



# Consumer-Led Approach to Innovation:

## Health Self-Monitoring Devices



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# What to Expect

**01** | The Innovation Dilemma

**02** | The Lux Innovation Helix

**03** | Putting the Helix into practice: Health self-monitoring devices

**04** | Client Action Items

“ ”

A lot of times, people don't know what they want until you show it to them.

Steve Jobs

“ ”

If I had an hour to solve a problem and my life depended on the solution, I would spend the first 55 minutes determining the proper question to ask.

Albert Einstein

“ ”

If I had asked people what they wanted, they would have said faster horses.

Henry Ford

“ ”

The mission of a manufacturer is to create products that bring happiness to people.

Matsushita Konosuke

# The innovation dilemma

**Technologies** race ahead, but *people* can't fit them in their lives.



**Consumers** signal needs, but *solutions* arrive too late, or never.



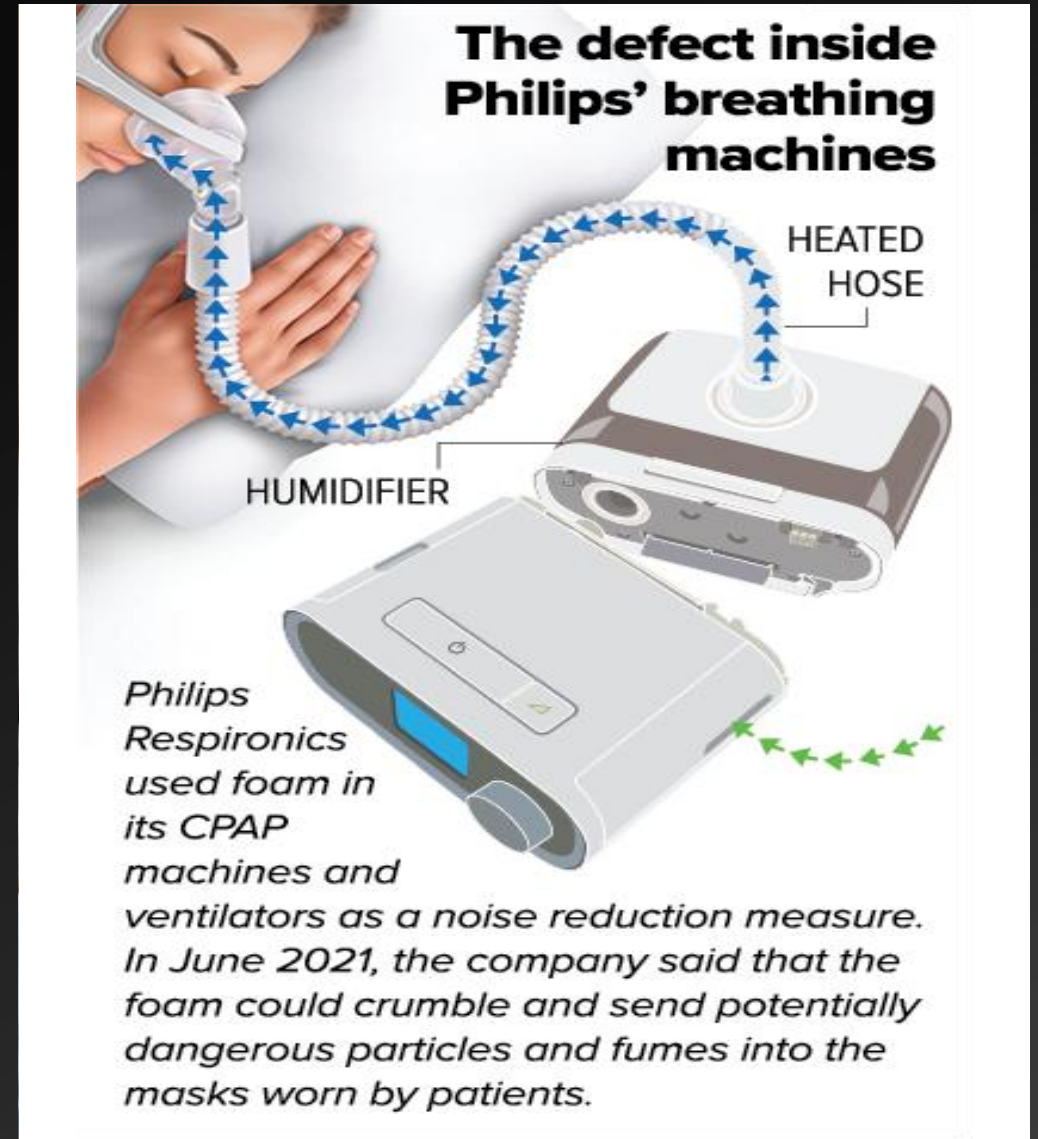
Fragmented strategies

Mistimed launches

Missed opportunities

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Breakthroughs exist. **But,**  
**without people,** they fail.



