Session: Business Systems
Topic: E-Commerce

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E-Commerce
- Generally thought of as buying and selling products online
- Overall refers to transactions that are completed using almost entirely computer business systems
- Involve a Transaction Processing System, but by itself a TPS does not represent E-commerce
- Involve some network communication to connect participants (private network connections or Internet)
- Intended to speed transaction, reduce transaction costs

Transactions
- Overall a transaction involves choosing a purchase, being billed for that purchase, paying for the purchase and receiving the purchase
- E-commerce typically has computer business systems handling at least the first three steps
Basic Transaction

Choose

Bill

Pay

Ship

SONY Black PlayStation 3 with 80GB:
- Component Video Support: Yes
- Controller: Wireless Controller Bluetooth (u
- Game Media: Blu-ray/DVD/CD
- Hard Drive Capacity: 80GB
- Model #: PS3 80GB
- Item #: N07146811BB16
- Return Policy: Limited Use-Refundable 30-D

Microsoft White XBOX 360 Pro Bundle

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Transaction Processing System

- Processes the data from Transaction steps and updates a database (inventory and invoices)
- Various TPS are used to handle the steps in a Transaction (Inventory TPS, Billing TPS, POS)
- MIS is typically used to report on the data later (also more advanced systems such as Data Mining software)

- Data Collection - "May I take your order"
- Data Editing - Really data "checking"
  - Data Correction - Fix it if wrong
- Data Manipulation - "What's the damage?"
- Data Storage - Update inventory databases, accounting
- Data Output - Receipts, Inventory pick lists
Transaction Processing Cycle

Original data
  ↓
Data collection
  ↓
Data editing
  ↓
“Bad” data
  ↓
Data correction
  ↓
TPS reports
  ↓
Data storage
  ↓
Data production
  ↓
“Good” data
  ↓
Data manipulation
E-commerce Types

Business-to-Consumer (B2C)
  • Sales directly to end-customers using computer business systems
  • Web store is most common example
  • Amazon.com, BestBuy.com

Business-to-Business (B2B)
  • Transactions between businesses (not to the final consumer)
  • Retailers buying stock from wholesalers is most common example
  • Wal-Mart orders breakfast cereal from Kellogg's to sell in retail stores
  • Although B2C is more visible, B2B represents by far the largest amount of money transacted

Consumer-to-Consumer (C2C)
  • Transactions between end-customers
  • Auction web sites are the most common example
  • E-Bay, Half.com
Electronic Data Interchange (EDI)

- One of the original implementations of E-commerce, used computer business systems to automatically place orders (buyer) and accept orders (vendor/seller)
- Used Value Added Networks (VAN) - private, direct network connections between businesses called
- Use agreed to format for orders between buyer and vendor
- Implements B2B
- Buyer computer systems could automatically detect low stock quantities and automatically order
- Vendor computer systems automatically accept orders and arrange for billing and delivery (or at least generate pick list)
- Computer business systems handling Choose, Bill, and Pay steps (generally not Ship)
E-Commerce Supporting Consumer Process
- Modern E-commerce systems can help with all steps, but generally handle at least 2, 3, 4, and parts of 5

- Product Research - Web stores provide product information, reviews
- Vendor Selection - Web sites provide vendor information, reviews, stock quantities, shipping times, price
- Payment - Web sites will take your card
- Delivery - Pick lists generated and sent to warehouses/drop ship distributors. Software products may be "delivered" entirely electronically

- Some attempt to have computer business systems help generate a need ("People who bought this generally also bought..."), but still primarily advertising
- Some attempt to use computer business systems for product support (FAQ, Knowledge Bases, or Touchtone Hell)
Consumer Buying Process

1. Realizing a need

2. Researching a product

3. Selecting a vendor

4. Providing payment

5. Accepting delivery

6. Using product support

The six stages of buying goods
E-Commerce Supporting Seller Processes

- Market Research, Production, Advertising, Payment, Delivery, Support (see textbook)

Supply Chain Management

- Making sure that product is available and reaches customer

- Demand - Know what customers want and how many they want
- Supply - Buy the right amount of materials and have them put together in time
- Fulfillment - Get the product to the customer

Supply Chain Management

![Diagram of Supply Chain Management](image)
Microsoft XBox 360
• Next generation game console released November 22, 2005

Demand
• Was clear interest existed, but price was $100 higher than previous generation ($400 and $300 models)
• Pre-orders (which involve money deposits) indicate an obvious minimum quantity

Production
• Microsoft did not build up a supply to satisfy first day demand in order to launch months earlier
• Production began 69 days before launch
• Initial U.S. first month shipment estimates dropped from 1 million to 400,000. First month actual sales totaled 326,000
• Microsoft loses about $126 per console (currently makes about $75)

• At launch only 10% - 20% of pre-orders were filled
• 10% of all XBox consoles sold in the U.S. first month were resold on EBay (some exceeding $6,000)
• Rushed production led to a high defect rate due to overheating (upwards of 10%)
Microsoft XBox 360

Verdict

- Demand possibly estimated correctly
- Production a complete failure (although 1 year lead on competitors)

