

A DATA-DRIVEN APPROACH TO UX-FOCUSED MODEL-BASED ROADMAPMING FOR NEW PRODUCT PLANNING

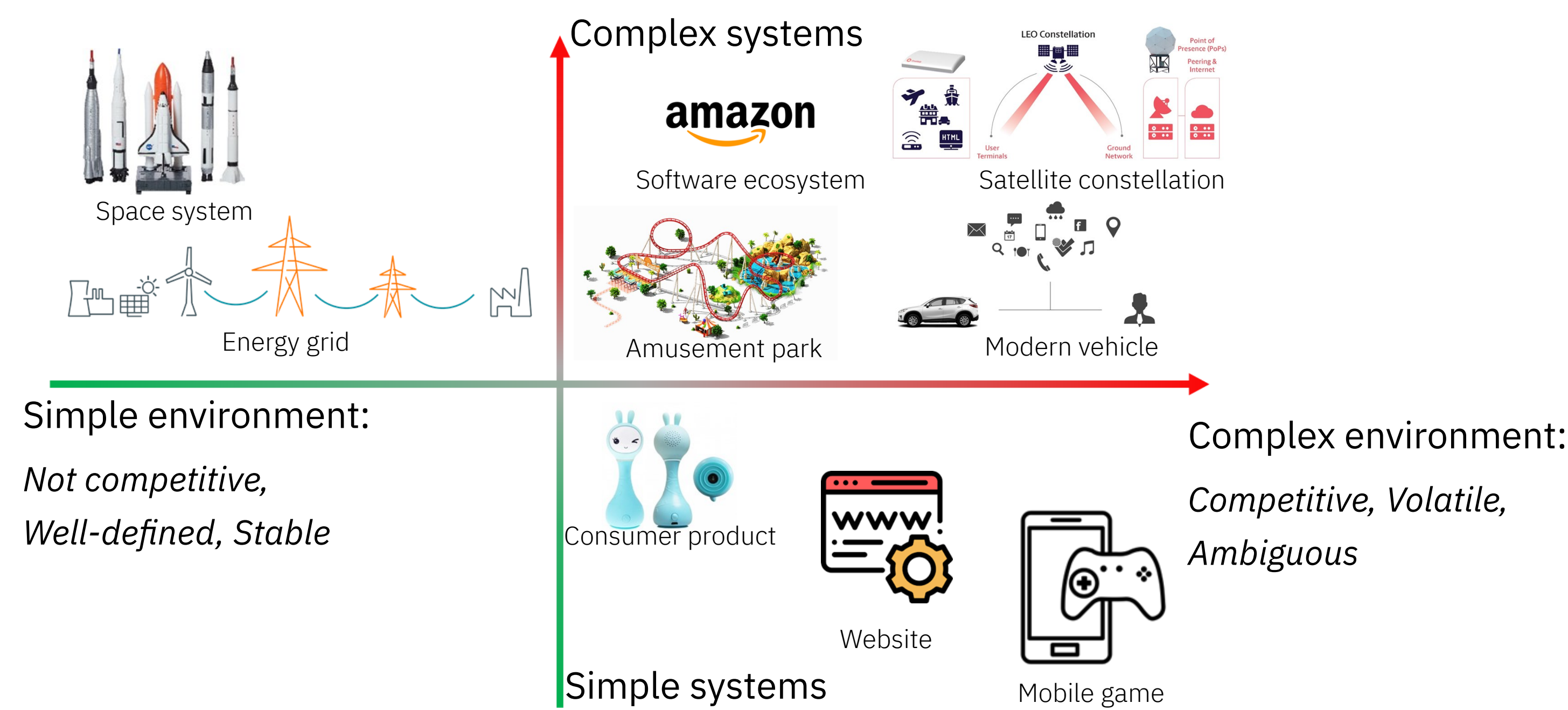
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Context:

