

# Curs 7

## - Management Logistic

- E-Logistics in cadrul E-Commerce

Galatus Ramona

5 dec 2019

---

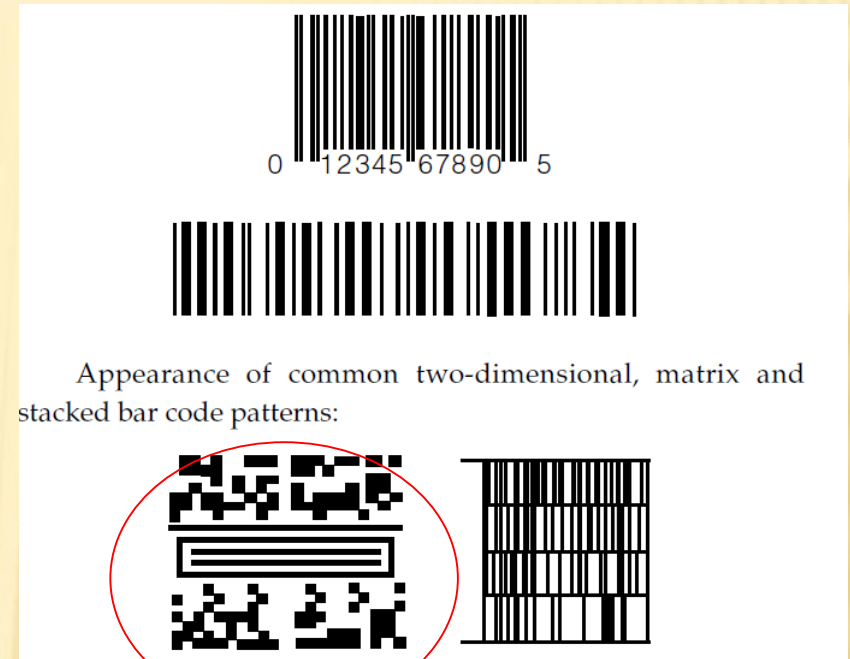
# CE ESTE E -LOGISTICS

---

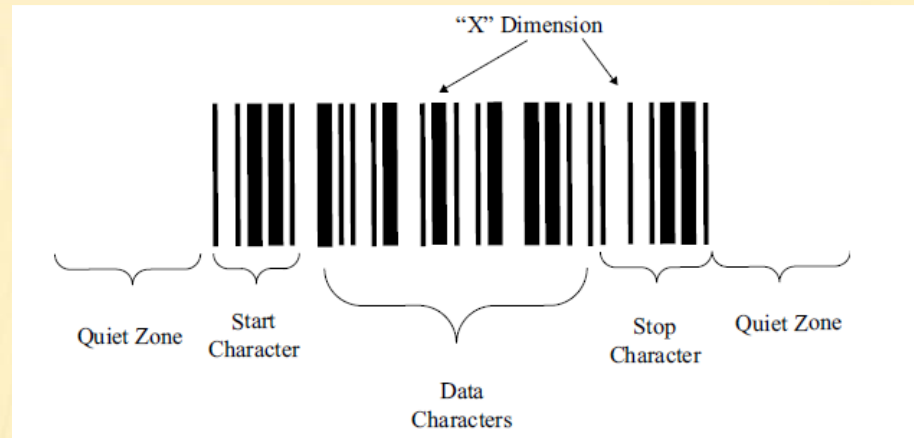
- × DELIVERED BY TECHNOLOGY
- × <https://www.youtube.com/watch?v=4HuN-a6K8Ws>
- × <https://www.youtube.com/watch?v=-1oq3Z6XXqo>
- × <https://www.youtube.com/watch?v=j-9EBGLhBoE>
- × <https://www.youtube.com/watch?v=INv7FRif5wQ>
- × <https://www.youtube.com/watch?v=ygvl5HQCDfg>
- × <https://www.youtube.com/watch?v=2laSPgGUgow>
- × <https://www.youtube.com/watch?v=AzHmbbc8LUE&list=PL411D02A836D8CDF8>
- × <https://www.youtube.com/watch?v=ZbPMaxNI3J4&index=3&list=PL411D02A836D8CDF8>
- × <https://www.youtube.com/watch?v=7OBQnVX0T5M>
- × Siemens
- × <https://www.youtube.com/watch?v=2KIXiYcldoA>
- × <https://www.youtube.com/watch?v=MOTSWcPwsUQ>
- × Siemens in Dubai
- × <https://www.youtube.com/watch?v=Pu9K8gCk0cY>
- × London
- × <https://www.youtube.com/watch?v=Wn8qogHH9bM>
- × Carti
- × <https://www.youtube.com/watch?v=h5UBi5NwAIQ>

