Wi-Fi Indoor Positioning System (IPS)

Potential Markets and Applications

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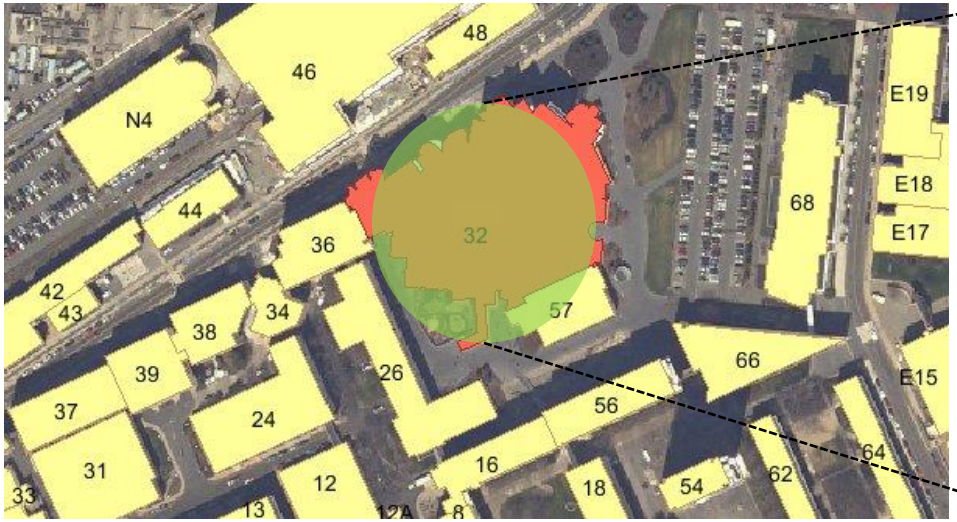
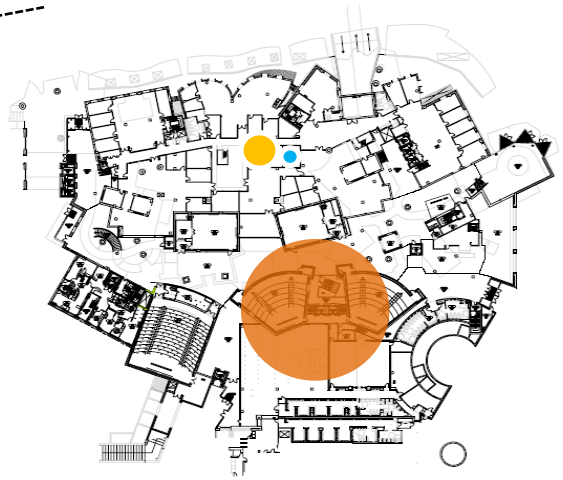
IPS provides room-grain location information at an affordable cost





