



Excerpts[†]

Calibrating Demand and Accelerating Adoption of Really New Wireless Products - An Application to Location-based Services

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[†]Findings are based on unweighted data and may change slightly when sample weights are applied
Copies of the final report (including additional analyses) will be available from Dr. Hendrix late July



Overview and Abstract

Determining the rate at which customers adopt "really new," or discontinuous, products is an extraordinary challenge. As Paul Wiefels (2002) noted, "discontinuous innovations require [customers] to rethink or change their current behaviors, or modify other products, services, or infrastructures that they currently use." As a result of complexities in modeling and forecasting market response to really new products, conclusions and guidance re: market opportunities often vary widely across research, consulting and analyst firms. As Yogi Berra said, "predictions are hard, especially when they are about the future." The conflicting data and advice contribute to costly mistakes, missed opportunities, and heightened risk and uncertainty.

Several complexities, in particular, lead firms to forecast takeup rates that subsequently prove overly optimistic:

1. Later adopters, especially, differ from early adopters and vary widely in terms of need, sophistication, and readiness to buy
2. Discontinuous products, by definition, are made up of new, unfamiliar features and benefits - market learning takes time.
3. Because wireless products are a platform (Gawer and Cusumano 2002), involving devices, networks, and services that must be carefully integrated, the weakest link can cause demand to stall at a low level.
4. Finally, inertia, perceived risk, and other hurdles delay even interested customers from purchasing, while network effects and other "tipping points" that are difficult to anticipate can emerge and overcome these barriers.

To address these challenges, this study illustrates the application of an innovative set of research tools especially developed for and adapted to discontinuous products. The tools allow us to:

- § Calibrate likely take-up and demand under various scenarios
- § Identify information that triggers interest and stimulates purchase
- § Determine the "tipping points" on features, price, and other elements, and
- § Identify characteristics that distinguish early and subsequent adopters

The tools include:

1. Virtual prototypes, which allow respondents to learn about, view, and interact with the product in a variety of realistic settings. Researchers at Stanford have shown that virtual prototypes, properly designed, are as effective as physical prototypes (Dahan and Srinivasan 2000).
2. A computerized "process tracing" methodology that allows us to uncover information sought and used by prospective adopters as they learn and decide whether to purchase a product. The tool is an extension of methods used by consumer psychologists to better understand consumer decision making (Johnson 1997).
3. A choice-based conjoint methodology, with parameters adjusted to correct for bias typically obtained in studies of really new products (Louviere 2003).

We apply these tools and present findings from a market research study examining location-based services (LBS) in the U.S. A classic example of a discontinuous product, LBS represents a challenging, potentially significant market opportunity for the wireless industry:

- § New to the market, potentially disruptive technology
- § Limited awareness and knowledge among prospective customers
- § Low levels of penetration, with considerable speculation about the timing and ultimate size of the potential market

References:

Ely Dahan and V. Srinivasan (2000), "The Predictive Power of Internet-Based Product Concept Testing Using Visual Depiction and Animation," *Journal of Product Innovation Management*, 17, (March), 99-109.

Annabelle Gawer and Michael Cusumano (2002), *Platform Leadership: How Intel, Microsoft, and Cisco Drive Industry Innovation*. Harvard Business School Press.

Eric Johnson et al (1997), "Watching Customers Decide: Process Measures Add Insights to Choice Modeling Experiments," *Marketing Research* Volume 9, Number 4 Winter.

Jordan Louviere (2003), "Recent Advances in Choice Modeling & Choice Experiments," University of Technology, Sydney.

Paul Wiefels (2002), *The Chasm Companion: A Fieldbook to Crossing the Chasm and Inside the Tornado*. Harper Business.



