



# Dissecting the Market for Biometrics in Financial Services

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Targeted Vertical Solutions Analysis  
Technology Adoption & Deployment Evaluations  
Sustainable Market Dominance Strategies**

# FS Market Analysis

## Context

- Solutions Adoption Framework
- Market Evolution
- Key Market Drivers

## Iterative Approach

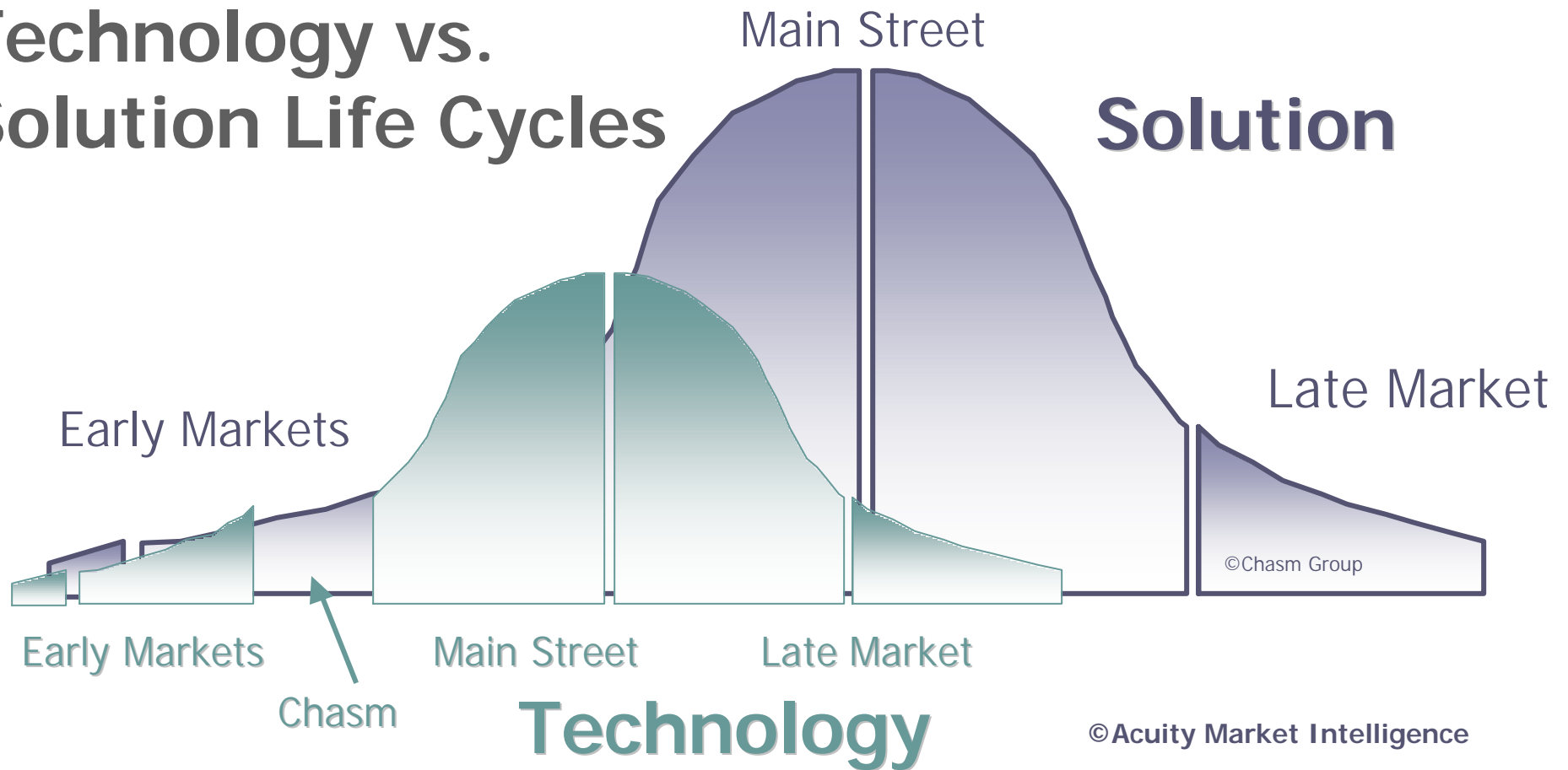
- Vertical Segmentation
  - Sectors, Markets Segments, Niches
- Prioritizing Opportunities
  - Technology Grid
  - Adoption Timeline
  - Target Sizing Examples

