

The Wells Fargo logo is a red square with the words "WELLS" and "FARGO" stacked vertically in white, serif, all-caps font.

**WELLS
FARGO**

E-Commerce at Wells Fargo SF IIA / ISACA Presentation

Summary of Enterprise E-Commerce Risk Review

A photograph of a horse-drawn wagon on a grassy hill. The wagon is red and yellow, with "WELLS FARGO & COMPANY" written on its side. It is pulled by a team of dark horses. In the background, there are mountains with snow under a cloudy sky.

Wells Fargo Audit Services

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Introduction

- **Business Risk and Audit**
- **Emerging E-Commerce Risks**
- **E-Commerce at Wells Fargo**
- **Break**
- **Enterprise Level Risk Assessment**
- **Audits Ongoing Role**
- **Questions?**

Red Flags of Business Risk

- New products or services
- New business units
- Products or services not clearly defined
- New activities outside the established / proven system
- Significant growth
- Economic changes or changes in competition
- Exotic new business practices
- New systems and new partners

Management of Business Risk

- Define and understand the business objectives.
- Assess business risks.
- Evaluate / Establish risk management processes.
- Establish standards / risk limits / control policies.
- Communicate objectives, policies and standards.
- Measure performance.
- Implement improvements to risk management processes and reassess standards.

Emerging E-Commerce Risks

- Digital wallet companies are not regulated like banks. Where is the responsibility if customer information is revealed?
- Six months ago, screen scraping was looked upon as undermining the foundation of protecting customer information. Today, there is a mad scramble to get in the game. Which regulations apply?
- Wireless is hot, with expected usage by 25% of the world's population by 2005. Today, standards are mixed. Beta versus VHS again?
- Many e-commerce sites are in front of legacy back-end systems. Shouldn't the data store have enhanced security added?
- Monitoring for questionable activity versus invasion of privacy. Is the distinction in the eyes of the beholder?

E-Commerce: Run The Numbers

- **Electronic payment changes from 1990 through 1999:**
 - Number of ACH payments up from 1.5 billion to 6.25 billion
 - Number of debit card payments grew from 188 million to 7 billion
 - By 1999, 2 billion direct payments, saving \$600 million in postage
 - 90% of all dollars moving through the payments system are electronically
 - U.S economy saves \$1 for each check converted to an electronic payment

- **Growth in online activity:**
 - 10 million today, 26 million by 2003 (30% of US households)
 - Wireless e-commerce to reach \$1.2 billion by 2005 (up 1,000%)

- **State of security (survey of 134 global companies last summer):**
 - 31% have no firewalls for e-business
 - 58% have average or worse use of SSL
 - 68% have average or worse use of encryption
 - 47% do not have an e-business privacy policy
 - 95% do not use privacy seals