# Codul de bare

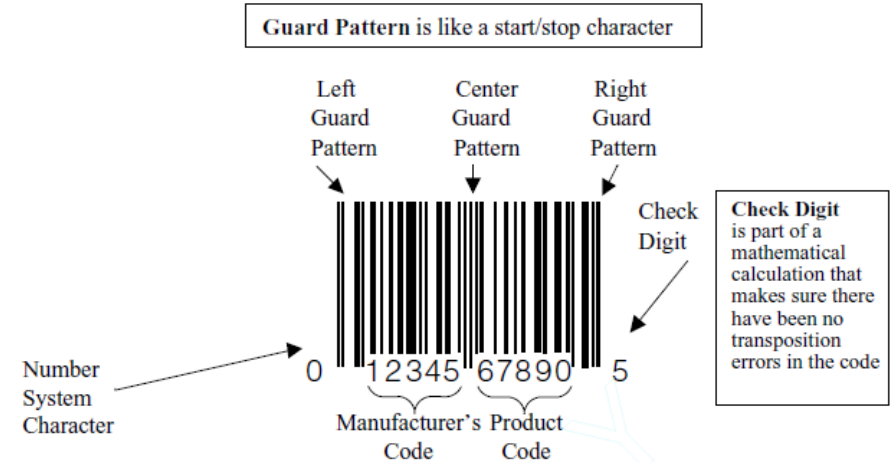
- × *Activitati*
- × Manufacturer
  - Supplier
  - SKU number
  - Description
- × Pack size
  - Ship to address
  - Bill To address
  - Credit terms
  - Identification of receiving clerk, stock replenishment worker, order filler, shipping clerk
- × Shipper
  - Carrier
  - Quantity
  - Throughput rates, e.g., pieces per hour
  - Time, date
- × Location
- × Purchase order identification



# Structura



## ✘ Exemplu structura



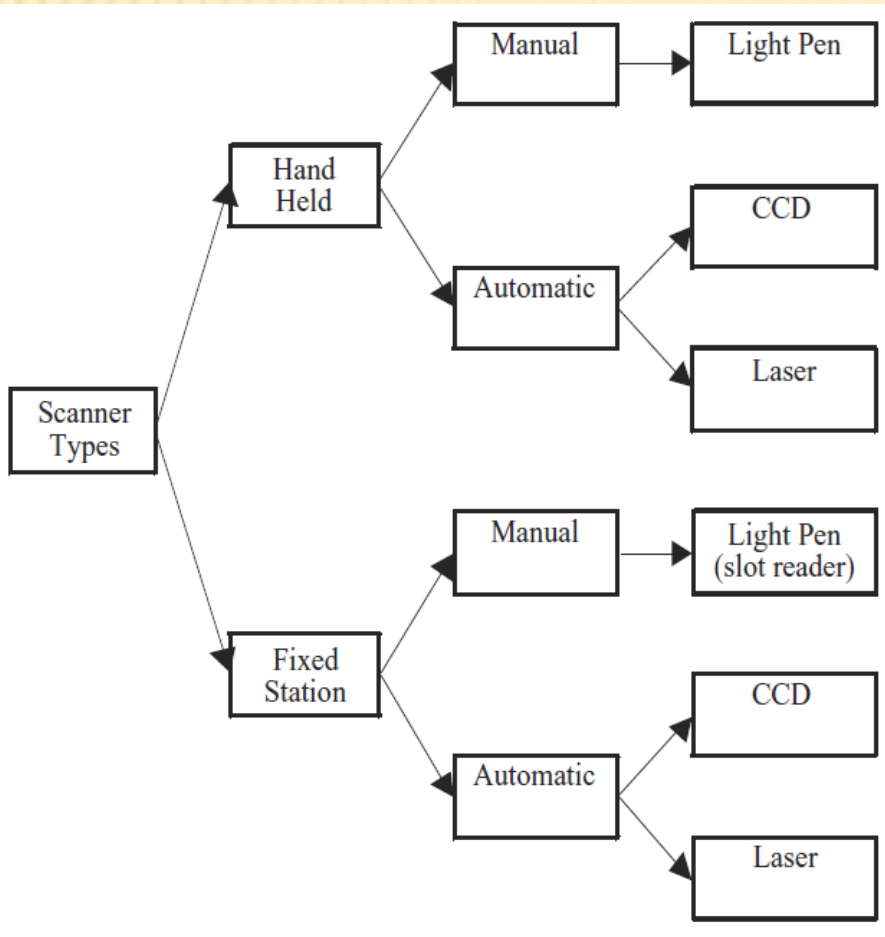
**Number System Character**  
If you see this number in the "Number System Character" position, it means