- Zigbee/RFID
- IPS
- Skyhook
- GPS

Infrastructure Cost

LOW — HIGH

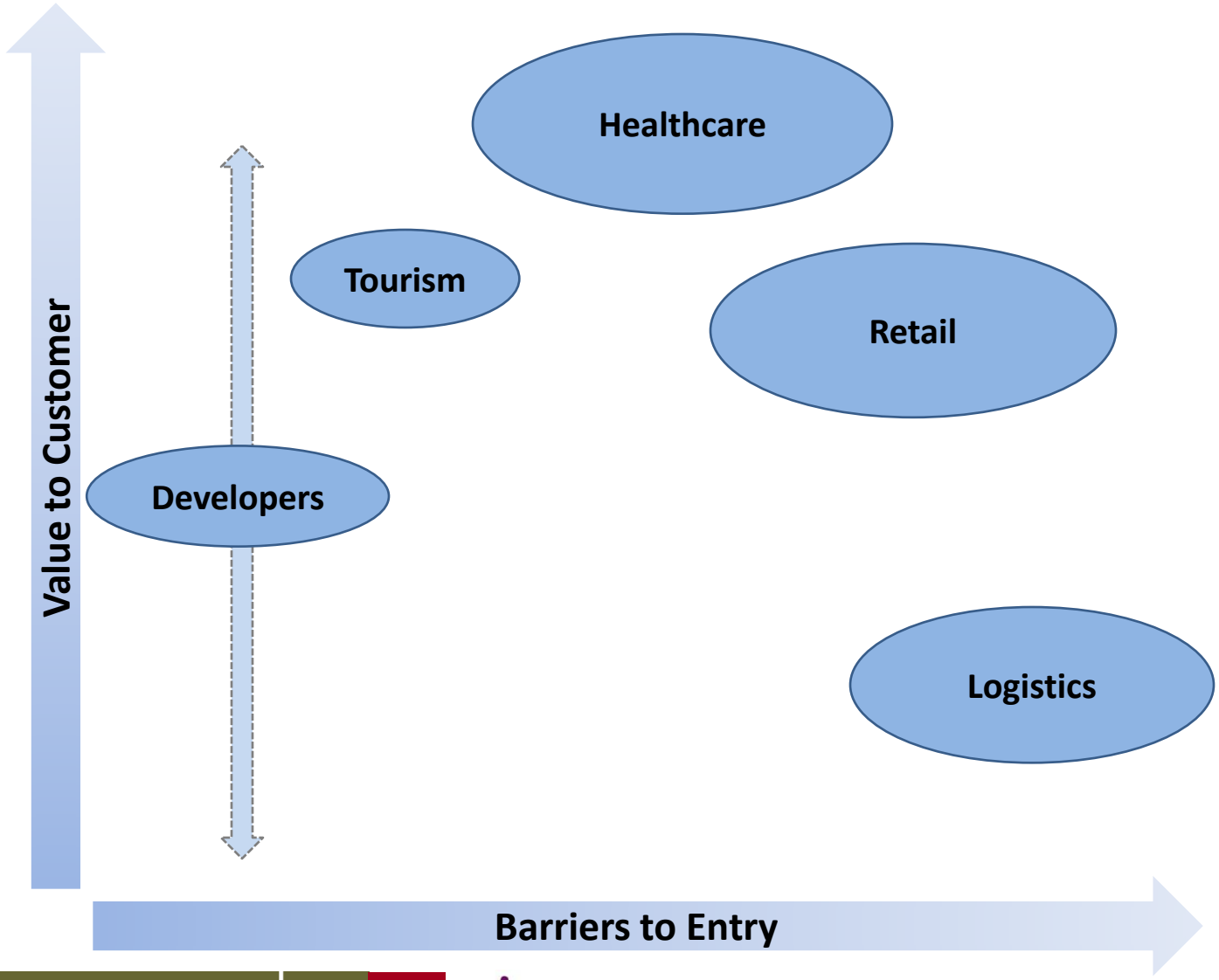
GPS | **IPS,** Skyhook, Ekahau, AeroScout | Zigbee, RFID

