

Design Roadmapping

: Challenges and Opportunities

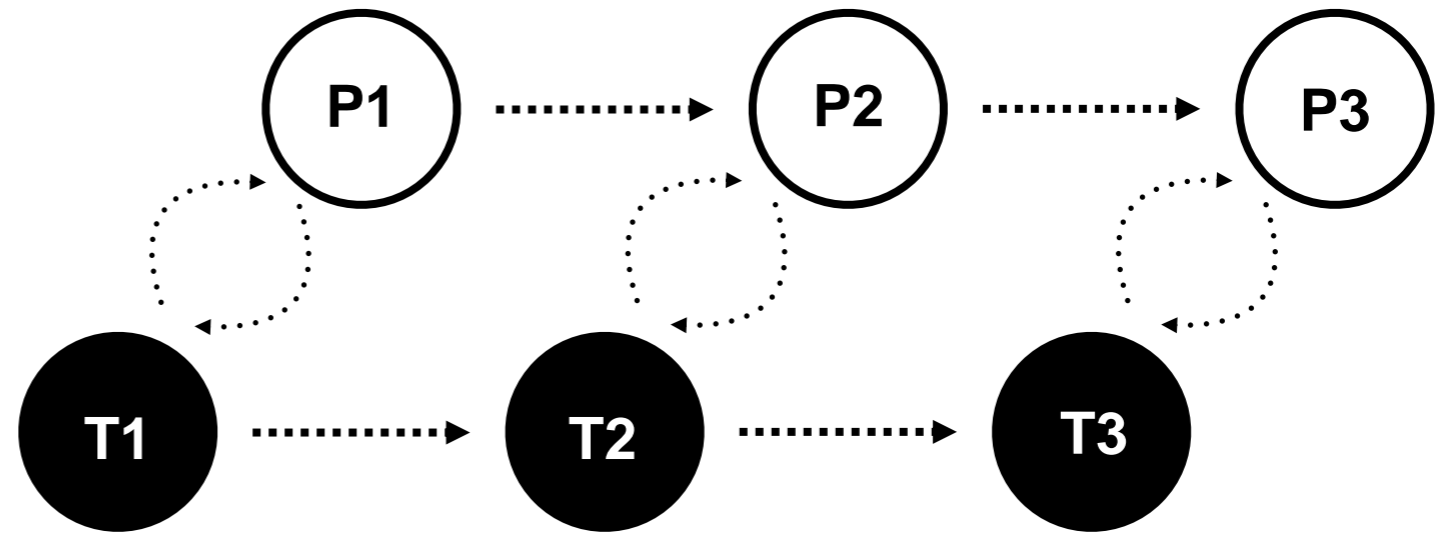
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*Many engineering-driven organizations start with **solutions** and then in **classic technology push-fashion**, place those solutions in the market to see whether or not there is a need. Unfortunately, while this approach may well uncover many use and usability needs, **it often fails to discover the higher level meaning-based needs** that can be crucial to the success of an innovation.*

Innovation as a learning process (Beckman & Barry, 2007, California Management Review)



Time



- Longer-term planning
- Improving communication and ownership of plans
- Focus planning on the highest-priority topics

