



GENIALG

Saccharina latissima value chain, patents and economic analysis

Sander van den Burg, Ana Daniel & Maggie Skirtun

30-11-2020



This project has received funding from the European Union's Horizon 2020 Framework Programme under grant agreement No 727892. This output reflects the views of the author, and the Research Executive Agency (REA) cannot be held responsible for any use which might be made of the information contained therein.

www.genialproject.eu

Outline

Presenting the work of Work Package 5

- Value chain analysis: Sander van den Burg
- Patent analysis: Ana Daniel
- ~~Economic analysis: Maggie Skirtun~~

Not presented now: LCA

Note the results of the economic analysis are left out of this publication. For more information contact Sander van den Burg (sander.vandenburg@wur.nl)



The GENIALG approach to value chain analysis

Analysis of the organization of seaweed value chains, combining qualitative and quantitative methods.

Identified 6 characteristics of value chains, drawing upon with work of Gereffi et al,

- Upgrading strategy
- Innovation
- Input-output structure
- Stakeholders
- Governance
- Geographic scope

More details in van den Burg et al (forthcoming): <https://doi.org/10.1007/s10811-020-02320-z>



Applying this approach to *Saccharina latissima*

Upgrading strategy for *Saccharina latissima*: development of high value products from seaweed for the following markets: alginate, pharmaceuticals, cosmetics, bioplastics

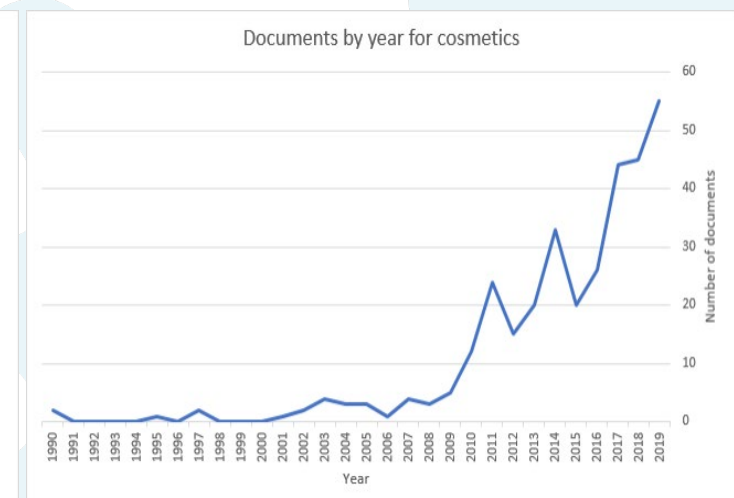
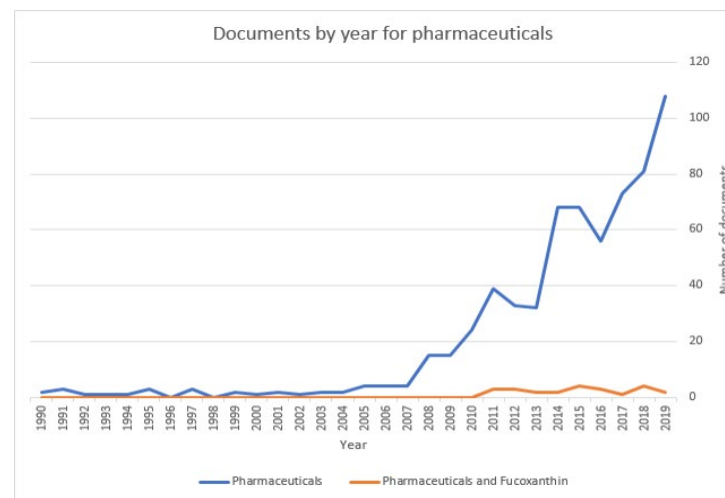
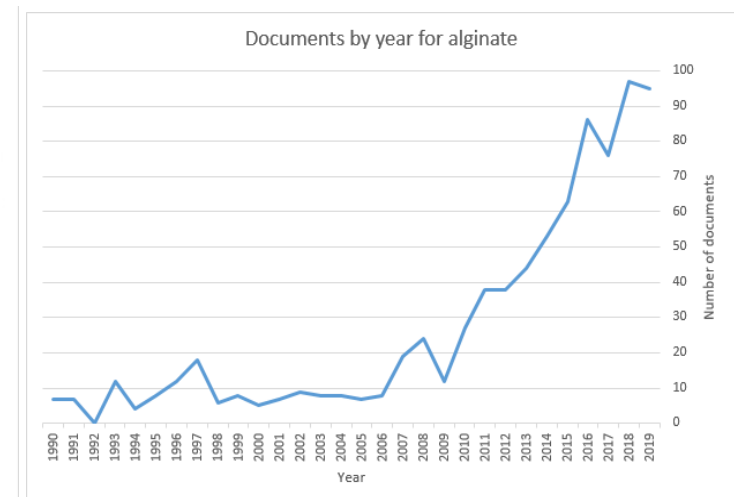
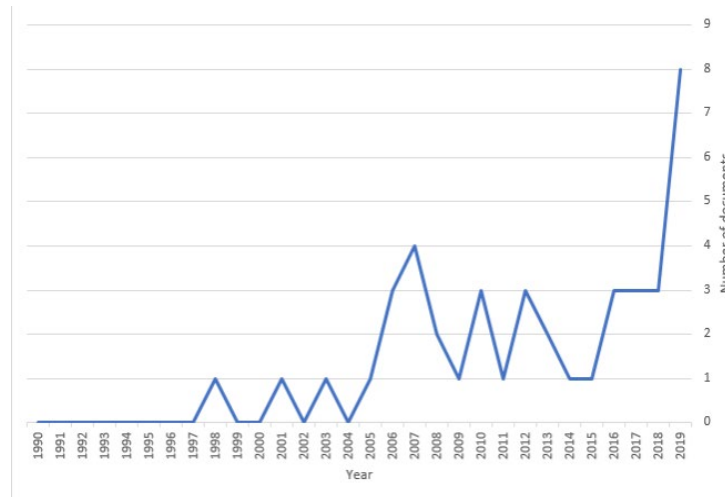
How does this relate to the current organization of the value chain?

