



Biometrics Market Development From Fad to Fortune

When will the Biometrics Market
REALLY Take Off?

Successful Applications of Biometrics
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c. maxine most
acuity market intelligence
cmaxmost@acuitymi.com



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- Headquartered in Boulder, Colorado
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 - Technology Evolution
 - Competitive Environment
 - Target Profiling
 - Strategic Planning
 - Solution Effectiveness
 - Positioning
- Products & Services: Newsletter, Reports, Consulting



From Fad to Fortune

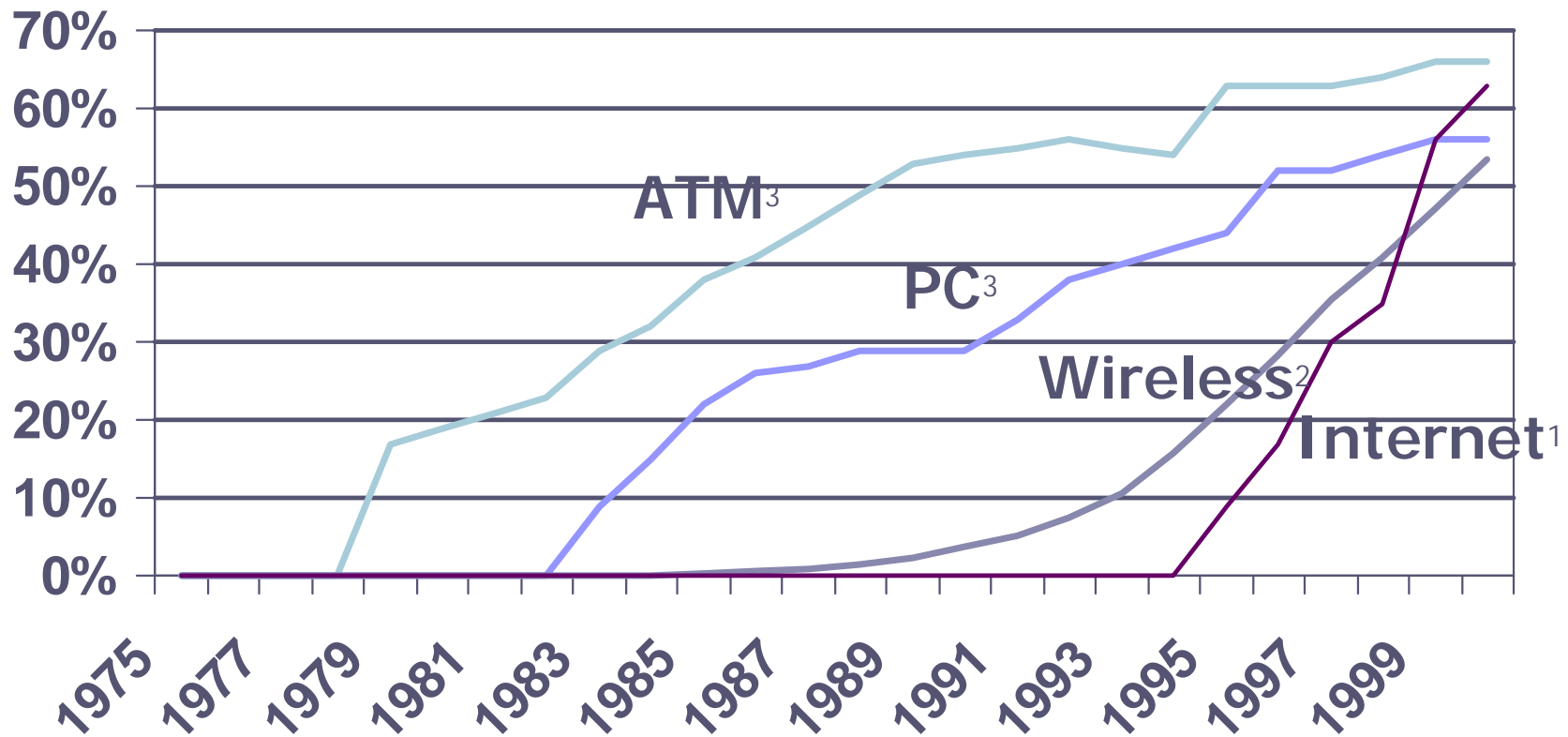
- ☛ Market Drivers
- ☛ Technology Adoption Lifecycle
- ☛ Crossing *The Chasm*
- ☛ Vertical Niche Marketing
- ☛ Opportunities
- ☛ Playing Field
- ☛ Technology Evolution
- ☛ When Will The Market Take Off?
- ☛ Implications for Stakeholders

Market Drivers

- Post 911 Frenzy
- Focus on Airport Security
- US Government Funding \$\$\$\$\$
- Historical Performance
- Proven Applications

So, when will the Biometrics Market
REALLY take-off?