- Microsoft did not reach their original worldwide target of 3 million units sold in the first 90 days, directly attributable to failed supply, and revised their estimate to 2.5 million (in reality approximately 1.5 million shipped by years end)
- 500,000 units X $400 = $200,000,000
- 200,000,000 seconds is about 6.34 years
- Sold 11.6 million worldwide as of October 2007 (~2 years)

- Estimated $1 billion cost to Microsoft for repairs and replacement
- $1 billion in $1000 bills would make stack 63 miles high (jet planes fly at about 6 - 8 miles high)
Gears of War
- Early XBox 360 game delayed from launch for a year (November 7, 2006)
- First game to show truly revolutionary next generation graphics and gameplay

Demand
- EB Games/Gamestop announced a Tuesday midnight special event at stores for customers to obtain as early as possible on release day

Fullfillment
- Release was then delayed to 10:30 a.m. Wednesday, then 5:00 p.m. Wednesday shipment
- Finally available late Thursday, at same time as Wal-Mart and a day later than Best Buy
- Federal Express left 70% of game copies on a loading dock in Memphis Tennessee

Verdict
- Delivery failures resulted in lost sales, cancelled preorders, and very unhappy customers
- EB Games/Gamestop apparently no longer uses FedEx for game launch shipments (What can Brown do for you?)
- Gears of War sold 3 million units worldwide within ten weeks (by January 19, 2007)
- Fastest selling title of 2006 and fastest selling exclusive XBox game of all time
- A movie version was announce on March 20, 2007
Sony PlayStation 3
- Next generation game console released a year after XBox 360 (November 11, 2006 in Japan, November 17 U.S.)

Demand
- Predicted to be high, but priced at $600 and $500
- Includes built in Blu-Ray player, a new un-established technology that adds $200 - $300 per unit

Production
- Sony loses about $240 per console (currently may lose about $140)
- Initial announcement was for 400,000 launch units, but actual shipment was 40% short
- Severe lack of Blu-Ray laser diodes hindered production
- Newly created, complex Cel processor hindered production
- Rushed production resulted in a lack of exclusive games that continues to this day
Sony PlayStation 3

Verdict

- Sony shipped 1 million units to the U.S. by January 1, 2007, however many remain unsold
- Sold 5 million worldwide as of October 2007 (but not restricted by production)
- In the U.S. June 2007 the PS3 was outsold 4.4 to 1 by the Nintendo Wii and 2.2 to 1 by the XBox 360
- Release of new PS3 games continues to suffer, as low as 12 titles a month (game sales is where hardware costs are recouped)
- The PS3 is outsold by its predecessor the 7-year old PS2

- Inclusion of Blu-Ray and new Cel processor technology hindered initial production (and thus sales)
- Inclusion of Blu-Ray, high cost and lack of game titles hinders current demand
- Sony Game Division has lost about $2 billion as of March 2007
Nintendo Wii
• Offering in the next generation game console market that is actually using older graphics and computing technology
• However, used a new concept in game controllers with motion detection features (still using old technology)
• Released September 14, 2006

Demand
• With less advanced hardware and a $250 price aimed at average gamers and cost-conscious costumers
• The name is intended to imply "We" - a console for everyone

Production
• Since it uses older, more available hardware Nintendo can more easily produce in quantity
• In the U.S. sold 600,000 in the first eight days
• Wii motion controller actually scarce
• Monthly sales of Wii consoles are higher than all competitors across the globe
• Due to older, cheaper technology, Nintendo makes about $50 per console
Nintendo Wii

Verdict

- In the first half of 2007 the Wii has sold more units in N.A. than XBox 360 and PlayStation 3 combined
- Despite being able to provide more units, Wii consoles are regularly sold out at stores
- By September 12, 2007 the Wii surpassed the XBox 360 to become the leader in worldwide console sales with 11.8 million worldwide
- Nintendo also makes money for each console sold, as opposed to Microsoft and Sony losses
- Older technology in the Wii is crushing all competition in both sales and profit

![U.S. Console Sales Chart]

(Source: NPD)
Summary

- Supply chain management is critical to success
- You must deliver
- Demand for new technology may not compare to demand for price and usability
- The U.S. video games industry is expected to make $17-18 billion in 2007

References

Microsoft XBox 360


Gears of War

PlayStation 3

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Nintendo Wii

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E-Commerce Implementation

Main Components
- Interface - How customers buy stuff
- Transaction Processing
- Database Maintenance - Inventory and invoices (typically heavily tied to Transaction Processing)
- Payment Processing

- Any component can be implemented by third-parties (an E-Commerce Host)
- Database of products is often not out-sourced though

Interface
- Often handled by Web sites (typically for customers)
- Can be handled using EDI
- Web Services allow systems to communicate over the Internet

Payment Processing
- Fairly specialized systems linked with banks
- Need "Merchant Account" to use credit cards

Security Issues
- Authentication - Is user real? Is vendor real?
- Encryption - must encode transmitted data
- Protocols - SSL, HTTPS, TLS
E-Commerce Implementations
Credit Card Transactions