Per Unit Cost

LOW — HIGH

Zigbee, RFID | **IPS,** Skyhook, Ekahau, AeroScout | GPS

We have identified five attractive markets for IPS



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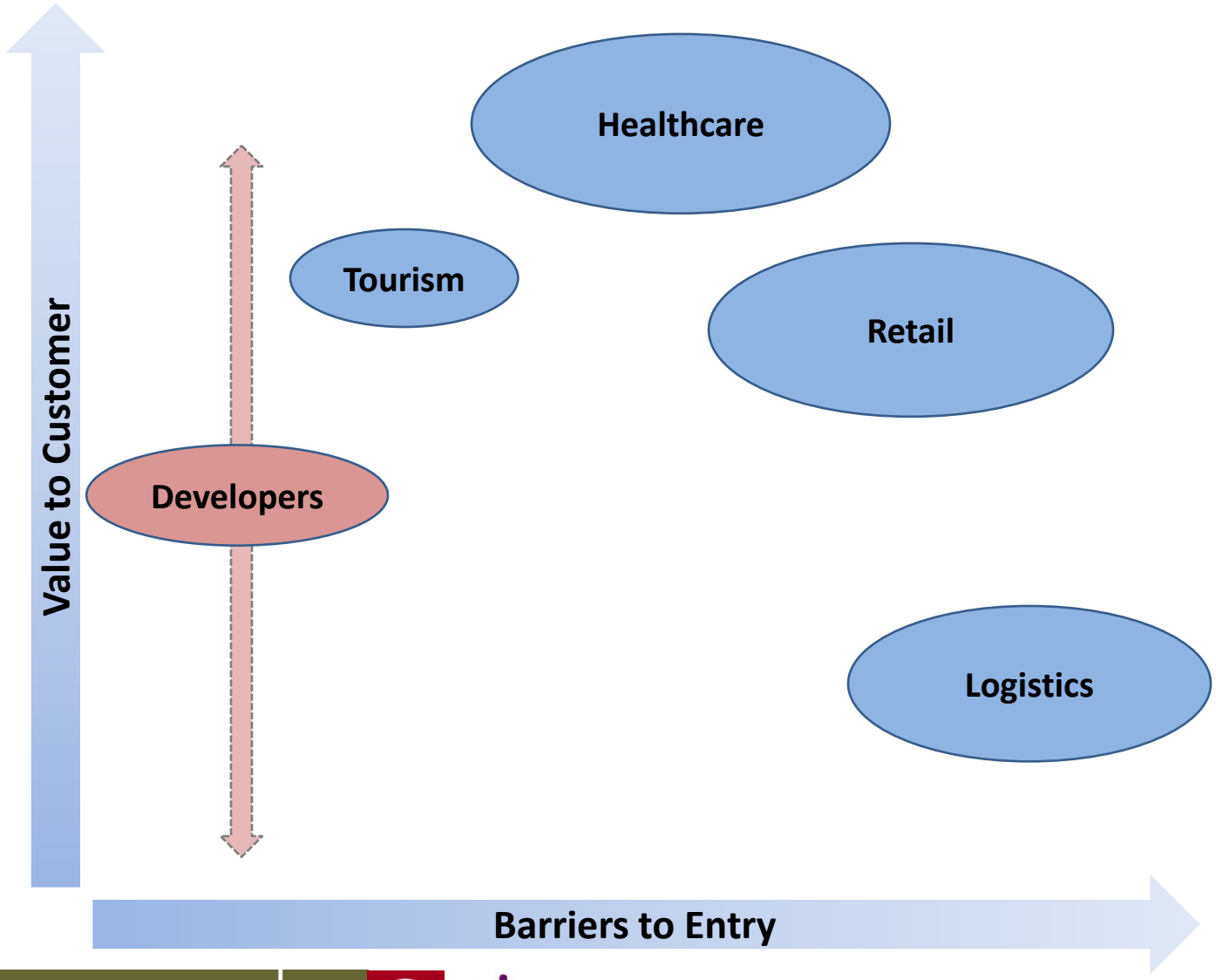

- **Application:** License API or positioning engine
- **Who Cares:** 3rd Party Developers
- **Lead User:** MIT community