Historical Adoption Rates*

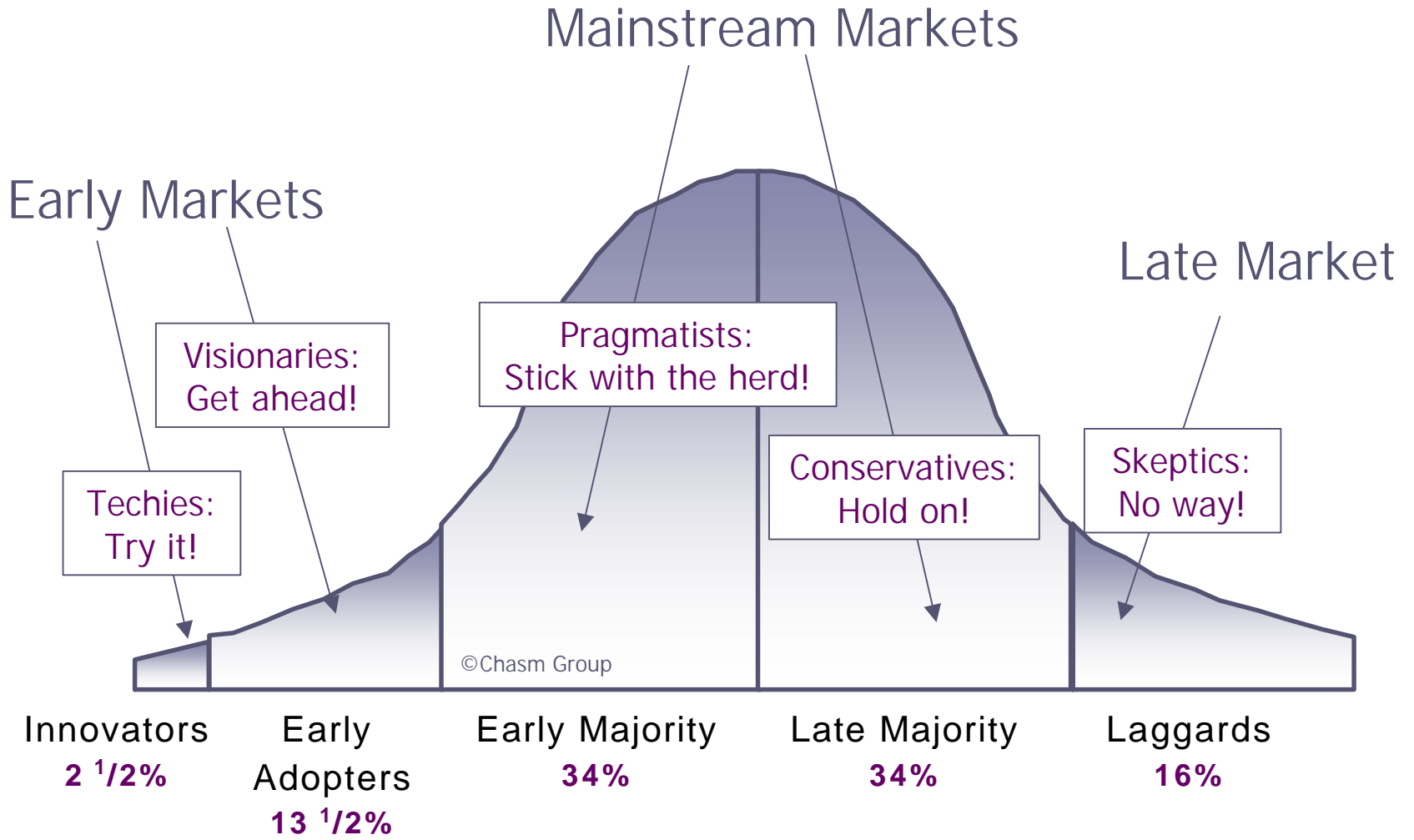


*US data

1 US Adults online - Harris Interactive, 11/01 2 % Penetration - Frost & Sullivan 9/99 3 penetration of US households - 15K+ income Synergistics 10/0