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# The Lux Innovation Helix



# The value of the Helix

Bridging human demand and technology readiness to make innovation inevitable, not accidental.



## Executives

Cut through the noise to reveal where growth will land.



## R&D & Technology

Align pipelines with urgent consumer needs.



## Consumer Insights

Turn human signals into influence over what gets built.

# Structured, three-step process

1

## Decode the consumer strand

Identify unmet needs through the Jobs-to-be-Done lens.

Prioritize those needs based on urgency.



2

## Decode the technology strand

Pinpoint which technologies are most capable of solving those needs today, and tomorrow.

Prioritize those technologies based on readiness.



3

## Create the bonds

Quantify the alignment of each need with each technology.

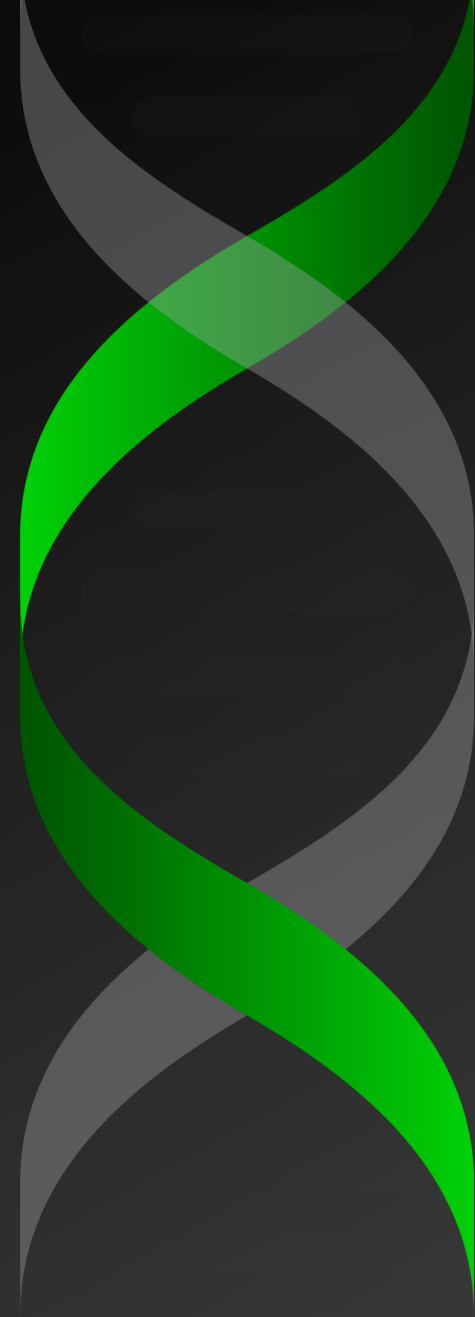
Identify the bonds with the highest alignment score, and map the clusters.



Step 1

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# Decode the consumer strand



# Step 1. Decode the consumer strand

## Jobs-to-Be-Done Framework

- Focuses on the task people want to accomplish.
- Reveals needs and frustrations — why current solutions fall short, and what people actually expect.
- Drawn from 50K–150K+ consumer reviews, decoded by anthropologists using predictive anthropology.

## Why?

To give companies a clear, evidence-based roadmap to build more relevant, competitive, and valuable offerings.

