bw_timex

combining dynamic and prospective for time-explicit LCA

by **Timo Diepers**[a], Amelie Müller[b,c], Arthur Jakobs[d], Giuseppe Cardellini[c], Bernhard Steubing[b], Jeroen Guinée[b] & Niklas von der Assen[a]

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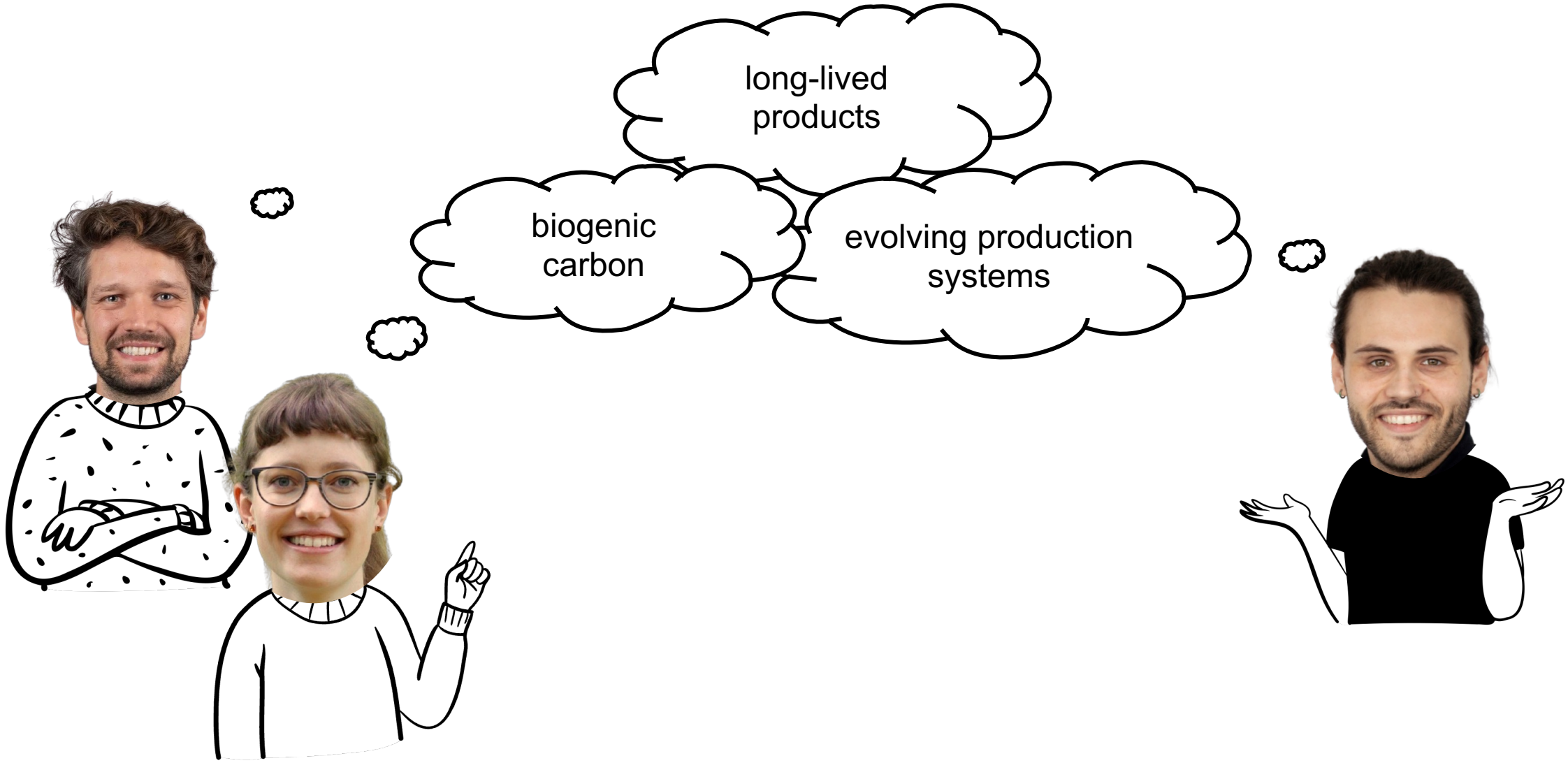
what brought us here



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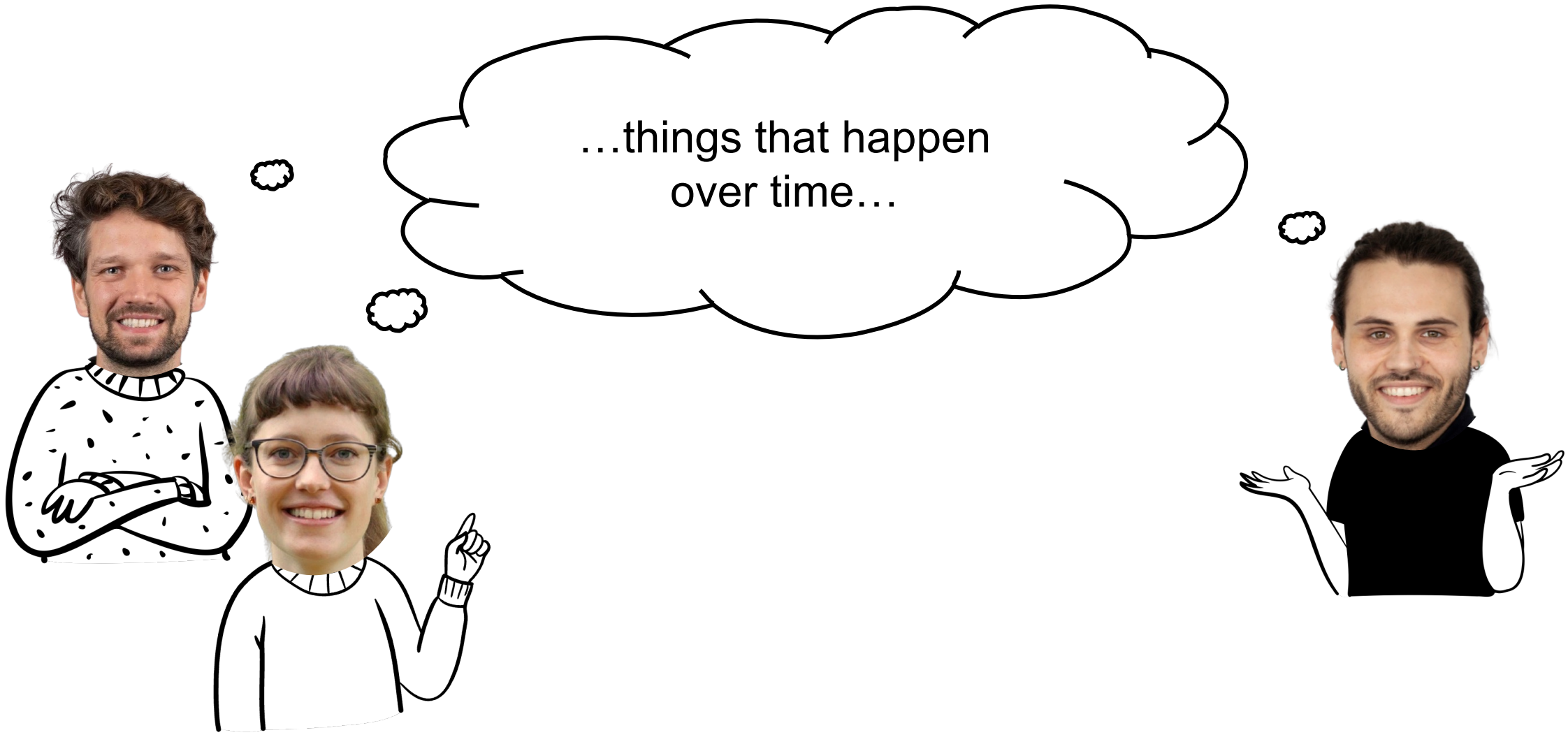

