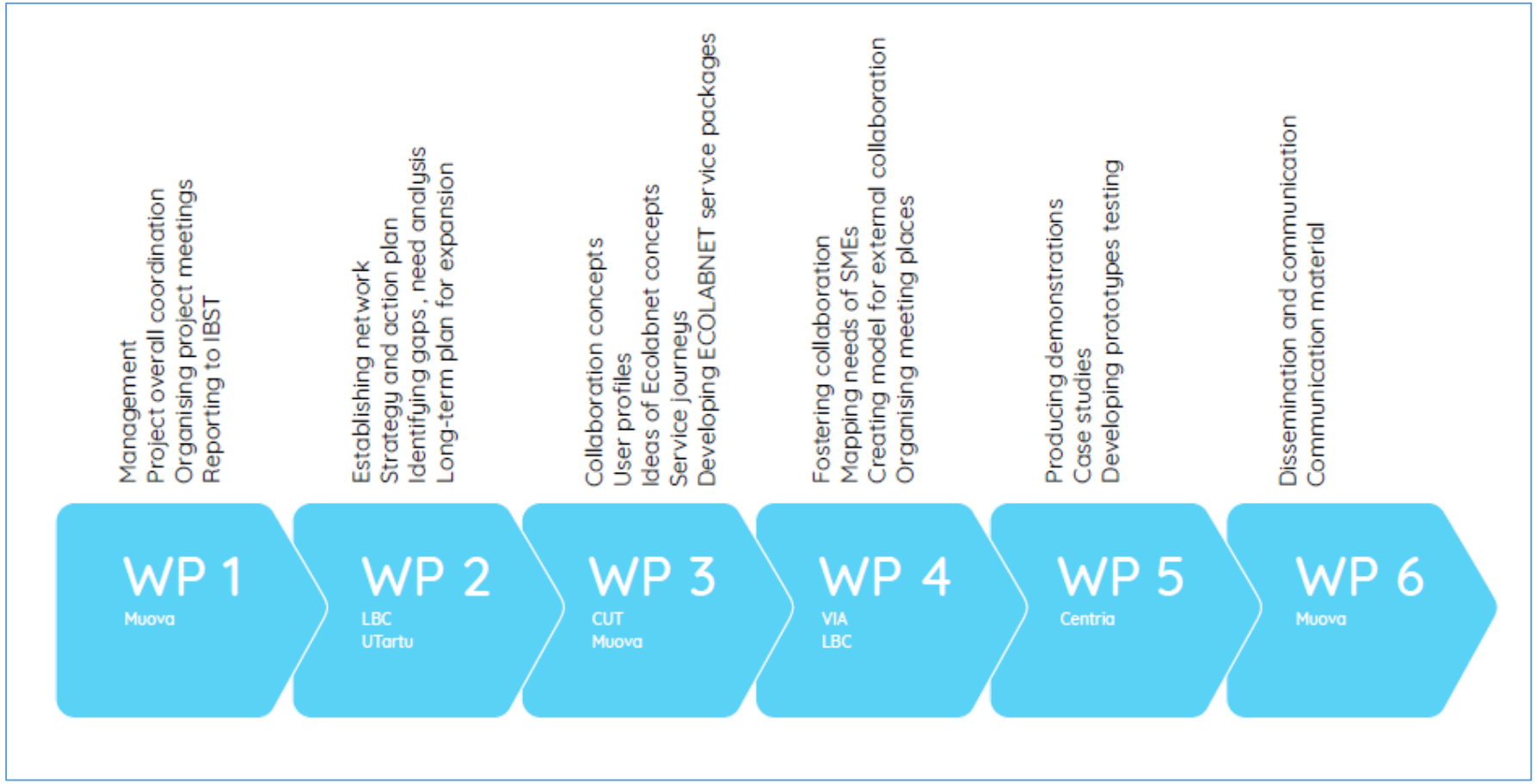
First retro-fit emission control device for diesel generators

- Captures 90% of particulate matter from exhaust
- Captured pollutions converted to ink

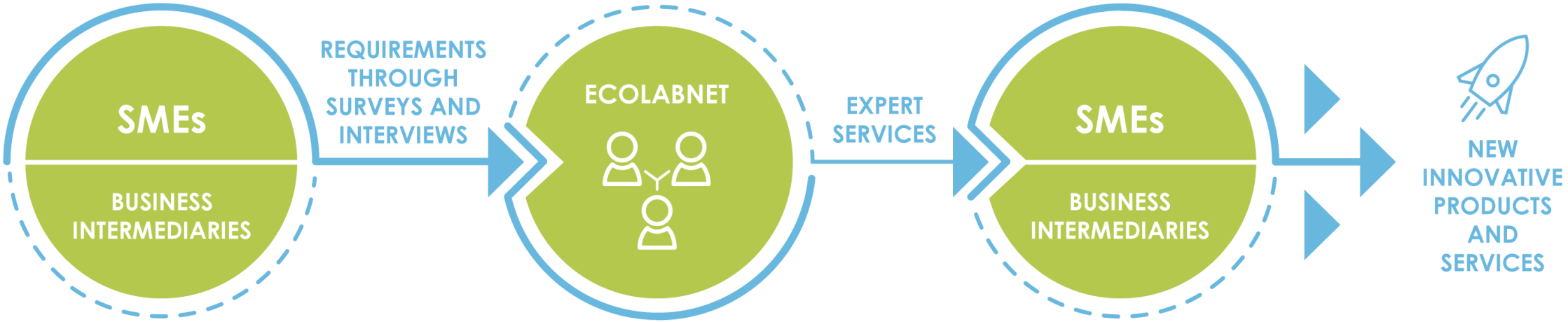
Companies with ecoinnovations in Finland