- Innovation: *trends in number of scientific publications and developments in patents (to be discussed)*
- Input-output structure: *Geographic data on production*
- Stakeholders: *Key players in Europa*
- Governance: *Relation between actors in the value-chain*
- Geographic scope: *Locality of innovation*

Value chain: innovation

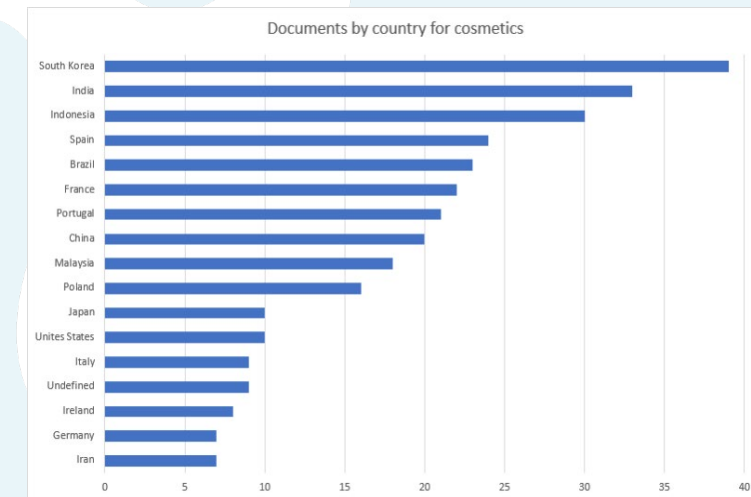
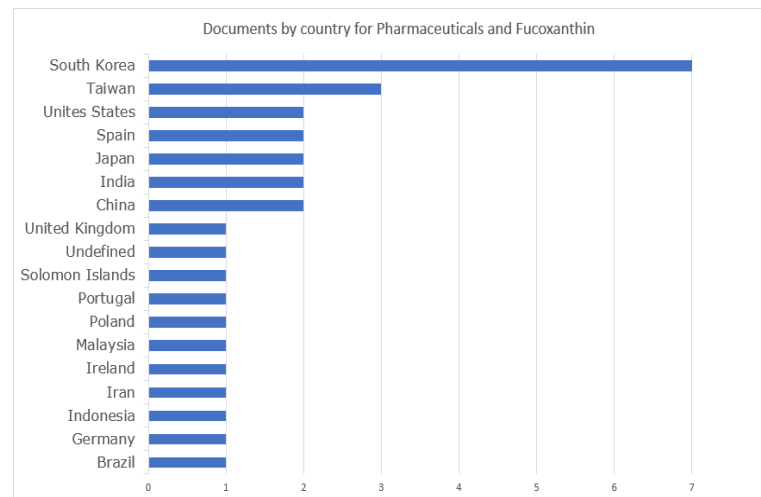
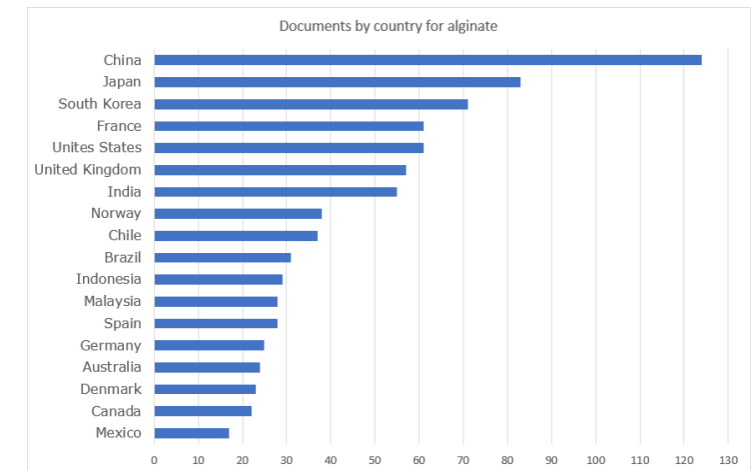
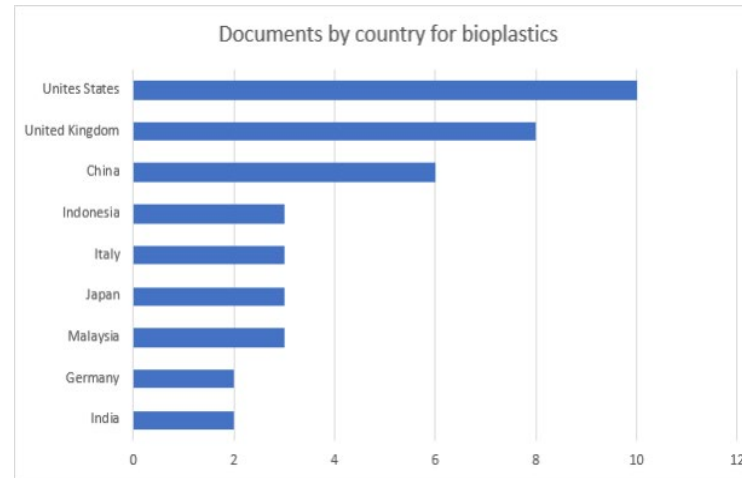
Systematic literature review using Scopus

