

# E-commerce: Risk & Compliance of Doing Business Online

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- **About SKALI**
- **E-commerce Growth**
- **Risks of Doing Business Online**
- **Compliance Issues**
- **Measures to consider**



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## Light Moments

- ✓ I needed a password eight characters long, so I picked Snow White and the Seven Dwarves.
- ✓ I set my password to "incorrect" so that Windows reminds me every time I get it wrong
- ✓ How many programmers does it take to change a light bulb? A: None, its a hardware problem.
- ✓ No keyboard detected. Press F1 to continue



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## ➤ E-commerce Growth



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## Growth in E-commerce (US)

The U.S. e-commerce market is **big (\$200B+)**, **getting bigger (9% CAGR through 2015)**, and **still early (only 9% of total retail)**

U.S. E-Commerce Market (2009-15)



Total U.S. Retail (Trillion Dollars)	2009A	2010A	2011F	2012F	2013F	2014F	2015F	CAGR (11-15)
Total U.S. Retail (Trillion Dollars)	\$1.9T	\$2.2T	\$2.2T	\$2.2T	\$2.4T	\$2.4T	\$2.5T	3.8%
E-Commerce as % of Total Retail	8%	8%	9%	10%	10%	11%	11%	
E-Commerce as % of Total Retail (excluding grocery)	11%	11%	12%	13%	14%	15%	15%	

Source: Forrester, US Online Retail Forecast (Feb 2011)  
[http://www.forrester.com/Research/inf/Research/inf\\_online\\_retail\\_forecast%2C\\_2010\\_to\\_2015/q/d/58596/v/2](http://www.forrester.com/Research/inf/Research/inf_online_retail_forecast%2C_2010_to_2015/q/d/58596/v/2)



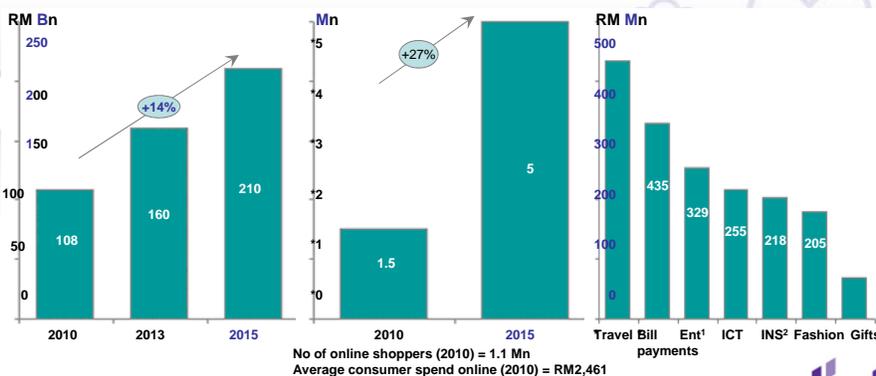
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## Growth in E-commerce (Msia)

Total eCommerce spending is expected to grow swiftly

Online shopping is becoming mainstream

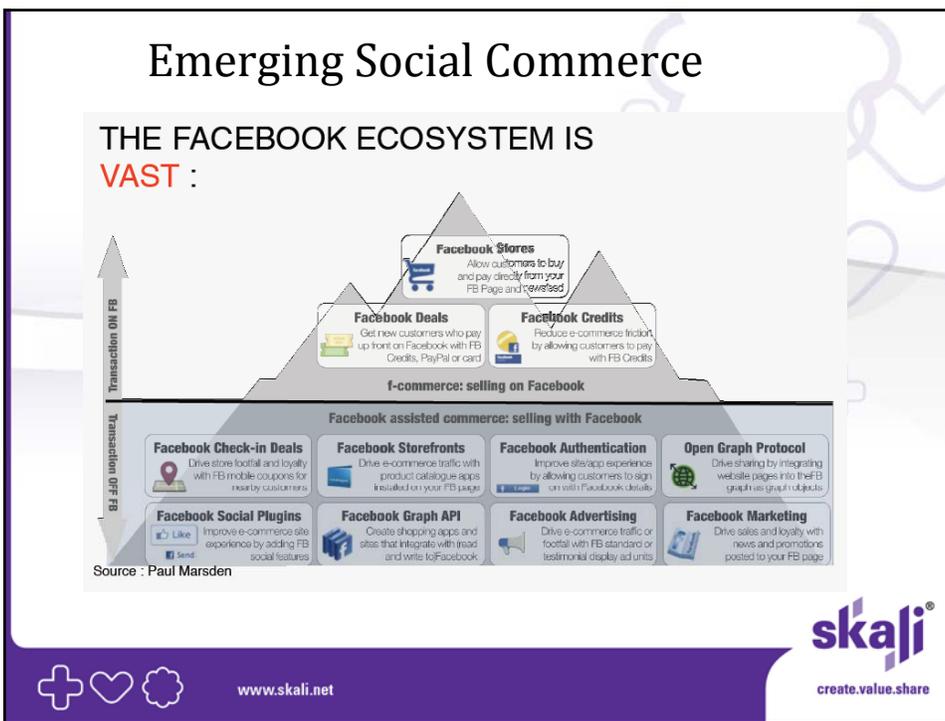
Various goods / services are now shopped online