Product Roadmap

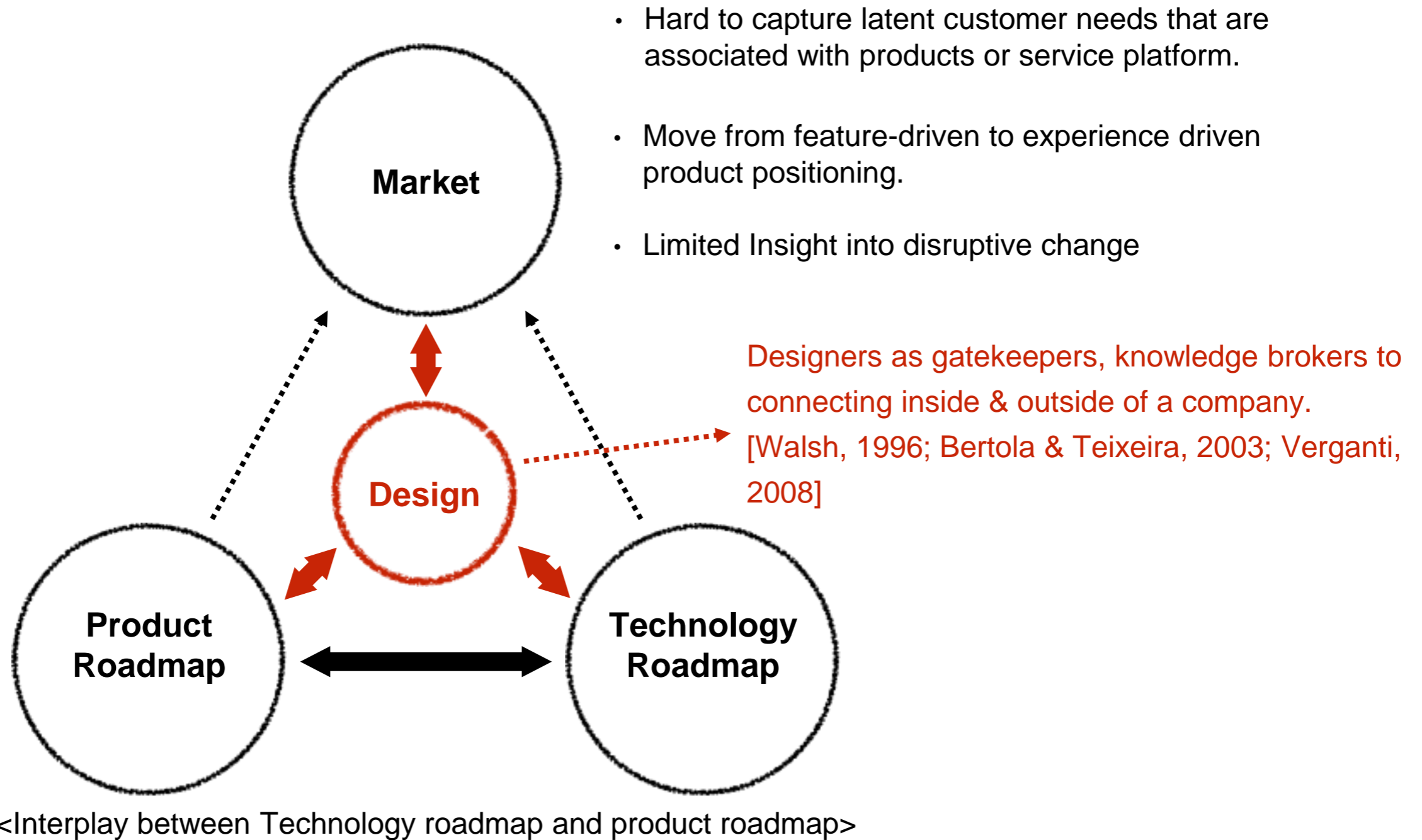
A management group's view of product offerings over time

Technology Roadmap

A plan for the business's expected technology developments

Introducing a design roadmap

: A canvas that reflects expected core design elements over time, based on in-depth design research.

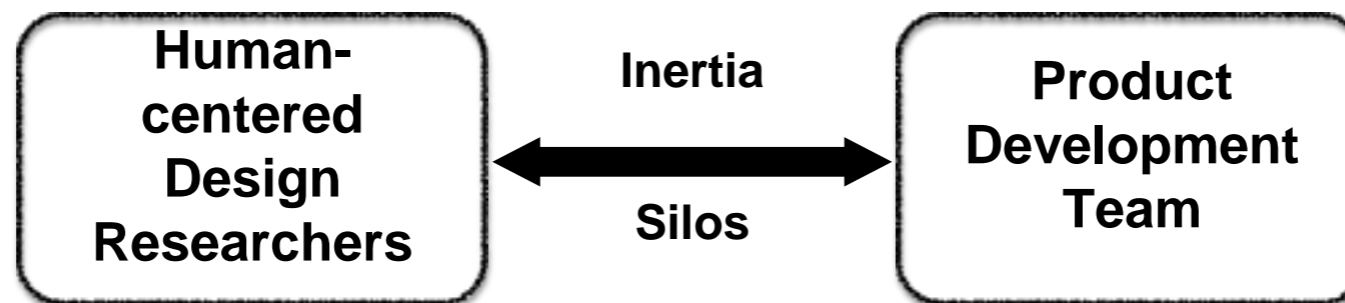


Despite the strategic importance of design to the firm, **the diffuseness of design** makes it difficult to use strategically.

[Dumas & Whitfield (1989)]

Inertia between Human-centered design researcher and product development team, stakeholders makes communication issue.

[Roschuni, et. al, (2013)]



<Human-centered Design researchers-Product Development Team relationship>

[Modified from Roschuni et al., (2013)]

Research Questions

1. How do product managers, engineers, and designers collaborate on products and technologies roadmaps?
2. What kind of attributes should a company bring into their product and technology roadmaps?
3. How can design better support product and technology roadmaps?

