7th International Conference on Smart Energy Systems
IEA TS3: Subtask D
On business models & regulatory boundary conditions for hybrid networks

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Questions to answer

- What trends can be identified regarding new business strategies for hybrid energy grids?
- What obstacles can be identified for implementing sector coupling strategies?
- Regarding obstacles: What solution approaches exist?
- Are there parallels between different countries?

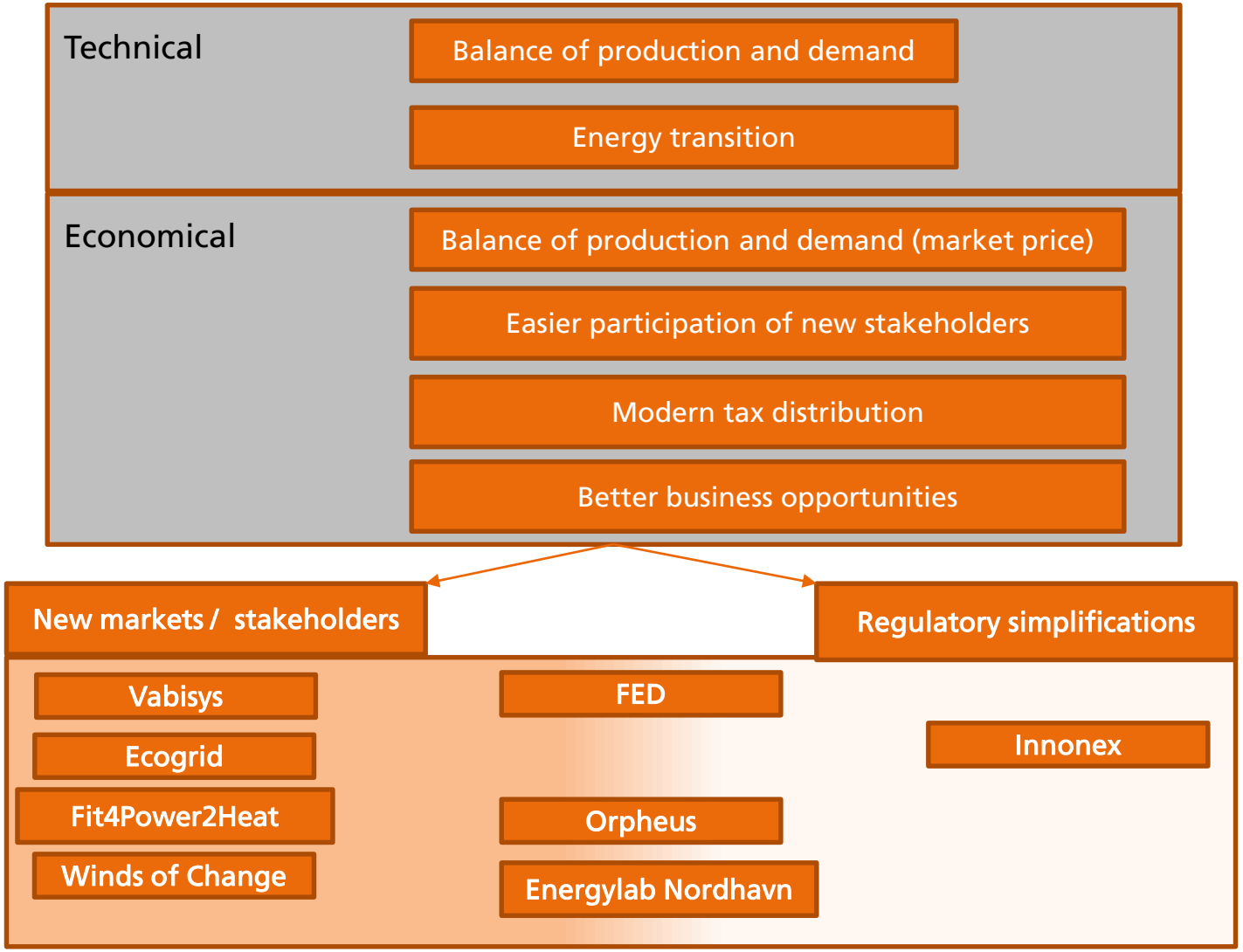
Tools to answer these questions

- Information about projects, contributed by Annex partners
- Studies on the topic