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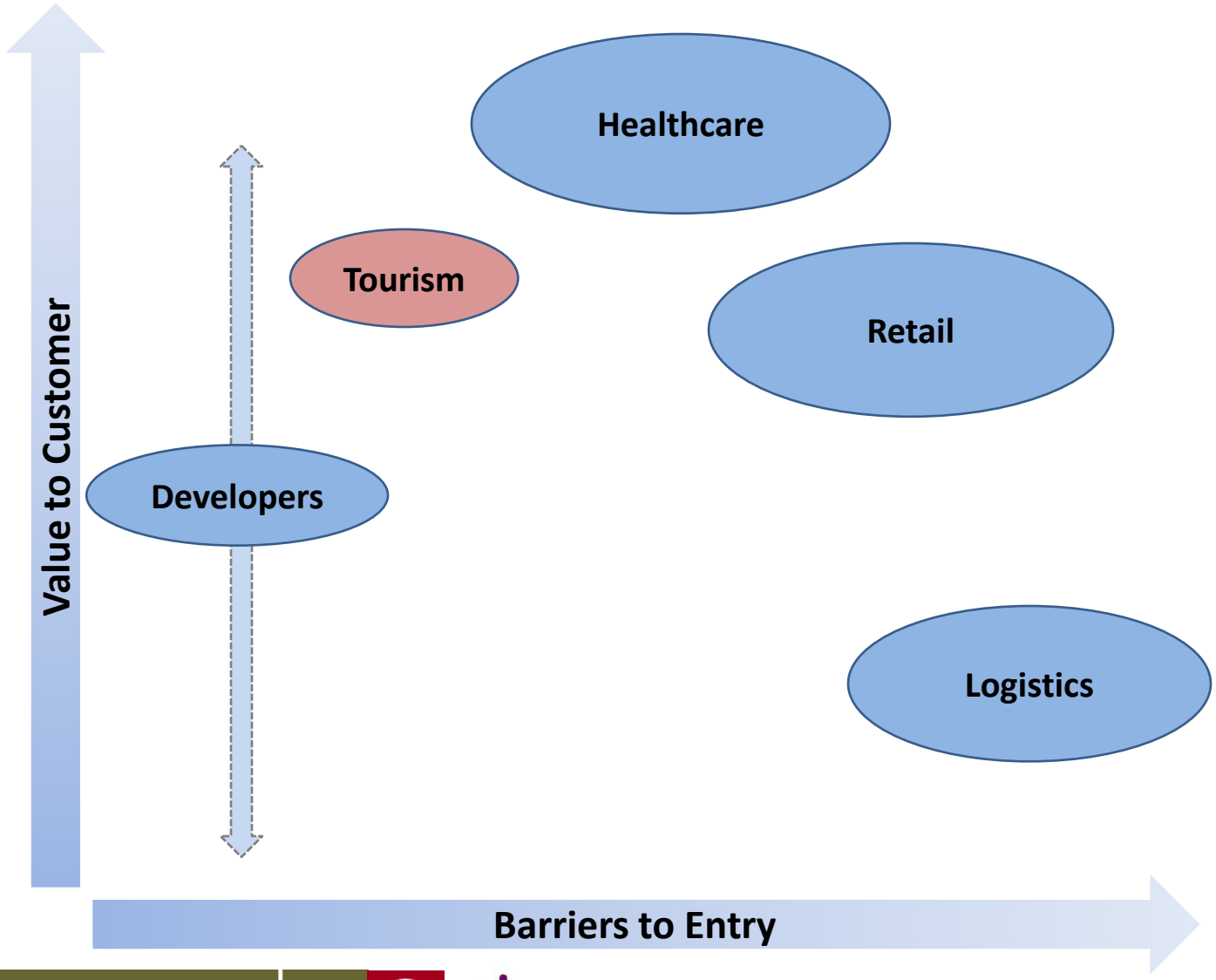

- **Application:** Guided Tours
- **Who Cares:** Museums, Tourism Departments
- **Lead User:** MIT Museum Museum of Science Delhi Tourism Dept.