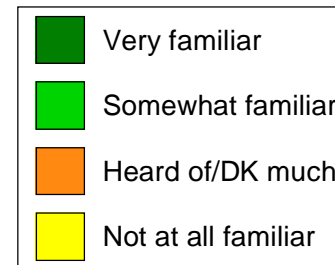
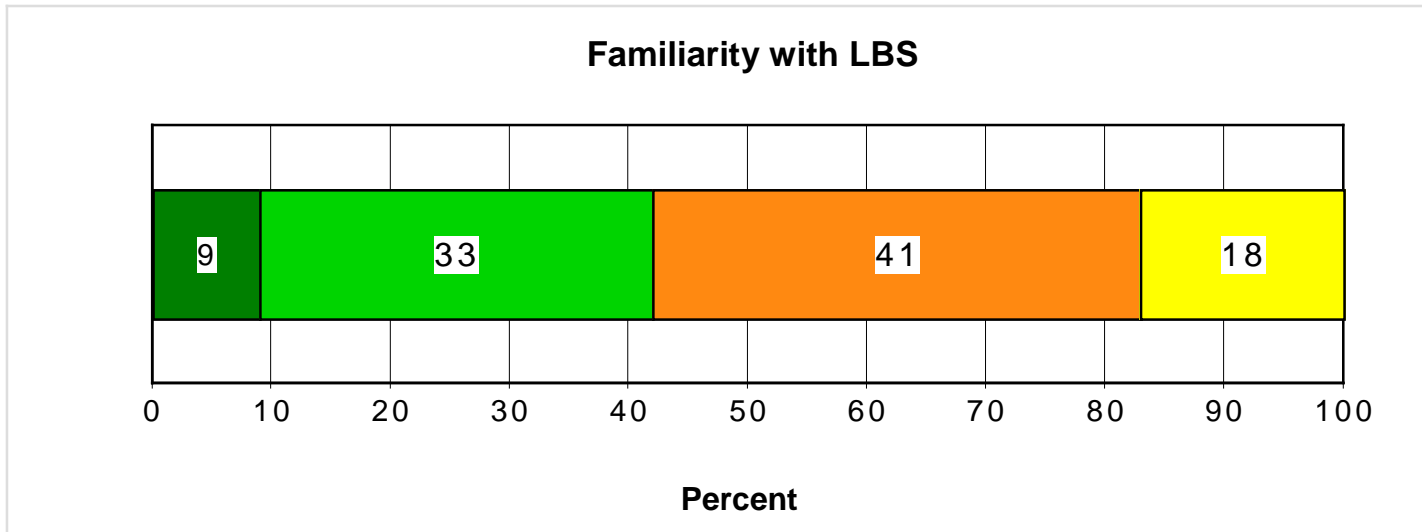
Findings and Conclusions

Location-based Services	
Classic Discontinuous Product	<ul style="list-style-type: none"> Ø Penetration in the single digits in the U.S. Ø New to market (low levels of familiarity) Ø Few prospects know enough to buy
Enormous Demand (Killer App?)	<ul style="list-style-type: none"> Ø Over 50% would like to have top 3 LBS applications (Directions, Alerts, e911) Ø Nearly 1 in 3 would like to have next 3 LBS apps (Business Finder, Whereisit, Points of Interest)
Portability Wins	<ul style="list-style-type: none"> Ø Portable handsets preferred 6:1 over fixed, in-vehicle systems
Significant Price Elasticity	<ul style="list-style-type: none"> Ø Resistance to paying much more than \$1 - \$1.50/month per app Ø Nearly 2/3 would purchase an LBS-package at \$10/month, with discounted handsets Ø At \$5.00/month, demand jumps to near 90%
Privacy concerns overstated	<ul style="list-style-type: none"> Ø Prospects focus on cost and usability, shun information about privacy
Methodology	
Virtual Prototypes	<ul style="list-style-type: none"> Ø Critical to reliably estimate demand
InSite	<ul style="list-style-type: none"> Ø Reveals information that triggers interest
Choice Analysis	<ul style="list-style-type: none"> Ø Optimizes feature/price configurations