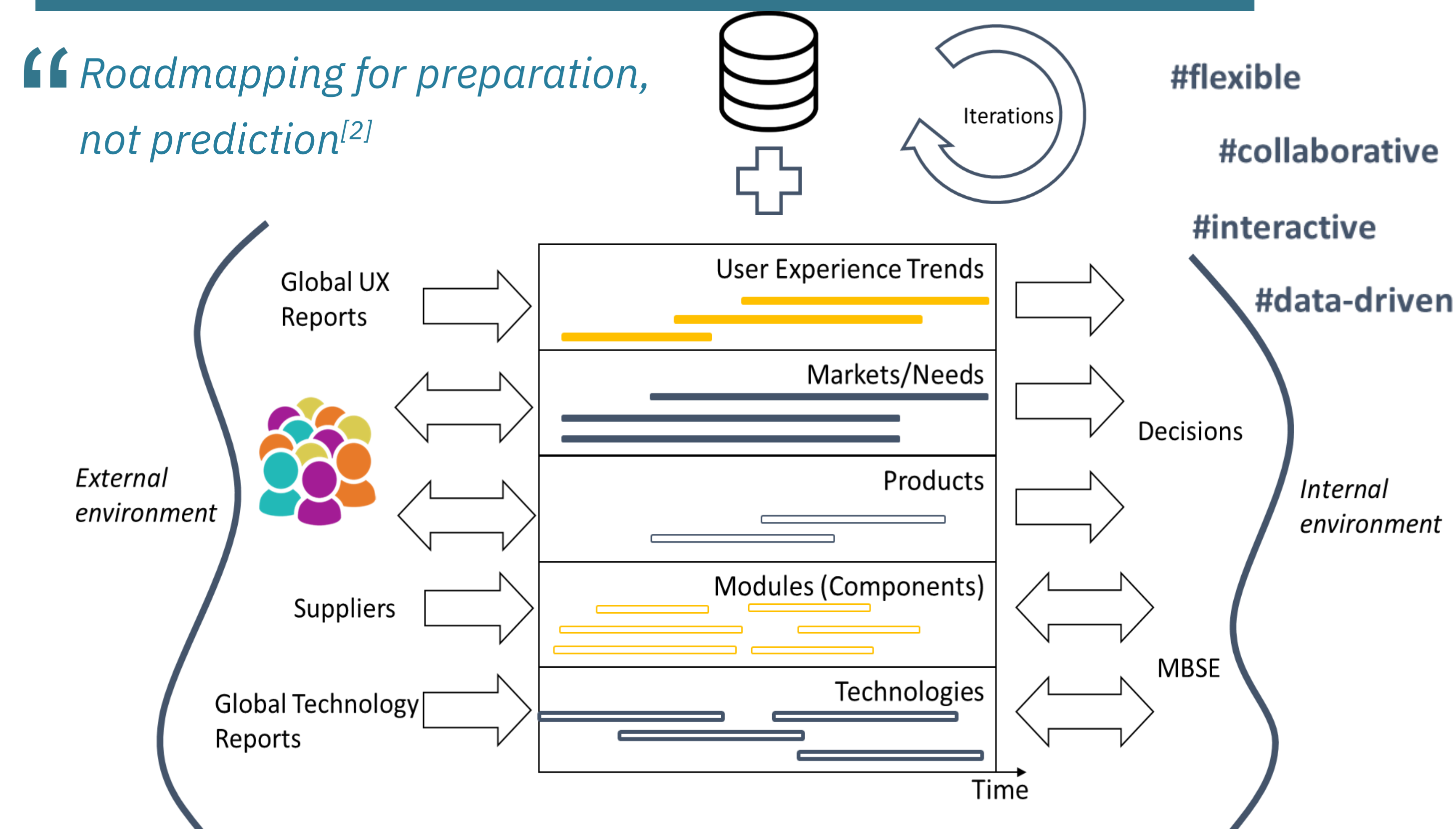
Complexity of systems and complexity of products



User experience is a composite time-dependent concept with many unknowns, which complicates management and planning

Global research question: How to facilitate the new product development and strategic planning activities to create products and services that offer the best user experience on the market?

Proposition: Integrate model-based^[1] roadmapping and design roadmapping^[2]