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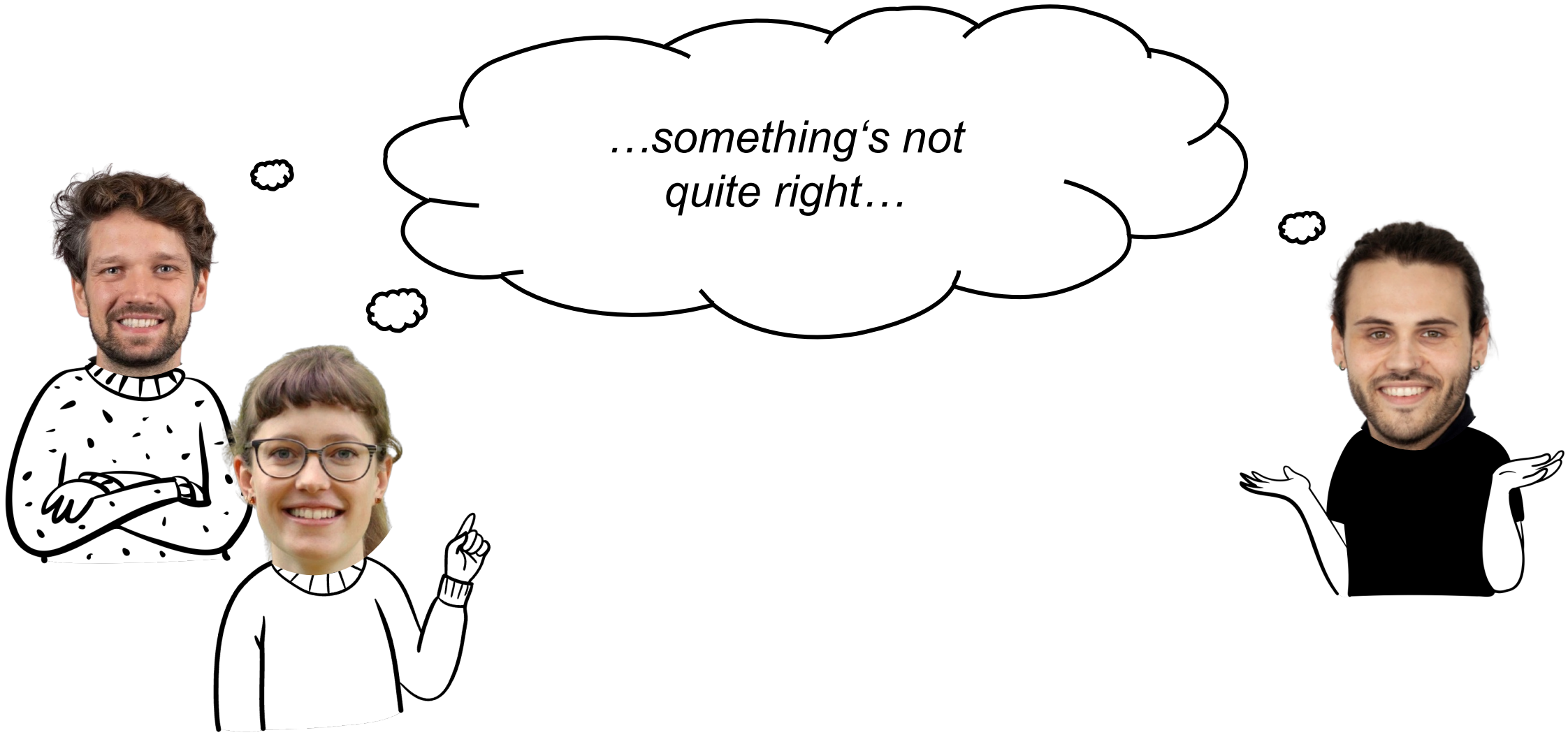
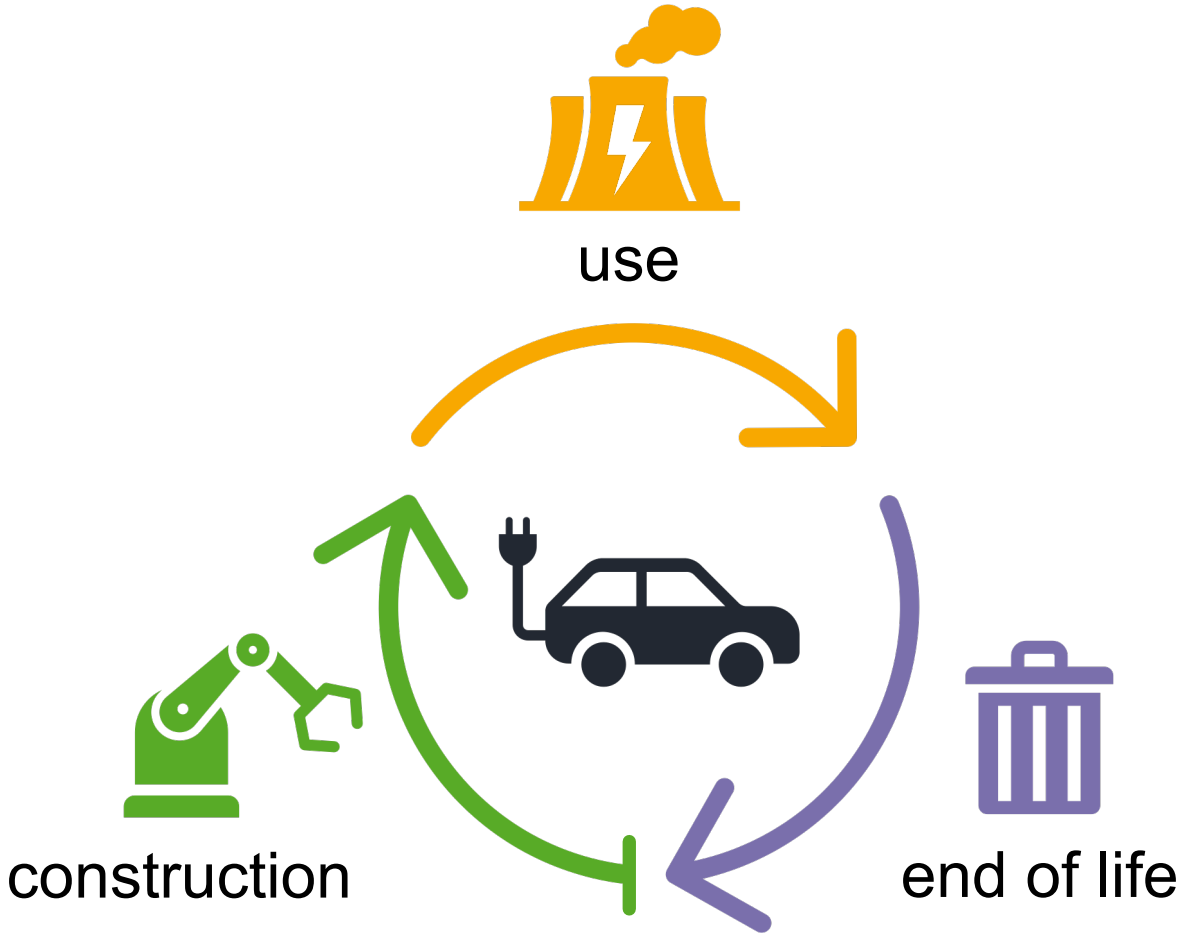
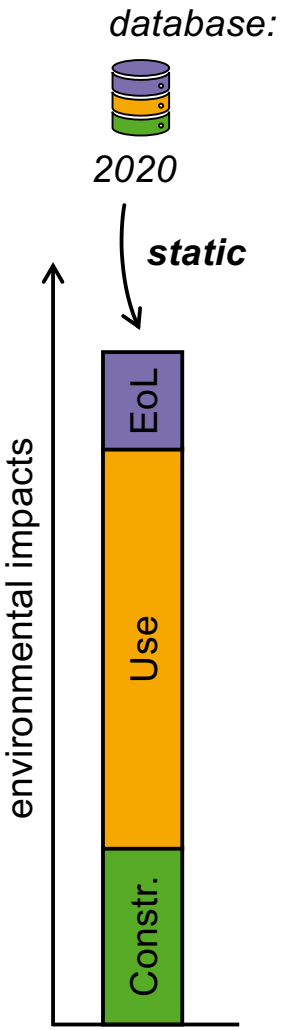
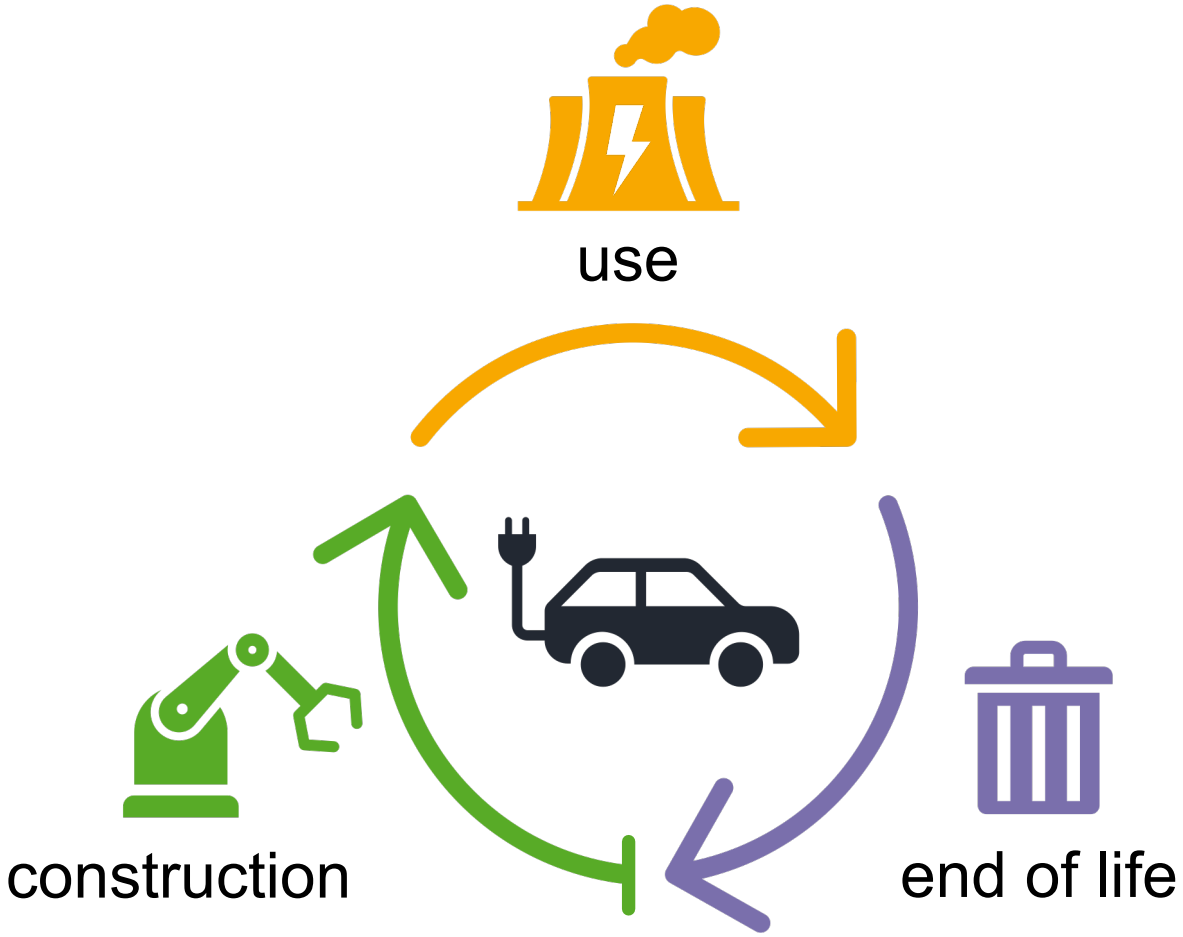