Familiarity with Location-based Services





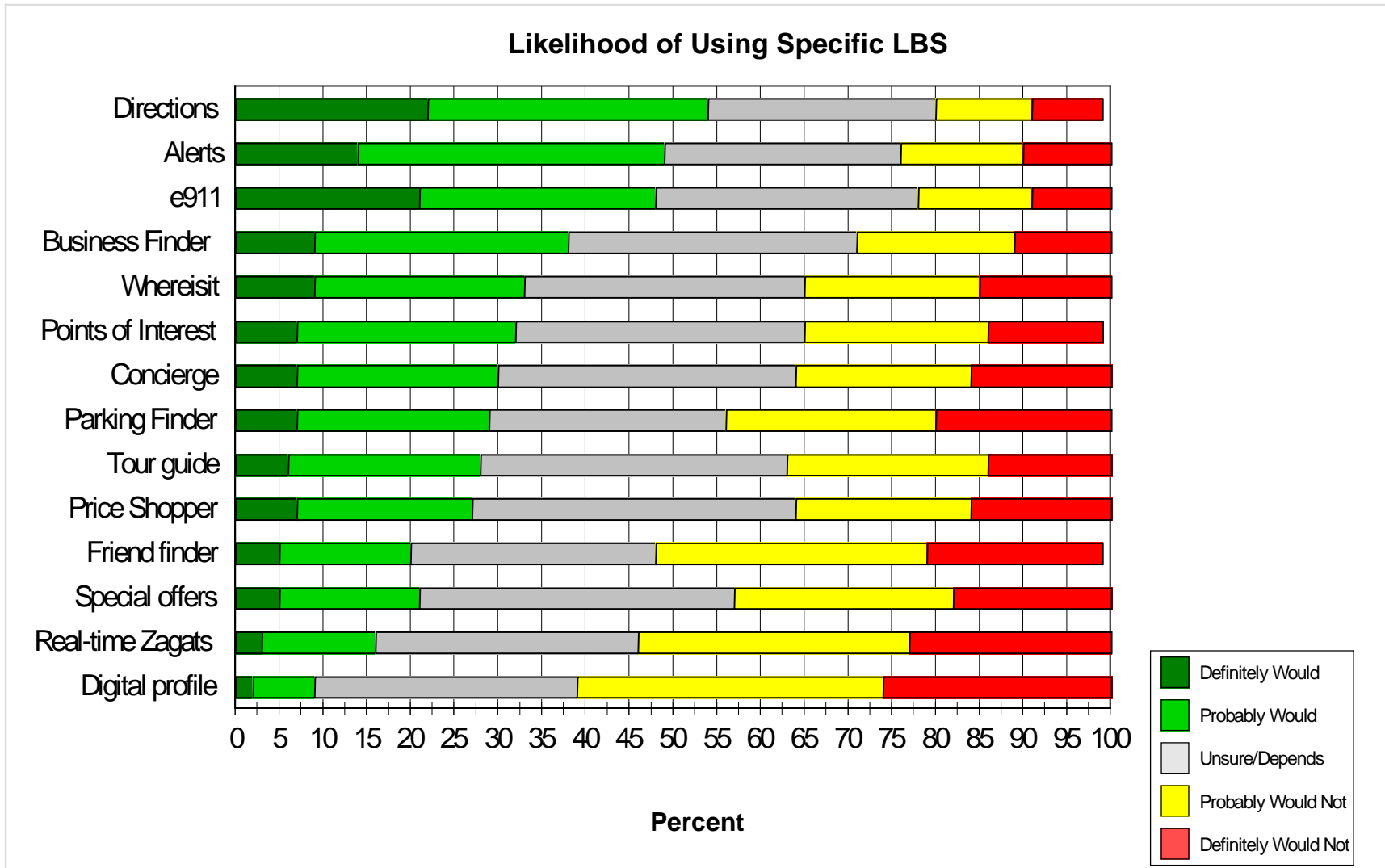
Location-based Services Examined

Wireless Location-based Services (accessed/displayed on cell phone, PDA, or built-in system in vehicle)	
Directions	Provides maps and turn-by-turn directions from current location to desired destination
Business Finder	Lists nearby businesses within selected category (e.g., gas station; bank; ATM; restaurant)
Parking Finder	Shows and directs you to nearest available parking spaces
Concierge	Shows times, prices, and availability for attractions, restaurants, and events near you
Price Shopper	Shows the prices and availability of a product you are shopping for at nearby businesses (e.g., fuel; laundry; book; etc.)
Points of Interest	Lists things to do and see near your location
Tour guide	Provides detailed information about a point of interest along a route as you approach or enter (e.g., sites along a historic drive; exhibits in a museum; etc.)
Friend finder	Allows you to locate individuals (friends/family) on your "buddy list" and determine who is close by
Whereisit	Allows you to locate and/or track an object (such as a vehicle or even your cell phone)
Real-time Zagats	Allows you to view or hear comments and reviews left by recent customers (e.g., for restaurants, hotels, etc.)
Special offers	Allows you to receive special offers from nearby establishments (for the specific types of businesses you choose)
Digital profile	Allows you to create a profile and automatically share information (preferences, size, etc.) with selected establishments as you enter/approach (e.g., retail store; restaurant; hotel; airline; etc.)
Alerts	Alerts you to changes in weather, traffic, etc. in your vicinity or along your route
e911	Connects you to a 911 operator and automatically transmits your location