- Stora Enso: bioeconomy initiative involving wood-fibre based products and sustainable forestry
- Savosolar: Solar Thermal collectors (based on a vacuum coating process where the complete absorber structure is coated after assembly improving heat transfer efficiency).
- ResQclub: Mobile app which helps users to buy food that will otherwise go to waste in restaurants
- Destaclean Oy : composites for construction made from recycled materials

Ecolabnet project



Ecolabnet SME survey



Ecolabnet SME survey : Motivating factors

	1	2	3	4	5	TOTAL
Cost reduction	2.63% 6	11.40% 26	15.35% 35	32.02% 73	38.60% 88	228
Efficient use of resources	1.32% 3	2.63% 6	7.89% 18	38.16% 87	50.00% 114	228
To comply with legislation	4.82% 11	4.39% 10	15.35% 35	33.77% 77	41.67% 95	228
Strengthening corporate brand image	3.07% 7	4.82% 11	12.72% 29	36.40% 83	42.98% 98	228
Differentiate from competitors	3.07% 7	7.89% 18	14.47% 33	34.21% 78	40.35% 92	228
Attracting competent employees	6.14% 14	10.53% 24	29.82% 68	28.51% 65	25.00% 57	228
To satisfy customer needs	1.32% 3	4.39% 10	12.72% 29	28.95% 66	52.63% 120	228
Meeting stakeholder expectations	6.14% 14	12.72% 29	25.44% 58	31.14% 71	24.56% 56	228
Attracting capital investments	17.54% 40	18.42% 42	24.12% 55	21.49% 49	18.42% 42	228
Potential business opportunities	5.26% 12	8.33% 19	14.47% 33	35.53% 81	36.40% 83	228
To increase transparency	7.02% 16	13.16% 30	32.02% 73	25.00% 57	22.81% 52	228
Reduction of environmental effects on the business operations	4.82% 11	5.26% 12	20.18% 46	31.58% 72	38.16% 87	228

Ecolabnet SME survey : Barriers

	1	2	3	4	5	TOTAL
Lack of capital	10.36% 23	8.56% 19	22.52% 50	27.03% 60	31.53% 70	222
Uncertain return on eco-innovation investment	8.11% 18	14.86% 33	22.52% 50	36.04% 80	18.47% 41	222
Uncertain demand from the market	9.01% 20	12.16% 27	31.08% 69	31.53% 70	16.22% 36	222
Lack of proven technologies	8.56% 19	19.37% 43	30.63% 68	26.58% 59	14.86% 33	222
Lack of alternative materials	9.46% 21	16.67% 37	27.93% 62	27.48% 61	18.47% 41	222
Lack of in-house expertise	9.46% 21	17.57% 39	30.63% 68	27.93% 62	14.41% 32	222
Internal resistance in the company	27.93% 62	27.03% 60	22.97% 51	13.06% 29	9.01% 20	222
Certification costs	10.81% 24	14.86% 33	26.58% 59	25.23% 56	22.52% 50	222
Legislative demands	13.51% 30	18.47% 41	28.38% 63	27.03% 60	12.61% 28	222
Integration into product development process	15.32% 34	18.47% 41	31.08% 69	24.77% 55	10.36% 23	222
Capability to collect and process data	13.06% 29	20.27% 45	35.59% 79	22.97% 51	8.11% 18	222
Limited access to external knowledge	10.81% 24	21.17% 47	35.59% 79	21.17% 47	11.26% 25	222
Lack of suitable tools and methods	7.21% 16	20.72% 46	29.28% 65	26.13% 58	16.67% 37	222

Ecolabnet SME survey : Topics of interest for companies

	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Product design	12.74% 27	8.96% 19	15.57% 33	26.89% 57	35.85% 76	212	3.64
Service design	12.26% 26	14.62% 31	25.00% 53	29.72% 63	18.40% 39	212	3.27
Packaging development	16.51% 35	16.98% 36	22.64% 48	23.11% 49	20.75% 44	212	3.15
Life-cycle assessment (LCA)	13.21% 28	14.15% 30	33.02% 70	20.75% 44	18.87% 40	212	3.18
Process development	7.55% 16	6.13% 13	23.58% 50	39.15% 83	23.58% 50	212	3.65
Bio-based materials	22.17% 47	9.91% 21	20.28% 43	21.70% 46	25.94% 55	212	3.19
Biodegradable materials	22.64% 48	10.85% 23	21.70% 46	19.81% 42	25.00% 53	212	3.14

Ecolabnet SME survey : Topics of interest for companies

	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
3D printing	48.33% 101	10.53% 22	15.79% 33	13.88% 29	11.48% 24	209	2.30
Bioresins	49.76% 104	15.79% 33	21.53% 45	6.22% 13	6.70% 14	209	2.04
Biocomposites	44.02% 92	11.48% 24	22.49% 47	11.96% 25	10.05% 21	209	2.33
Other alternative materials	27.75% 58	9.09% 19	20.57% 43	26.32% 55	16.27% 34	209	2.94
Certifications	18.66% 39	12.44% 26	29.67% 62	24.40% 51	14.83% 31	209	3.04
Material efficiency	14.35% 30	8.61% 18	19.14% 40	33.49% 70	24.40% 51	209	3.45
Increasing process efficiency	9.57% 20	5.74% 12	19.62% 41	30.62% 64	34.45% 72	209	3.75
Energy optimization	10.05% 21	7.66% 16	20.57% 43	26.32% 55	35.41% 74	209	3.69

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