life cycle of an electric vehicle

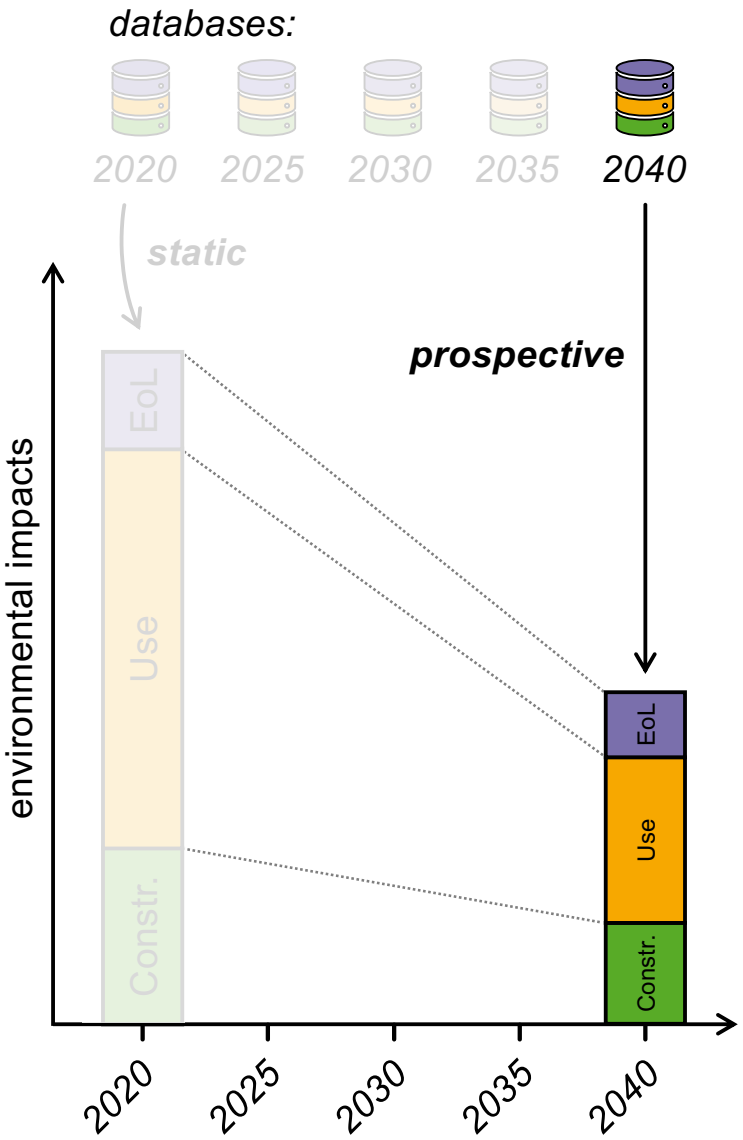


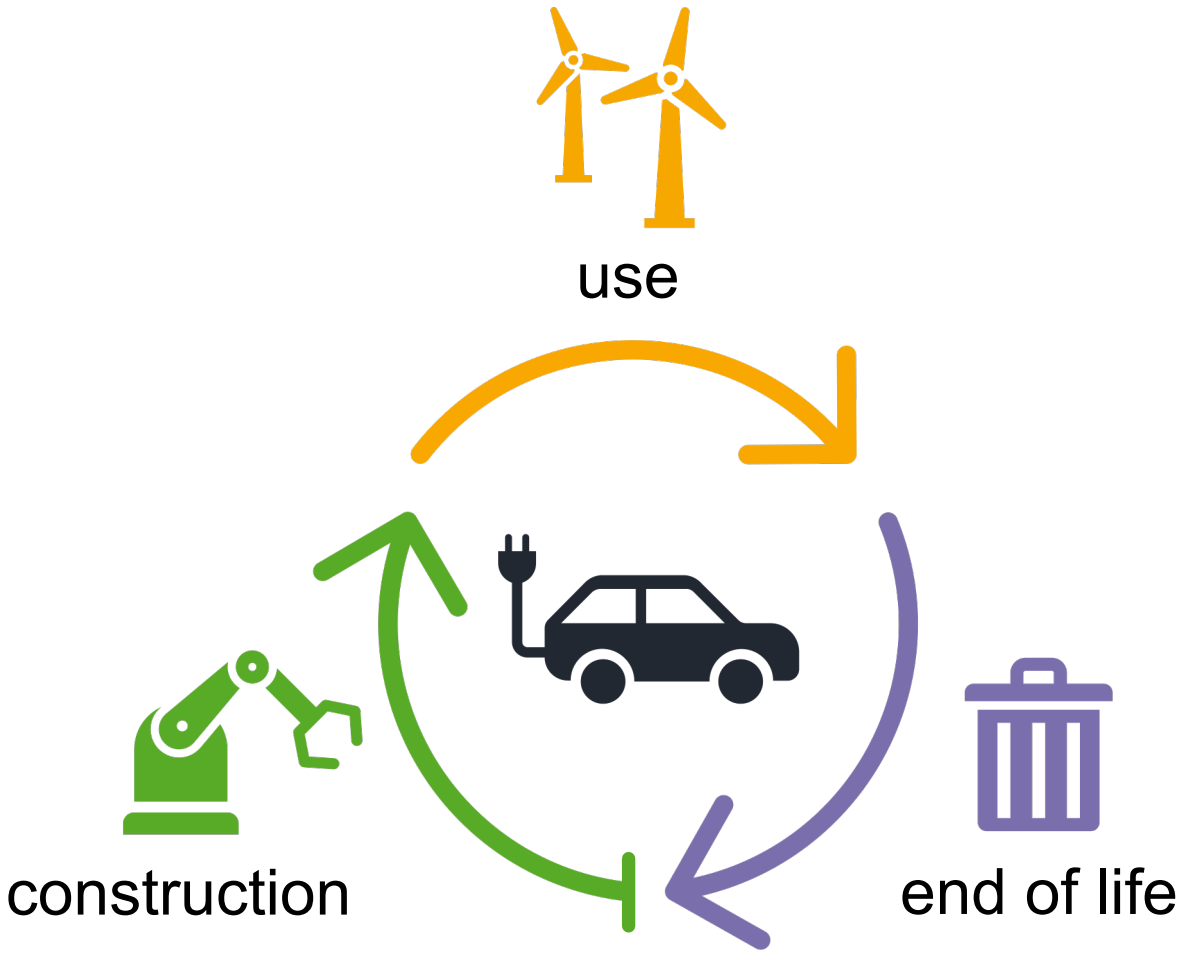
static LCA