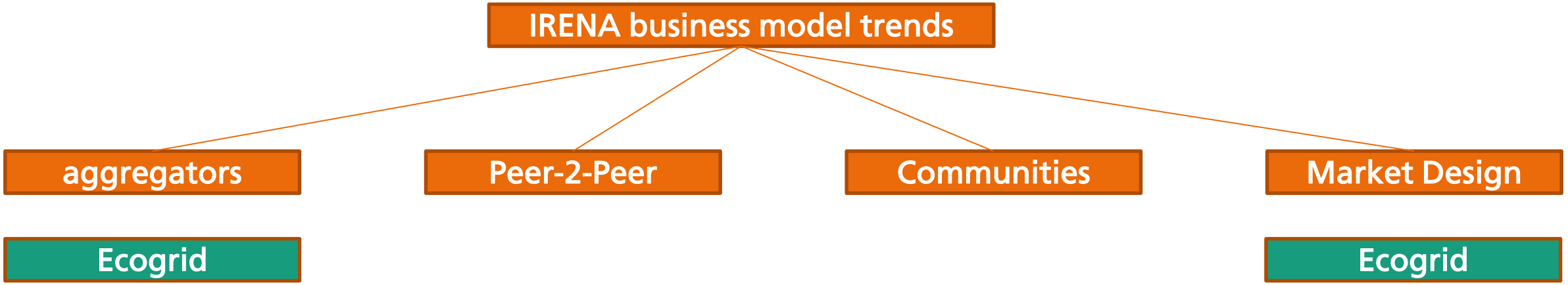
Known problems

- Partner contributions cover only a small amount of EU countries
- Additional literature research is biased via pay walls and the research focus of the own institute
- Topic could fill an annex on its own

