Tech Transfer Office

Tech Push
vs
Market Pull





Tech Push vs Market Pull

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The Core Question

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"Where does innovation begin?"

TECH PUSH

Technology First

A new capability, discovery or invention is created. Then, we search for the problems it can solve.

The market does not yet exist.

VS

MARKET PULL

Problem First

A real user need, frustration or market gap is identified first.

Next, technology is built or adapted to address it.

Tech Push

Definition

Tech Push occurs when a new technology, research finding or scientific breakthrough drives the development of a product or service — even before a clear market need exists.

Innovation flow



← *Technology creates the market opportunity*

Key characteristics

Who drives it?

Researchers, engineers, scientists and R&D departments

Key risk

Building something technically impressive that nobody wants

Upside

Can create entirely new markets and disruptive competitive advantages

Tech Push | Real World Examples

GPS

Tech origin: US military defense project (1970s)

Market impact: Google Maps, Uber, logistics, precision agriculture

Internet

Tech origin: ARPANET — military research for resilient comms

Market impact: Commerce, communication, media — every industry

AI & Machine Learning

Tech origin: Decades of academic research without clear application

Market impact: Product recommendations, autonomous vehicles, drug discovery

3D Printing

Tech origin: Lab tool for rapid engineering prototyping

Market impact: Medical implants, aerospace parts, consumer goods

Digital Twins

Tech origin: Advanced simulation research from aerospace & NASA

Market impact: Smart factories, infrastructure, urban planning

Touchscreen → iPhone

Tech origin: Multi-touch tech developed at CERN and Bell Labs

Market impact: Apple packaged it — creating a $1 trillion+ market



Market Pull

Definition

Market Pull occurs when an identified customer need, pain point or demand gap drives the development and application of technology to solve it.

Innovation flow

Customer Need → **Define Problem** → **Build Solution** → **Deploy & Iterate**

← *Market demand creates the technology opportunity*

Key characteristics

Who drives it?

Customers, sales teams, market researchers and business developers

Key risk

Only solving today's problems — missing disruptive breakthroughs

Upside

High adoption rates and faster time-to-revenue — market already exists

Market Pull | Real World Examples

Uber

Market need: Frustration with expensive, unreliable taxis

Tech response: GPS + smartphones already existed — Uber connected them to the pain

Airbnb

Market need: Affordable, flexible accommodation beyond hotels

Tech response: Used existing internet & payment tech to create peer-to-peer rental

Amazon Same-Day Delivery

Market need: 'I want it now' expectation from customers

Tech response: Drove massive logistics & warehouse robotics investment

EV Charging Infrastructure

Market need: EV owners frustrated by range anxiety

Tech response: Rapid expansion of charging networks by governments and private players

Wearable Health Monitors

Market need: Patients & GPs wanted continuous out-of-hospital monitoring

Tech response: Drove miniaturisation of sensors, AI diagnostics & remote care

Industry 4.0 Tools

Market need: Manufacturers needed to reduce downtime and optimise production

Tech response: Pulled IoT, digital twins and AI monitoring tools into factories



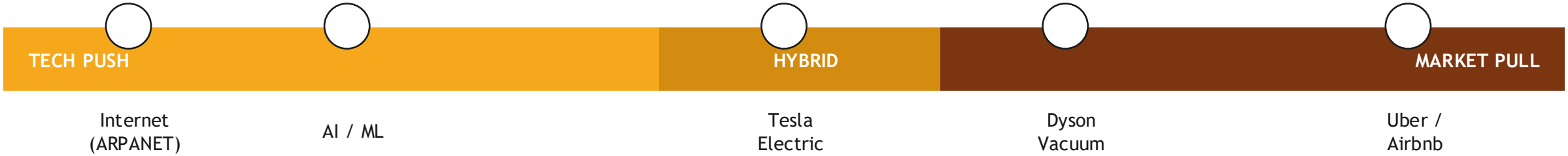
Head to Head Comparison

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	🚀 TECH PUSH	🎯 MARKET PULL
Starting point	New technology / invention	Identified customer need
Driver	R&D, researchers, engineers	Sales, customers, market data
Risk	No market exists for the tech	Missing disruptive opportunities
Time to market	Longer — market education needed	Shorter — demand already there
Investment	High upfront R&D cost	Lower initial R&D, higher market cost
Outcome	Can create entirely new industries	Faster adoption and revenue
Example	GPS, Internet, AI, 3D Printing	Uber, Airbnb, EV charging

The Reality: It Is Not Binary...

Most successful innovations sit somewhere on the spectrum — and shift over time.



What this means in practice

Tech-first → validate with market

Many tech push projects pivot when researchers partner with industry to discover the killer use case.

Market-first → invest in tech

Market pull creates demand that attracts R&D investment to solve problems not previously worth tackling.

The sweet spot: Demand-driven R&D

The most resilient innovations combine deep tech capability with a clearly validated market need from day one.



The Perspective from UHasselt DFL

UHasselt Digital Future Lab sits at the intersection | bridging deep tech research and industry application.

🚀 Our Tech Push Projects

→
XR & immersive tech research → finding industrial applications, often crossing traditional borders (AR Cleaning)

→
Digital Twin R&D → enabling predictive maintenance use cases, shopfloor planning, more efficient onboarding and training of new operators

→
AI & computer vision → from academic tools to factory floor, bridging gaps and scaling

→
Gaussian Splatting → novel view synthesis, applications in **culture**, city planning, infrastructure and **heritage**

🎯 Our Market Pull Signals

→
XRTwin → industry partners requesting low-barrier tools for scanning & validation

→
WellFiciency SBO → production companies looking for ways to **measure operator well-being** (cognitive and physical) while maintaining production efficiency

→
Flanders AI EDIH → companies (often SMEs) pulling AI expertise into daily operations

→
HITL-AI^3 → companies pulling for human in-the-loop AI solutions

Business development = translating tech capabilities into market opportunities, and vice versa.



Practical Framework | Questions To Ask

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Starting from tech...

- What problems does this tech solve better than anything else?
- Who suffers most from those problems today?
- **Is the problem big enough to build a business around?**
- What is the **minimum viable version** we could take to market? **(MVP approach)**

Starting from market...

- What is the specific, painful job customers need done?
- How are they solving it today, and why is that not enough?
- Is **technology actually the right lever** — or a process problem?
- Which tech capabilities could we deploy to address this?

In both cases, always ask...

- Who is the **early adopter** and how do we reach them?
- What does success look like in 12 months? In 5 years?
- Do we need **partners** to bridge the gap between tech & market? Which ones?
- What **assumptions** are we making — and how do we test them?



Key Takeaways

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1 Both approaches are valid — context is everything

There is **no universally better approach**. The right choice depends on the **maturity** of the **technology**, clarity of market need, and **available resources**.

2 The best innovations bridge both worlds

The most resilient projects **combine** genuine **technical depth** with **validated market demand**. Business developers are the bridge builders.

3 At UHasselt, our role is to translate

We push technology toward markets that need it ánd pull market problems toward the technology that can solve them.

4 Always validate early

Whether tech-first or market-first: get **real feedback from real users** as early as possible. Assumptions are expensive at scale.

Thank you!