1. Entertainment and Leisure. 2. General insurance  
 Source: IDC, AC Nielsen, BCG Analysis



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➤ **Risks of Doing Online Business**

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**THREATS!**

- Data Protection
- Identity Theft
- Credit Card Fraud
- Phishing
- Hacking
- Sniffing
- DDOS
- Defacement
- Espionage
- Data Spills
- Viruses
- Line Taps

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## Impact of Internet Fraud

- ✓ Immediate financial loss due to stolen stock/earnings
- ✓ Damaged reputation
- ✓ Loss of customer trust
- ✓ Loss of investor confidence
- ✓ Lowered sales
- ✓ Extra costs of time/money to manage each fraud incident
- ✓ Lowered staff morale
- ✓ Possible legal costs
- ✓ Lowered value of your stock/services
- ✓ Additional bank fees for transaction reversal
- ✓ Potential problems retaining your merchant's bank account after too many reversed transactions



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## General E-Business Security Issues

- Any E-Business needs to be concerned about network security.
- The Internet is a “public” network consisting of thousands of interconnected private computer networks.
- Private computer network systems are exposed to threats from anywhere on the public network.
- Businesses must protect against the unknown.
- New methods of attacking networks and Web sites, and new network security holes, are being constantly discovered or invented.
- An E-Business cannot expect to achieve perfect security for its network and Web site.



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## Security Questions

- ✓ How is the data protected once it is delivered to the E-Business?
- ✓ How are credit card transactions authenticated and authorized?
- ✓ The biggest potential security problem in an E-Business is of human, rather than electronic, origin.
- ✓ The weakest link in any security system is the people using it.



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## ➤ Current Compliance Issues



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## The Business Predicament

- Why are modern day information systems so vulnerable to destruction, error, abuse, and system quality problems?
- What types of controls are available for ecommerce systems?
- What special measures must be taken to ensure the reliability, availability and security of electronic commerce and digital business processes?
- Why are auditing ecommerce systems and safeguarding data quality so important?



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## The Business Predicament

- Do we design systems that over-controlled, and therefore not functional, or unrestricted and under-controlled?
- How do we applying quality assurance standards in large e-commerce or internet banking systems?



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## The Business Predicament

- The major concerns for businesses
  - Disaster
    - The possible destruction of computer hardware, programs, data files, and other equipment
  - Security
    - Preventing unauthorized access, alteration, theft, or physical damage to equipment
  - Errors
    - Computer actions that may disrupt or destroy organization's record-keeping and operations
  - Bugs
    - Program code defects or errors
  - Maintenance Nightmare
    - Maintenance costs high due to organizational change, software complexity, and faulty system analysis and design



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## Guidelines set by BNM

### Security Goals:

- ✓ Data Privacy & Confidentiality
- ✓ Data Integrity
- ✓ Authentication
- ✓ Non-Repudiation
- ✓ Network & Access Controls



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➤ **What measures can we take?**

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## Administrative: Policy & Approach

- What is needed?
  - Methods, policies, and procedures
- Why is it needed?
  - Ecommerce systems may provide (limited) access to a business central infrastructure
  - Ensures protection of organization's assets
  - Ensures accuracy and reliability of records, and operational adherence to management standards
- When should this occur?
  - From the ideas inception, to the completion of the ecommerce system

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## Administrative: Policy & Approach