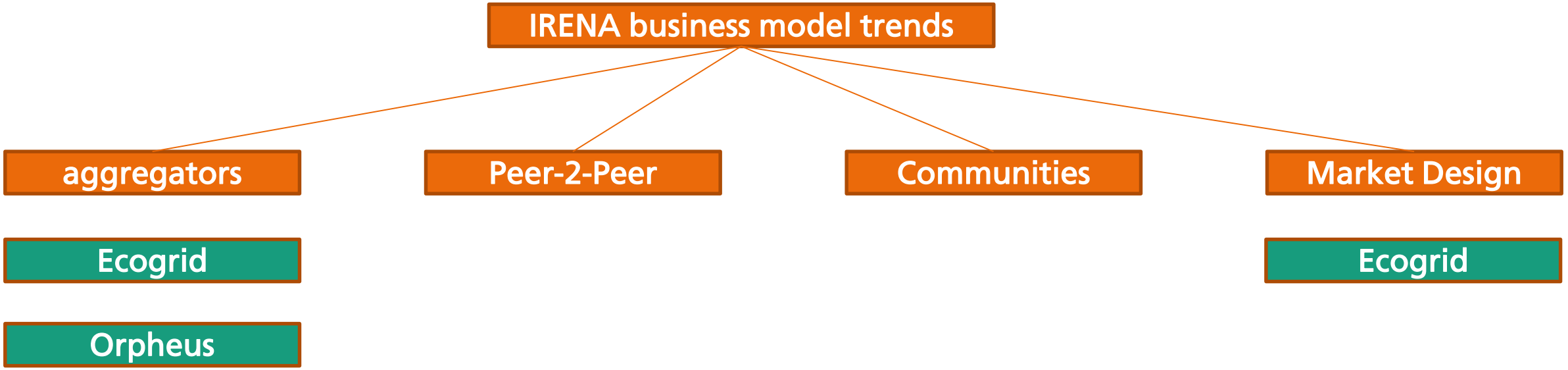
Trends & drivers



Business Models



Business Models



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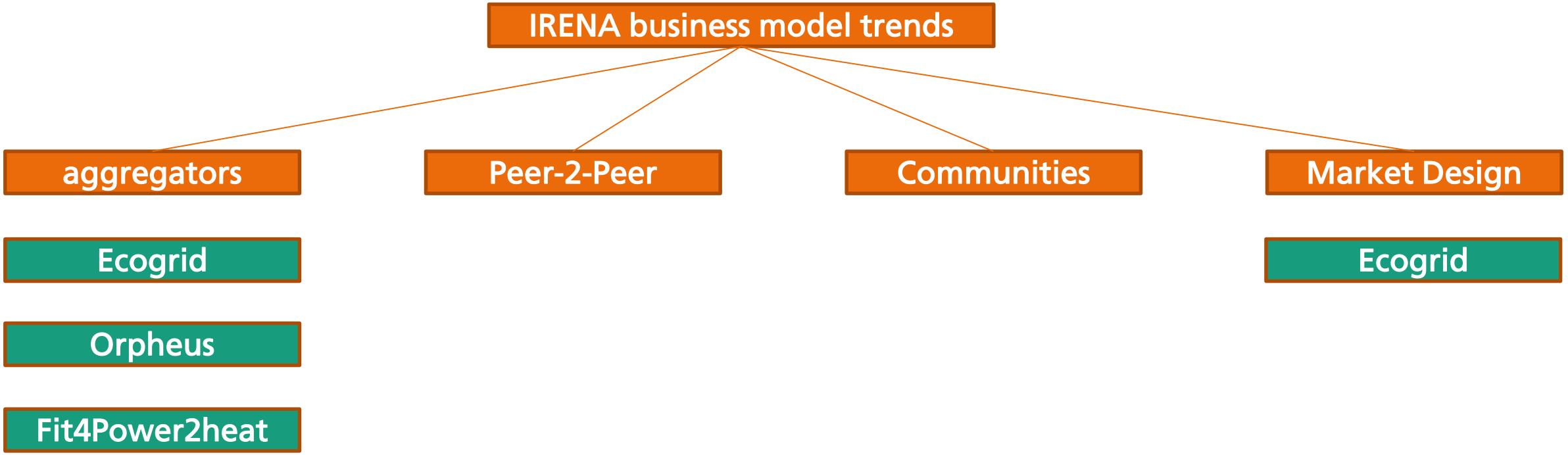
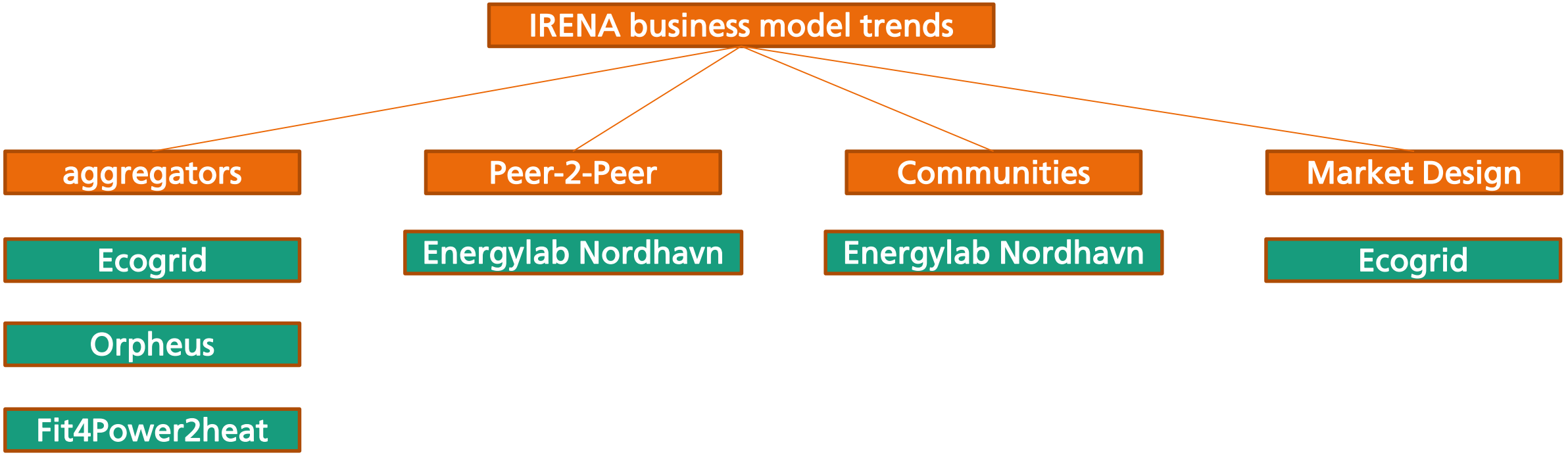