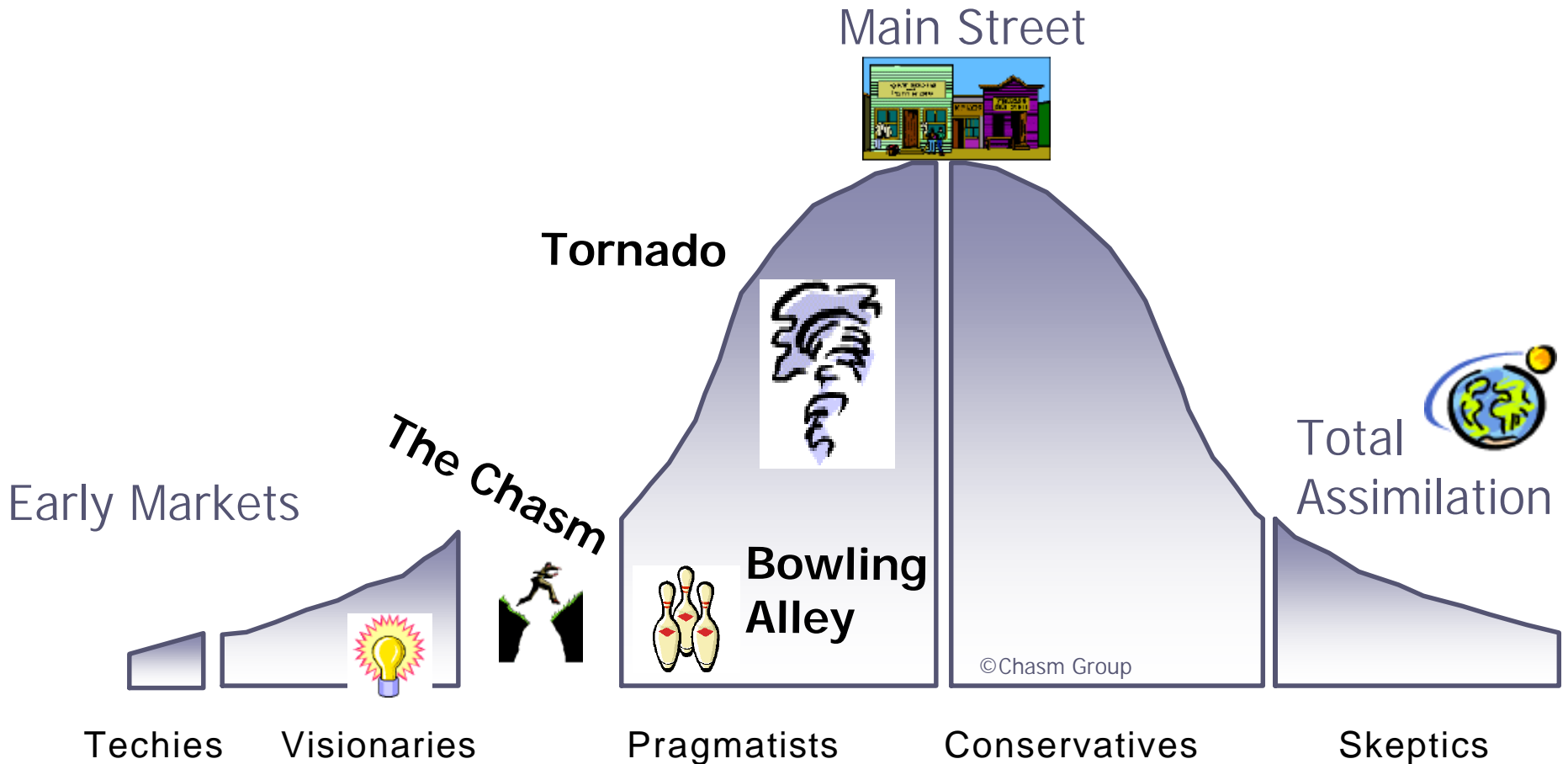
Technology Adoption Life Cycle

Groups are distinguished from each other based on their characteristic response to discontinuous innovations created by new technology



Market Development Model

Transitions are Not Smooth





Biometrics In The Chasm

- ☞ Wait and See Lull
- ☞ Revenue Growth Recedes
- ☞ Funding Needs Increase
- ☞ Repeatable Business Model
- ☞ Credible Reference Accounts Needed
- ☞ GOAL - Minimize Time in The Chasm



Crossing the Chasm

- ☞ Niche Marketing - Divide and Conquer
 - Segment, Target, Dominate
- ☞ Shift from Technology/Product to Market/Solution
- ☞ RESIST Counterintuitive fall back to Sales Focus
- ☞ Size & Rank - *Pick on Someone Your Own Size*
- ☞ Solve Niche Market Problem
 - Unique to Segment
 - Difficult to Solve
 - Significant Economic Impact
- ☞ Develop Whole Product
- ☞ It's About Relationships (not Markets)
- ☞ GOAL: Secure Mainstream Beachhead

Aside: Definitions

Marketing: Taking actions to create, grow, maintain or defend markets.