“ ”

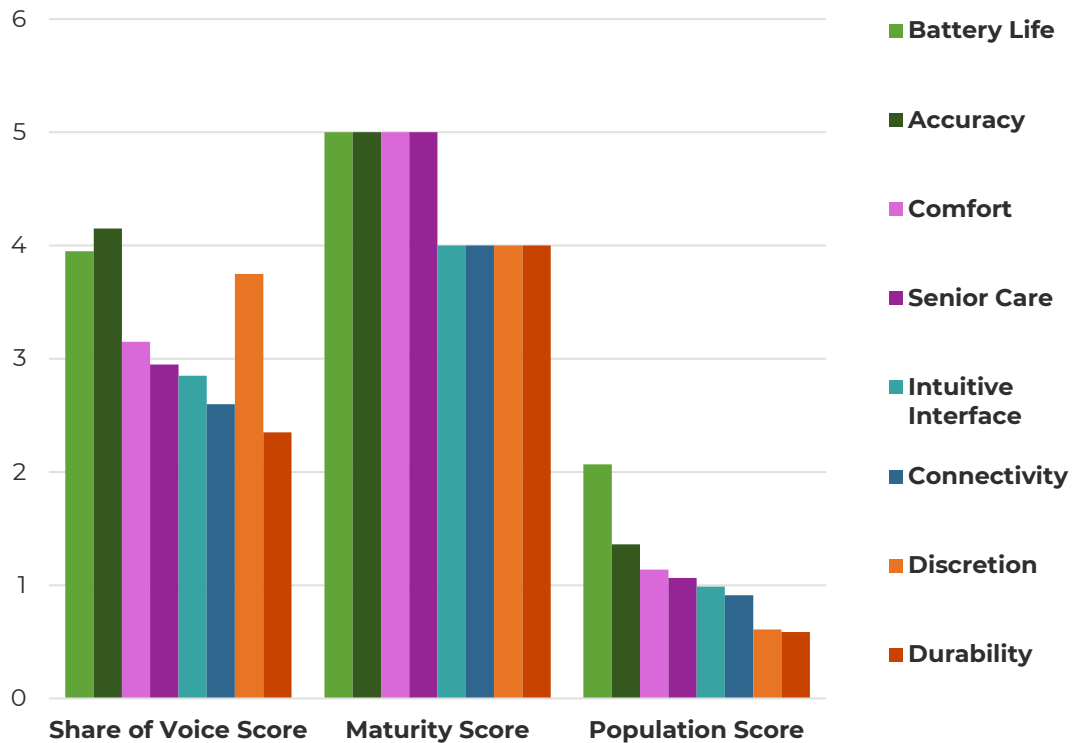
At first, the battery lasts well, but after a couple of years or so, I feel let down. I don't need many features, just something simple and reliable for the long term.

“ ”

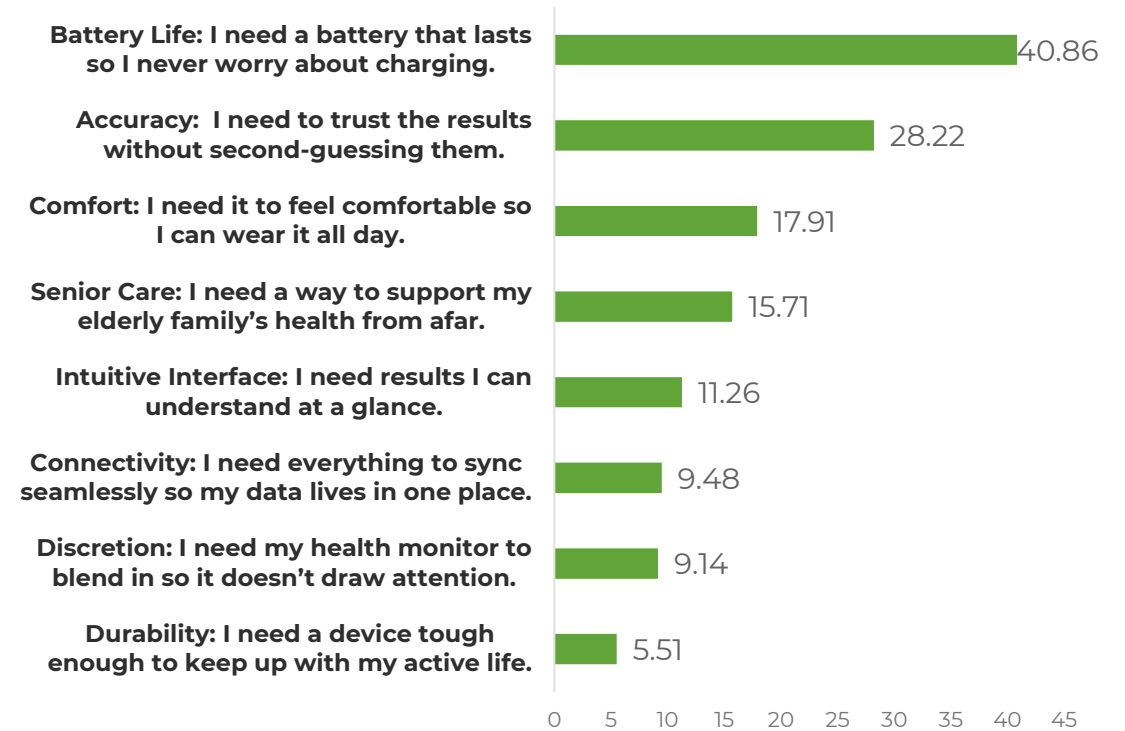
I want to wear it for my health, but when my skin gets irritated or starts smelling bad, it makes me hesitate to keep wearing it.