## Preliminary Findings

# Solution Adoption Framework

For enabling technologies like biometrics, the **Solution Adoption Lifecycle** hits the Tornado as the **Technology Adoption Lifecycle** peaks in the Mainstream

## Technology vs. Solution Life Cycles



# Emerging Market Evolution

Success Depends on Shifting Approach



- ☞ Solving Problems to Significant *Points of Pain*
- ☞ Solutions Focus Drives Market Penetration
- ☞ Demonstrable ROI is REQUIRED
- ☞ Proactive Market Development – *Market Making*
  - ◆ Targeted Nice Markets
  - ◆ *Whole Product Solutions*
  - ◆ Leveraged Penetration Strategies

# Key FS Market Drivers

## Significant Points of Pain

- ☞ Globalization & Market Expansion
- ☞ Consolidation & Integration
- ☞ Regulation & Deregulation
  - ◆ US – Sarbanes-Oxley, PATRIOT, Safe Harbor, Gramm-Leach-Bliley
  - ◆ EU – Data Protection, ECommerce Directive, Financial Services Action Plan
  - ◆ Inter-Sector Competition
  - ◆ Security and Privacy
- ☞ Customer Self Service
- ☞ Identity Theft & Fraud

# Segmentation Process

## Iterative Granulation

- ☞ **Level I: Market Sectors**
  - ◆ Segmented by Interaction Mode
- ☞ **Level II: Functional Areas**
  - ◆ Segmented by Application Category
- ☞ **Level III: Market Segments**
  - ◆ By Functional Area in Each Market Sector
    - Segmented by Application Category & Interaction Mode
- ☞ **Level IV: Market Niches**
  - ◆ By Functional Area Sector in Each Market Sector
    - Segmented by Specific Application & Interaction Mode

**Always Consider the END USER**

# FS Market Sectors

## By Interaction Mode

Priority of Solution	
●	Very High
■	High
◆	Medium
▲	Low

		Bank	Credit Union	Savings & Loans	Brokerage	Credit Card	Transaction Processing	Insurance	Mortgage
Branch/Office	Customer	■	■	■	◆	-	-	■	■
	Employee	●	●	●	●	●	●	●	●
	Partners/Suppliers	■	■	■	◆	▲	▲	■	■
ATM/Kiosk	Customer	■	■	■	◆	◆	-	-	-
	Employee	■	■	■	-	-	-	-	-
	Partners/Suppliers								
POS Terminal	Customer	●	●	-	-	●	●	-	-
	Employee	-	-	-	-	-	-	-	-
	Partners/Suppliers	-	-	-	-	-	-	-	-
Online/Mobile	Customer	●	●	●	●	●	●	●	●
	Employee	●	●	●	●	●	●	●	●
	Partners/Suppliers	●	●	●	●	●	●	●	●
Phone	Customer	●	■	●	●	■	-	■	◆
	Employee	◆	◆	◆	◆	■	▲	▲	◆
	Partners/Suppliers	■	■	■	■	■	■	■	■



# FS Functional Areas By Application Category

Priority of Solution

- Very High
- High
- ◆ Medium
- ▲ Low

Sales  
Marketing  
Operations  
Asset Mgmt  
Product Dev/Mgmt  
Customer Service  
Executive Mgmt

**Physical Access/T&A**

**Logical Access**

Secure Data  
personal, corporate, public

Financial Transactions  
POS, ATM, e-commerce

**ID Confirmation**

Background check

**Surveillance**

Public & Private  
Coop & Non- Coop

	Customer	Employee	Partners/Suppliers	Sales	Marketing	Operations	Asset Mgmt	Product Dev/Mgmt	Customer Service	Executive Mgmt
<b>Physical Access/T&amp;A</b>	Customer	Employee	Partners/Suppliers	-	◆	●	-	-	-	-
<b>Logical Access</b>	Customer	Employee	Partners/Suppliers	●	■	-	-	-	●	-
	Secure Data	Employee	Partners/Suppliers	■	■	●	●	●	■	■
	personal, corporate, public	Partners/Suppliers	Partners/Suppliers	■	■	●	●	●	■	-
Financial Transactions	Customer	Employee	Partners/Suppliers	●	-	-	-	-	●	-
	POS, ATM, e-commerce	Employee	Partners/Suppliers	●	◆	●	●	■	◆	-
		Partners/Suppliers	Partners/Suppliers	-	-	●	●	●	-	■
<b>ID Confirmation</b>	Customer	Employee	Partners/Suppliers	●	■	-	-	-	●	-
	Background check	Employee	Partners/Suppliers	●	●	●	●	●	●	●
		Partners/Suppliers	Partners/Suppliers	■	■	●	●	●	■	■
<b>Surveillance</b>	Customer	Employee	Partners/Suppliers	●	◆	-	-	-	■	-
	Public & Private	Employee	Partners/Suppliers	●	■	●	●	◆	■	●
	Coop & Non- Coop	Partners/Suppliers	Partners/Suppliers	●	■	●	●	◆	■	●