Recent Security Events in Cyberspace

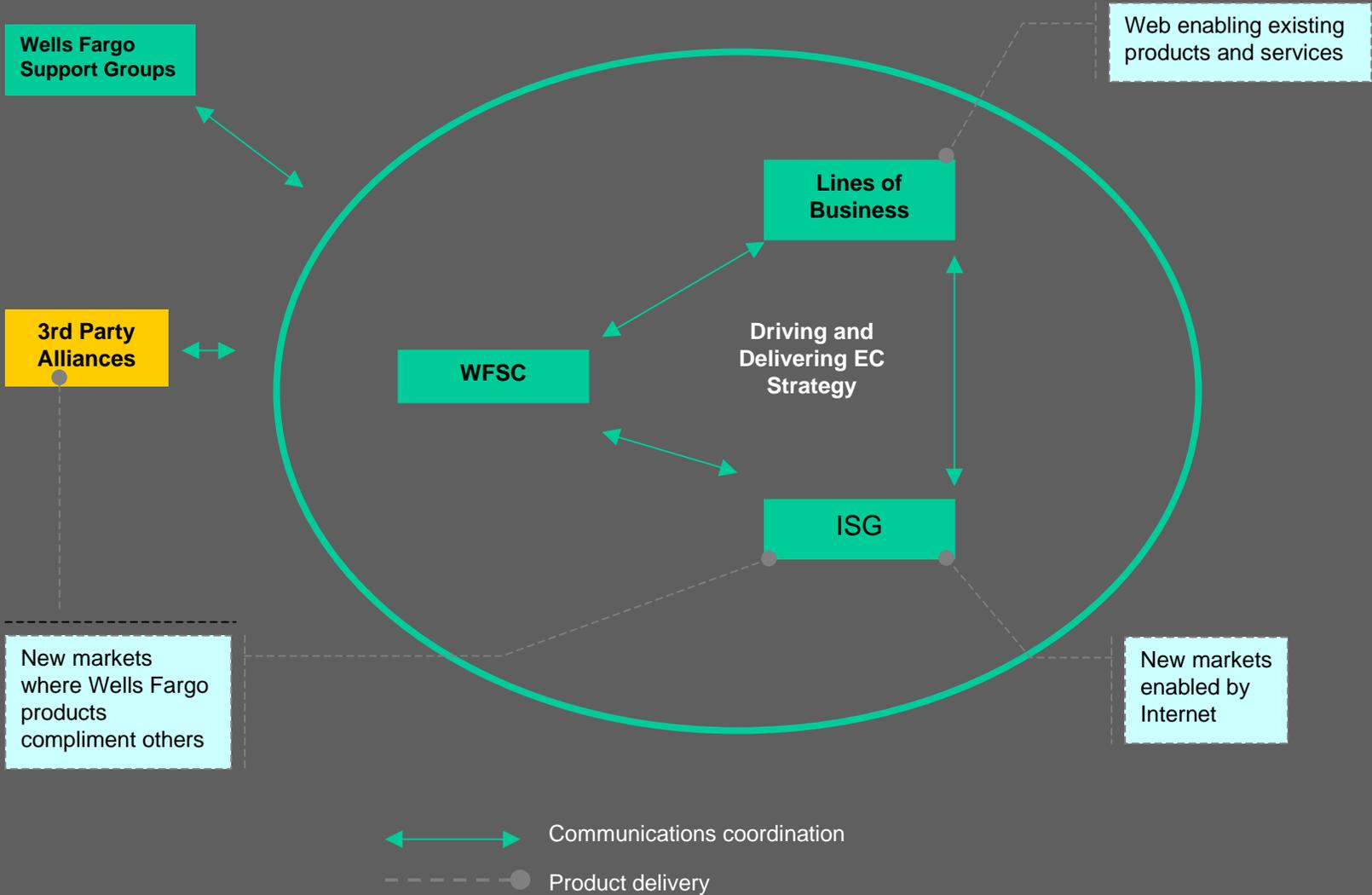
- Large UK bank had to shut down its banking site twice because of account information leaking to wrong customer
- Financial services company had 16,000 customer's debit and credit card information compromised
- OPEC had its website defaced by someone upset with oil prices. It took a day to correct the site
- Trading site corrected a vulnerability in how it stored local cookies, thus preventing a hacker from possible masquerading
- Online auction site crosses information between two customers
- Bank accounts accessed and money transferred after hacker sent trojan-horse e-mail to customers and pulled data from their computers. TV station broadcast hackers completing transfers