Qualitative analysis of 10 most cited



Value chain: geographic scope

Based on Scopus search



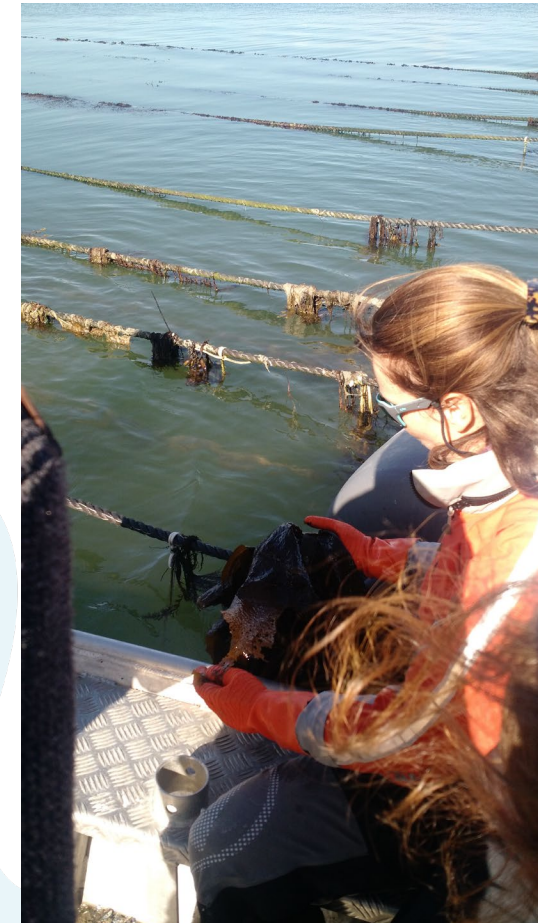
Value chain: input-output structure

Length of input-output structure varies

The seaweed is processed by 1 to 4 companies before it reaches the end-user

In all markets: seaweed is supplied by a raw material supplier

End-users are served by the lead firm – not the seaweed producer



Value chain: stakeholders

Four different value chain in terms of regulation and dominant actors:

Pharma and cosmetics: strong role of regulators

Bioplastic: little governmental regulation

Cosmetics, alginate, pharma: relatively few companies control the market

Alginate: role of quality standard, set by clients



Value chain: observations

Increasingly strong position of Europe in seaweed research

But Europe is not unique in its focus high value products

Niche food products are the most important market for European many seaweed producers as of now

These new markets are organized differently, more regulated (government and private regulation) & stronger influence of lead firms

Strengthen capacities in the supply chain is win-win

- Develop new products and markets with the lead firm
- Avoid competition based on price of raw materials only

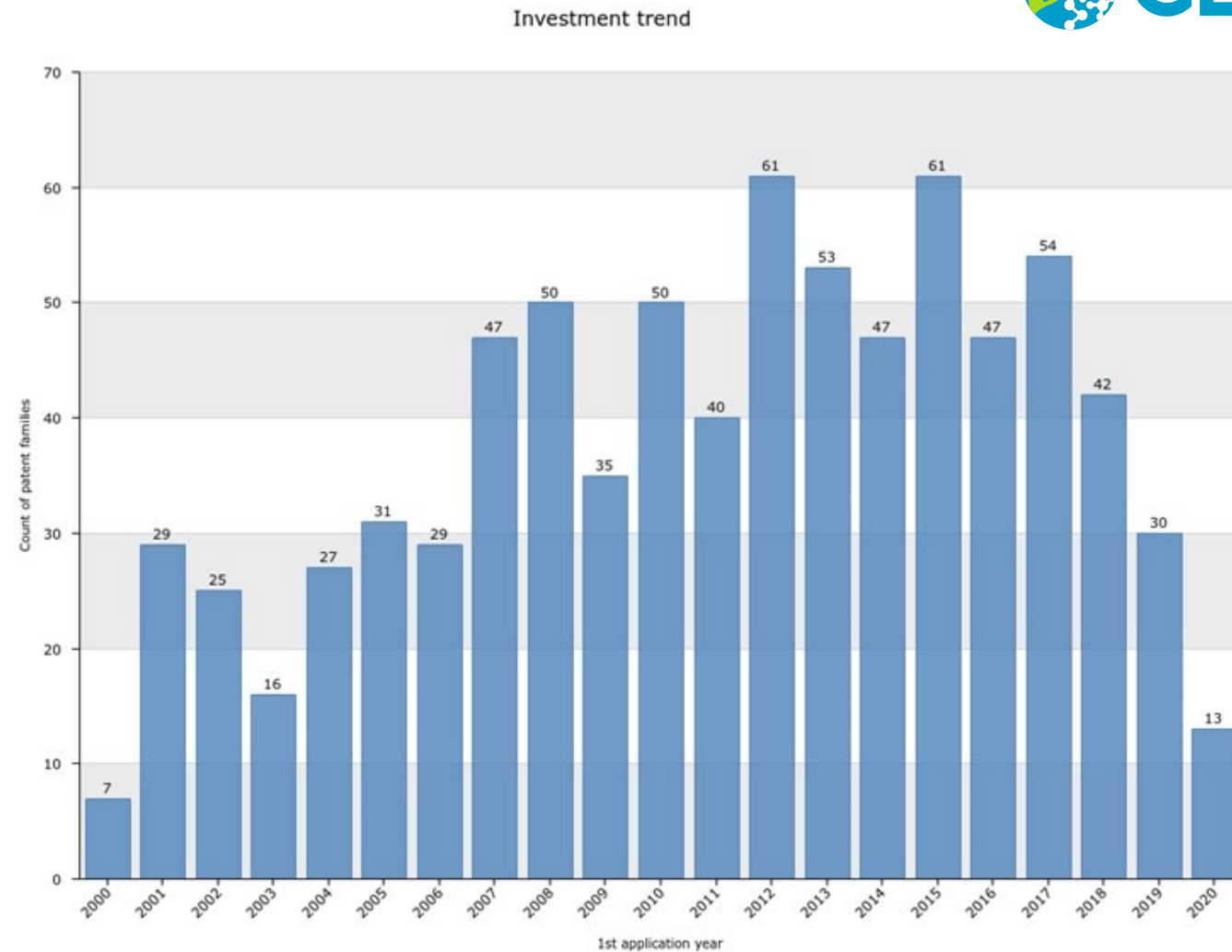
Quality and sustainability as Unique Selling Point for European other raw material suppliers

Patents

Orbit Intelligence Software

Saccharina latíssima OR Sugar Kelp
OR *Laminaria saccharina* patents:
Investment trend

