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Emerging collaborative circular bioeconomy business models in France

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Context

- In France, the 2015 Paris Conference on Climate Change (COP21) has led to several new laws and strategies towards more resource-efficient and resilient production and consumption systems
- 2015: law n°2015-992 for Energy Transition and Green Growth
- 2017: national bioeconomy strategy
- 2017-2018: French Roadmap for the Circular Economy
- 2020: law against Waste and for a Circular Economy (AGEC law n°2020-105)
- Key characteristic for implementation of circular bioeconomy projects: participatory (multi-stakeholder) and territorial approaches

Research objective

- to explore what kind of innovative circular and bioeconomy business models exist in France, based on territorial and collaborative approaches

Methodology

- Online review of circular business models from the agrifood domain, on the francophone internet platform ‘www.economiecirculaire.org’.
- 44 initiatives selected, mostly micro-firms (22 of the 44 cases) and small and medium-sized enterprises (20 cases), only two larger companies.
- Analysis according to their value propositions, partnerships, the circular economy principles applied, enablers and barriers.

Results 1 - emergence of circular bioeconomy BM

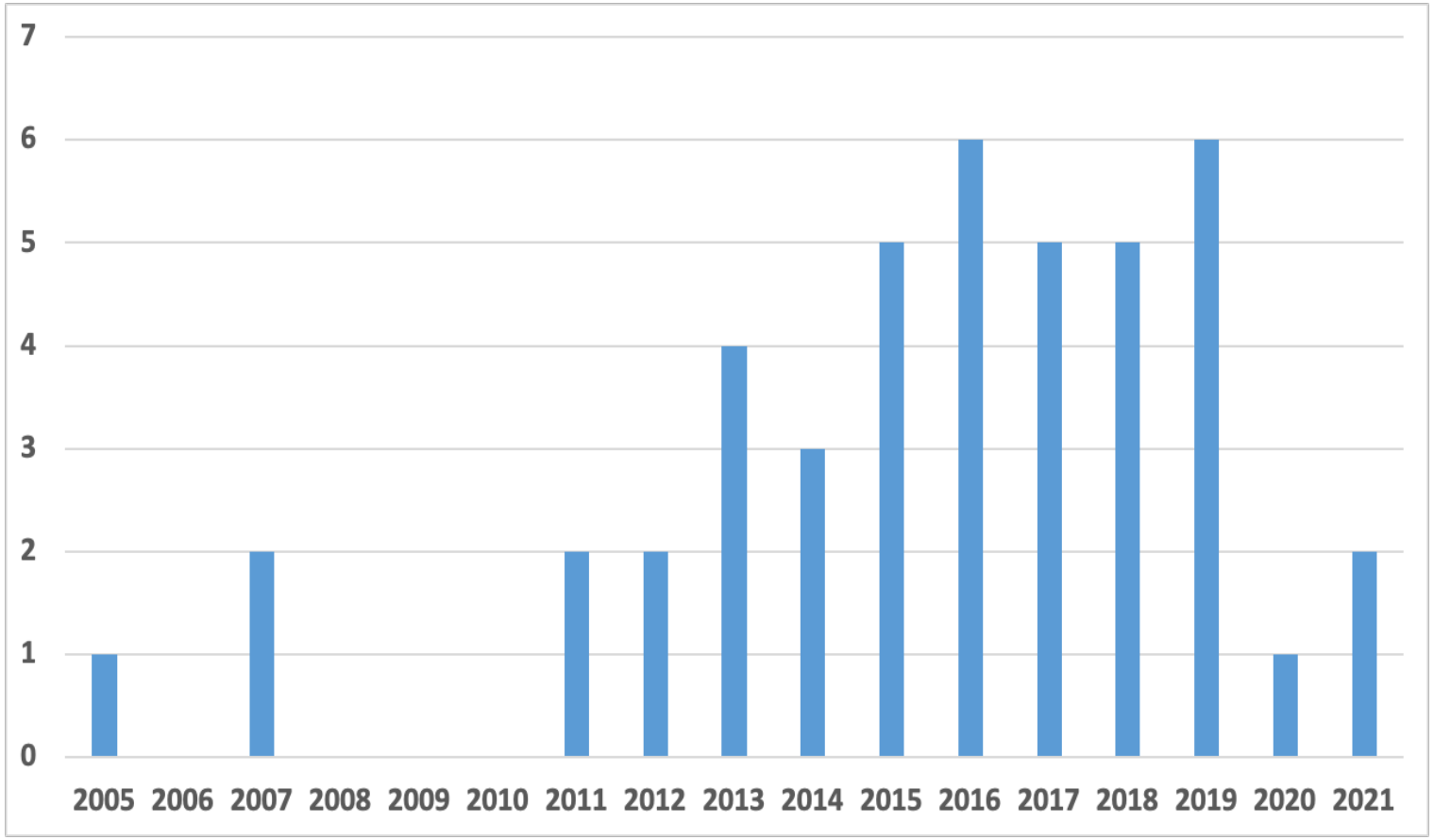

Figure: Number of circular bioeconomy initiatives started per year

Results 2 – value propositions

Value propositions (products and services)	Number of cases (of 44)
biogas, electricity, or heat	14
compost or biofertilizers	14
new food products or ingredients, animal feed or beverages (e.g. soups, juices, cookies, beer)	9
biomaterials for diverse uses (e.g. leather, construction sector, edible tableware)	6
the collection and redistribution of unsold surplus, ugly or expired food	3
sales of unpacked / in bulk food products	1
collection and reuse of drink bottles	1

Results 3 - collaboration

- Strong collaboration with **public partners**: local municipalities, regional governments, development agencies, chambers of commerce, or ADEME.
- **Private-private** partnerships: big service companies for waste collection, industrial partners from their target markets; nearby with smaller businesses such as farmers, restaurants, bakeries, breweries, hospitals, gardeners or supermarkets.
- With **research institutes**: for high added-value products.
- Occasionally, participation of **citizens and consumers**, especially when dealing with local composting.