# Prioritize consumer needs by urgency

## Breaking Down the Formula of Needs Urgency



## Consumer Needs, Prioritized by Urgency



Step 2

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# Decode the technology strand



# Step 2: Decode the technology strand

## Lux Innovation Radar

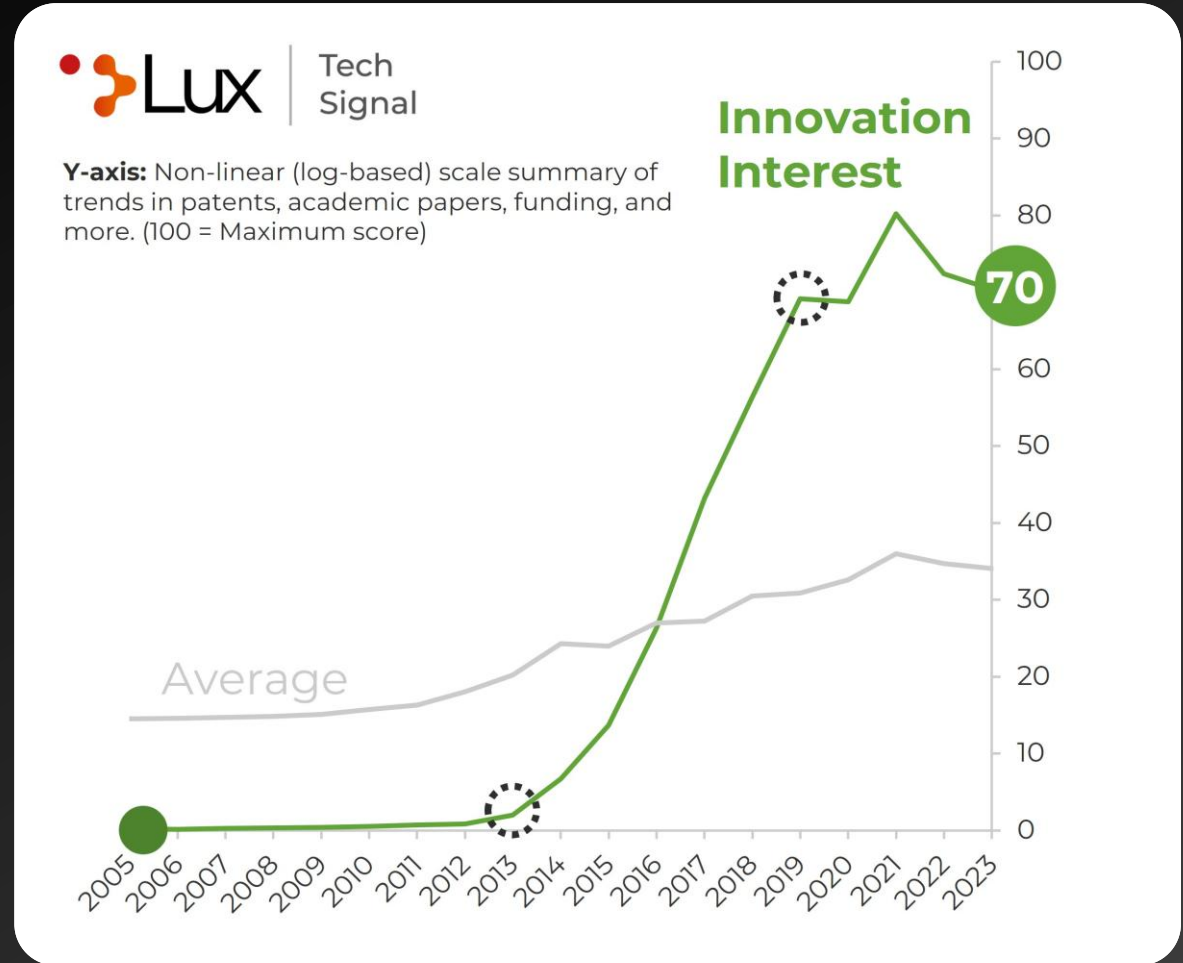
The technologies that will change the world, according to Lux Research's analysts and data scientists.