# FS Market Segments

## Applications & Interaction Mode

By Functional Area for Each Market Sector

Priority of Solution	
●	Very High
■	High
◆	Medium
▲	Low

	Branch/ Office			ATM/Kiosk			POS Terminal			Online/ Mobile			Phone		
	C	E	P	C	E	P	C	E	P	C	E	P	C	E	P
<b>Physical Access/T&amp;A</b>	■	●	■	-	●	●	-			-	-	-	-	--	-
<b>Logical Access</b>															
Secure Data personal, corporate, public	■	●	●	●	●	●	●	-	-	●	●	●	●	●	●
Financial Transactions POS, ATM, e-commerce	■	●	-	●	-	-	●	-		●	●	●	●	●	●
<b>ID Confirmation</b>															
Background check	●	●	■	-	-		-	-		-	-		-		
<b>Surveillance</b>															
Public & Private Coop & Non- Coop	●	●	●	●	●	●	■	-	-	◆	◆	◆	◆	◆	◆

C = Customer    E = Employee    P = Partner/Supplier

# FS Market Niches

## Logical Access Applications

By Functional Area for Each Market Sector

Priority of Solution	
●	Very High
■	High
◆	Medium
▲	Low

	Branch/ Office			ATM/Kiosk			POS Terminal			Online/ Mobile			Phone		
	C	E	P	C	E	P	C	E	P	C	E	P	C	E	P
<b>Call Center</b>	-	■	-	-	-	■	-	-	■	-	-	■	●	●	●
<b>Pin/Password Reset</b>	-	●	■	■	-	▲	-	-	-	●	●	●	●	●	●
<b>SSO</b>	-	●	■	■	-	-	●	-	■	●	●	●	●	●	●
<b>Transactions</b> Order, Payment, Transfer, Deposit	●	●	■	●	-	■	●	-	-	●	●	●	●	●	●
<b>Account Management</b> Open, Close, Inquiries	●	■	■	●	-	■	-	-	■	●	●	●	●	●	●
<b>Records/Data Access</b> Secure, Sensitive	●	■	◆	■	●	-	-	-	-	●	●	●	●	●	●
<b>Secure Device Access</b> Laptops, Phones, PDAs,	-	■	-	-	●	●	-	-	■	●	●	●	●	●	●
<b>Card Activation</b> Credit, Phone	■	■	▲	◆	-	-	◆	-	-	■	■	-	■	■	-

C = Customer E = Employee 3 = 3rd Parity

# FS Market Niches

## Logical Access Applications

By Functional Area for Each Market Sector

Priority of Solution	
●	Very High
■	High
◆	Medium
▲	Low

	Branch/ Office			ATM/Kiosk			POS Terminal			Online/ Mobile			Phone		
	C	E	P	C	E	P	C	E	P	C	E	P	C	E	P
<b>Call Center</b>	-	■	-	-	-	■	-	-	■	-	-	■	●	●	●
<b>Pin/Password Reset</b>	-	●	■	■	-	▲	-	-	-	●	●	●	●	●	●
<b>SSO</b>	-	●	■	■	-	-	●	-	■	●	●	●	●	●	●
<b>Transactions</b> Order, Payment, Transfer, Deposit	●	●	■	●	-	■	●	-	-	●	●	●	●	●	●
<b>Account Management</b> Open, Close, Inquiries	●	■	■	●	-	■	-	-	■	●	●	●	●	●	●
<b>Records/Data Access</b> Secure, Sensitive	●	■	◆	■	●	-	-	-	-	●	●	●	●	●	●
<b>Secure Device Access</b> Laptops, Phones, PDAs,	-	■	-	-	●	●	-	-	■	●	●	●	●	●	●
<b>Card Activation</b> Credit, Phone	■	■	▲	◆	-	-	◆	-	-	■	■	-	■	■	-

C = Customer E = Employee 3 = 3rd Parity

# Prioritization Process

## Iterative Granulation

### ☞ Technology Grids

- ◆ For Each Market Sector & Functional Area
  - By Specific Application and Interaction Mode

### ☞ Adoption Timeline

- ◆ By Market Sector, Functional Area, Application

### ☞ Market Segments & Niches Sizing

- ◆ Based on Replacing and/or Augmenting Existing Technologies and Business Processes