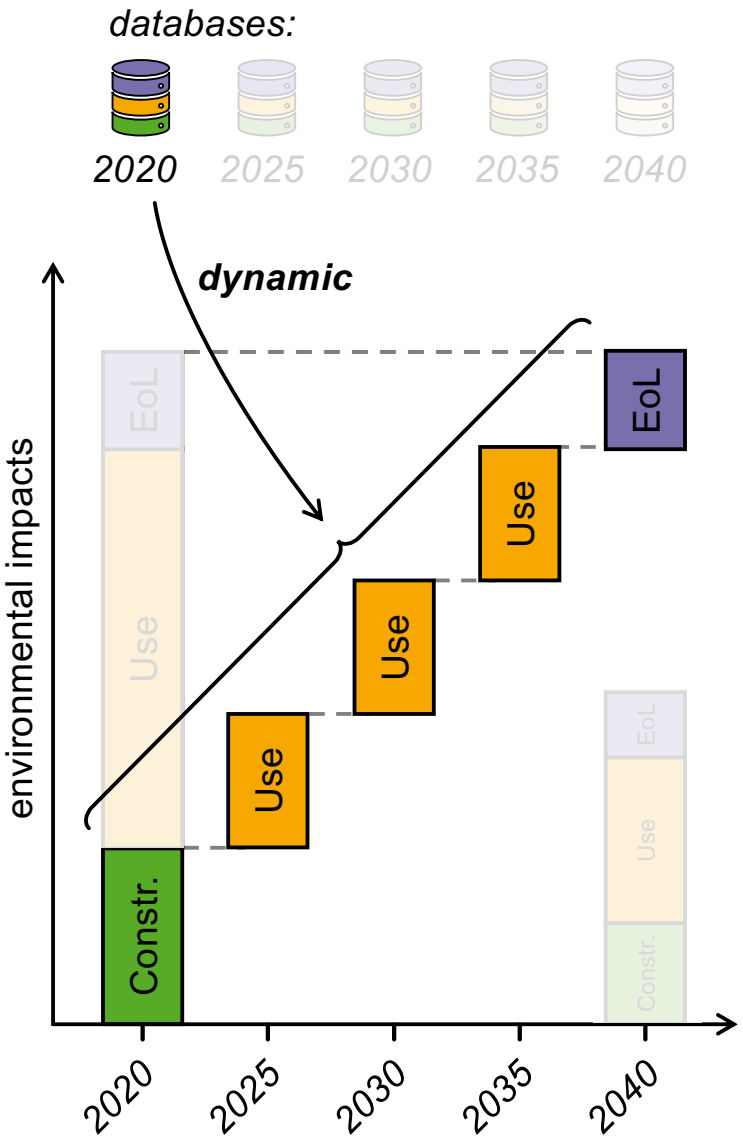


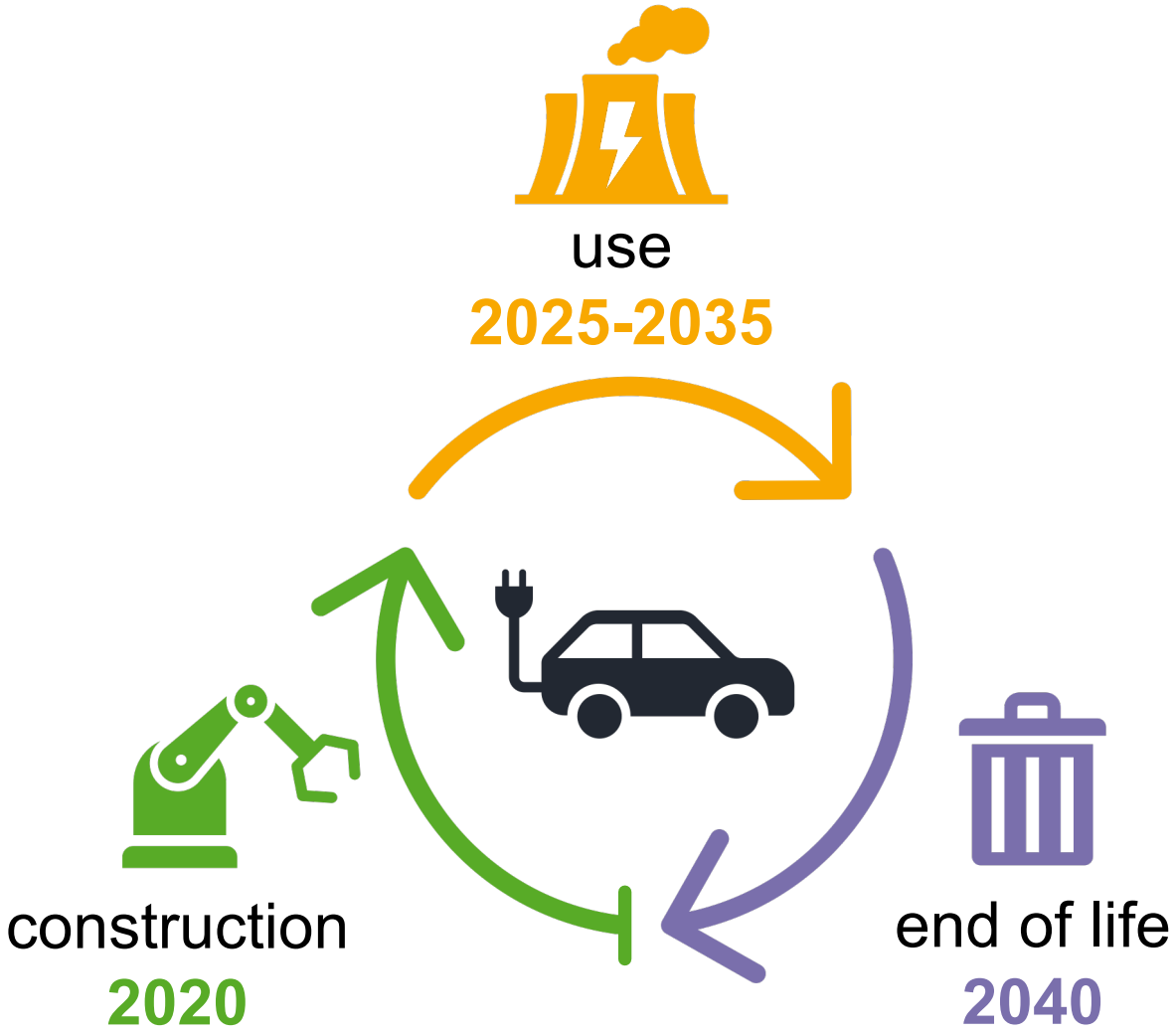
prospective LCA – *“project to a future state”*