[Download List as PDF](#) [Download List as CSV](#)

### The Lux Innovation Radar

Filter by Service  Filter by Priority  Filter by Urgency

Rank	Title	Innovation Prowess	Market Momentum	Urgency
1	<b>Direct Air Capture</b>	4	5	Assess
+9	RECENT RESEARCH: Lux Innovation Radar update: Industries doubling down on core enablers			
2	<b>CO<sub>2</sub> Electrolysis</b>	4	4	Monitor
+7	RECENT RESEARCH: Scaling CO <sub>2</sub> Utilization: Building Resilience in the Carbon Economy			
3	<b>Synthetic Biology</b>	4	4	Assess
+2	RECENT RESEARCH: India establishes biofoundry initiative to accelerate biomanufacturing			
4	<b>E-fuels</b>	4	4	Assess
+18	RECENT RESEARCH: The long read: Why the EU's SAF mandate will fail			



# Prioritize by tech readiness

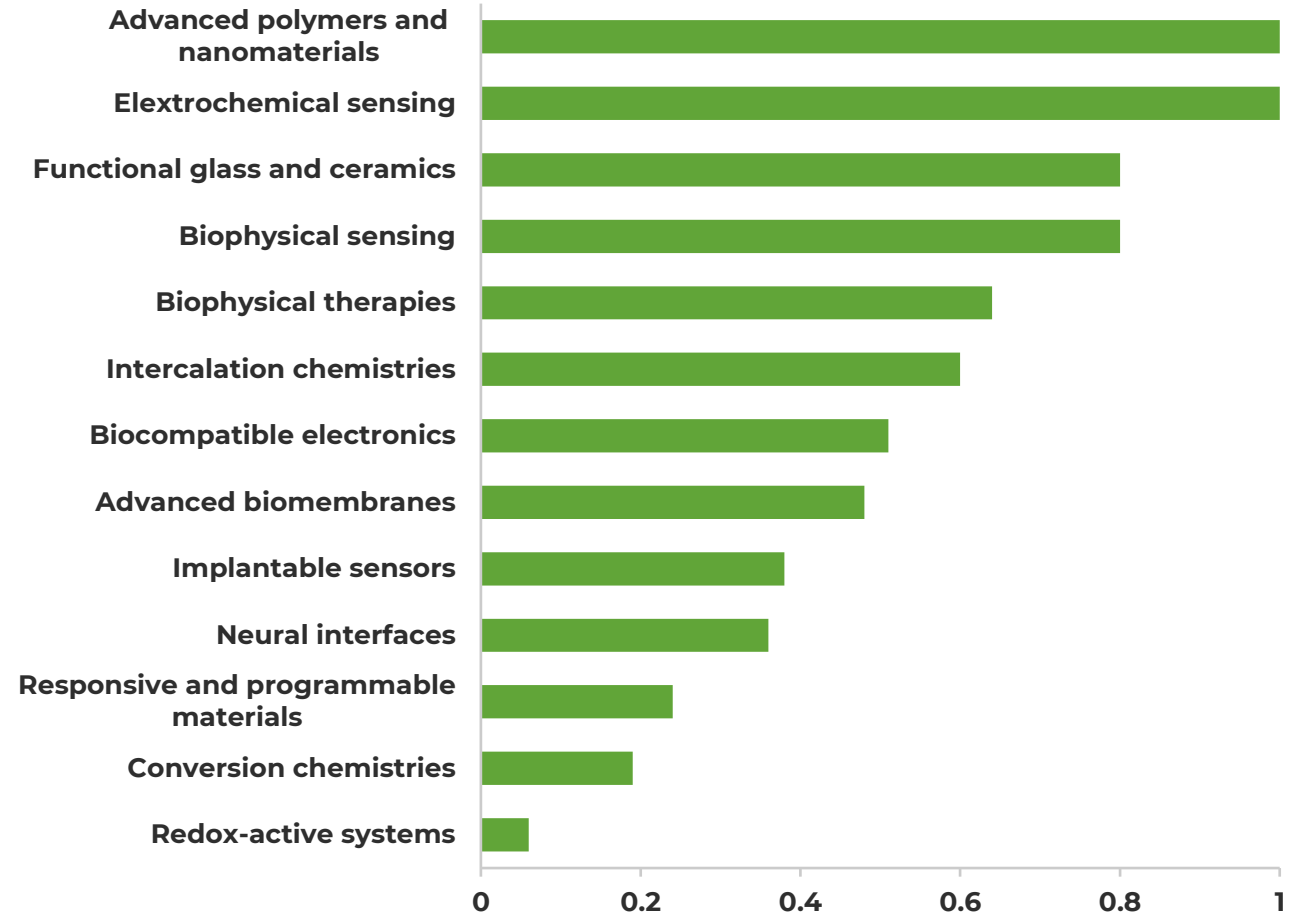
Each technology is further assessed for readiness based on:

**Stage of development:** Classified as concept, lab, development, introduction, or scale

**Developer landscape:** The number and maturity of active players, with more mature companies scoring higher

**Time to scale:** If not yet scaled, the estimated time to reach that stage, determined by Lux analysts.

## Technologies, Prioritized by Readiness for Product Integration Today



Step 3

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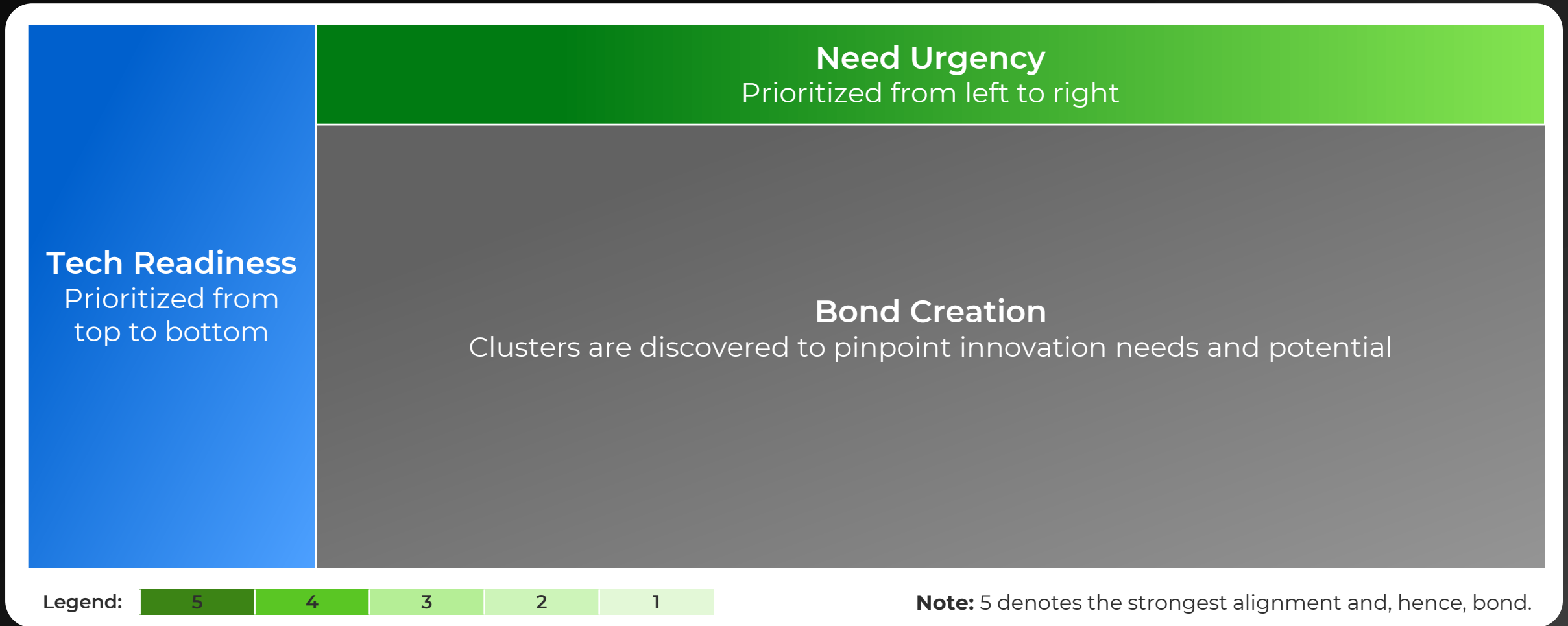
# Create the bonds