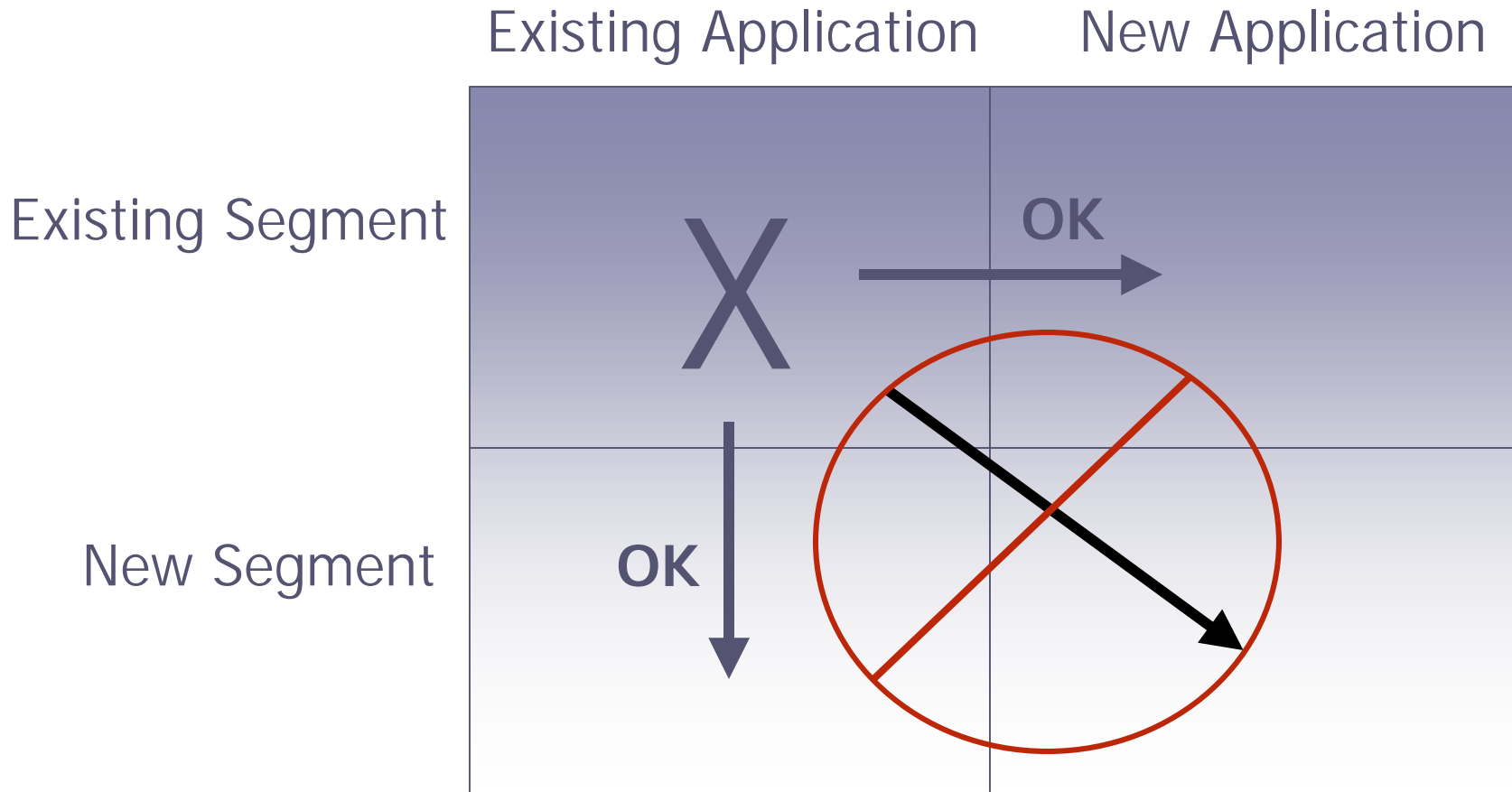
Market:



- a set of actual or potential customers
- for a given set of products or services
- who have a common set of needs or wants, and
- who reference each other when making buying decisions

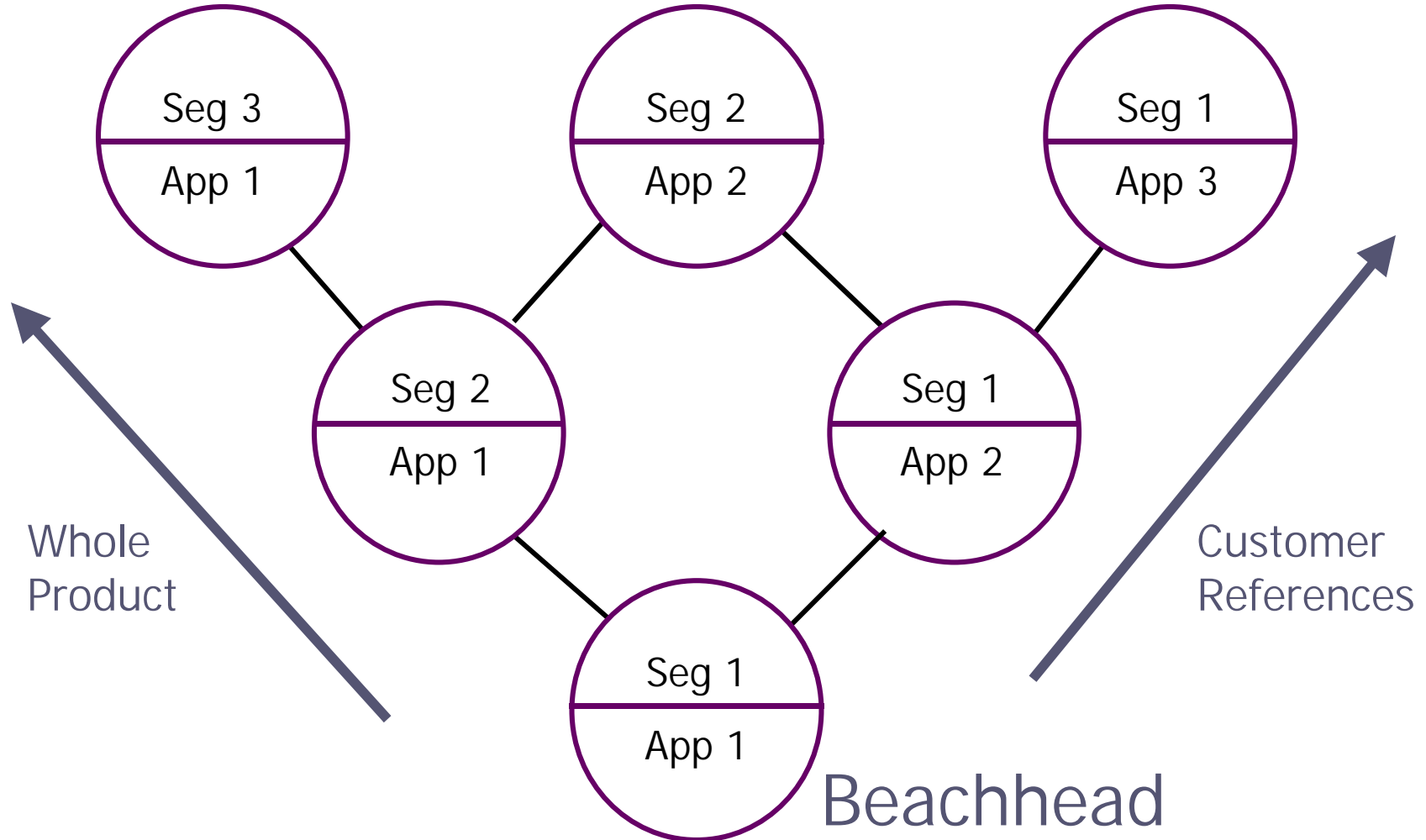
Two individuals/organizations buying the same product for the same reason that have no way to reference each other are not part of the same market.

