

My personal wish list for innovation economists

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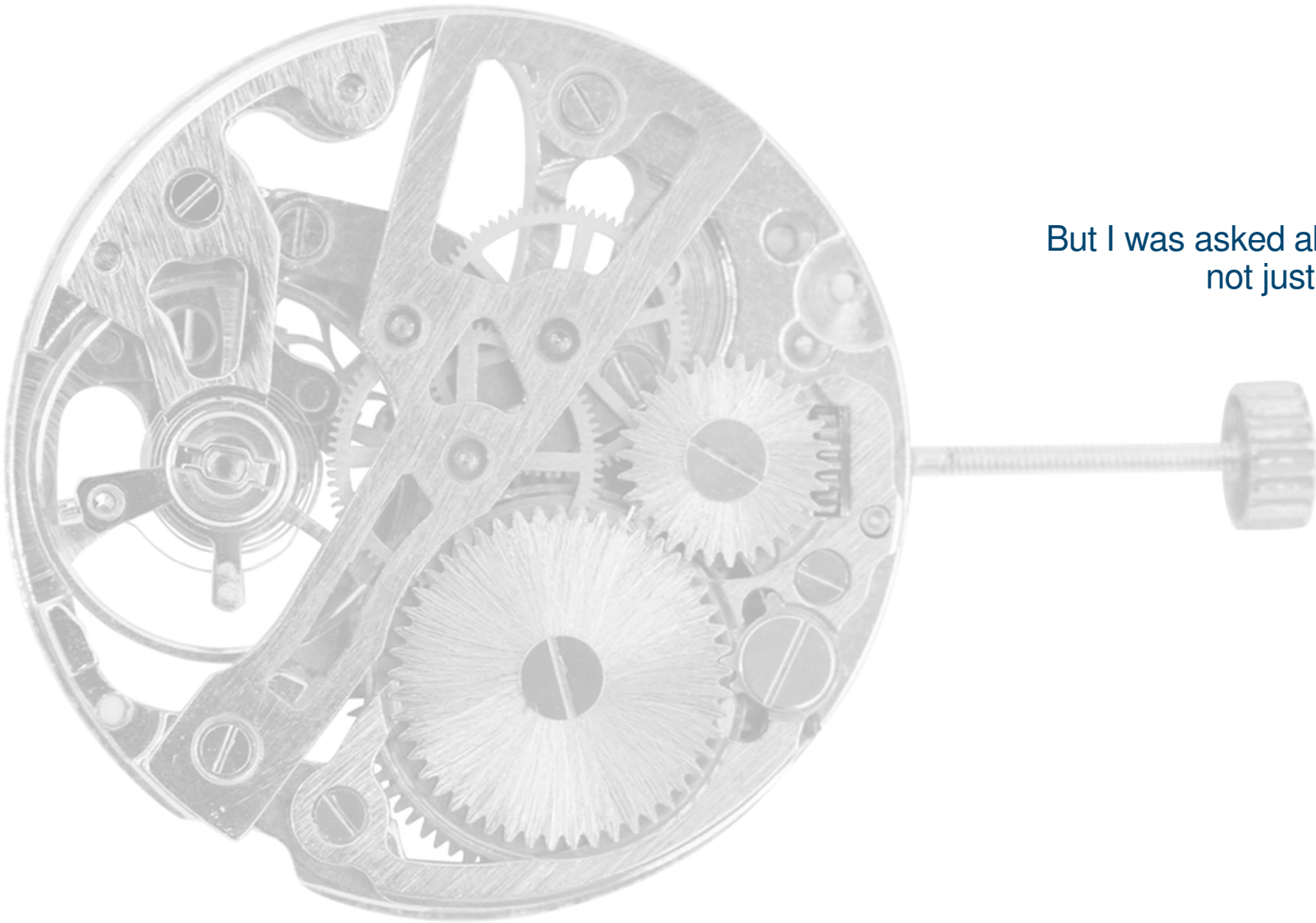
My innovation wish list

- ✓ A cheap and sustainable way of producing energy
(almost done with solar PV; except for the waste issues)
- ⌚ A cheap and sustainable way of storing energy, both for large facilities and for transportation
(pending)
- ⌚ A technology + business model that allows demand to automatically react to system needs, respecting user's requirements
(pending)
- ⌚ Some regulations that solve effectively the conflict between cars and bicycles as users of the road, so I can ride my bike to work without risking my life
(pending)
- ⌚ ...