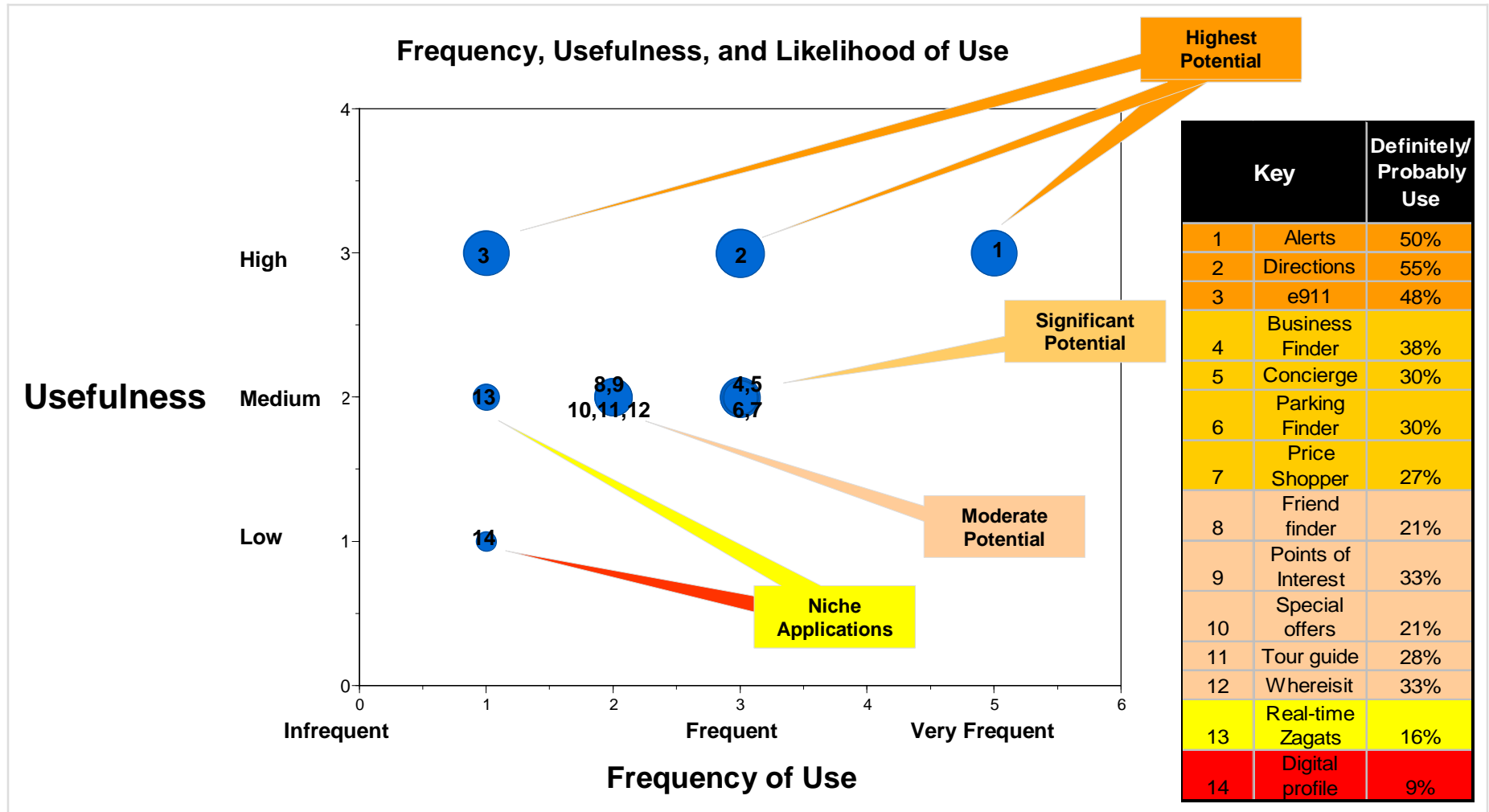


Likelihood of Using Specific LBS





Expected Frequency, Ease, and Likelihood of Use





Navigation LBS Packages - Base Case Scenario

Navigation LBS Packages to Choose From†						
Features of Packages:	LBS Cell phone or Smartphone	LBS Cell phone or Smartphone with Display+	PDA/PPC with cellular built-in	PDA/PPC with GPS, Display+	In-vehicle GPS System	None of these
Audio through Vehicle Sound System	No	No	No	No	Yes	
Price of equipment (device, display)	\$200	\$300	\$500	\$500	\$1,000	
Interface	Automated Response	Automated Response	Automated Response	Automated Response	Live Operator	
Voice Enabled	No	No	No	No	Yes	
Subscription Price/month‡	\$10.00	\$10.00	\$10.00	\$10.00	\$15.00	
Check <u>one</u> you would purchase...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(check box of Navigation LBS Package you would purchase, or “none”)						