E-Commerce Challenges Go Beyond Security

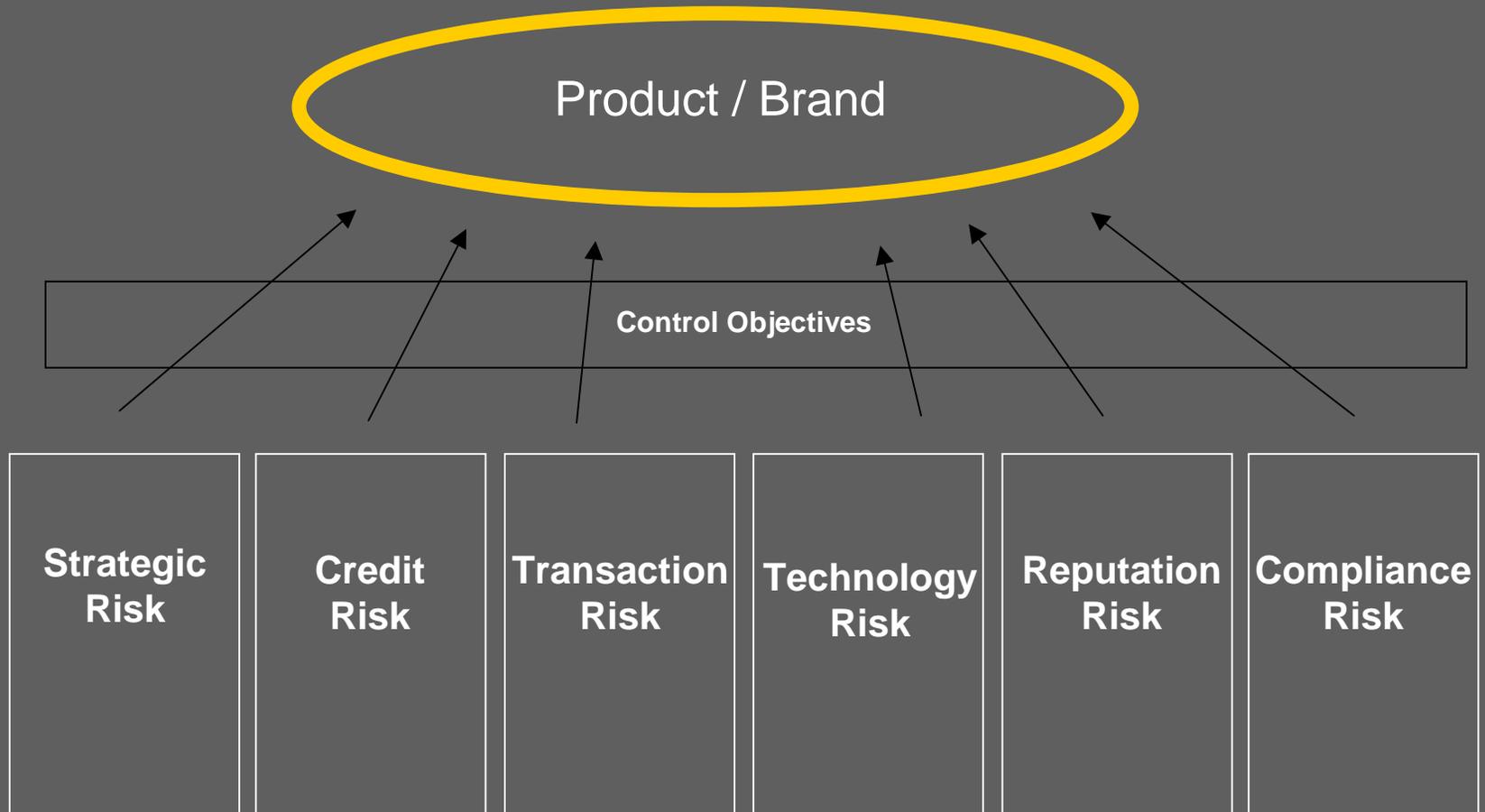
E-Commerce challenges also include:

- Development and articulation of the value propositions for the organization's customers/suppliers and of the business models that support those value propositions
- Effective project management to ensure that applications are delivered on time and meet customer expectations
- Rapid coordination of numerous business units as well as technology units to deliver electronic commerce solutions to meet customer needs timely
- Implementation of controls to protect the reliability, availability and security of electronic commerce solutions
- Attracting and retaining the required skill sets to develop, implement and operate high quality electronic commerce solutions
- Integration of electronic commerce into existing business processes: financial and technology controls, customer service and support, supplier/vendor management