| # | Meaning  |
|---|--|
| 0 | 92,000 manufacturer identification numbers; 8,000 locally assigned numbers |
| 1 | Reserved   |
| 2 | Random weight consumer packages  |
| 3 | Drug products  |
| 4 | In-store marking   |
| 5 | UPC coupons  |
| 6 | 100,000 manufacturer identification numbers                                |
| 7 | 100,000 manufacturer identification numbers                                |
| 8 | Reserved   |
| 9 | Reserved   |

**Manufacturer's Code**  
is assigned by the Uniform Code Council; a unique code to each company.

**Product Code**  
is assigned by the manufacturer

# Modalitati de citire



- Light pen (wand scanner)
  - Makes contact with the label or surface on which pattern is printed
  - Inexpensive
  - Durable
  - Can be tied into various decoder types of equipment
- Charge Coupled Device (CCD)
  - Has a depth of field of several inches so you do not have to make contact with the label or other surface. Therefore, you can read through shrink wrap, which is common in warehousing operations.
  - Floods symbol with light and reflectance illuminates photodetectors in the CCD scanner. Can read very high bar code densities
  - Moderate cost
- Lasers
  - Project a beam of energy off of a rotating prism or oscillating mirror
  - Depth of field of several feet
  - Expensive but versatile

# Modalitati de printare a codului de bare

- **Direct Thermal**—Overlapping dots are formed on a heat-sensitive substrate (label or other foundation) by selectively heating elements in a printhead.
  - **Thermal Transfer**—Same concept as direct thermal except the image is transferred to the substrate from a ribbon that is heated by the elements in the printhead.
  - **Dot Matrix Impact**—A moving printhead with rows of hammers that creates images through multiple passes over a ribbon.
  - **Ink Jet**—A fixed printhead sprays tiny droplets of ink onto a substrate.
  - **Laser (Xerographic)**—A controlled laser beam creates an image on an electrostatically charged, photoconductive drum. The charged areas attract toner particles that are transferred and fused onto the substrate.
-

# Exemplu de aplicatie

## DAILY INSPECTION CHECKLIST Electric Forklift Truck

### KEY OFF Procedures

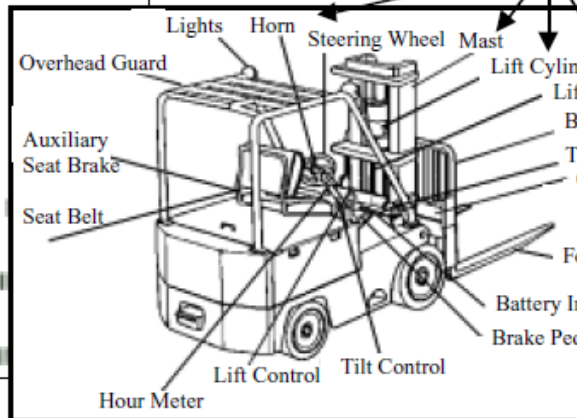
- The vehicle inspection
- Overhead guard
- Hydraulic cylinders
- Mast assembly
- Lift chains and rollers
- Forks
- Tires
- Examine the battery
- Check the hydraulic fluid level

### KEY ON Procedures

- Check the gauges
  - Hour meter
  - Battery discharge indicator
- Test the standard equipment
  - Steering
  - Brakes
  - Front, tail, and brake lights
  - Horn
  - Safety seat (if equipped)
- Check the operation of load-handling attachments