Results 4 – circular economy principles applied

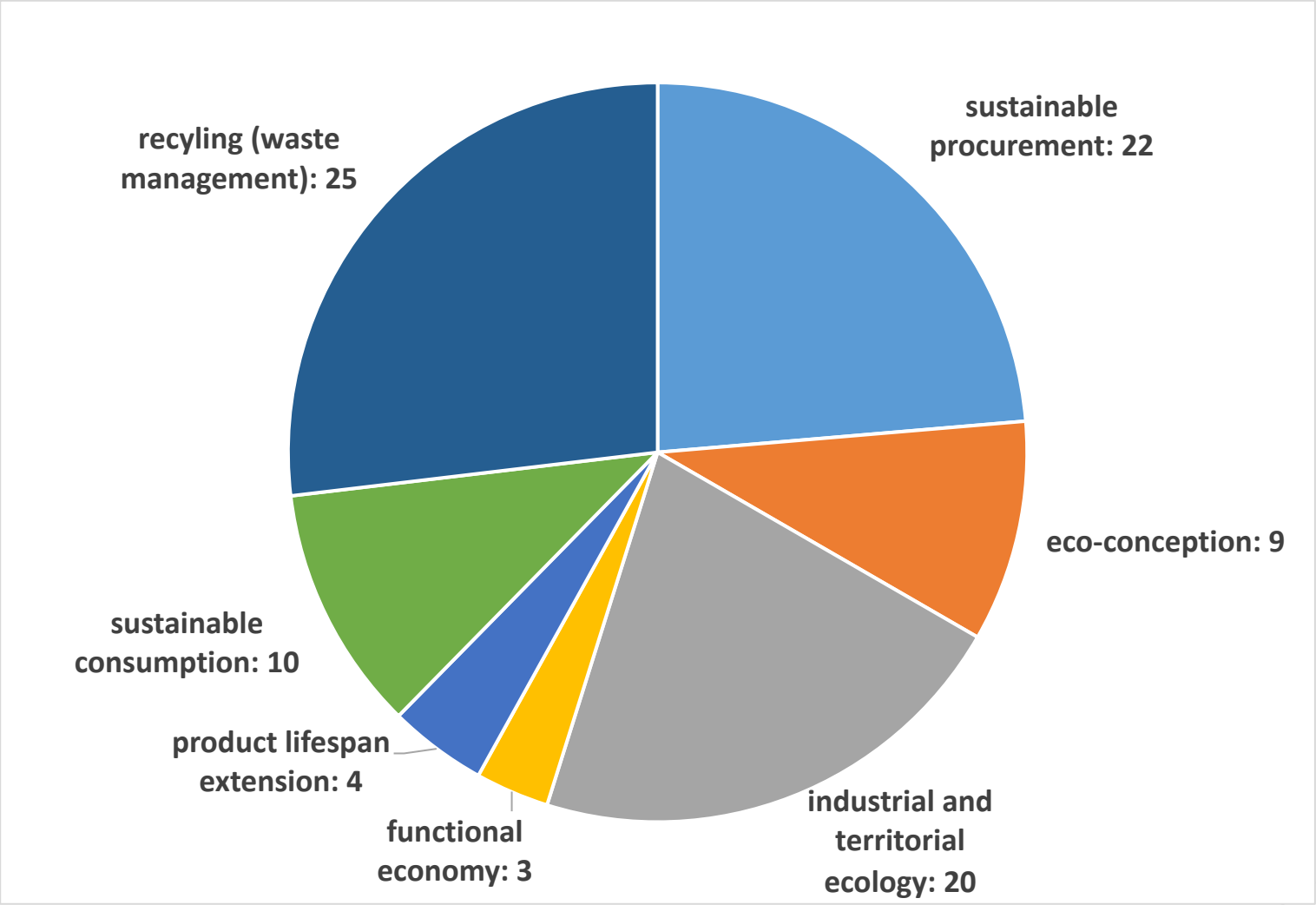

Figure: Circular economy principles applied by initiatives, according to the 7 pillars of ADEME

Results 5 - enablers and barriers

	Enablers	Barriers
Organizational and spatial	- proximity and long-term partnerships - waste and by-product collection in the neighborhood - collective management of waste - complementary skills - territorial embeddedness - public-private partnerships - collaboration, networks, partners - land-use control	- recruitment in rural area - insufficient space in city - difficult to get access to land for composters
Environmental, social and cultural	- increasing awareness of the environmental problems - media communication; 'Made in France' - support of local communities - knowledge of clients' needs - loyalty of customers/consumers - a curiosity of the public towards new products	- not everybody is sensitive for the waste topic - acceptability - the COVID pandemic
Technical and logistic	- scientific support - well-established logistics - central positioning of the firm - availability & quality of by-products - public support and training	- fluctuation of waste quantities - competition for food surplus resources - lack of technologies - logistics needed for collection - time needed for R&D - quality requirements - process upscaling
Economic-financial and marketing	- financial support - financing capacity - participation in trade fairs for promotion	- financing - investment costs - need to know which are support options - marketing - market price dependence
Institutional and legal	- public laws for energy transition and waste separation - laws pushing professionals to change	- fiscal constraints - reglementary and administrative barriers

Conclusion

- Various business models for exploiting biomass resources should co-exist to advance the circular bioeconomy in a territory.
- The territorial small initiatives – providing food, energy and other bio-based materials – may contribute at a long term to local sustainable development and to an increased resilience of territories and their actors.
- For the small-scale emerging initiatives, initial public financial and technical-logistic support are often imperative.

Thank you very much for your attention!

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