Business Models



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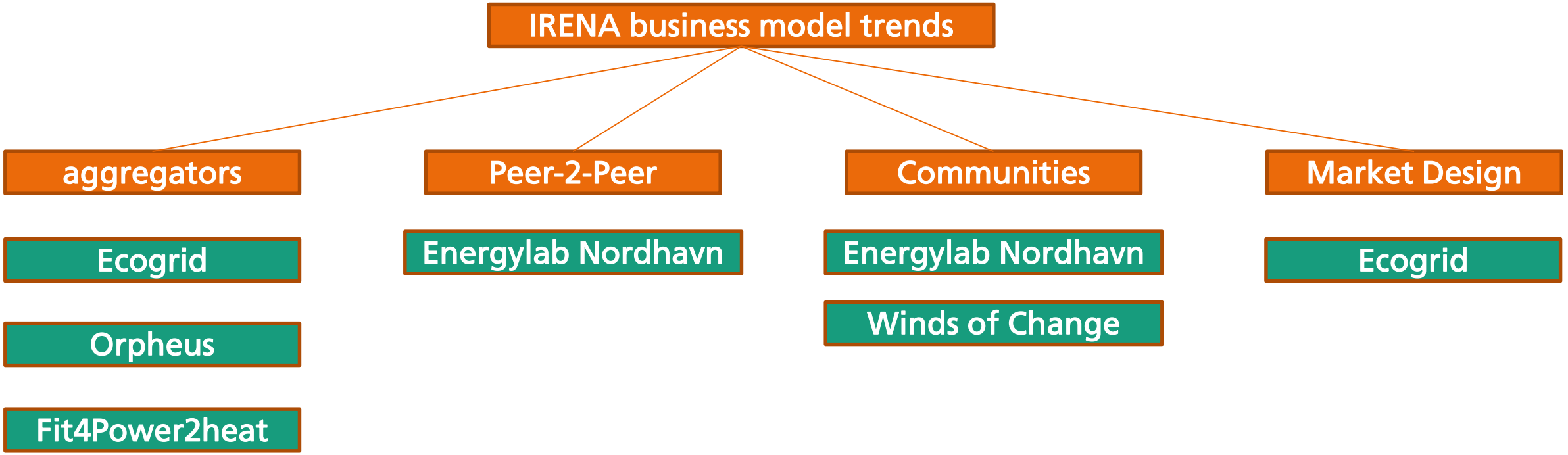

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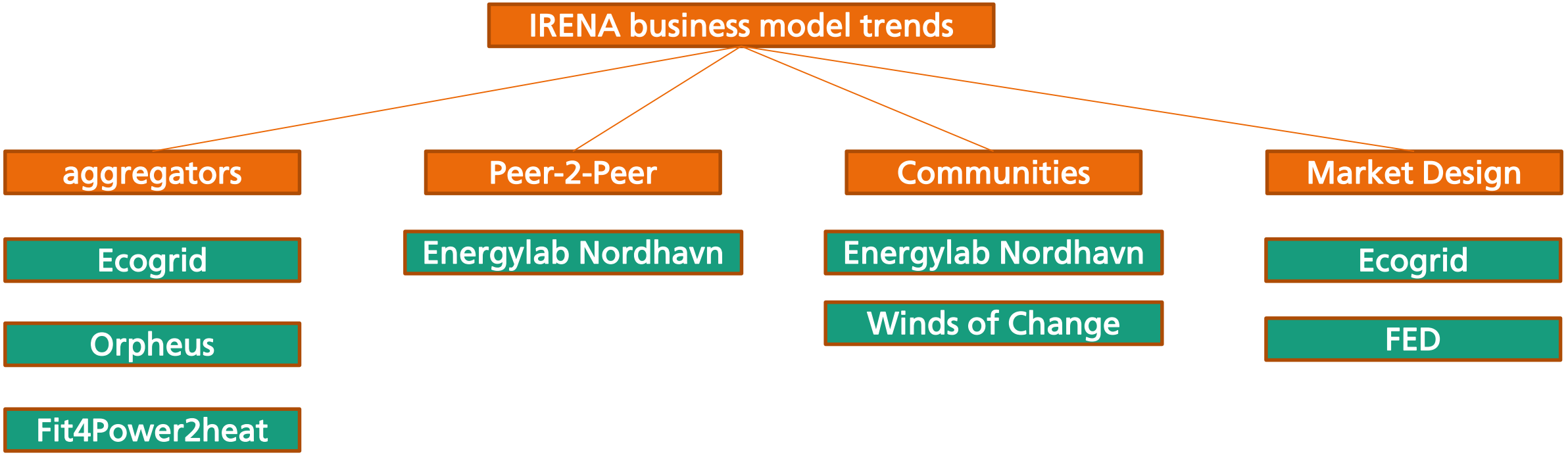