Interview Participants

In-depth Interviews with 35 participants from 18 companies in the San Francisco Bay Area (Silicon Valley)

	Product Managers	Technology Managers	Designers
Number of participants	16	7	12
Company categories	<i>Network, Communication & Information, Security Solutions, Software, E-commerce, Financial Solution, Online Education, Internet, Home Automation</i>	<i>Network, Software, Camera, Sound Technologies, Security Solutions, Consumer Electronics</i>	<i>Software, Consumer Electronics, Computer software & hardware, Glass & Ceramic Materials</i>

Quotes

*“We invested a tremendous amount of time on roadmapping, but **we never ended up producing what we targeted for this**, even the second year, much less the third year.”*

*“Over time, the market dynamics have become even more dynamic. The sine wave is getting tighter and tighter. For me, **even predicting what I’m going to produce in six months is very difficult.**”*

*“There is **not a good feedback loop** from consumer side.”*

*“It’s very **hard to figure out the process of how to extract the information I want from my customers and apply to roadmapping.**”*

[Quotes from interview participants from the Haas executive product management program, and designers in BayArea, Spring 2014]

Challenges

1. Ineffectiveness in predicting future

“Over time, the market dynamics have become even more dynamic. The sine wave is getting tighter and tighter. For me, even predicting what I’m going to produce in six months is very difficult. We invested a tremendous amount of time on roadmapping, but we never ended up producing what we targeted for this, even the second year, much less the third year.” (T-3)

2. Lack of feedback loop from research on end-users

3. Over-dependence on feature-driven roadmapping processes

“Every year, we need to have different marketing points, which means that we don’t have solid good features but keep adding other features into it...because we need to market it differently...so we are not building what’s the most important.” (D-3)

Design Roadmap Opportunities

1. Experience-driven roadmapping opportunities

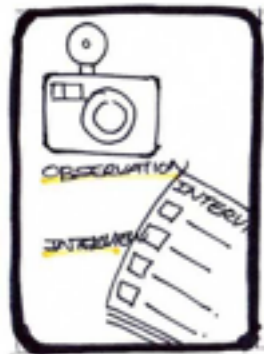
Purchasing decisions for consumer products are no longer driven entirely by product or service features. Rather the holistic experience around the product or service is becoming more dominant in today's market.

2. Increase ownership of designers in the roadmapping process

“This is like a customer experience group or a user design experience group, but they are not, they are not part of the product team or haven't been part of our product team traditionally. I think, probably their engagement would help us better solve the right problem.” (T-6)

3. Preparing (rather than predicting) for the future using an interactive roadmapping process

Integrating Roadmapping Process



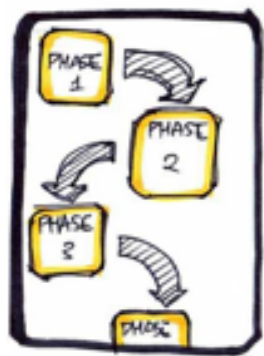
a. Conduct Comprehensive Design Research

Selective in depth interviews, behavioral observations for unexplored needs and opportunity spaces for innovation. Comprehensive online surveys. Find out pain points and develop frameworks for identified problems.



c. Identify and Prioritize List of Technologies

Research different existing technologies and functionalities. Brainstorm potential new features. Prioritize these technologies based on stages of development. Select which technologies would be beneficial and useful for the target personas.



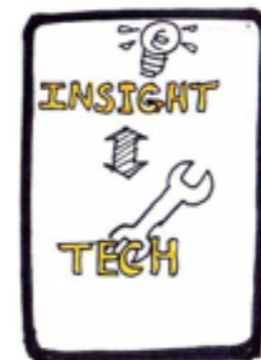
e. Co-create a Integrated Roadmap

Combine elements from user research and technology analysis to map out a plan integrates human-centered solutions with targeted technologies. Create a cohesive collective shared vision for a design team.



b. Extract Common Themes and Insights

Synthesize data to create common themes and insights for the future. Narrow down user group focus and create primary and secondary personas and use scenarios. Record key observations and data from these personas and use scenarios.



d. Map Technologies to Human Insights

Prioritize technologies based on needs that stem from human insights, and examine how technologies can be applied to address opportunity spaces and pain points of target user groups.

Jerry teaches children with type 1 diabetes how to manage their blood glucose levels, recognize their symptoms, and maintain a healthy diet - all through play!

CHALLENGE #1 | TYPE 1 DIABETES

JERRY THE BEAR

Reducing healthcare costs through play!

[Learn more >](#)

Recommended by

**Diabetes Care
and Education**
a dietetic practice group of the
**Academy of Nutrition
and Dietetics**



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sproutel

“Sproutel” Design Roadmap

Vision Creating educational content delivery tools, focusing on health care, especially behavioral changes for children with chronic illnesses.

Core Experience

Remove feelings of loneliness and isolation for children with chronic illness.
Empower children to control their illness.