Niche Market Penetration





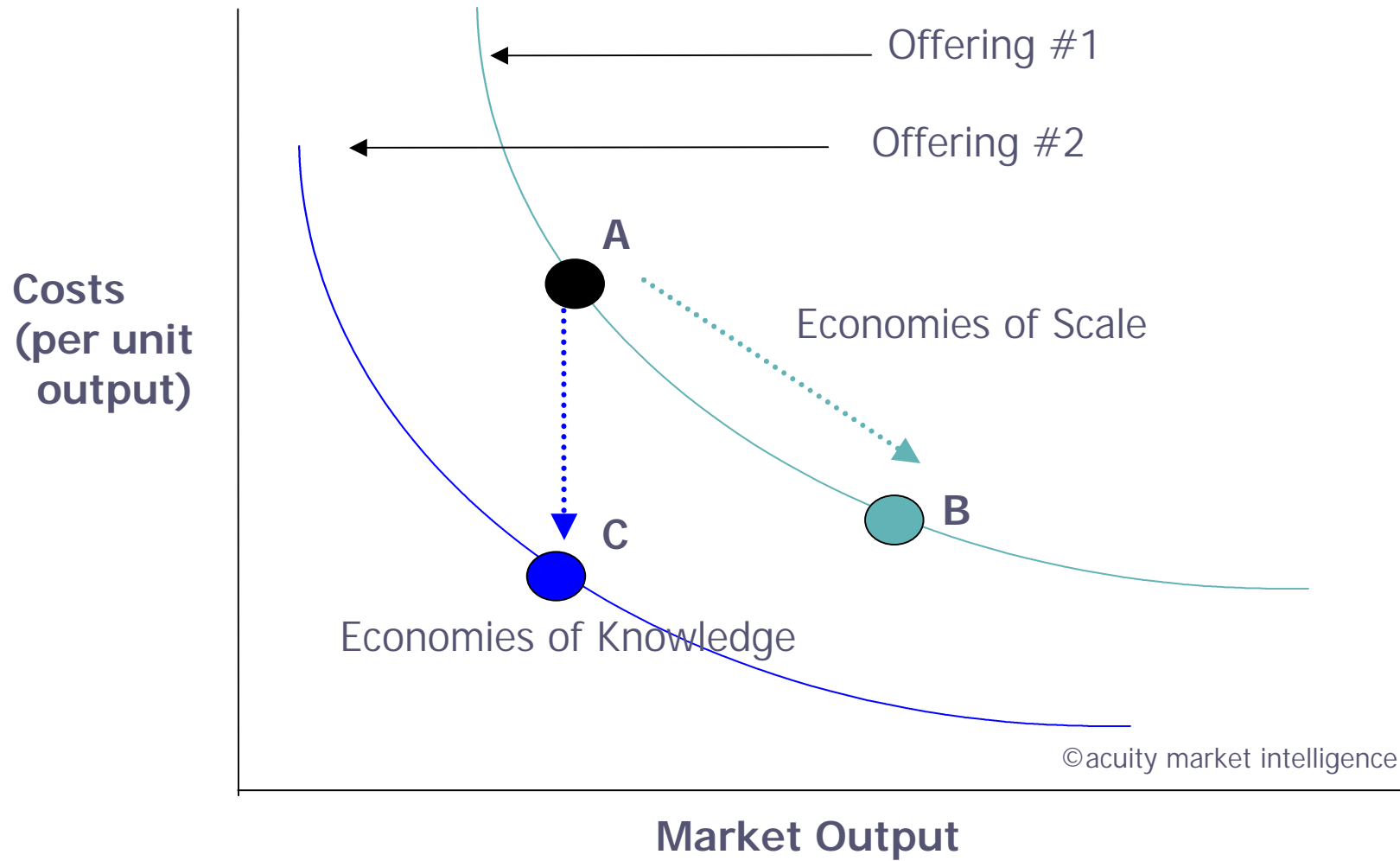
Bowling Alley Strategy



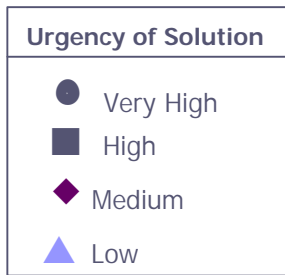
Beachhead

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Economies of Knowledge[©]