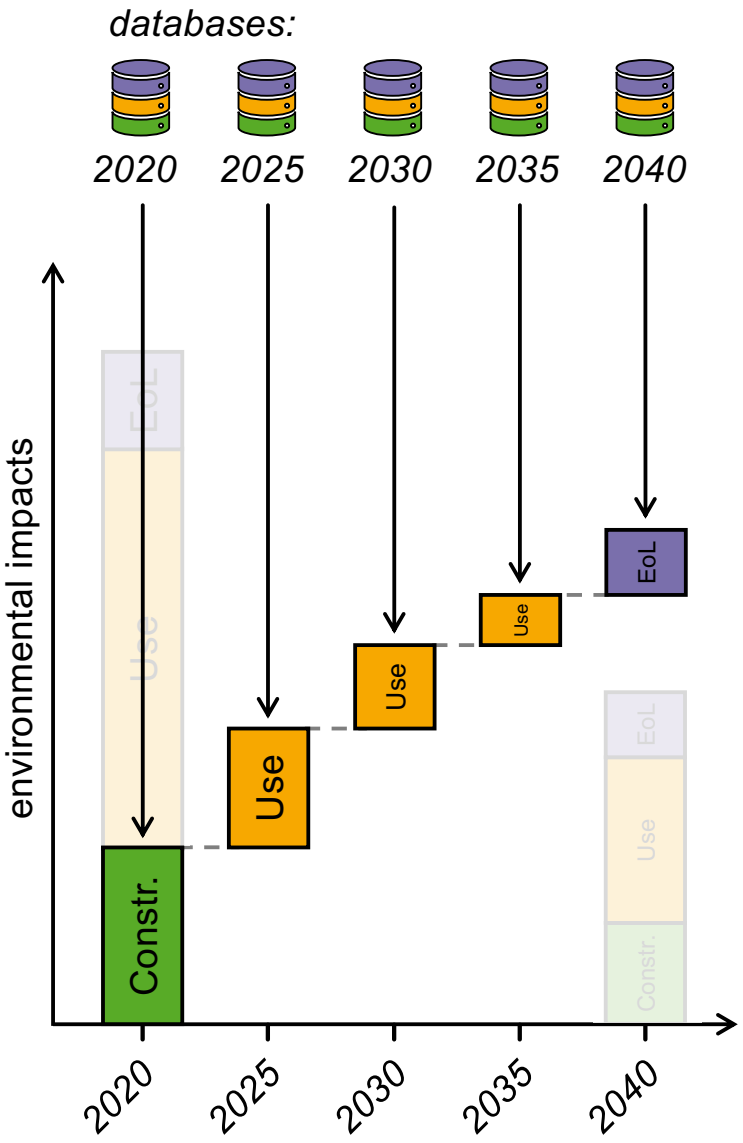


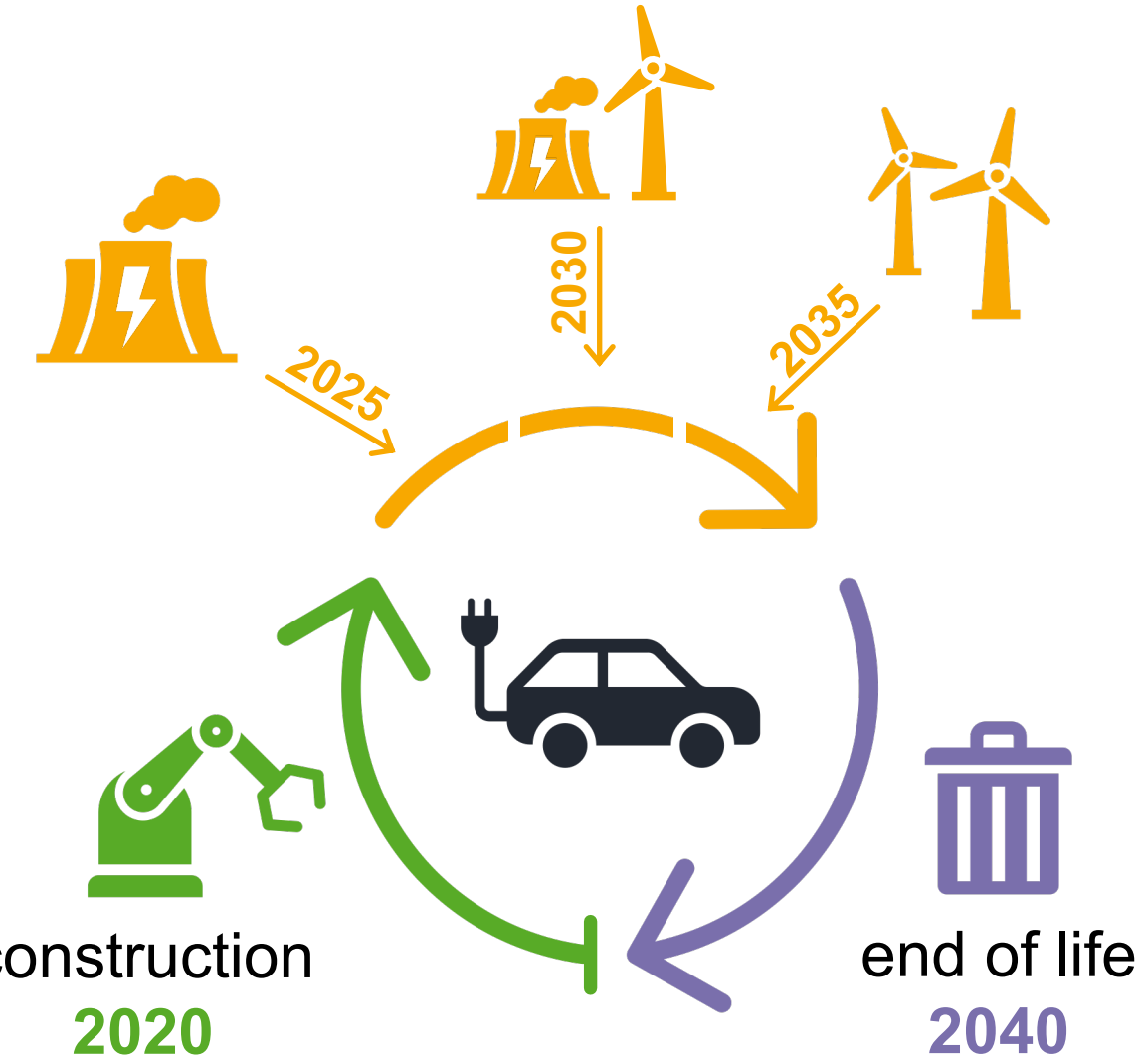
dynamic LCA – *“distribute over time”*



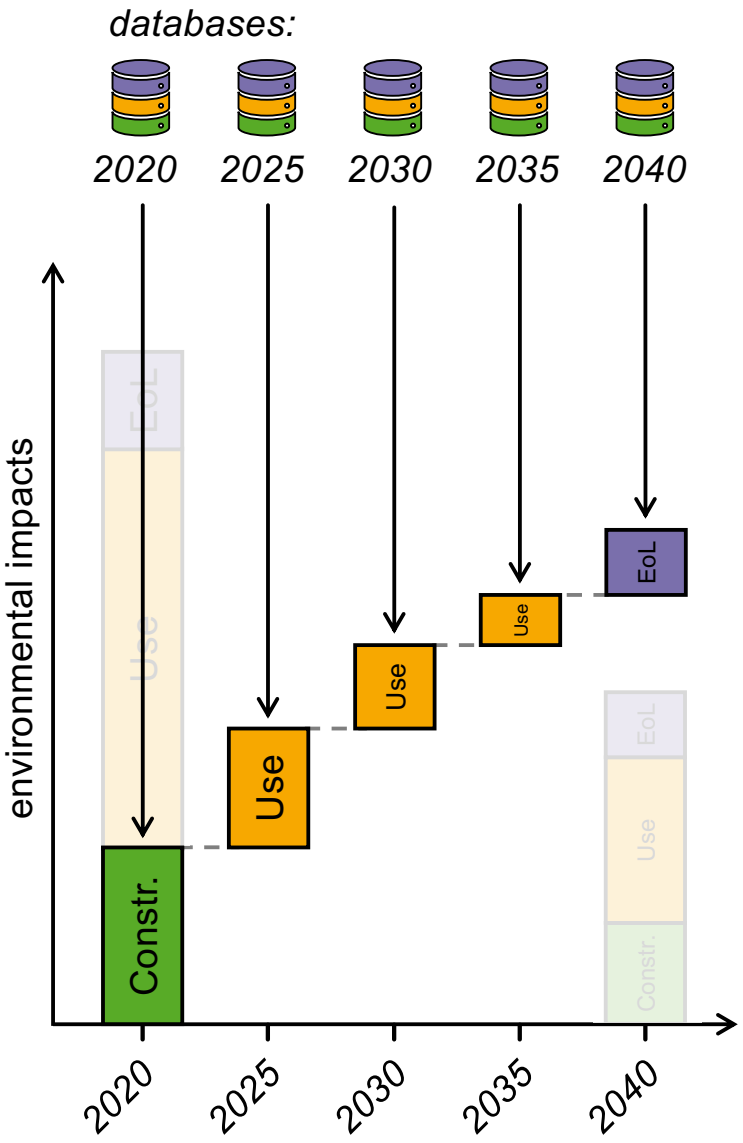


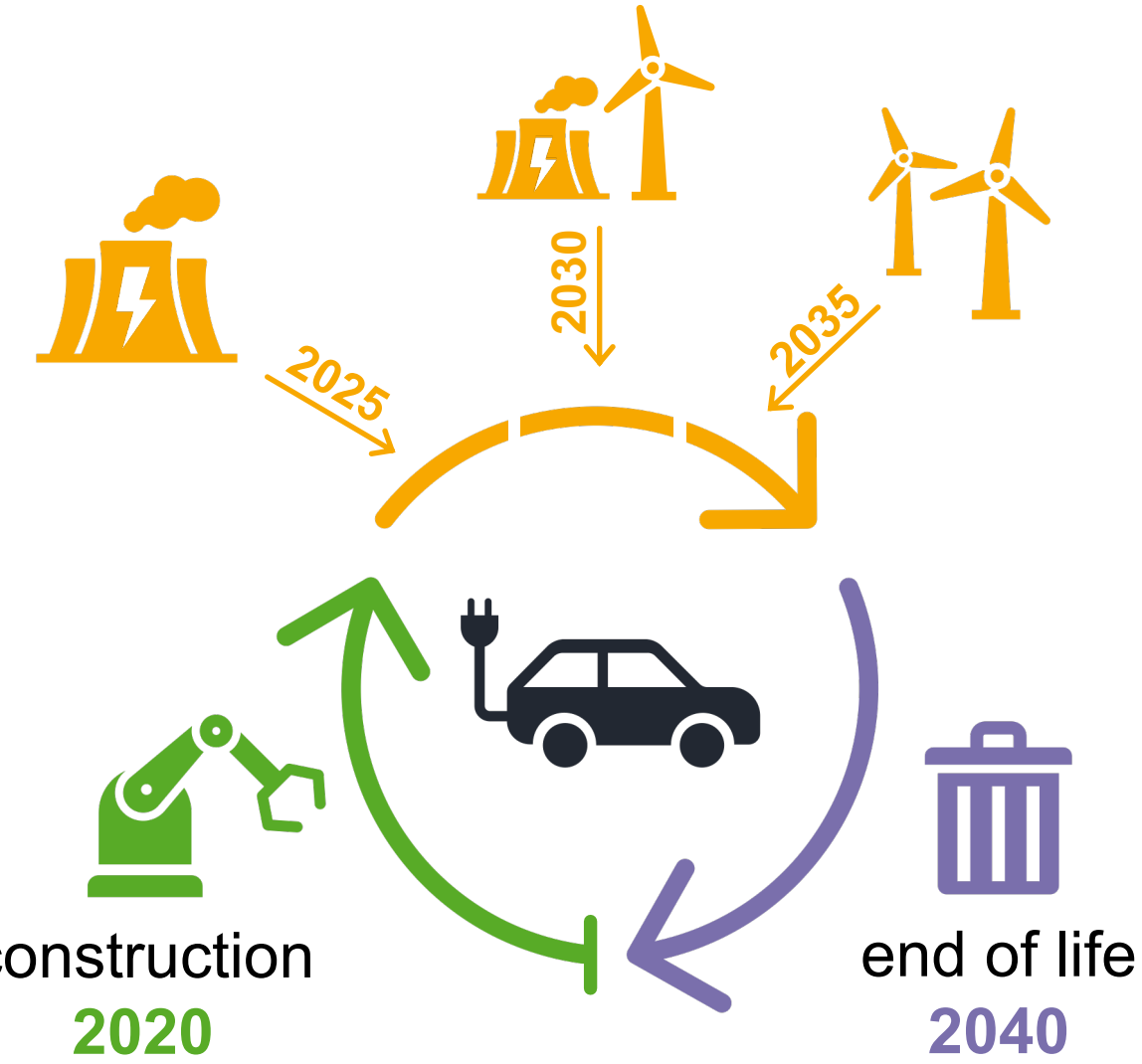