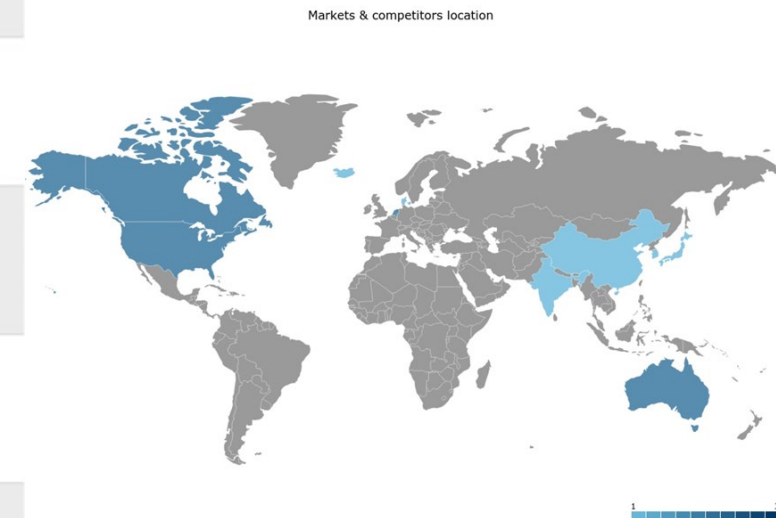
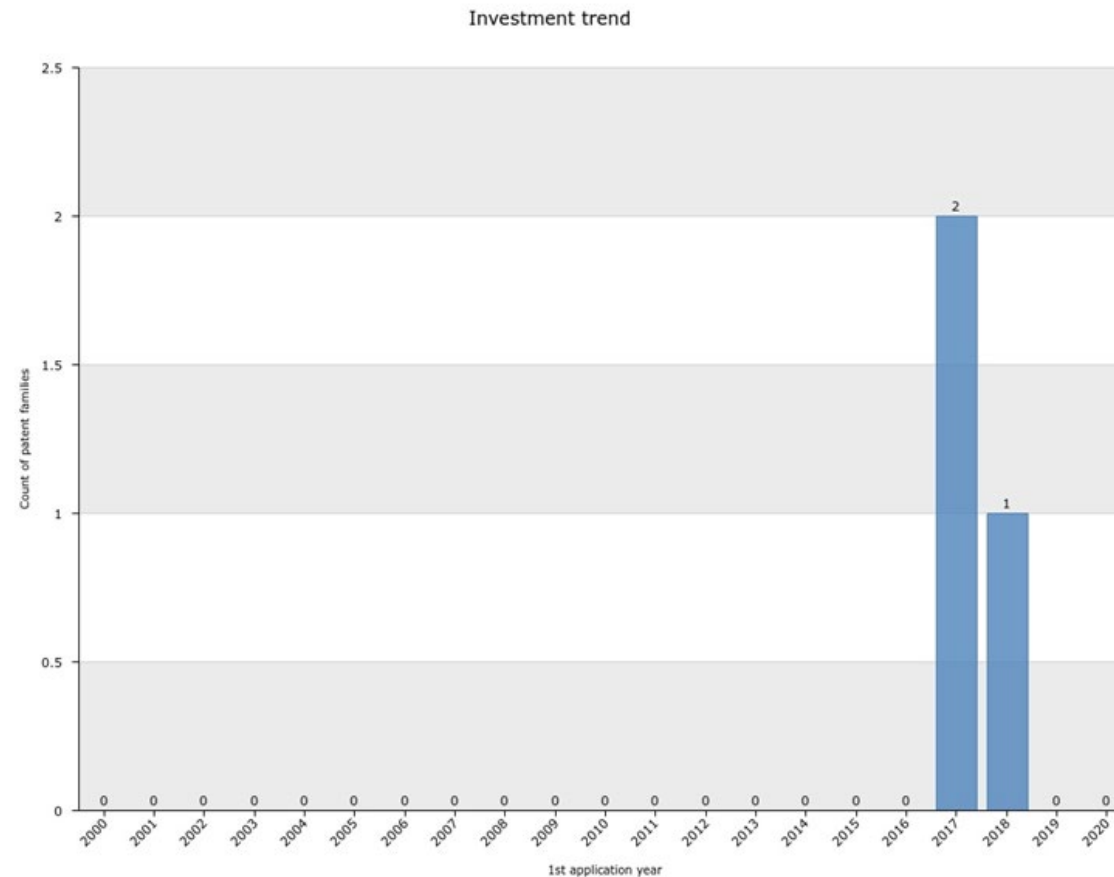
718 patent families



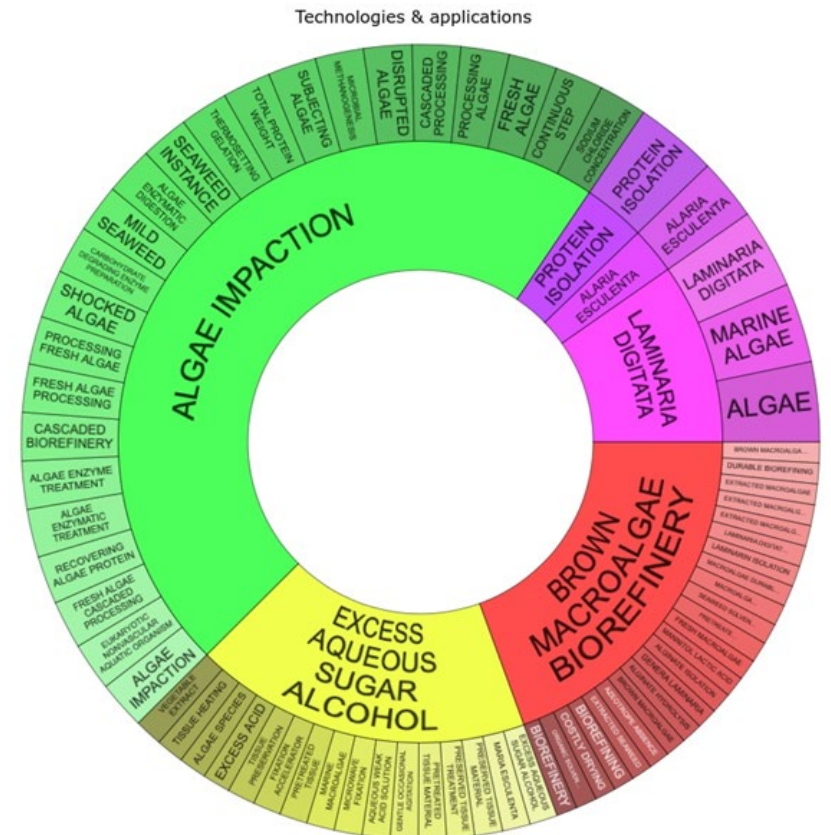
Patents: Bioplastics

(*Saccharina latíssima* OR Sugar Kelp OR *Laminaria saccharina* patents) AND Bioplastics