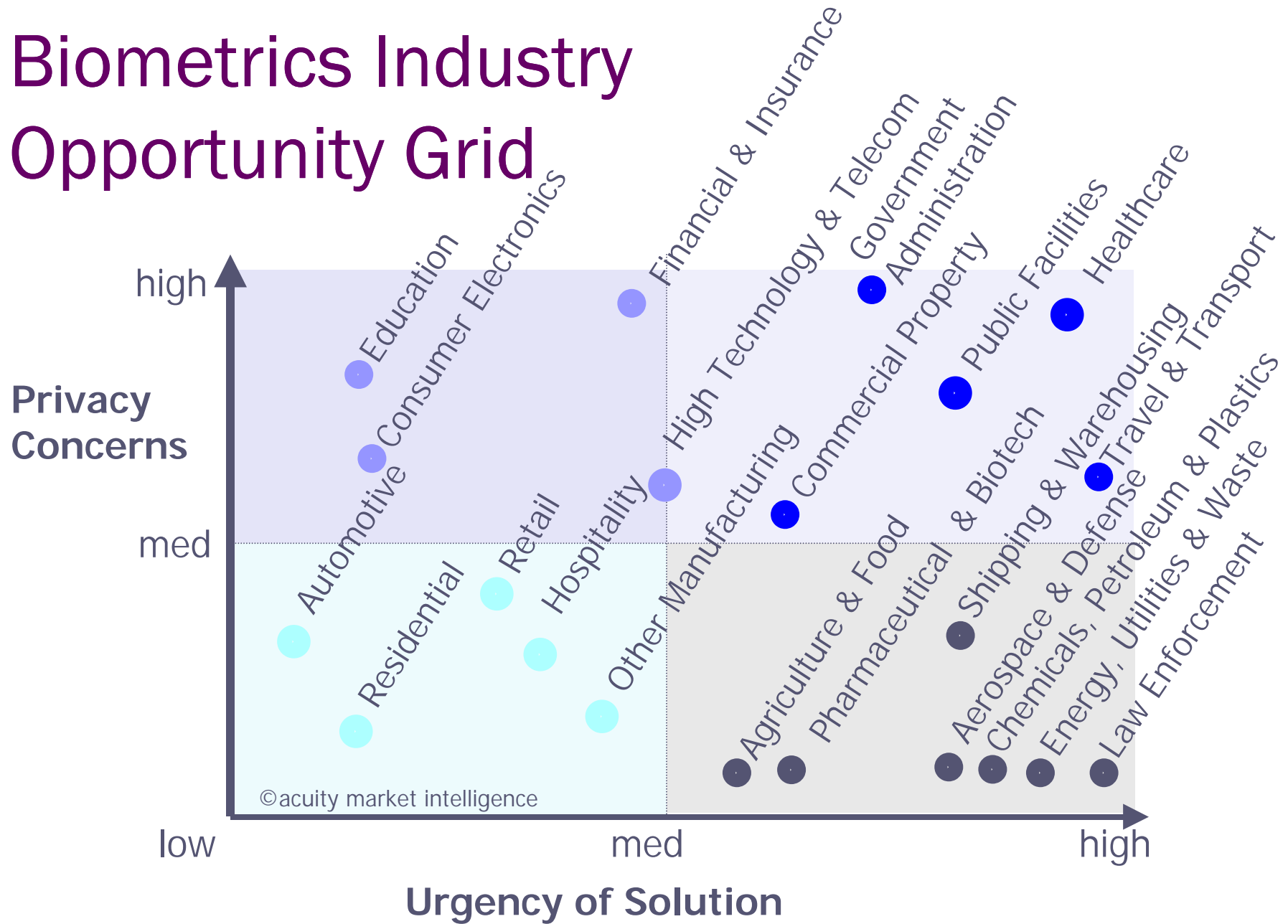
Opportunity: Biometrics Industry Segmentation Matrix



	Government Administration	Law Enforcement	Aerospace & Defense	Financial & Insurance	Healthcare	Hospitality	Public Facilities	Travel & Transportation	Shipping & Warehousing	Energy, Utilities & Waste	Chemicals, Petroleum & Plastics	Pharmaceutical & Biotech	Agriculture & Food	Education	High Technology & Telecom	Other Manufacturing	Commercial Property	Retail	Automotive	Consumer Electronics	Residential
Physical Access	●	●	●	●	■	■	●	●	●	●	●	●	■	■	■	■	◆	▲	▲	▲	
Logical Access																					
Secure Data personal, corporate, public	●	●	●	●	●	■	■	●	●	●	●	●	■	●	■	■	◆	◆	◆	◆	
Financial Transactions POS, ATM, e-commerce, gov't disbursements	■	◆	◆	■	●	◆	◆	■	■	■	●	■	■	◆	◆	■	●	■	▲	■	◆
Identity Confirmation																					
Voter, Benefits, DMV, Drivers License background check	●	●	●	■	■	■	■	●	■	■	■	■	■	◆	◆	◆	■	▲	▲	▲	-
Time & Attendance																					
	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	▲	◆	◆	▲	◆	▲	▲	-
Surveillance																					
public & private	●	●	■	■	■	◆	●	●	■	●	●	●	■	◆	◆	■	■	▲	▲	▲	