Primary User Needs

- Need emotional coping
- Understanding diabetes
- Remove loneliness during the learning process
- Family better explain diabetes



Outcome

- Manage blood glucose levels
- Recognize symptoms
- Maintain a healthy diet through play
- Learn how to take insulin



Functions

- Children learn from bear
- Display on a digital screen
- Interactive accessories
- Spoken phrases

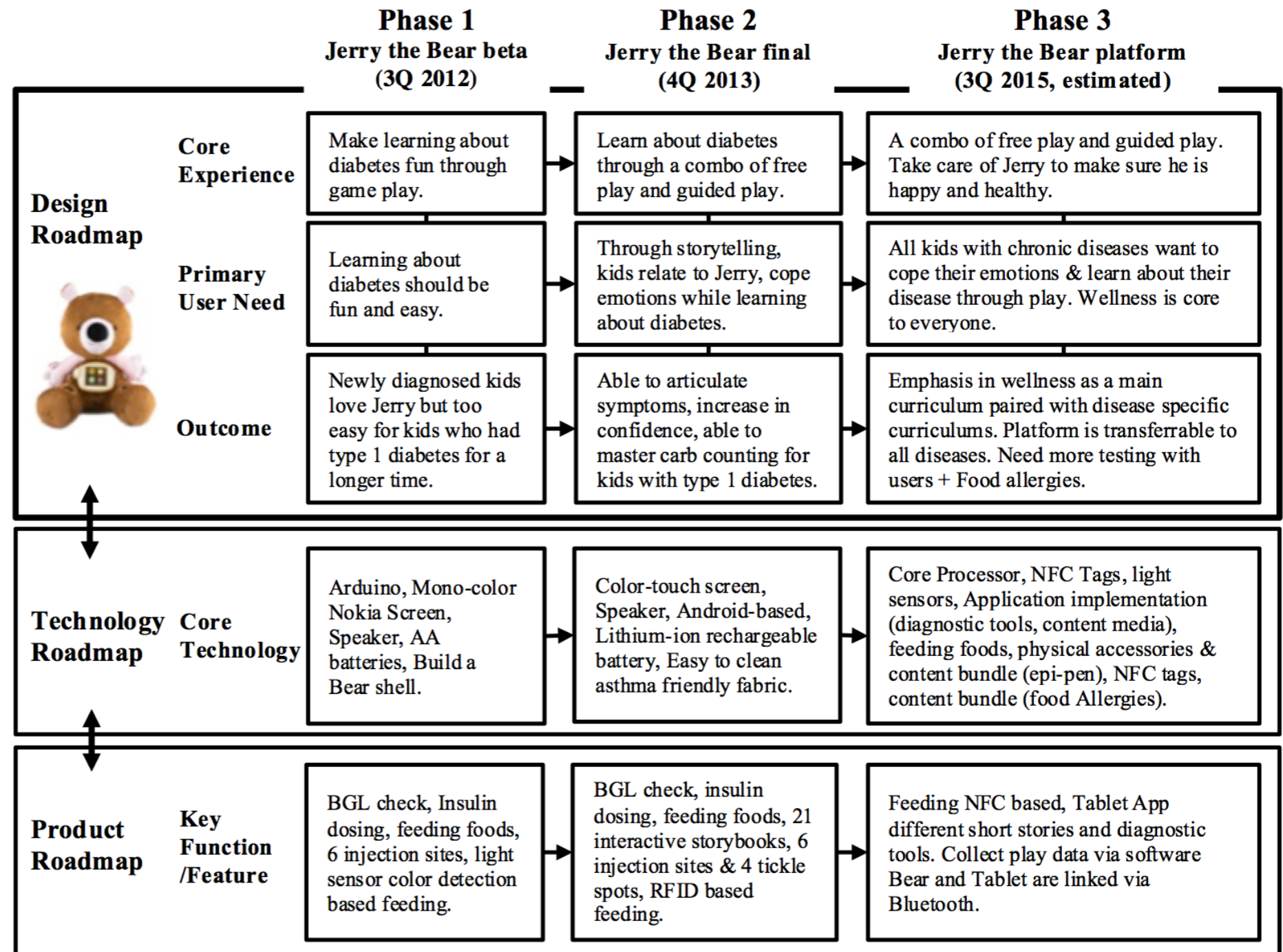


Type 1 Diabetes

Time
14

“Sproutel” Integrated Roadmaps

The Diagram below shows their integrated roadmapping process where design iterations begin with the design roadmap: Identifying underlying vision based on desired **core experiences**, **primary user needs**, and **outcomes**, which are in accordance with technologies associated with Sproutel’s functions/features on technology and product roadmaps.



<A simplified schematic example of an integrated design, technology, and product roadmap: Sproutel’s Jerry the Bear, 2015>

Q&A



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