# Step 3. Create the bonds

	Battery Life	Accuracy	Comfort	Senior Care	Intuitive Interfaces	Connectivity	Discretion	Durability
Advanced polymers and nanomaterials	High	Medium	Medium	High	Low	Low	Medium	Medium
Electromagnetic sensing	Low	Medium	Low	Medium	High	High	Low	High
Functional glass and ceramics	High	Low	Low	Low	High	Low	Low	Medium
Biophysical sensing	Low	Medium	Low	Medium	High	High	High	Low
Biophysical therapies	Low	Low	Low	Medium	Low	Low	Low	Low
Intercalation chemistries	Medium	Low	Low	Low	Low	Low	Low	High
Biocompatible electronics and surfaces	Low	High	Medium	High	Low	Medium	Medium	High
Advanced biomembranes	Low	High	High	Medium	Low	Low	Medium	Low
Implantable sensors	Low	Medium	Low	High	Low	High	High	Low
Neural interfaces	Low	Low	Low	Low	High	High	Low	Low
Responsive and programmable materials	Low	High	High	Low	High	Low	Medium	Low
Conversion chemistries	Medium	Low	Low	Low	Low	Low	Low	Low
Redox-active systems	Medium	Low	Low	Low	Low	Low	Low	High

# Step 3. Create the bonds



# You're here to know where **YOUR innovation** will land — and when



## Executives

**Dilemma:** Strategic paralysis

**The Lux Innovation Helix:**  
Cuts through noise to reveal where growth will land.



## R&D & Technology

**Dilemma:** Staying relevant

**The Lux Innovation Helix:**  
Aligns pipelines with urgent consumer needs.



## Consumer Insights

**Dilemma:** Too far from innovation

**The Lux Innovation Helix:**  
Translates human signals into bonds that shape what gets built.

# Insights Team: From passenger to pilot

	Battery Life	Accuracy	Comfort	Senior Care	Intuitive Interfaces	Connectivity	Discretion	Durability
Advanced polymers and nanomaterials	4	5	5	4	2	2	5	5
Electromagnetic sensing	3	5	3	5	5	5	3	4
Functional glass and ceramics	4	3	3	3				
Biophysical sensing	3	5	3	5				
Biophysical therapies	1	3	2	5				
Intercalation chemistries	5	2	1	2				
Biocompatible electronics and surfaces	3	4	5	4				
Advanced biomembranes	3	4	4	5				
Implantable sensors	1	5	2	4				
Neural interfaces	1	3	2	3	5	4	2	2
Responsive and programmable materials	3	4	4	3	4	2	5	2
Conversion chemistries	5	2	1	2	1	2	1	3
Redox-active systems	5	2	1	2	1	2	1	4



Turn human insight into action by linking needs with technologies.

# R&D Team: From tech first to opportunity led

	Battery Life	Accuracy	Comfort	Senior Care	Intuitive Interfaces	Connectivity	Discretion	Durability
Advanced polymers and nanomaterials	4	5	5	4	2	2	5	5
Electromagnetic sensing	3	5	3	5	5	5	3	4
Functional glass and ceramics	4	3	3	3	4	2	2	5
Biophysical sensing	3	5	5	5	5	5	4	2
Biophysical therapies	1	3	3	3	3	1	2	1
Intercalation chemistries	5	3	3	3	3	2	1	4
Biocompatible electronics and surfaces	3	5	5	5	5	5	5	4
Advanced biomembranes	3	3	3	3	3	1	5	3
Implantable sensors	1	5	5	5	5	5	5	3
Neural interfaces	1	3	2	3	5	4	2	2
Responsive and programmable materials	3	4	4	3	4	2	5	2
Conversion chemistries	5	2	1	2	1	2	1	3
Redox-active systems	5	2	1	2	1	2	1	4



Identify urgent consumer needs that your technology can address.