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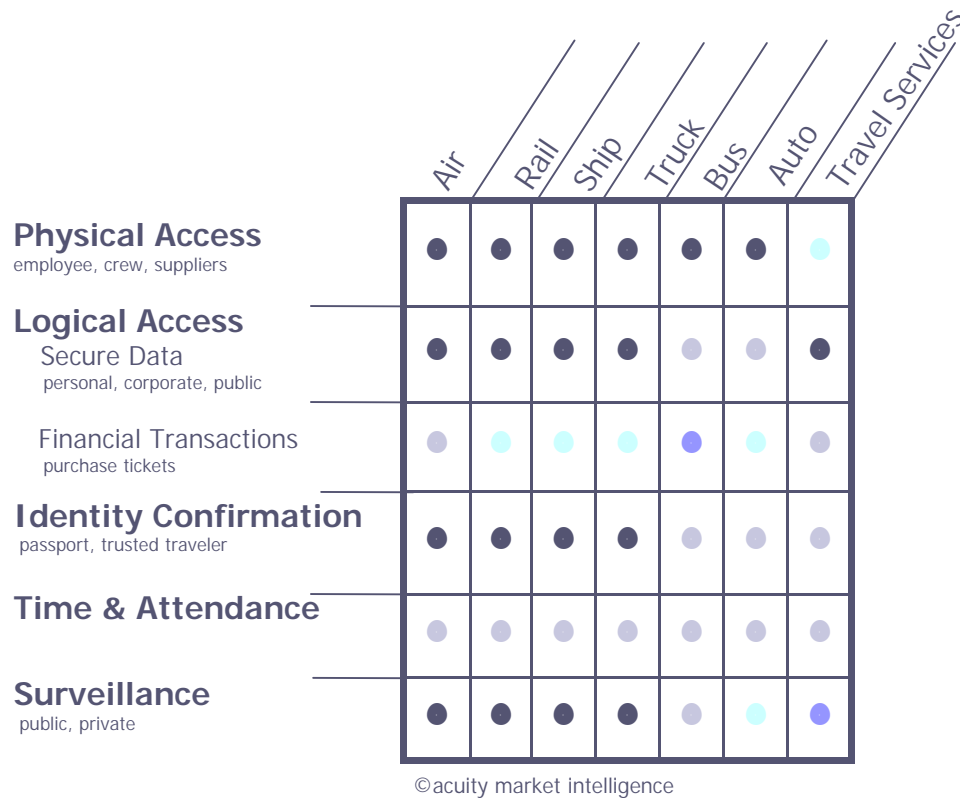
Biometrics Industry Opportunity Grid



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Granulation: Travel & Transportation Segments

Urgency of Solution	
●	Very High
●	High
●	Medium
●	Low



Further Granulation: Air Travel & Transportation Segments

Urgency of Solution	
●	Very High
●	High
●	Medium
●	Low

	Airport Perimeter	Airport Public Access	Airport Private Access	Airplanes	Passengers	Airport Employees	Crew	Outside Suppliers	Baggage	Cargo & Mail	Airline Employees	Travel Services
Physical Access employee, crew, suppliers	●	●	●		●	●	●	●	●	●	●	-
Logical Access Secure Data personal, corporate, public	-	-	-	●	●	●	●	-	-	●	●	
Financial Transactions reservations, ticketing	-	-	-	●	-	-	●	-	●	●	●	
Identity Confirmation passport, trusted traveler	-	-	-	●	●	●	●	-	-	●	●	
Time & Attendance	-	-	-	-	●	-	-	-	-	●	●	
Surveillance public, private	●	●	●	●	●	●	●	●	●	●	●	●

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Biometrics Target Segment Sizing