3 patent families



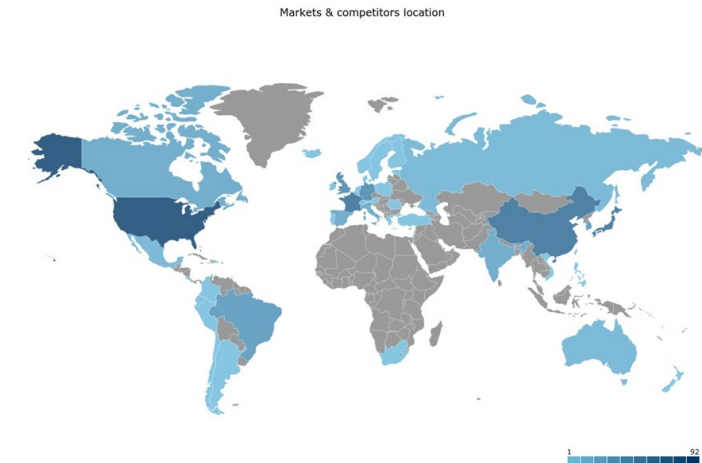
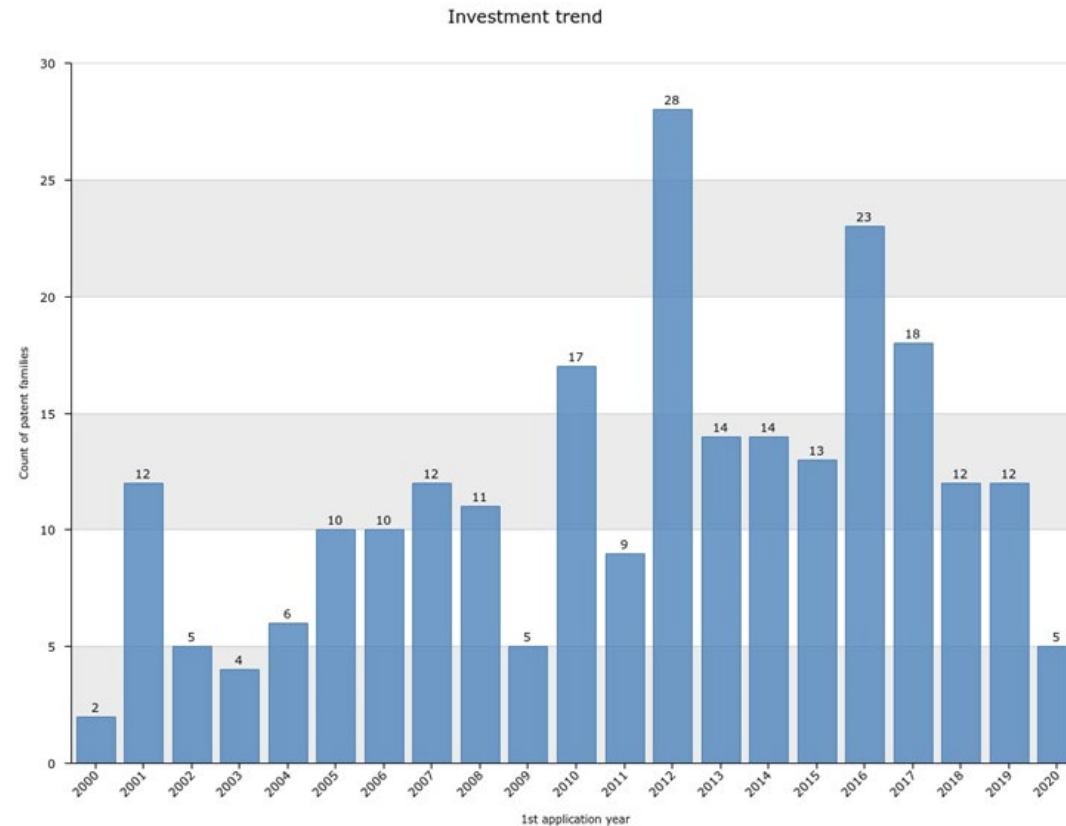
3 patent families.



Patents: Alginate

(*Saccharina latíssima* OR Sugar Kelp OR *Laminaria saccharina* patents) AND alginate