# FS Technology Grid

## Select Logical Access Applications

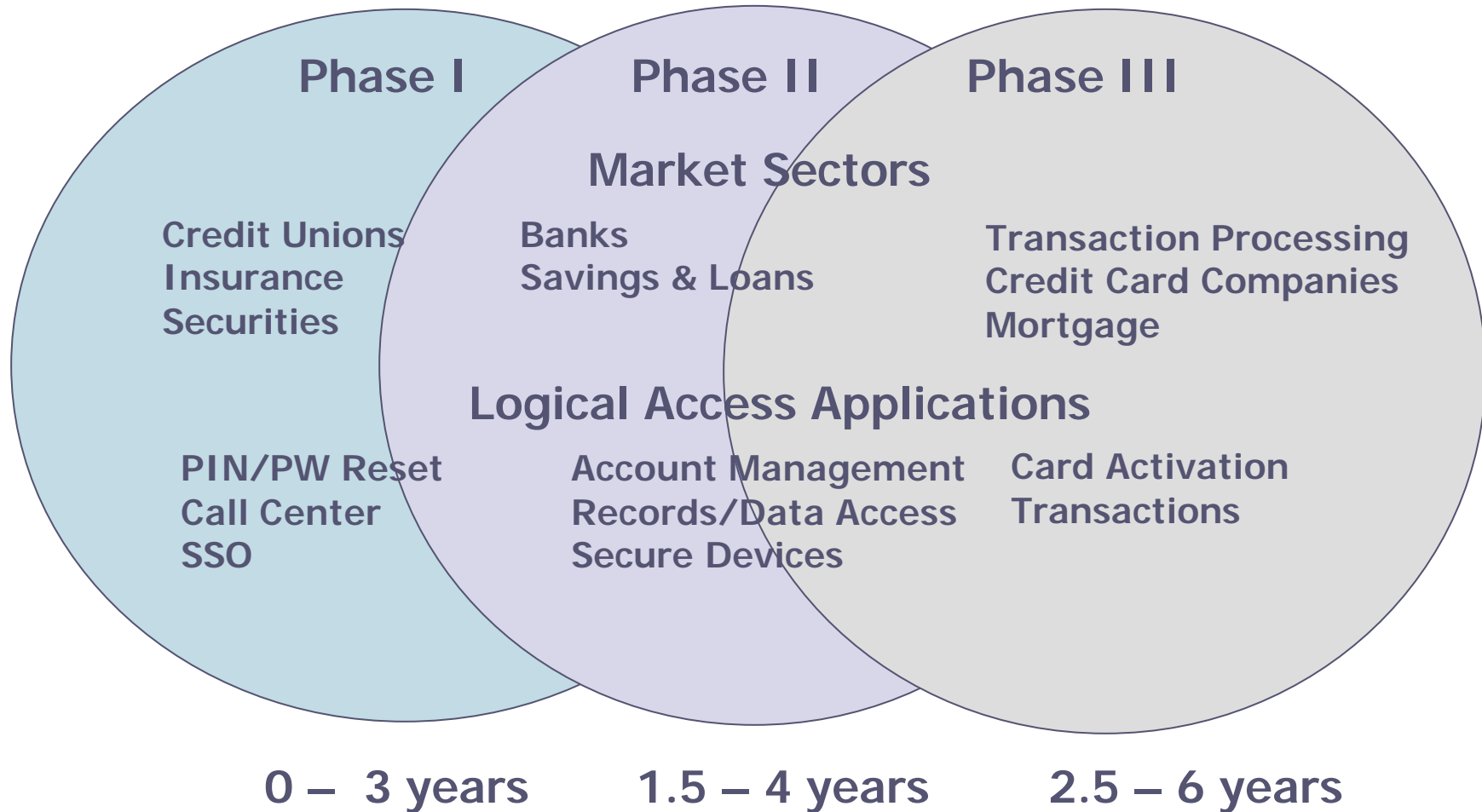
For Each Market Sector & Functional Area