*“distribute over time **and** consider corresponding state”*



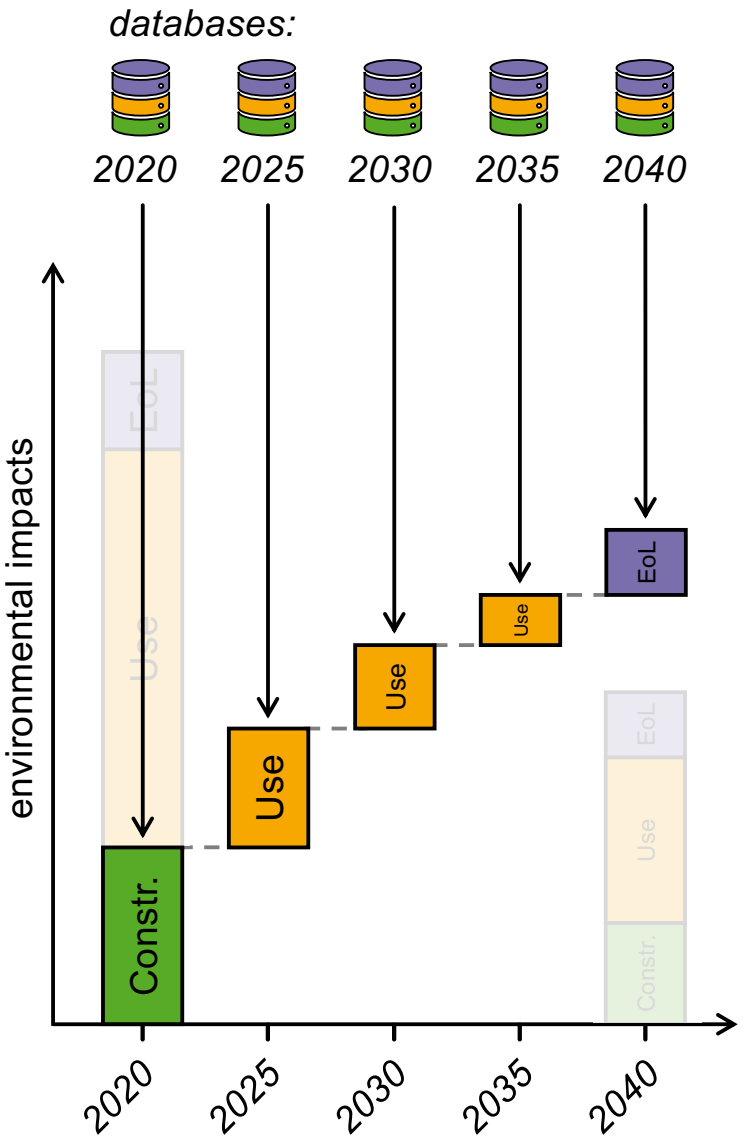


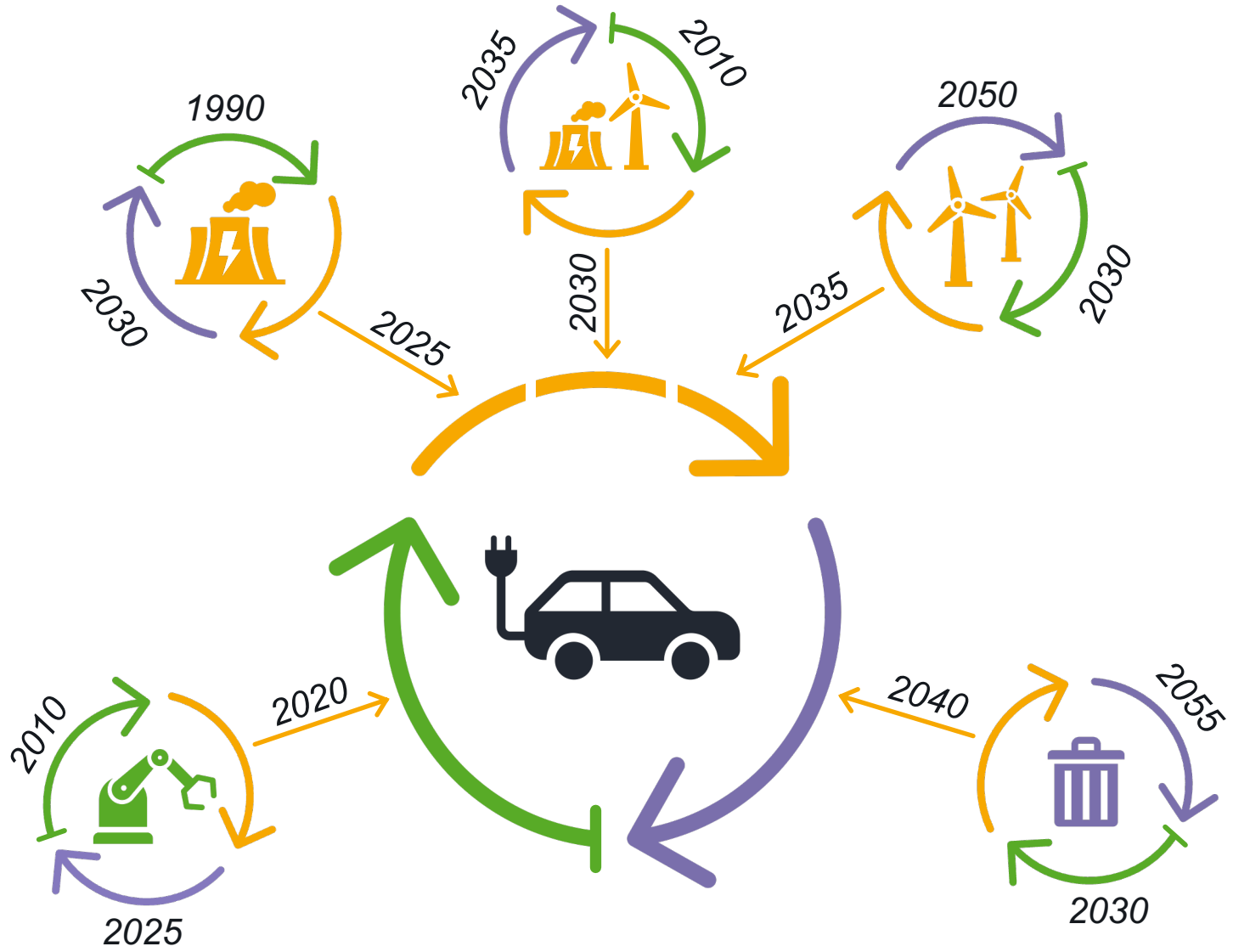
time-explicit LCA – *"distribute over time **and** consider corresponding state"*