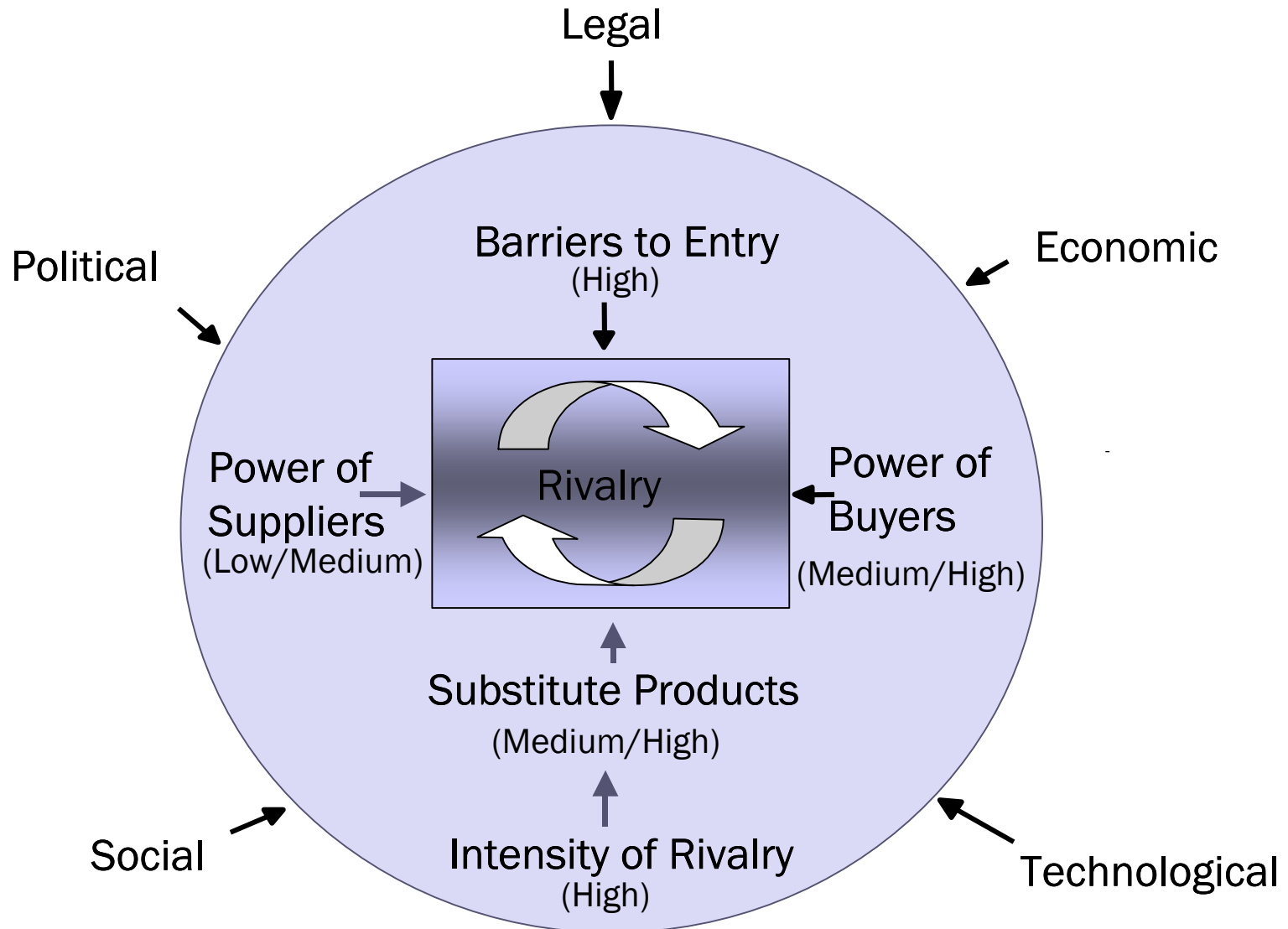
Airport Secure Access Example U.S. DOT Data

Airport Type	Number of Airports	Estimated Ave. # Secured Access	Total # of Secured Access Points	Gross Biometric Revenue @ \$1500 per Secured Access
Large hub	31	1000	31,000	\$46,500,000
Medium Hub	35	500	17,500	\$26,250,000
Small Hub	71	100	7,100	\$10,650,000
Non Hub	282	50	14,100	\$21,150,000
TOTAL	419		69,700	\$104,550,000

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Playing Field: Industry Analysis

Porter's Five Forces



Technology Evolution: Assessment

Factors	Face	Finger Scan	Hand	Iris	Keystroke	Retina	Signature	Voice
Ease of Enrollment	good	fair	good	good	good	fair	good	good/exc
Identification (1:N)	yes	search only	no	search only	no	search only	no	no
Speed (relative)	good	good	excellent	good	good	good	good	good
Cost	medium	medium	medium	med/high	low	medium	low/med	low
Accuracy: relative;	med/high	med/high	med/high	high	med/high	high	medium	med/high
Invasiveness	medium	medium	low	medium	low	high	low	low
Ease of Use	good	good	good	good	excellent	good	good/exc	good/exc
Ease of Integration	good	good	good	good	excellent	good	good/exc	excellent
Existing Infrastructure	yes	no	no	depends on application	yes	yes	yes	yes
Environmental Affects	lighting, position	temperature, moisture, dirt	none	none	none	none	none	noise, acoustics
Physical Con-	none	clean surface	bulky	none	none	light source	none	none
Human Factor Limitations	beards, glasses, skin tone, cosmetics	worn fingertips	missing fingers, young kids, arthritics	blind	alcohol, stress, loss of fingers	none	emotional state	emotional state, laringitis
Mature Technology (varies by vendor)	no	yes	well established >10years	well established	well established >10years	yes	no	no
User Acceptability	med/high	associated w/criminals	med/high	medium	high	low/med	med/high	high
Template Size (bytes)	84 (1:N) 1300 (1:1)	250-1200	9	512	1500	96	...	10,000-20,000
Liveness	yes	for some	yes	yes	yes	yes	yes	yes
Unique Identifiers	~128	30-90	96	266 of 400	NA	~192	~10 variables	6 frequencies
Natural Interface	yes	no	no	yes	yes	yes	yes	yes
Stability of Trait	medium	high, as adult	high	high	medium	high	medium	medium



When Will The Market Take-off?

- Chasm Crossing Complete
- Technology Proven in Wide Range of Applications
- Mainstream Adoption Across Multiple Industries
- Privacy & Security Issues Resolved
- Ready for Mass Consumer Market

Implications for Stakeholders

Why Should You Care?

- Biometrics Vendors

- Solution Providers

 - Integrators, OEMs, VARs, ISVs

- Investors

- End-Users



ACUITY
MARKET INTELLIGENCE

c. maxine most
principal

929 maxwell avenue boulder, co 80304
phone 303.449.1897 fax 208.730.8924
cmaxmost@acuitymi.com

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