E-Commerce at WF - Infrastructure



E-Commerce at WF - Changing Risk Profiles



Afternoon Presentation

SHORT BREAK



Enterprise Level Risk Assessment

Control Objectives to Assess Business Risks:

- Strategic Management
- Program Management
- Technical Infrastructure
- Application and Functionality Architecture
- Supporting Processes



Enterprise Level Risk Assessment

Control Objectives: Strategic Management

- A process exists to identify the threats and opportunities created by e-commerce technologies in a manner that allows the organization to respond in a timely fashion.
- Sufficient funding is committed, allocated and tracked for E-Commerce initiatives such that new E-Commerce technologies can be developed and supported in a controlled manner.
- Clear accountabilities exist for the following functions:
 - E-Commerce strategic analysis and development
 - Business requirements definition
 - Architecture and development
 - Operations
 - Budget and finance

Enterprise Level Risk Assessment

Control Objectives: Program Management

- E-Commerce projects are coordinated, scheduled, prioritized and funded to be consistent with the strategy
- Project timelines are based upon project and resource planning, funding and business requirements
- E-Commerce technologies are adequately authorized, tested, approved, properly implemented and documented:
 - Change control
 - Separate but synchronized development, quality assurance and production environments
 - Capacity impact analysis
 - Quality assurance environment considers the range of potential desktop environments (Windows, Mac, Linux, Unix, and various browsers)

Enterprise Level Risk Assessment

Control Objectives: Technical Infrastructure

- A strategic technical architecture has been planned, developed, tested, implemented and documented to meet current as well as future business requirements
- Host-based and network-based intrusion detection techniques are properly implemented and executed
- Adequate security incident escalation procedures exist and are executed
- Network performance monitoring techniques are properly implemented and executed
- Problem identification, escalation resolution and communication exist and are executed
- Changes to the technical infrastructure are properly authorized, tested, implemented and documented
- Infrastructure design considers the redundancy, load balancing and fail-over necessary to maintain system availability

Enterprise Level Risk Assessment

Control Objectives: Functionality Architecture

- A strategic application and data architecture has been planned, developed, tested, implemented and documented to meet current as well as future business requirements
- User authentication is performed to ensure that transactions are properly authorized and access to data is properly authorized
- Authentication is maintained from end-to-end
- The confidentiality of sensitive data is maintained
- Audit trails exist to reconstruct transactions
- Data and transaction integrity is maintained from end-to-end
- Application performance monitoring techniques are properly implemented and executed
- Changes to applications are properly controlled
- Redundancy, capacity and recoverability of application components are appropriate to provide required end-to-end availability

Enterprise Level Risk Assessment

Control Objectives: Supporting Processes

- Supporting processes are adequately funded to meet strategic objectives
- Business and financial systems accurately capture financial transactions
- End-to-end, customer-focused problem identification, escalation and resolution procedures exist (problem identification, tracking and communication, customer communication and care, incident versus call handling, root cause analysis, knowledge management)
- Changes to website content are properly authorized, tested and approved (legal, regulatory, ease of navigation, accuracy of information, tested on potential desktop platforms, dynamic content tested for proper results)
- Correspondence is appropriately routed and responded to in a timely manner (customer complaints, suggestions, product applications, requests for information / quotations)

Enterprise Level Risk Assessment

EC Life Cycle

Informational (traditional products) → Transactional → New products and services → Value Chains → Next Evolution

The life cycle ranges from initially offering informational views of corporate / customer information, then evolving into web-enabling current legacy transactions, followed by developing new offerings, leading to integrating internal business with external alliances or associations. The future evolution remains to be seen.

Audit's Ongoing Role

e-Business Audit Resources Team

This team will partner with ISG, LOBs and all Audit groups to:

- Proactively identify emerging E-Commerce risks, and
- Establish controls aimed at minimizing exposure and potential impacts