	Branch/ Office			ATM/ Kiosk			POS Terminal			Online/ Mobile			Phone		
	C	E	P	C	E	P	C	E	P	C	E	P	C	E	P
	<b>Data/Info.</b>														
Account Open/Close	F, I, S	-	F, I, S	F, I, FA	-	-	-	-	-	F, S, FA, I	F, S, FA, I	F, S, FA, I	V, F, FA, I	V, F, FA, I	V, F, FA, I
Applications /Tools	F, I, S	-	F, I, S	F, I, FA	-	-	-	-	-	F, S, FA, I	F, S, FA, I	F, S, FA, I	V, F, FA, I	V, F, FA, I	V, F, FA, I
Records Access	F, I, S	F, I	F, I, S	F, I, FA	-	-	-	-	-	F, S, FA, I	F, S, FA, I	F, S, FA, I	V, F, FA, I	V, F, FA, I	V, F, FA, I
<b>Transactions</b>															
Payments	F, I, S	F, I	F, I, S	F, I, FA	-	-	F, S	-	-	F, S, FA, I	F, S, FA, I	F, S, FA, I	V, F, FA, I	V, F, FA, I	V, F, FA, I
Accounts Mgmt.	F, I, S	-	F, I, S	F, I, FA	-	-	-	-	-	F, S, FA, I	F, S, FA, I	F, S, FA, I	V, F, FA, I	V, F, FA, I	V, F, FA, I
Securities Buy/Sell	F, I, S	-	-	F, I, FA	-	-	-	-	-	F, S, FA, I	F, S, FA, I	-	V, F, FA, I	V, F, FA, I	V, F, FA, I
Securities Mngmt	F, I, S	F, I	-	F, I, FA	-	-	-	-	-	F, S, FA, I	F, S, FA, I	-	V, F, FA, I	V, F, FA, I	V, F, FA, I
Inter-bank Transfer	F, I, S	F, I	-	F, I, FA	-	-	-	-	-	F, S, FA, I	F, S, FA, I	-	V, F, FA, I	V, F, FA, I	V, F, FA, I

F=Finger FA=Face I=Iris V=Voice S=Signature

# FS Adoption Timeline

## Sectors and Logical Access Applications



# Sizing Example One

## Branch/Office – Employee - PIN/PW Reset

Financial Services Industry Employment (US)						
US (2000)	Total Firms	Total Employees	500+ Firms	500+ Employees	Employee Type	% of Total
<b>Industry</b>	227,034	5,963,426	1,630	4,059,152		
					<b>Tellers</b>	
<b>Banking</b>	7,594	1,492,834	276	1,118,273	326,760	21.89%
<b>Credit Unions</b>	9,417	192,227	37	17,855	57,620	29.97%
					<b>Sales Agent</b>	
<b>Securities</b>	43,665	866,222	599	611,431	161,410	18.63%
<b>Insurance</b>	123,234	800,979	472	203,959	132,180	16.50%

Data - US Census Bureau, US Bureau Labor Statistics

Revenue and ROI Calculation (US)						
Sector	Employee Type	Adoption Rate	Enrolled Employees	80% Success	Revenue \$100 per seat	Total ROI \$200 per seat
<b>Banking</b>	Teller	10%	149,283	119,427	\$14,928,340	\$23,885,344
<b>Credit Unions</b>	Teller	25%	48,050	38,440	\$3,844,000	\$7,688,000
<b>Securities</b>	Sales	15%	129,930	103,944	\$10,394,400	\$20,788,800
<b>Insurance</b>	Sales	20%	160,180	128,144	\$12,814,400	\$25,628,800



# Sizing Example Two

## Transaction Processing

### Global Payments (non cash) - 2000 & 2010

Volume of Transactions (Billions)				
	2000	2010	10% penetration	25 cents per transaciton
<b>Europe</b>	60.38	107.08	10.71	2.68
<b>Americas</b>	114.08	195.08	19.51	4.88
<b>Asia</b>	38.60	91.50	9.15	2.29
<b>total</b>	213.06	393.66	39.37	9.84

Value of Transactions (Billions)				
	2000	2010	10% penetrtration	.01% on Volume
<b>Europe</b>	383,800	676,700	67,670	6.77
<b>Americas</b>	720,000	1,104,000	110,400	11.04
<b>Asia</b>	372,900	535,300	53,530	5.35
<b>total</b>	1,476,700	2,316,000	231,600	23.16

Transaction Data - Boston Consulting Group, 2003

# FI Analysis Findings

## ☞ Traditional Factors

- Late Adopters of New Technology
- Test, Test, Test & Test Again

## ☞ Lucrative Initial Opportunities

- Biometrics are “Good Enough” TODAY
- Solve Pressing Business Problems
- Complete Solution Integrates Biometrics
- Demonstrable ROI
- CONVENIENCE and COST SAVINGS

## ☞ Most Significant Obstacles

- Fear Customers/Consumers are Unwilling to Accept
- Privacy Concerns & Obsession with 100% Security
- Proven Reliability in Large Scale Systems
- Legacy System and Vendor Interoperability
- Limited Understanding of FS Industry and Markets



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