# Executive Team: From noise to clarity

	Battery Life	Accuracy	Comfort	Senior Care	Intuitive Interfaces	Connectivity	Discretion	Durability
Advanced polymers and nanomaterials	4	5	5	4	2	2	5	5
Electromagnetic sensing	3	5	3	5	5	5	3	4
Functional glass and ceramics	4	3	3	3	4	2	2	5
Biophysical sensing	3	5	3	5	5	5	4	2
Biophysical therapies	1	3	2	5	5	5	5	5
Intercalation chemistries	5	2	1	2	5	5	5	5
Biocompatible electronics and surfaces	3	4	5	4	5	5	5	5
Advanced biomembranes	3	4	4	5	5	5	5	5
Implantable sensors	1	5	2	4	5	5	5	5
Neural interfaces	1	3	2	3	5	5	5	5
Responsive and programmable materials	3	4	4	3	4	2	5	2
Conversion chemistries	5	2	1	2	1	2	1	3
Redox-active systems	5	2	1	2	1	2	1	4



Uncover clusters of opportunities.



# How to use the Lux Innovation Helix



## New Product Creation

### Purpose:

Solve unmet consumer needs with ready-now tech

### Example:

Continuous blood pressure monitor



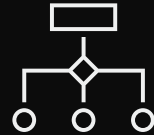
## Product Enhancement

### Purpose:

Target consumer needs with highest urgency

### Example:

Enhancing battery life in health devices



## Repositioning Capabilities

### Purpose:

Align underused R&D assets with emerging needs

### Example:

Antimicrobial coating, waterproof health sensors



## Discovering Adjacencies

### Purpose:

Apply proven tech from one sector to another

### Example:

Industrial membranes → at-home biosensors



## Portfolio Prioritization

### Purpose:

Focus resources where adoption likelihood is highest

### Example:

Prioritize aesthetics for noninvasive diagnostics



## Foresight

### Purpose:

Anticipate market disruptions and shifts before anyone else

### Example:

Time your innovation & new product launches



**Technology-centric roadmaps are over.**

**The future of innovation starts with  
human insight.**

# Key Takeaways

1

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## **Breakthroughs exist, but without people, they fail.**

Despite constant breakthroughs, innovation often fails because it arrives mistimed, fragmented, or disconnected from what consumers truly need.

2

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## **The Lux Innovation Helix as a strategic framework.**

The Helix transforms innovation from a series of accidental successes into an inevitable, repeatable process by identifying where growth will land.

3

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## **Putting the Helix into practice: Self-monitoring health devices.**

By decoding consumer needs and aligning them with emerging materials technologies, Lux identified clear innovation clusters to focus on in an evidence-based way.

# Lux Client Action Items

## 1 Engage with the Lux Innovation Helix.

Uncover where human needs and technological capabilities reinforce each other — the intersections where innovation has both market pull and technical feasibility.

## 2 Set clear priorities.

Decide where to act immediately, where to invest for long-term growth, and where to adjust direction — turning scattered possibilities into focused, evidence-based action.

## 3 Align teams around a common framework.

Unite executives, R&D, and consumer insights under one shared language — a genetic code for growth that ensures every decision draws from the same foundation.

## 4 Measure, learn, and evolve.

Use Helix cycles to track outcomes, validate assumptions, and feed new insights back into the model — making your innovation strategy not just aligned, but adaptive and resilient.



# Thank You



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# About Lux

Lux Research fuels innovators to not only imagine what's possible in the future but also operationalize innovation success in the near term. We deliver research and advisory services to inspire, illuminate, and ignite innovative thinking that reshapes and grows businesses. Using quality data derived from primary research, fact-based analysis, and opinions that challenge traditional thinking, our experts focus on finding truly disruptive innovations that are also realistic and make good business sense.

The “Lux Take” is trusted by innovation leaders around the world, many of whom seek our advice directly before placing a bet on a startup or partner — our clients rely on Lux insights to make decisions that generate fantastic business outcomes. We pride ourselves on taking a rigorous, scientific approach to avoid the hype and generate unique perspectives and insights that innovation leaders can't live without.

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