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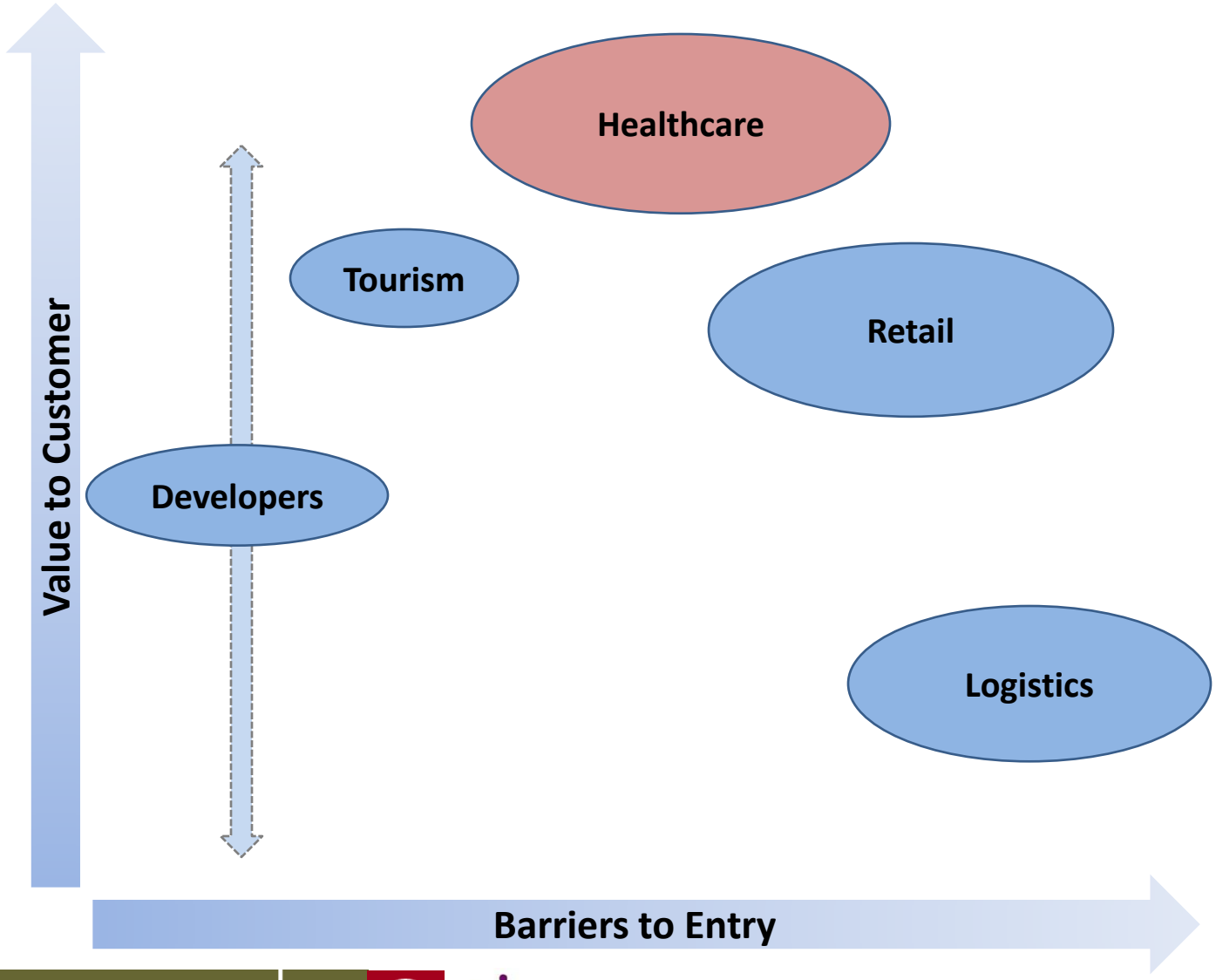

- **Application:** Staff Tracking
- **Who Cares:** Nurses, Administrators
- **Lead User:** The Boston Home Kaiser Permanente Innovation Center