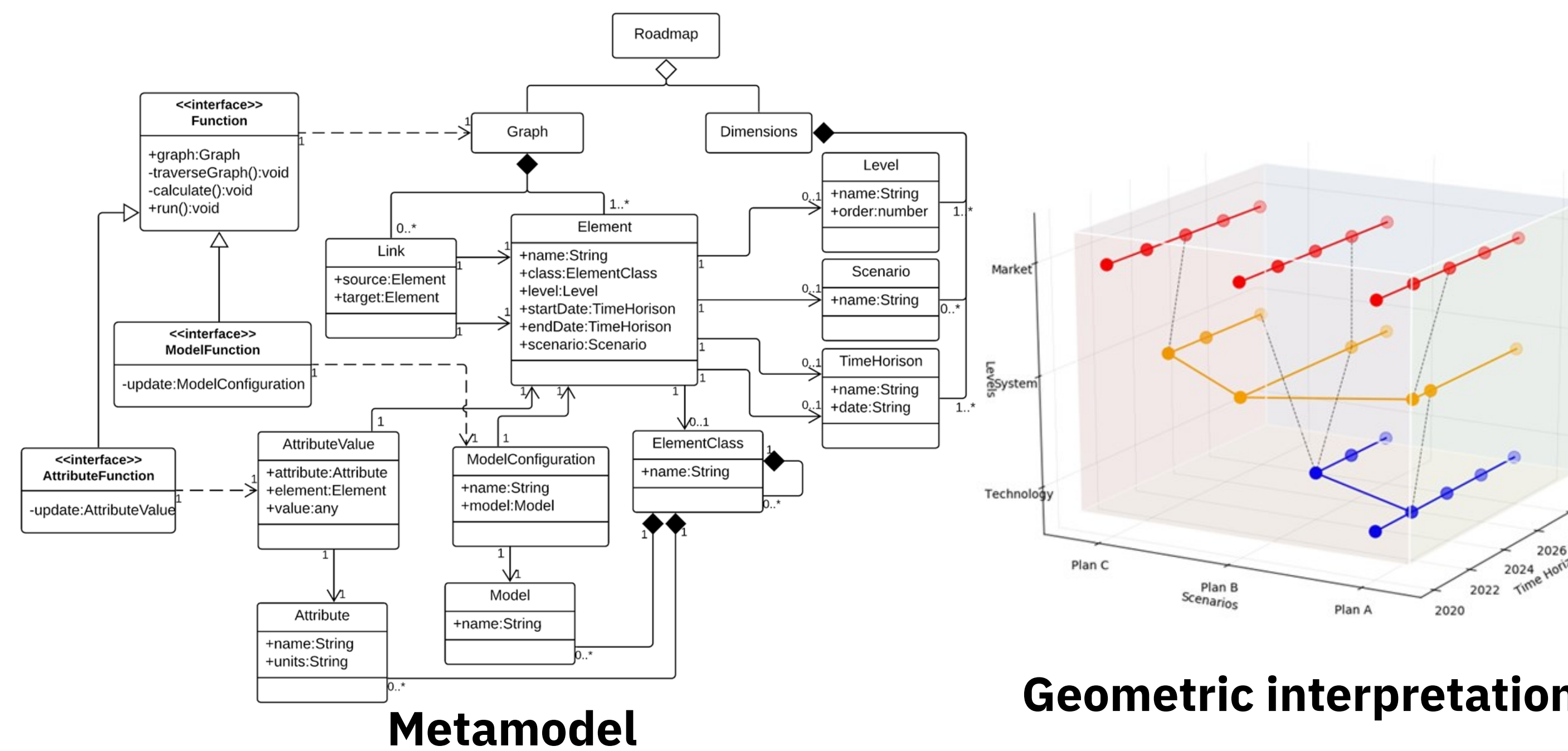


UX-, product-, and technology-related concepts must be stored in a computer as a graph with predefined formal syntax

RQ1: Can we propose a metamodel for the model-based technology roadmapping that will define this field independently from application domain?