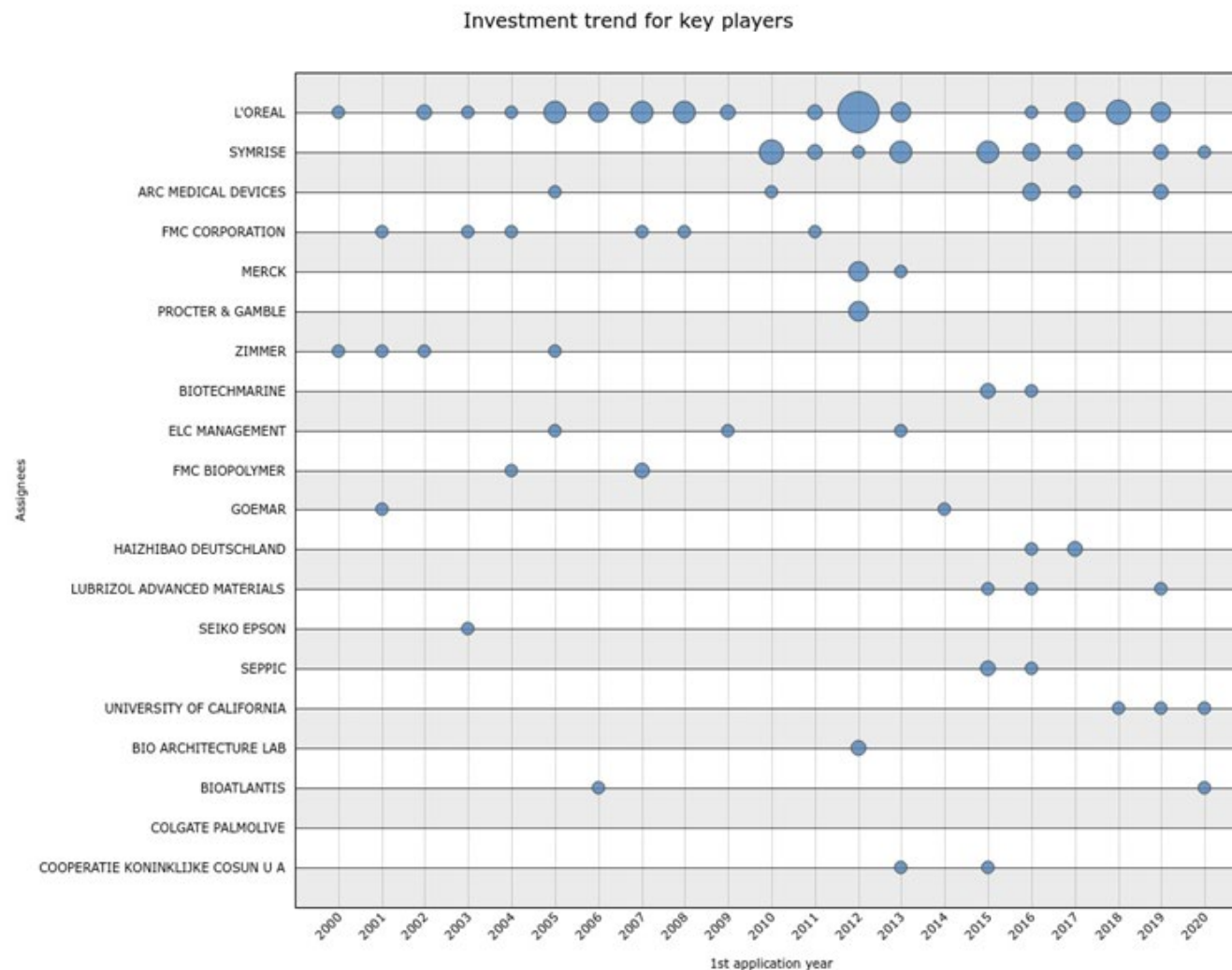
261 patent families



Patents: Alginate

(*Saccharina latíissima* OR Sugar Kelp OR *Laminaria saccharina* patents) AND alginate

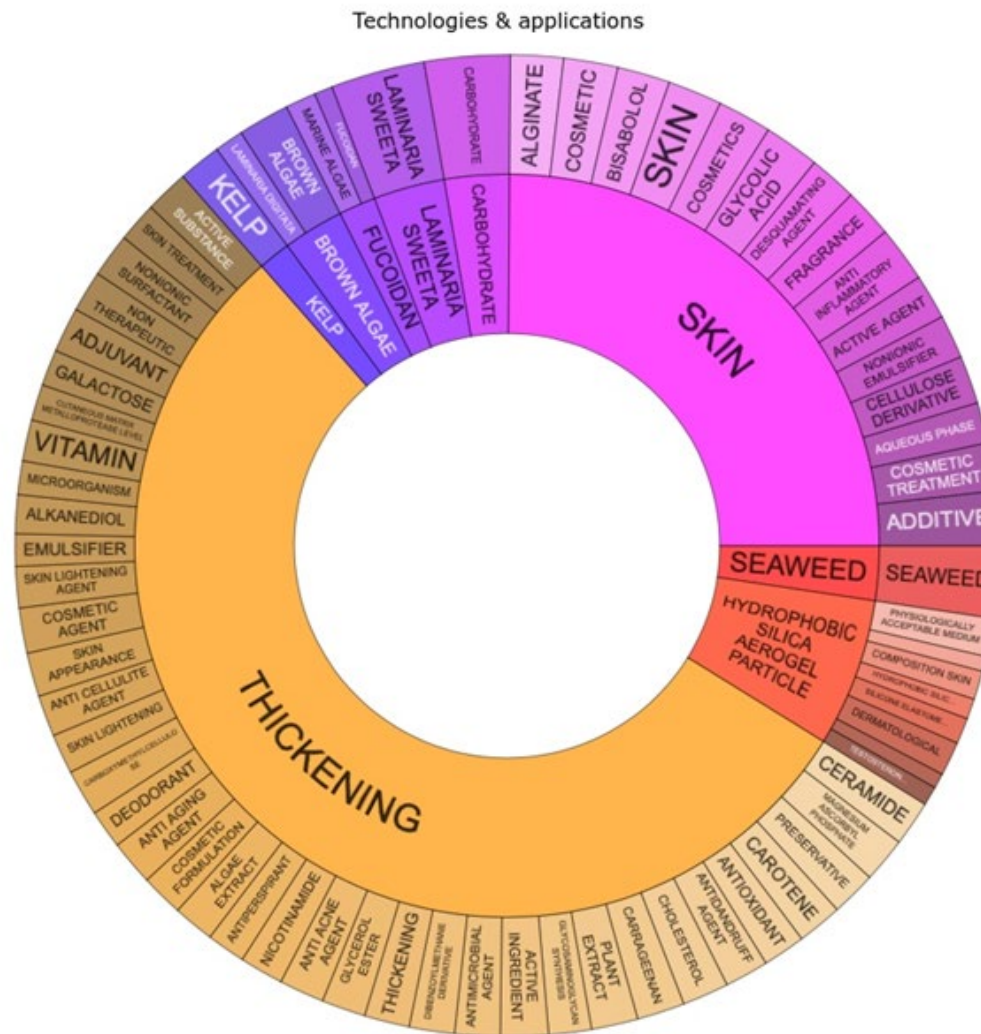
261 patent families



Patents: Alginate

(*Saccharina latissima* OR Sugar Kelp OR *Laminaria saccharina* patents) AND alginate