†All packages include Directions, Business Finder, Concierge, Points of Interest, Alerts, and e911

‡LBS subscription does not include monthly price for your regular cellular plan

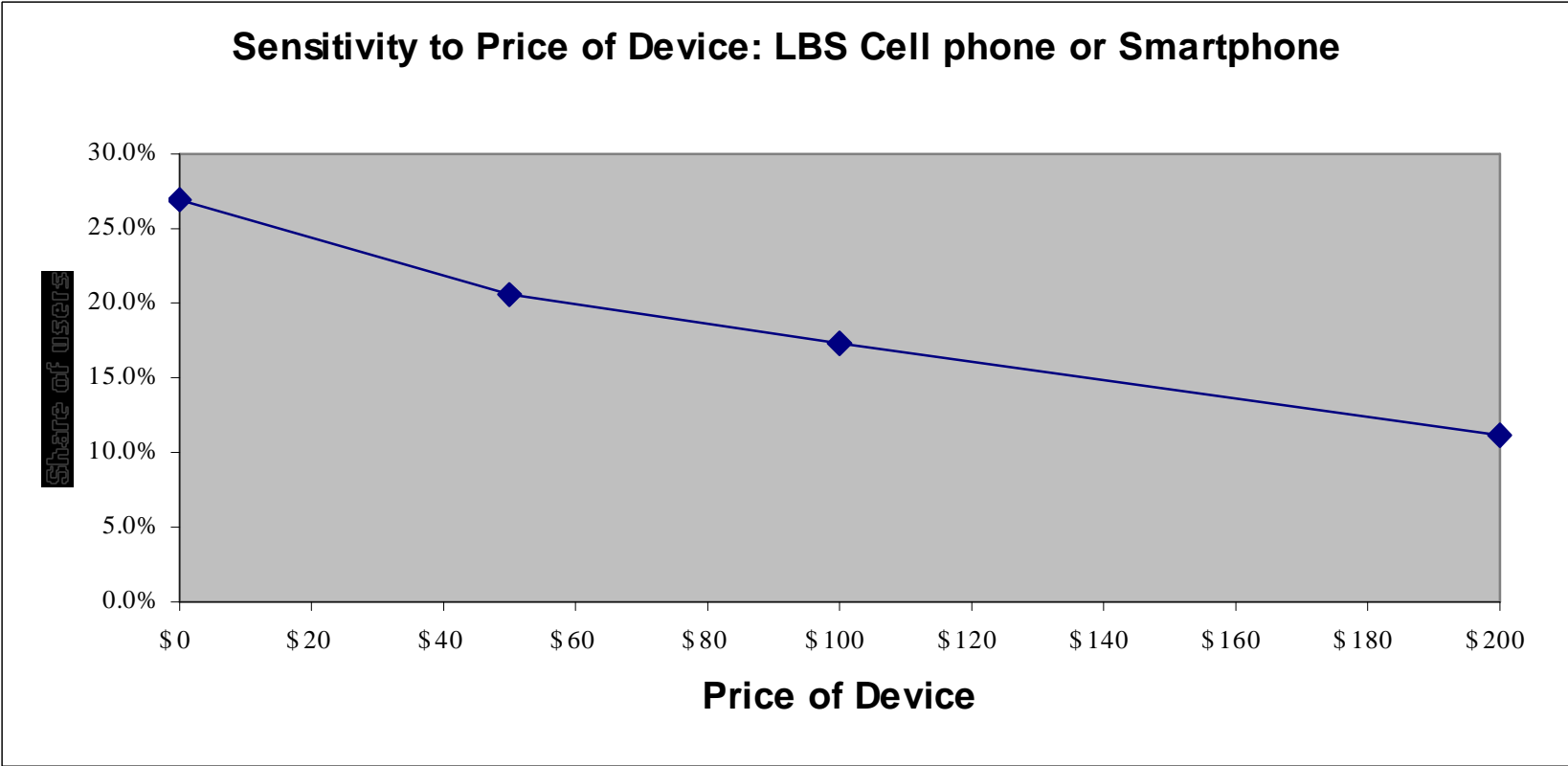
Base Case: R's not exposed to InSite