- A review of our internal technical skills – are our staff competent enough to implement this, or should we outsource.
- Risk Management – ensure all risk associated to online business is registered & mitigated (strategic, operation, transaction, security, compliance, reputation etc)
- A firm can manage and transfer risk through insurance products



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## Administrative: Insurance Coverage Options

E-Risk Insurance	Coverage
Computer Virus Transmission	Protects against losses that occur when employees open infected e-mail attachments or download virus-laden software
Extortion and Reward	Responds to Internet extortion demands and/or pays rewards to help capture saboteurs
Unauthorized Access/ Unauthorized Use	Covers failure to protect against third-party access to data and transactions
Specialized Network Security	Responds to breach of network security and resulting losses
Media Liability	Protects against intellectual property infringement losses
Patent Infringement	Covers defensive and offensive costs when battling over patent infringement issues
Computer Server and Services Errors & Omissions	Protects e-businesses against liability for errors and omissions when their professional advice causes a client's financial loss



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## Administrative: E-commerce Framework

- Establish framework for controlling design, security, and use of computer programs
- Include software, hardware, computer operations, data security, implementation, and administrative controls. These may include:
  - Personnel controls: Ensuring that only authorised personal undertake elements of the project
  - Customer controls: Ensuring that protection is provided from the global customer layer of the ecommerce system, to the business infrastructure layer of business operations



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## Administrative: E-commerce Framework

- On-line transaction processing: Transactions entered online are immediately processed by computer, and recorded for audit
- Fault-tolerant computer systems: Contain extra hardware, software, and power supply components in case of element failure
- High-availability computing: Tools and technologies enabling system to recover from a crash, or power cut
- Disaster recovery plan: Plan of action in case of ecommerce system failure. Ask yourself the question, if we trade online and the "shop front" is gone, how do we trade?
- Load balancing: Heavy traffic will need distribution over a large servers



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## Technologies: Electronic Security Methods

- Encryption: Encoding and scrambling of messages to prevent their access without specific authorization. Most commonly used when transferring sensitive data electronically across (e.g.) the Internet
- Authentication: Providing secure mechanisms for accessing specific elements of the ecommerce system. Most common method is registration with the ecommerce system, and using usernames and passwords.
- Digital signature: Digital code attached to electronically transmitted message to uniquely identify contents and sender. Implemented when receiver needs to be assured of author of message (adopted now in hardware and operating system drivers)
- Digital certificate: Attachment to electronic message to verify the sender and to provide receiver with means to encode reply
- Secure Electronic Transaction (SET): Standard for securing credit card transactions over Internet and other networks



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## Technologies: Network and Web Site Security

- Tools such as passwords, firewalls, intrusion detection systems, and virus scanning software should be used to protect an E-Business's network and Web site.
- Patches and version controls must be regularly updated & maintained
- Server hardening must be conducted on all existing & new environment



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## Technologies: Infrastructure

- Mirroring: Duplicating all processes and transactions of ecommerce on backup server to prevent any interruption
- Clustering: Linking two computers together so that a second computer can act as a backup to the primary computer or speed up processing
- Firewalls: For prevent unauthorised users from accessing a private internal network, or accessing private data. Don't forget this covered under the data protection act.
- Intrusion Detection Systems: To monitor vulnerable points in the network to detect or deter unauthorized intruders



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## Technologies: Transaction Security & Data Protection

- Use a predefined key to encrypt and decrypt the data during transmission.
- Use the secure sockets layer (SSL) protocol to protect data transmitted over the Internet.
- Move sensitive customer information such as credit card numbers offline or encrypting the information if it is to be stored online.



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## Physical: Transaction Security and Data Protection (Internal)

- Remove all files and data from storage devices including disk drives and tapes before getting rid of the devices.
- Shred all hard-copy documents containing sensitive information before trashing them.
- Security is only as strong as the weakest link.



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## Physical: Security Audits and Penetration Testing

- Can provide an overall assessment of the firm's current exposure and vulnerabilities.
- Normally outsource to independent 3<sup>rd</sup> party specialist
- Consultant will provide a comprehensive recommendation to address list of vulnerabilities.



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Parting words...

*Give a man a fish and you feed him  
for a day.*

*Teach a man to fish and he'll use  
your credit card to pay for  
dinner."*

*Unknown author ( I found it on the net)*



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**Thank you 😊**

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