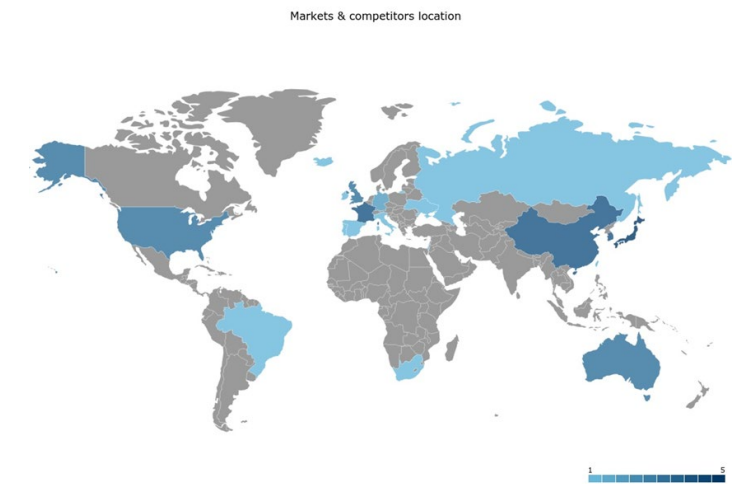
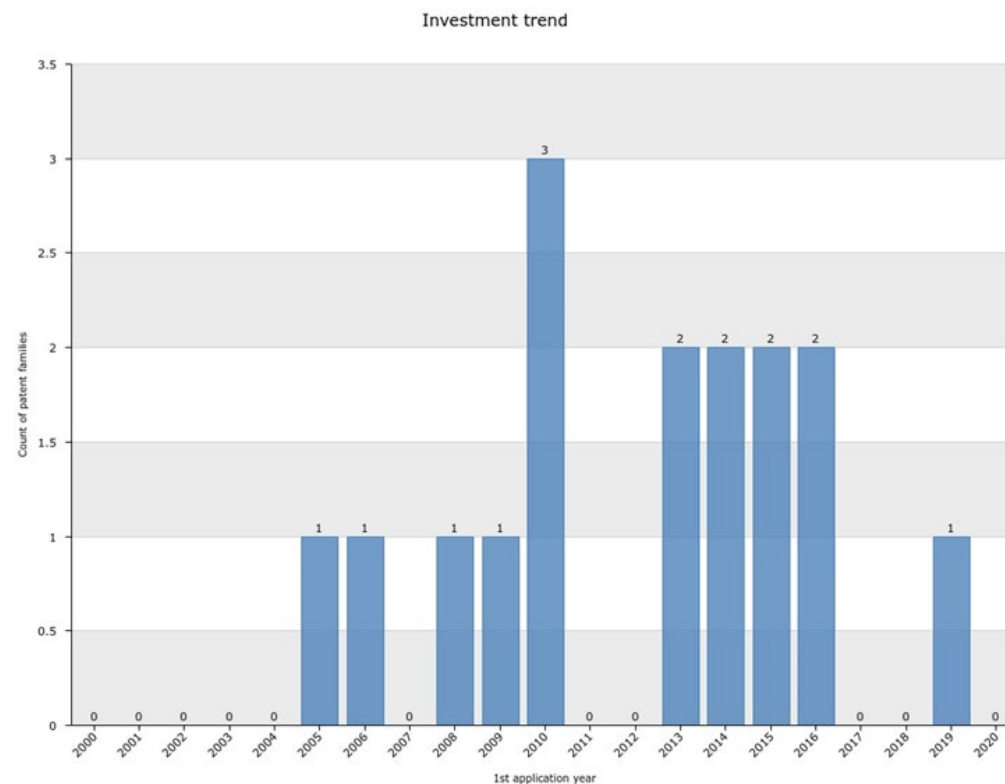
261 patent families



Patents: Fucoxanthin

(*Saccharina latíssima* OR Sugar Kelp OR *Laminaria saccharina* patents) AND fucoxanthin