time-explicit LCA – *"distribute over time **and** consider corresponding state"*





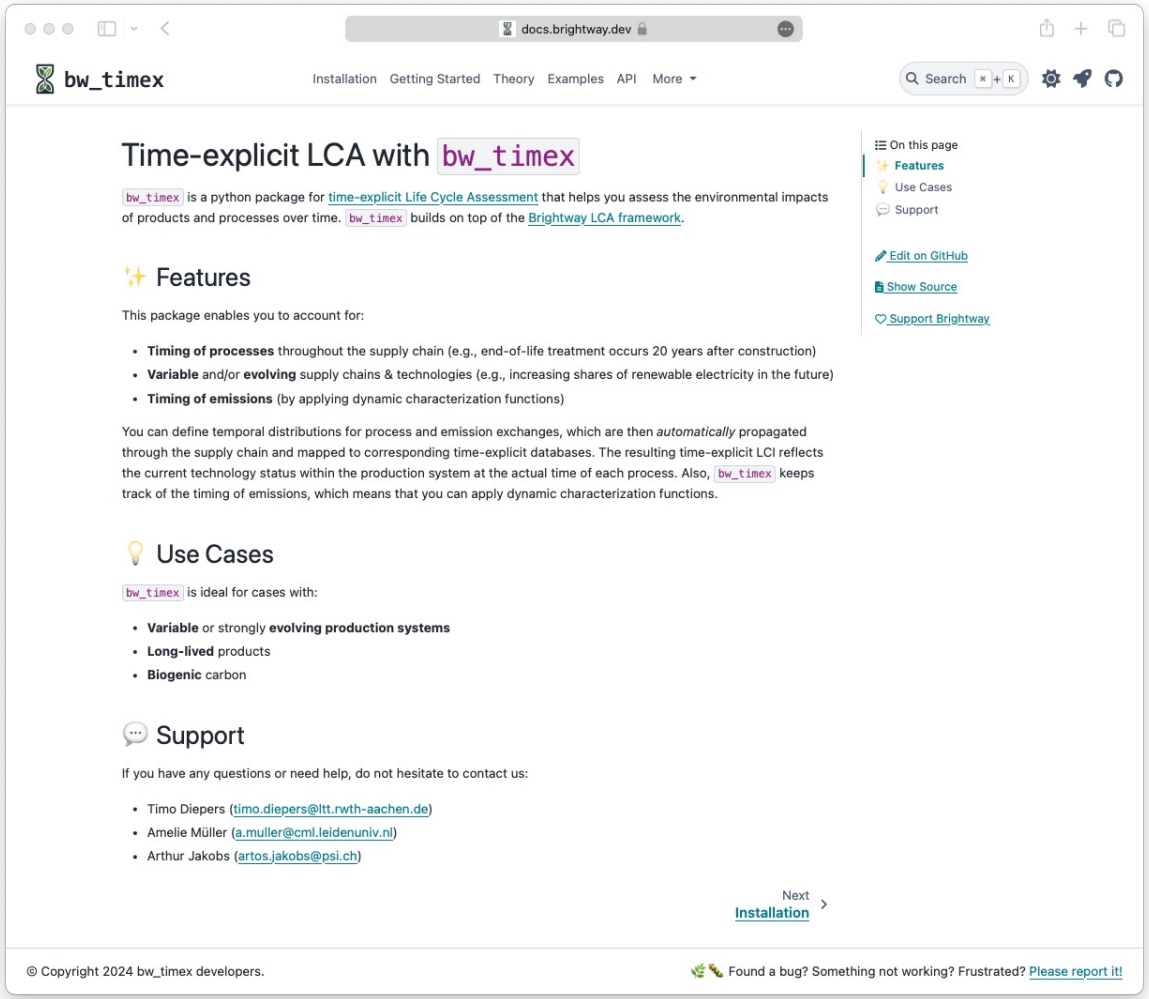
the bw_timex package: get the timing (more) right with low effort

bw_timex enables you to account for:

- timing of processes
- timing of emissions
- evolving supply chains

our principles:

- make it easy to use
- provide examples
- docstrings everywhere



→ https://docs.brightway.dev/projects/bw-timex/

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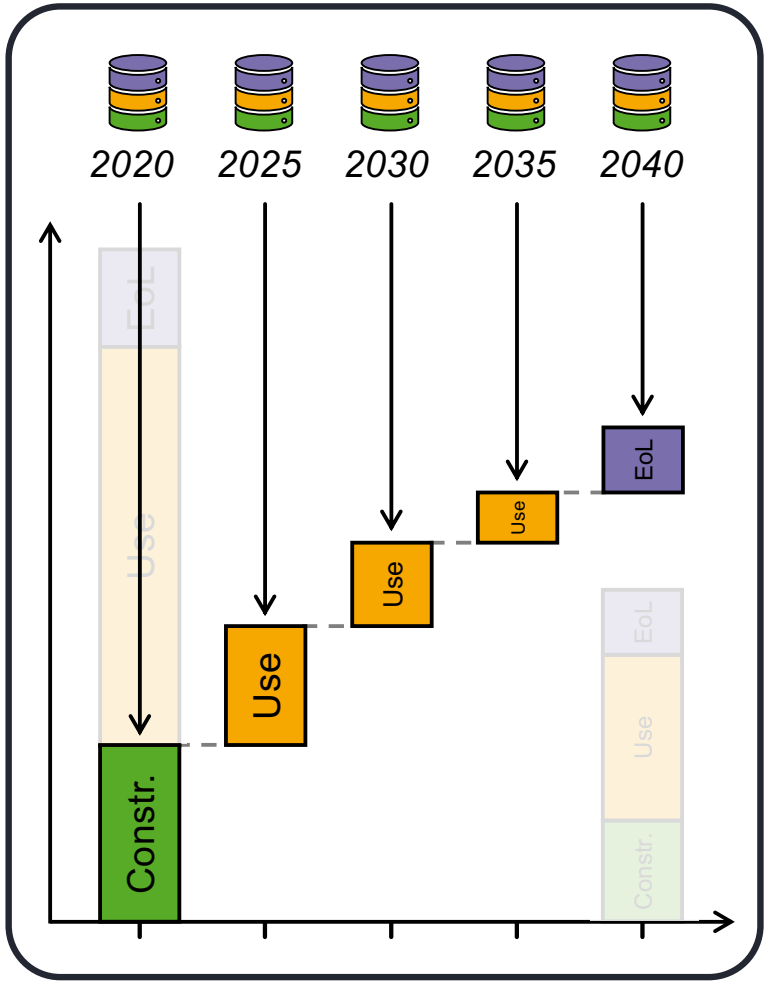
what the bw_timex package handles for you