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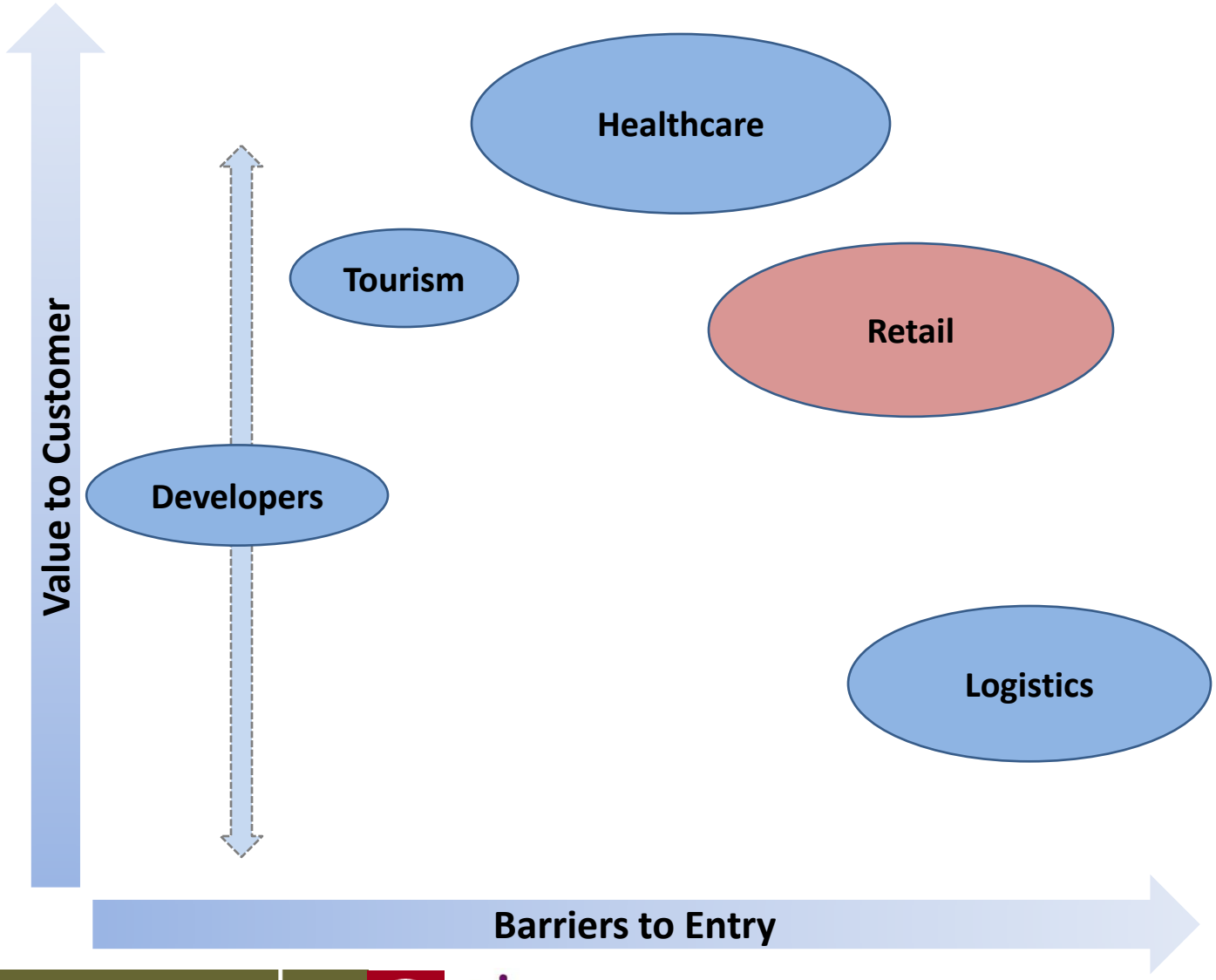

- **Application:** Personal Shopper
- **Who Cares:** Consumers
- **Lead User:** TBD