My innovation wish list

But I was asked about my innovation economics needs,
not just the inventions I am missing the most.



Innovation economics: some context

A large field of solar panels under a clear blue sky. The panels are arranged in rows, and the perspective is from a low angle, looking up at the panels as they recede into the distance. The sky is a clear, light blue.

In my view, we have witnessed one of the most successful experiments in R+D since NASA deciding to go to the moon

- The European Commission, through 20-20-20, decided to invest in innovation for renewables, and cheap PV appeared

Innovation economics: some context



Now some energy regulators seem to be very much influenced by this success

- There is something like a *fairy godmother effect*: I just have to think of it, and put a lot of money into it, and innovation will make it appear
 - Li-Ion batteries have a probability of being a counterexample of that theory
- Uncomfortably for me, there is a risk that innovation in European energy yields a much more regulated marketplace. Everything comes from a central planning, and ideas such as level-playing-field or competition are not trendy anymore.
 - Is innovation opposed to markets?

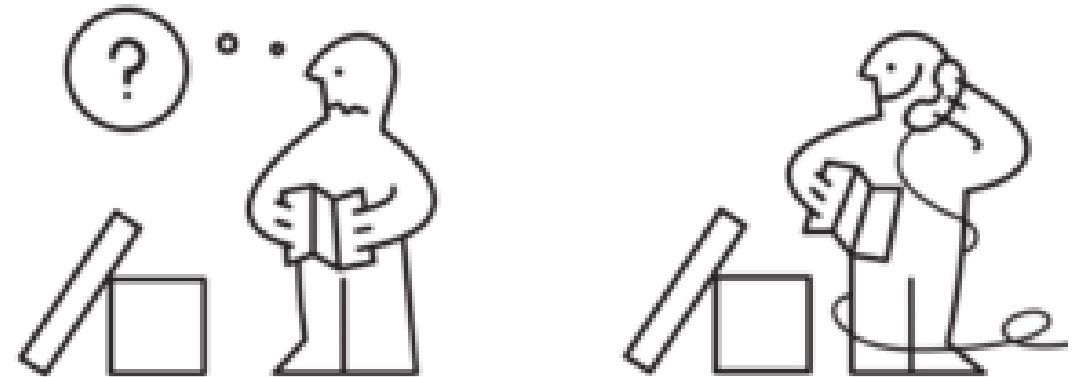
Innovation economics: my new wish list

With that in mind, now I have one idea for my wish list. I would like to have:

- Some conceptual base to determine when to bet decidedly for a certain kind of innovation –subsidize heavily and expect that the technology appears– and when to allow different technologies to compete
- As part of the former, I think that innovation plans should consider different levels of maturity of the innovation decisions: a) solutions more defined, b) options should be left more open, c) focus on R+D
- Rephrasing, I would be happy to have a methodology to compare different options – for instance, batteries vs. hydrogen, or distributed vs. centralized –, considering potential of improvement, risks, impact on the system, etc. that helps to decide weather innovation should leave options open or not.

Note that the innovation at the digital revolution has been basically unregulated

Which are the drivers for adopting one model or the other?



My innovation economics wish list: some of the questions

When should we be technology-neutral?

Two competing alternatives. Under which circumstances should we support one technology against the other? Should this be decided at the planning (regulated) stage or left open to competition?

Energy efficiency vs. new renewable generation

Both with no emissions, both with near-zero operating costs, both implying capex expenditure...

Distributed generation vs. large-scale generation

Both with no emissions, both very similar, savings in transmission costs vs. economies of scale...

Batteries vs. hydrogen vs. hydro

Auctions for new generation

Technology choice determined by the auctioneer?

When should we regulate the winners?

No-regulation might be good for cost reduction and free innovation, but regulation may prevent abuses. Which market model should we use?

Digital platforms

An essential enabler for smart clients (flexibility, microgrids, etc.)

Charging infrastructure for sustainable mobility

Thank you

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