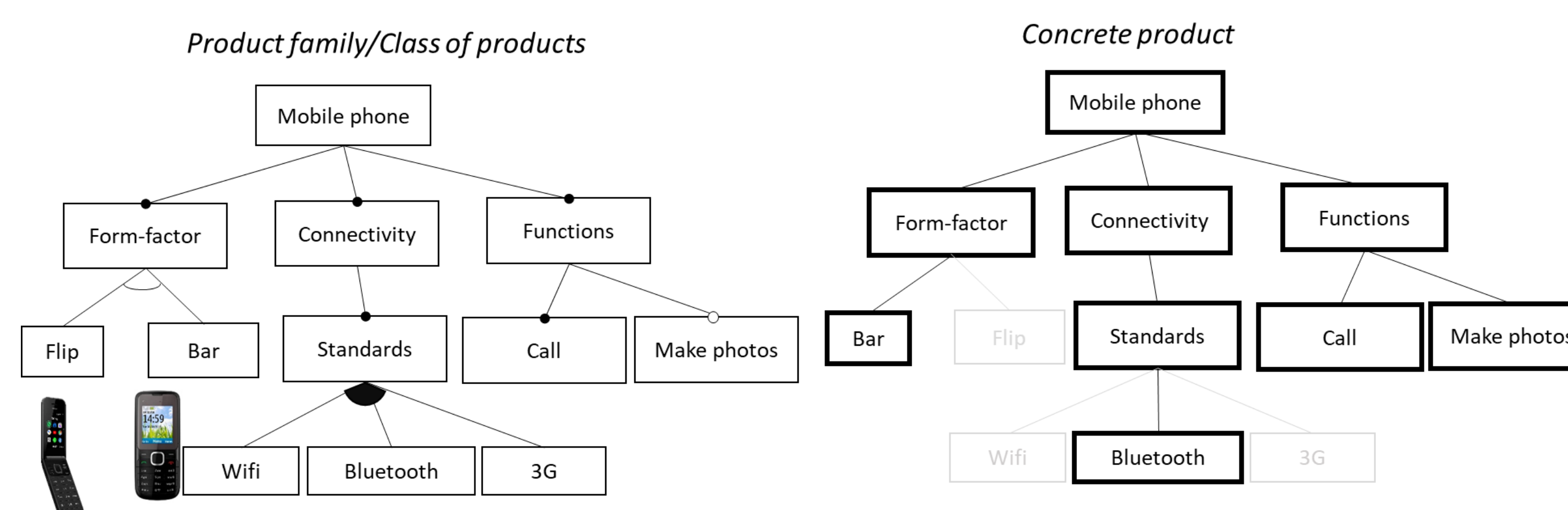
Contribution 1:

Metamodel for model-based roadmapping

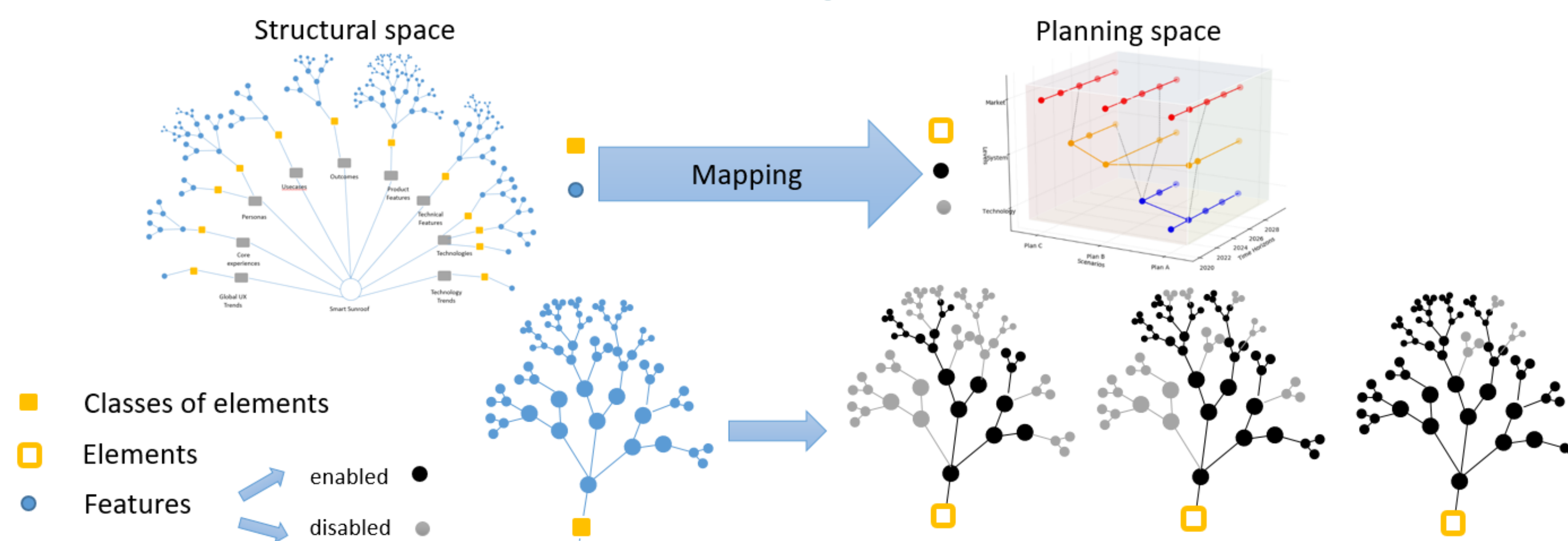


RQ2: How to support user-centered model-based roadmapping?