- **Application:** Analytics
- **Who Cares:** Marketer
- **Lead User:** TBD

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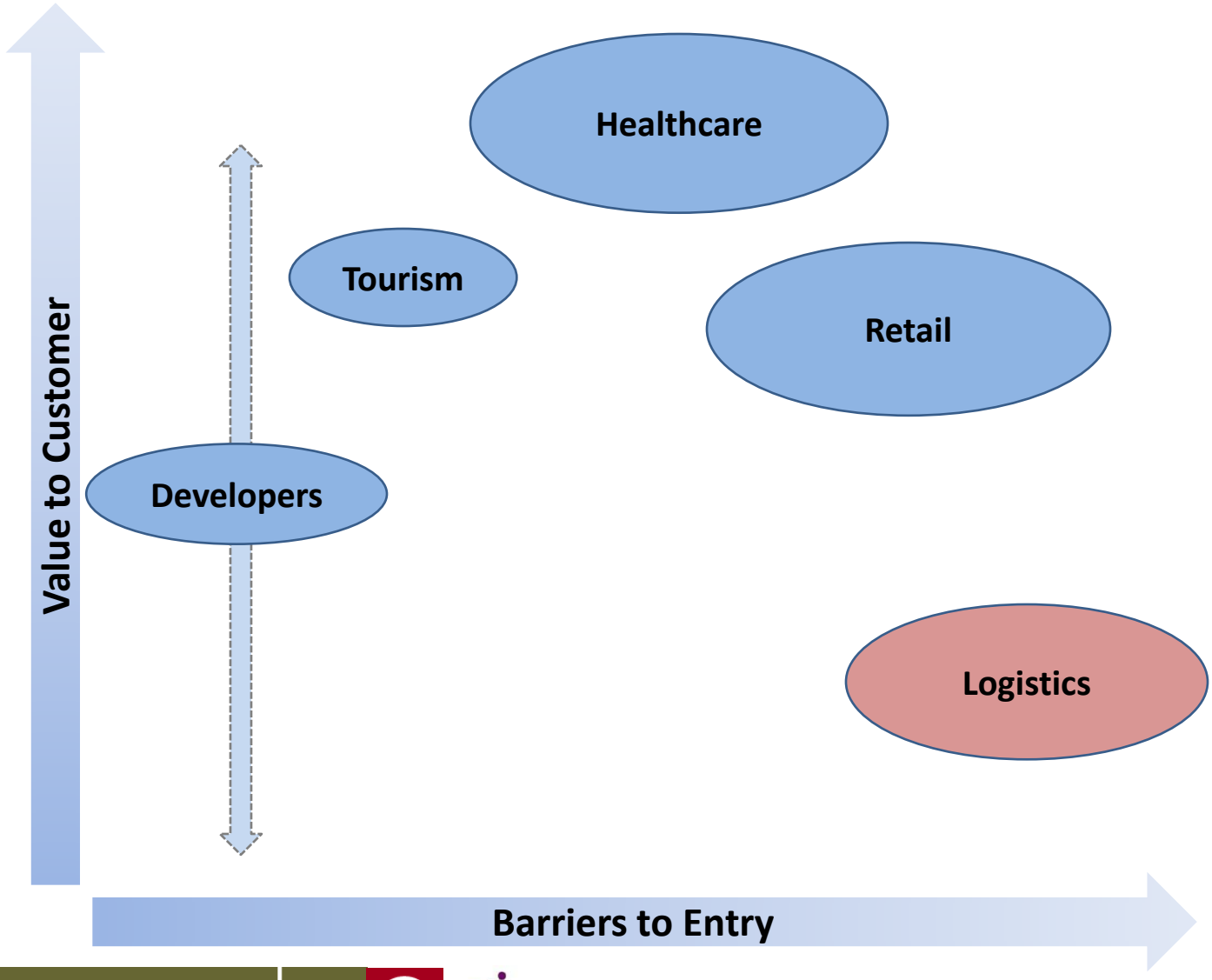
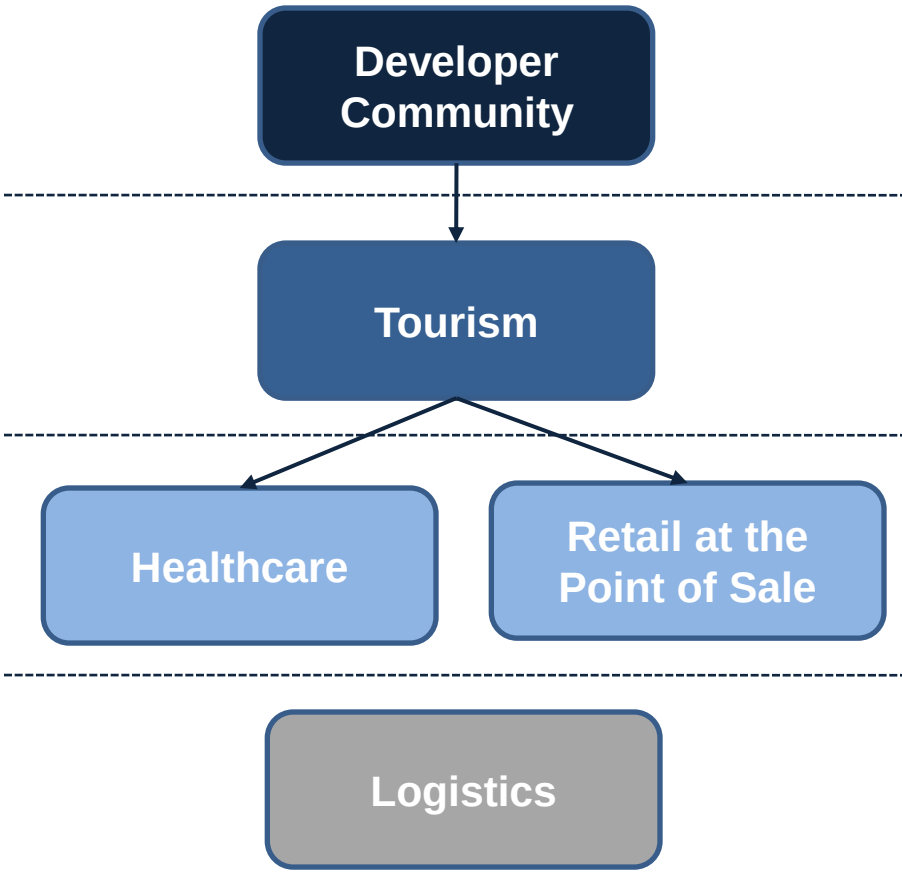