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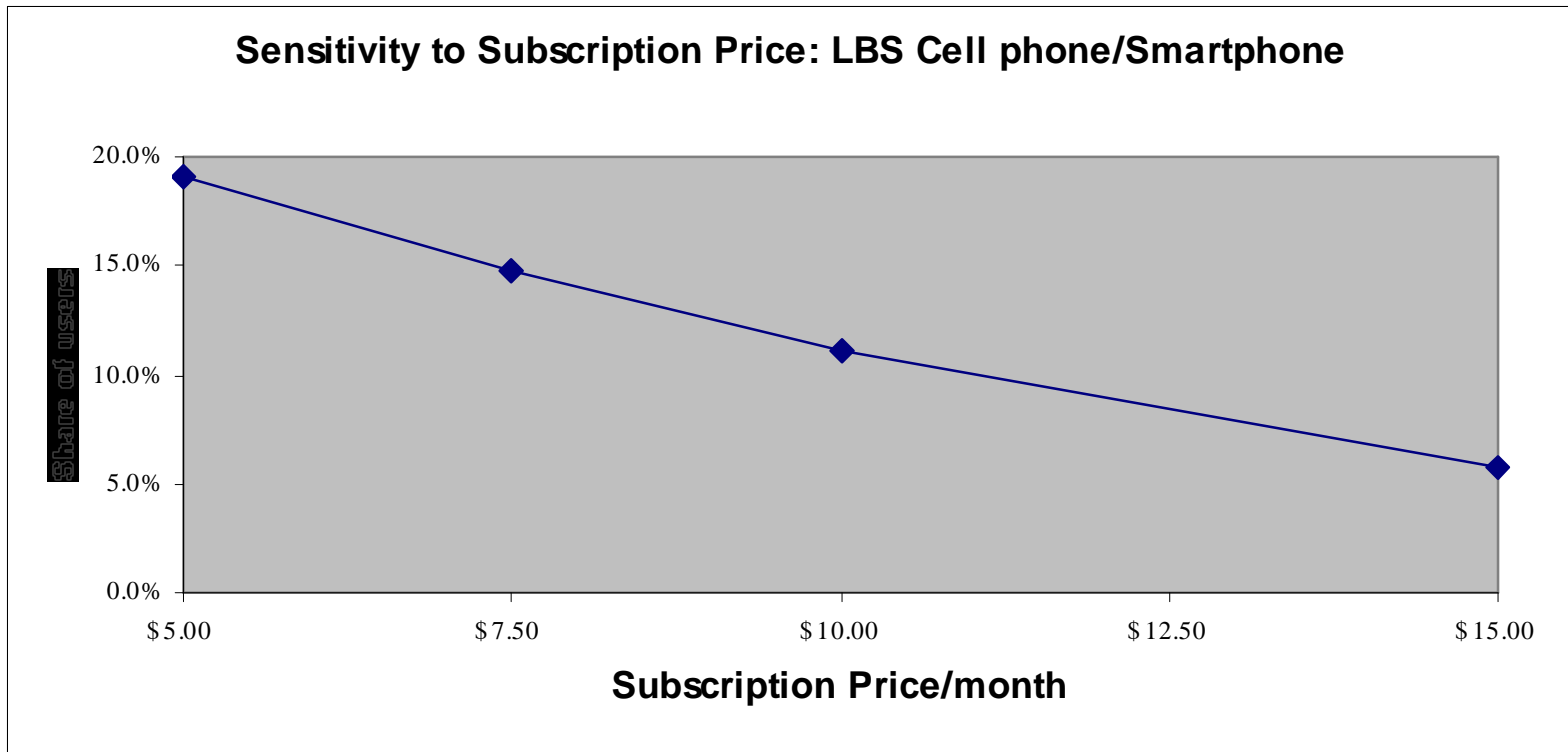


Navigation LBS Packages - Price Elasticity





Navigation LBS Packages - Price Elasticity





About the Authors

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