user inputs

- static system model ✓
- prospective databases ✓
- temporal information ~

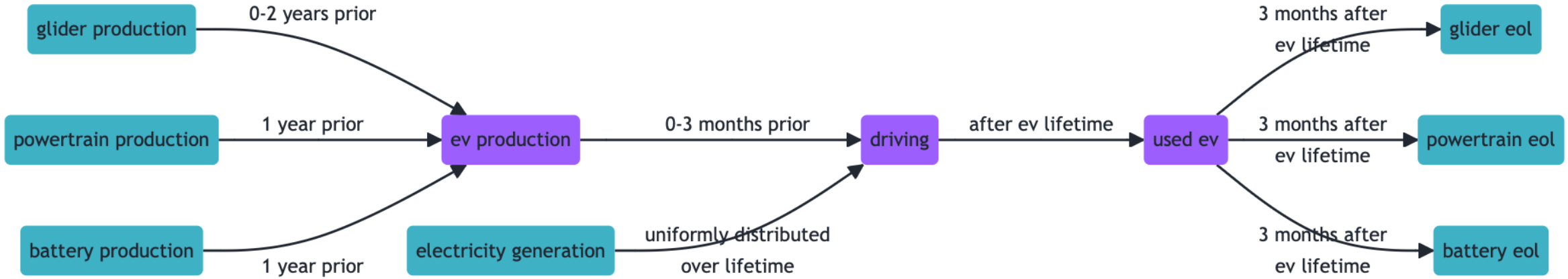
bw_timex →



let’s switch over to the jupyter notebook now 👨‍💻

→ `getting_started.ipynb`

a more elaborate example – back to our electric vehicle



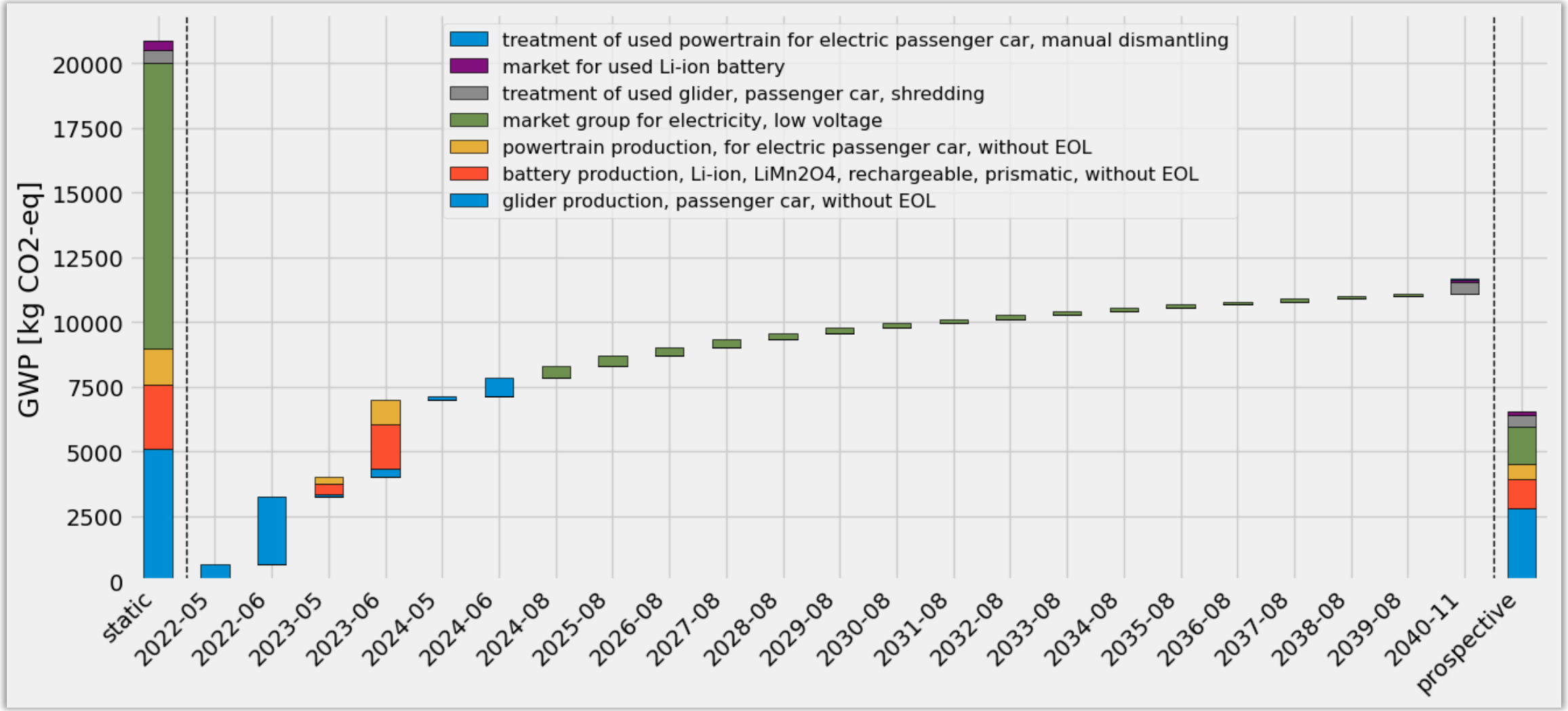
+

premise

want all the details?
the full notebook is available here

w/ ecoinvent 3.10 cutoff
& IMAGE SSP2 RCP19

the results, in short: it makes a difference




```
bw_timex.utils.plot_characterized_inventory_as_waterfall()
```

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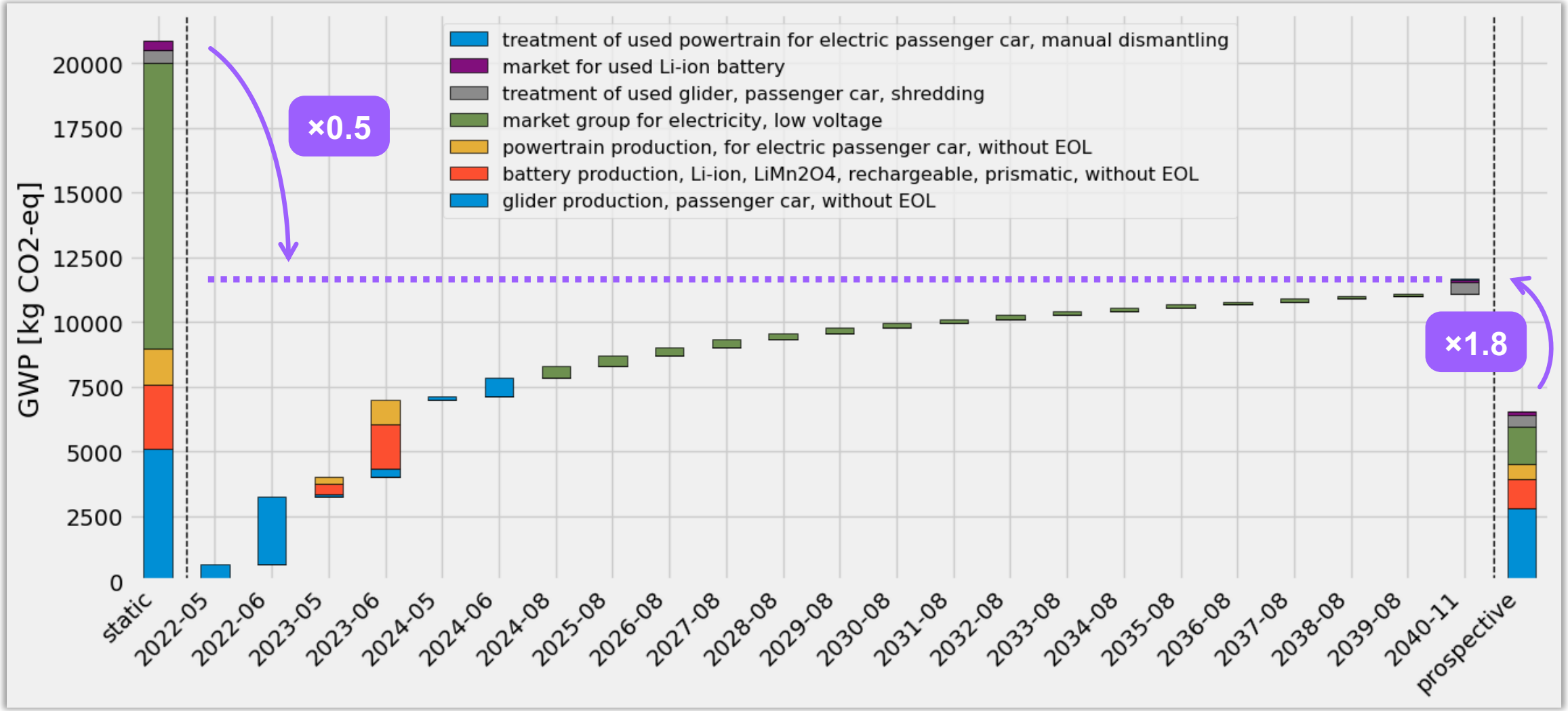


```
bw_timex.utils.plot_characterized_inventory_as_waterfall()
```

summary

bw_timex enables you to account for:

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outlook:

- paper in preparation
- improve computational performance
- handle deep background temporalization

~ thanks for listening ✨

https://github.com/brightway-lca/bw_timex