- **Application:** Asset Tracking
- **Who Cares:** Warehouses
- **Lead User:** None

Current Roadmap Hypothesis



Phase 1: Product testbed

- Initially need to test product and prove technology
- Can easily implement at MIT and encourage third-party developers

Phase 2: Initial customer

- Local museums (e.g., MIT Museum) may be willing to serve as initial product for navigation

Phase 3: Scale to larger markets

- After building credibility in tourism, can address larger and more difficult to access markets of healthcare and retail

Do not pass Go

- Logistics market is currently very crowded and likely has its need already met with existing solutions

Next steps…

- Establish IP position with TLO
- Build network at MIT and encourage student developers to tag rooms and develop applications
- Identify and prioritize specific features needed for each target market
- Begin discussions with museums and outline project proposal
- Continue conversations with healthcare lead users, Identify lead users in retail

Questions?

The Indoor Positioning System allows a user or device to know its location indoors to an accuracy of less than 10 feet in reference frames defined and updated by users.

	IPS	GPS aGPS	Skyhook	Ekahau AeroScout	RFID Zigbee
Cost	**$5 – $50**	$10 – $1,000	$10 – $1,000	$50 – $100	$0.10 – $10
Training	**Minutes to Hours**	None	Crews Driving Cities	Hours to Days	Minutes, Needs Anchor
Accuracy	**<12 ft.**	100 – 500 ft.	50 – 100 ft.	3 – 5 ft.	1 – 5 ft.
Indoor/ Outdoor	**Indoor**	Outdoor	Outdoor, Little Indoor	Indoor, Little Outdoor	Indoor, Little Outdoor
Market Orientation	**TBD**	Wayfinding	Wayfinding, Logistics	Asset Tracking	Sensing, Asset Tracking

We have identified five attractive markets for IPS

	Applications	Who Cares
Healthcare	• Staff tracking, productivity (esp. nurses) • Revenue collection & pre-authorization (eg., copays) • Asset tracking, equipment tracking (e.g., hospitals) • Patient location in long-term care (e.g., nursing homes)	• Hospital administrators • Patient care staff (nurses, orderlies, etc) • Patients
Tourism	• Interactive multimedia guides for museums, etc • Location Awareness / Route mapping • Generating foot traffic information	• National Tourist development corporations • Tourist site Operators • Travel content developers • Current tour guides
Retail at the Point of Sale	• Foot traffic analytics • Store / mall navigation • Location based advertising	• Big box retailers (Wal-Mart, etc.,), Shopping Malls
Logistics	• Inventory (large/valuable asset) tracking • Personnel tracking • Real-time operations management	• CIOs in asset-intensive industries • COOs • Plant /production managers
Developer Community	• License API to 3rd party developers	• LBS developer community

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	Lead User	Analysis
Healthcare	• The Boston Home • Kaiser Permanente Innovation Center	• Believed to be large market • Actual need is still unclear • Historically slow adopters of non-clinical technology
Tourism	• Delhi Tourism Department • Museum of Science	• Limited market size • Very competitive • May require custom hardware • BUT may serve as early customer
Retail at the Point of Sale	• ?	• Unclear how to “install” locators on customers • Must prove-out ROI – may require consulting approach
Logistics	• ?	• Crowded market • High cost relative to alternatives • Resolution may not satisfy high-end customers
Developer Community	• ?	▪Uncertain size of market