Contribution 2: Feature-oriented domain analysis as a universal model for UX/product/technology modeling



Feature trees are thoroughly developed; have compact visual syntax; suitable for UX and product modeling

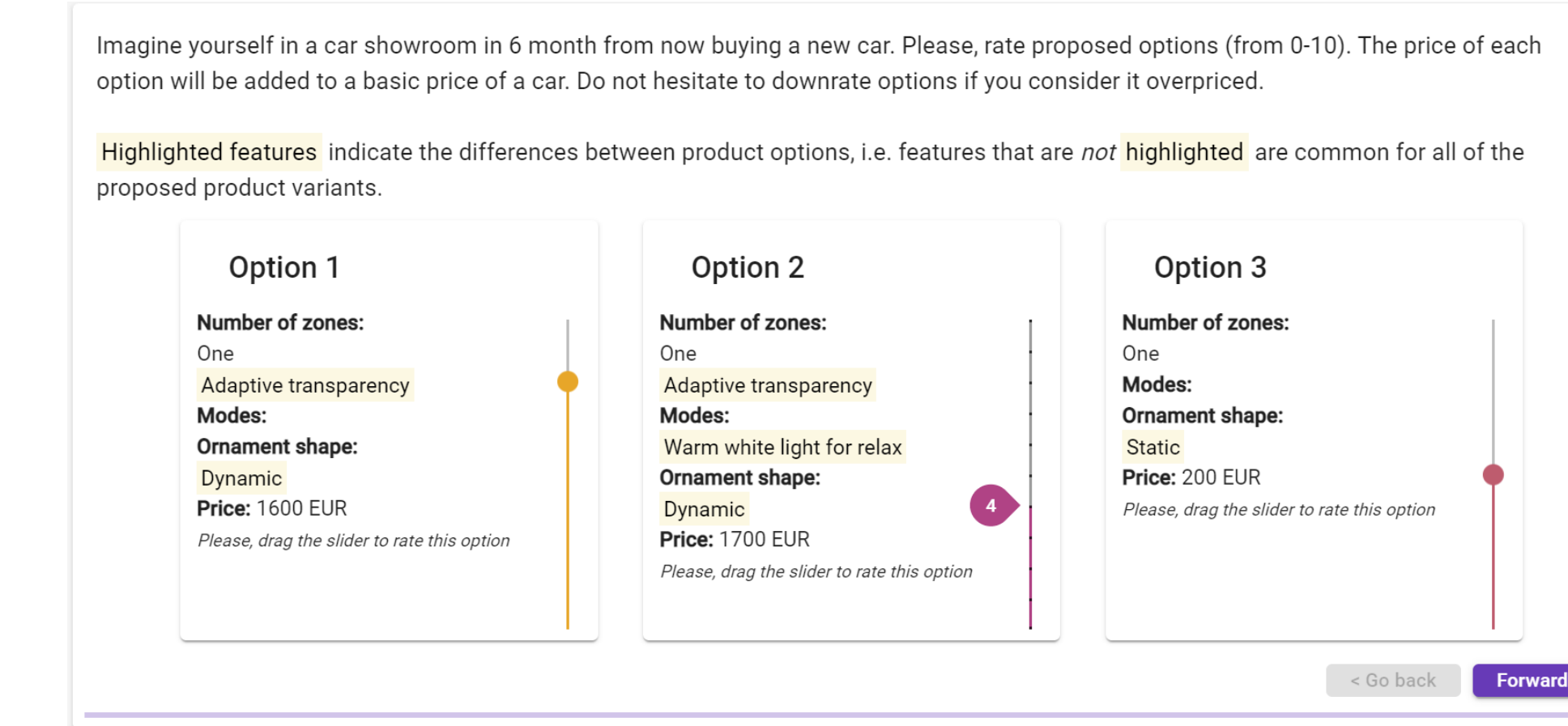
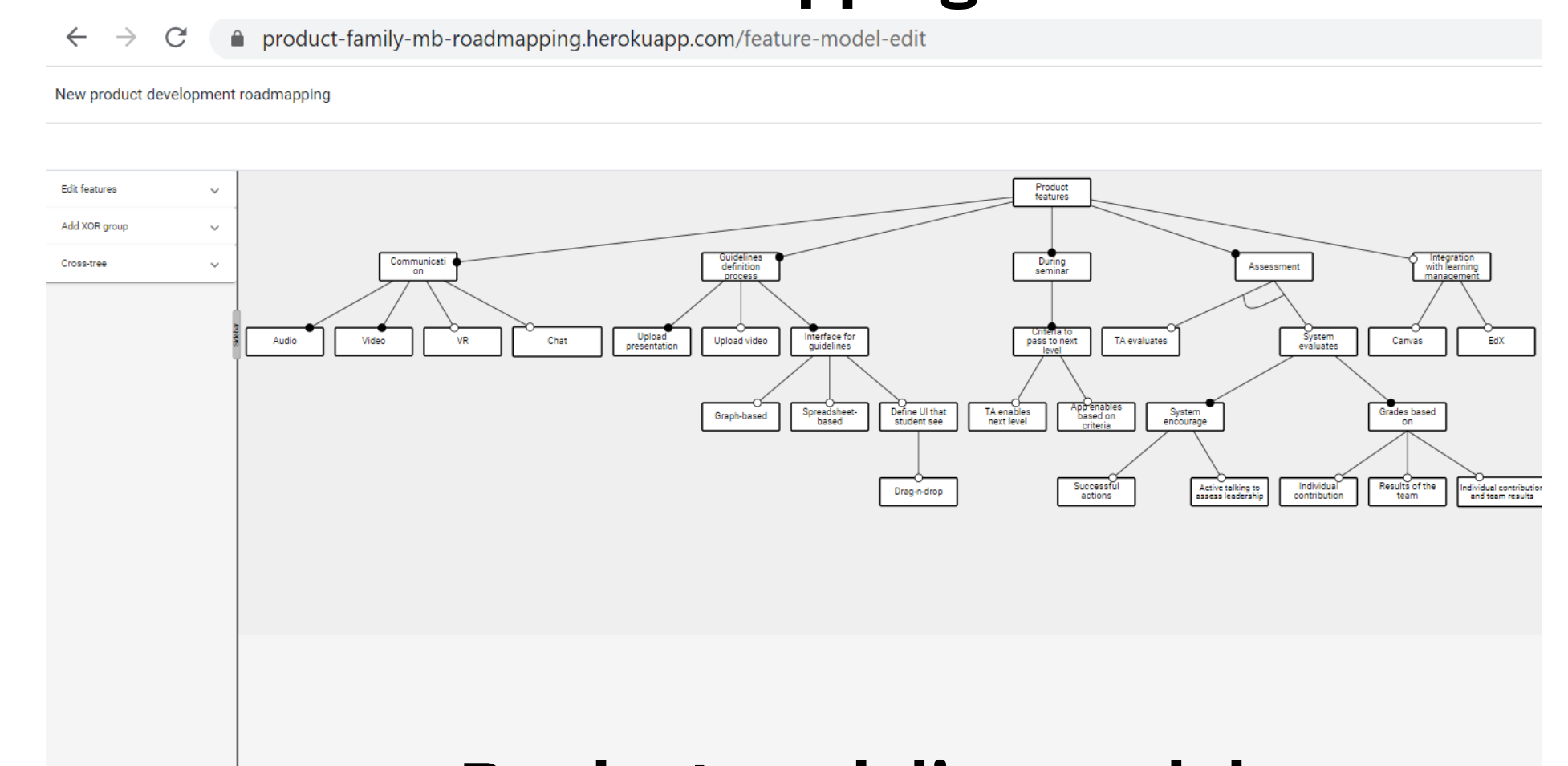
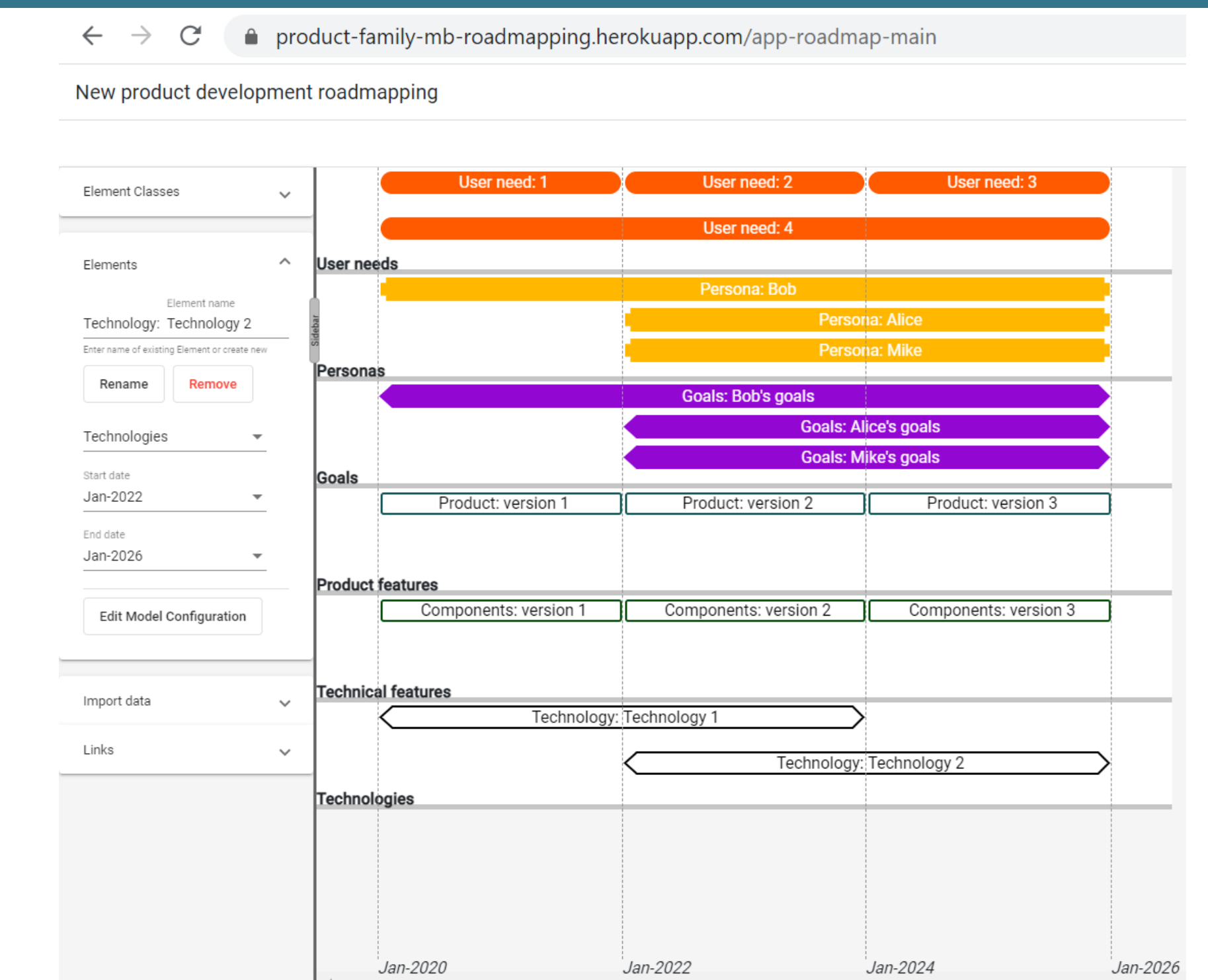


All possible design alternatives

**Concrete product configurations
(or an evolution of a product line)**

Feature tree instantiation represents product versions and configurations, variability in UX, etc. Cross-tree constraints enable consistency checks and requirements traceability.

Implementation: Web-based software tool for user-centered model-based roadmapping



References:

- [1] Knoll, D., Golkar, A., de Weck, O., 2018. A concurrent design approach for model-based technology roadmapping, in: 2018 Annual IEEE International Systems Conference (SysCon). Presented at the 2018 Annual IEEE International Systems Conference (SysCon), pp. 1–6. <https://doi.org/10.1109/SYSCON.2018.8369527>
- [2] Kim, E., Beckman, S.L., Agogino, A., 2018. Design Roadmapping in an Uncertain World: Implementing a Customer-Experience-Focused Strategy: California Management Review. <https://doi.org/10.1177/0008125618796489>