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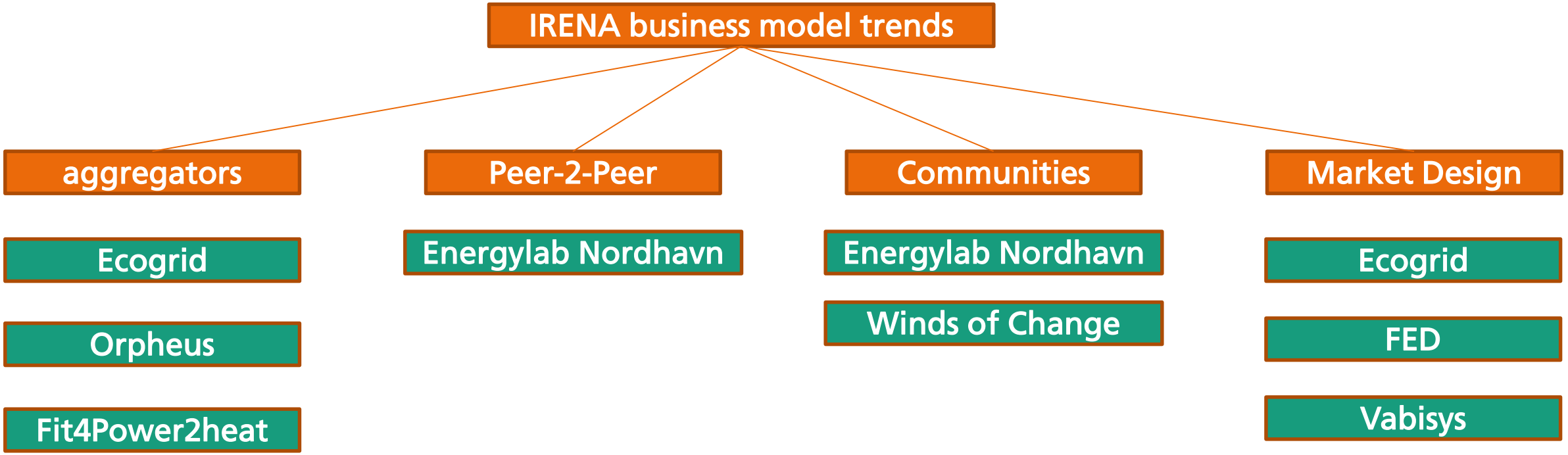

Motivation on energy communities

- Two directives published by the European Union introduce citizens as actors in the energy markets
- Single persons can produce, store and sell energy
- Energy communities have a large potential: Up to 50% of electricity might be produced in communities in 2050.
- Different legal statuses are possible
- May help to reduce obstacles in some countries
  - Fees for roof PV plants in Spain (sun tax)
  - Reduced grid charges for local communities possible
- Not all countries have implemented the national framework yet (Germany)

Two types of communities

Renewable Energy	Citizen Energy
No big companies allowed	Everyone can participate
RE can be shared among participants	Only electricity
All forms of energy are addressed	Not necessarily local
Local community	
Non-profit organization	

Taken from [6]

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Example

- A wind park was built in Belgium, which belongs to the local communities (60%) and an already existing energy cooperative. All authorities were united in an energy community.

- Citizens may purchase shares of the community
  - Payment of dividend
  - Participation in decisions

- Communities invest profit in further sustainable projects

- A good example for the reduction of resistances

- Similar projects in Germany without community participation are delayed

Figure from [7]

Literature

- [1] Maxwell, V.; Perling, K.; Hvelplund, F.: Electricity cost effects of expanding wind power and integrating energy sectors, International Journal of Sustainable Energy Planning and Management Vol. 06 31-38, 2015
- [2] DTU; Dansk Energi; IBM et al.: Ecogrid 2.0 – Main Results and Findings, 2019
- [3] Mitridati, L.; Market-Based Coordination of Heat and Electricity Systems; DTU, 2019
- [4] Ventury GmbH et al.: Innovative Versorgung von Wärmenetzen mit niederkalorischen Abwärmequellen und Matrixsteuerung für Wärmenetzmanagement, PTJ, 2020
- [5] Schwabeneder, D.; Auer, H.; Burgholzer, B.: WP2 Technical, Economical and Social Benefits Deliverable 2.5: Report on the validation of technical, economical and social benefits in the different demonstration sites with special consideration of robustness tests of business model design, Orpheus project, 2017
- [6] Caramizaru, A.; Uihlein, A.: Energy communities: an overview of energy and social innovation, JRC Science for Policy Report, 2020
- [7] https://www.deutschlandfunkkultur.de/wut-auf-die-energiewende-warum-in-der-windkraftbranche.1001.de.html?dram:article_id=463225, las visited on 06.09.21