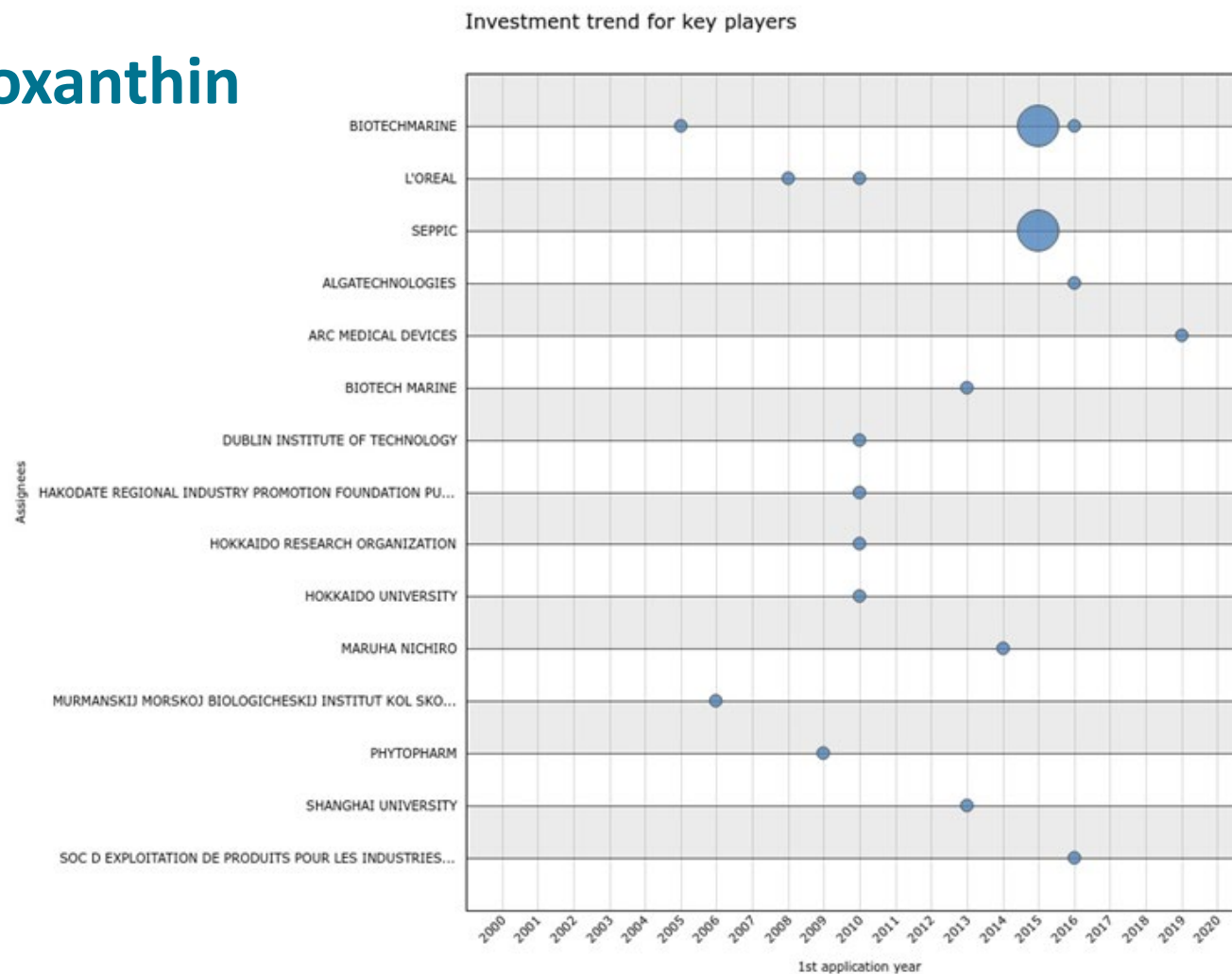
16 patent families



Patents: Fucoxanthin

(*Saccharina latissima* OR Sugar Kelp OR *Laminaria saccharina* patents) AND fucoxanthin

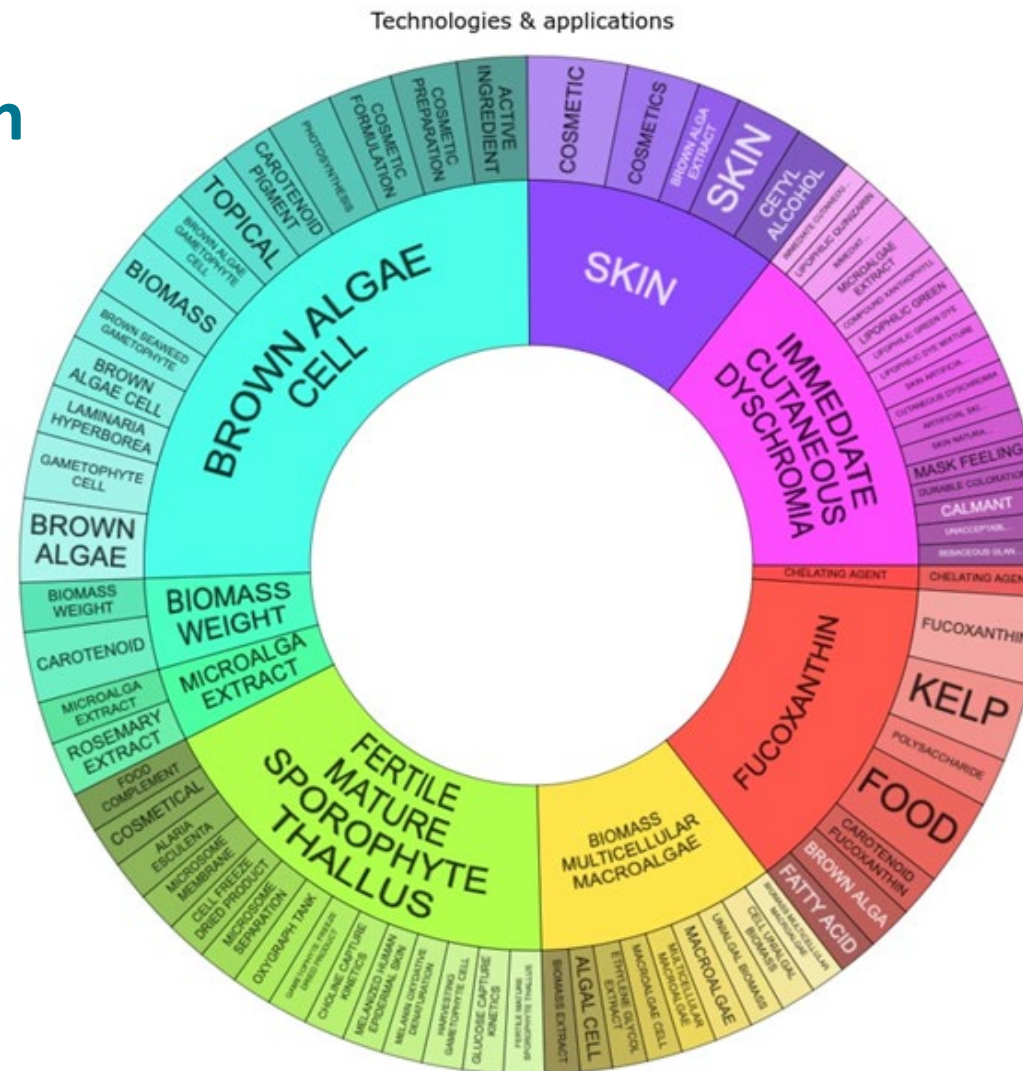
16 patent families



Patents: Fucoxanthin

(*Saccharina latissima* OR Sugar Kelp OR *Laminaria saccharina* patents) AND fucoxanthin

16 patent families



Patent analysis: observations

Decreasing trend in the number of saccharina patent families, in the last years

Main patents' technology fields: Organic fine chemistry (cosmetic and pharmaceutical) and food

Bioplastics portfolio:

- small number of patent families;
- focused on markets located in US, CanadaChina and Australia;
- technology concepts: protein isolation, biorefinery and methods of bioplastics production.

Alginate portfolio:

- large number of patent families;
- focused on markets located in US, Brazil, China and France;
- technology concepts: skin, thickening and cosmetics;

Fucoxanthin portfolio:

- small number of patent families;
- focused on markets located in China, France, Australia and US;
- technology concepts: skin, food and cosmetics;

Thanks for your attention

Sander.vandenburg@wur.nl

Anadaniel@ua.pt

Maggie.Skirtun@wur.nl

Find out more

www.genialgproject.eu

Follow Us



@GENIALG_EU



@GENIALGproject

Contact us

news@genialgproject.eu



This project has received funding from the European Union's Horizon 2020 Framework Programme under grant agreement No 727892. This output reflects the views of the author, and the Research Executive Agency (REA) cannot be held responsible for any use which might be made of the information contained therein.