All procedures and parts of forklift labeled with bar codes

Scan



## Time, Attendance and Activity Menu

- Scan Badge
  - Barcode: Clock In
  - Barcode: Clock Out
- Scan Job Number
  - Barcode: Start Job
  - Barcode: Reset
- Scan Job Status
  - Barcode: Stop -- Job Complete
  - Barcode: Stop -- Job Incomplete

## Menu Cards

| EMPLOYEE |          |
|----------|----------|
| Barcode  | Charlene |
| Barcode  | Paulina  |
| Barcode  | Jerry    |
| Barcode  | Jordan   |
| Barcode  | Alison   |
| Barcode  | Brandon  |
| Barcode  | Karen    |

| Stock Number and Description    |                                 |                                    |
|---------------------------------|---------------------------------|------------------------------------|
| Barcode                         | Barcode                         | Barcode                            |
| SKU 1234<br>10 PACK Red Pens    | SKU 1235<br>10 PACK Blue Pens   | SKU 1236<br>10 PACK Green Pens     |
| Barcode                         | Barcode                         | Barcode                            |
| SKU 1237<br>10 PACK Yellow Pens | SKU 1238<br>10 PACK Purple Pens | SKU 1239<br>10 PACK Orange Pens    |
| Barcode                         | Barcode                         | Barcode                            |
| SKU 2120<br>1 dz Big Widgets    | SKU 2121<br>1 dz Medium Widgets | SKU 2122<br>1 dz Small Widgets     |
| Barcode                         | Barcode                         | Barcode                            |
| SKU 2123<br>1 dz Tiny Widgets   | SKU 2124<br>1 dz Ugly Widgets   | SKU 2125<br>1 dz Real Ugly Widgets |

| Quantities Keypad                                    |           |         |
|--|-----------|---------|
| To enter quantities, scan quantities, and scan Enter |           |         |
| Barcode  | Barcode   | Barcode |
| * 7 *  | * 8 *     | * 9 *   |
| Barcode  | Barcode   | Barcode |
| * 4 *  | * 5 *     | * 6 *   |
| Barcode  | Barcode   | Barcode |
| * 1 *  | * 2 *     | * 3 *   |
| Barcode  | Barcode   | Barcode |
| * 0 *  | * . *     | * \$ *  |
| Barcode  | Barcode   | Barcode |
| * - *  | * + *     | * / *   |
| Barcode  | Barcode   |         |
| * Enter *  | * Clear * |         |

| Activity Description |                    |                    |
|----------------------|--------------------|--------------------|
| Barcode              | Barcode            |                    |
| Received             | Shipped            |                    |
| Barcode              | Barcode            | Barcode            |
| To Storage           | To Quality Control | To Salvage         |
| Barcode              | Barcode            | Barcode            |
| To Disposal          | Hold At Dock       | To Holding Area A  |
| Barcode              | Barcode            | Barcode            |
| Selected             | Tested             | Received As Sample |

1. Bar code markings in both machine readable and human readable form are placed on both the storage locations (shelves, racks, drawers, bins) and on the product itself.

2. A counter equipped with a portable scanner:

- a. Scans in the identity of the SKU.
- b. Enters the quantity through a keypad on the scanner. The record count and shelf count can be compared in a variety of ways:



- (1) The shelf count as captured by the scanner and counter can be transmitted into the system by way of radio frequency at the time of information capture, or it can be uploaded from the scanner at a later time. The computer system would then generate an exception report of those items where the record and shelf counts did not match.

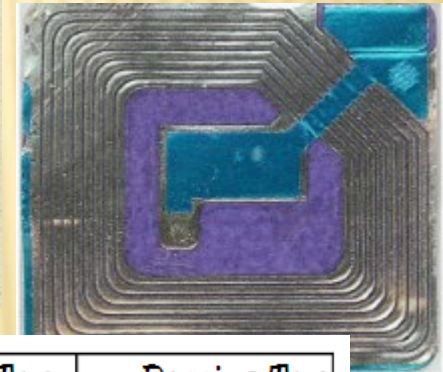


- (2) Scanners are small computers. Because of that they can contain software allowing them to have the record count stored within them. As the scanner reads the bar code and the counter enters the quantity information, the scanner could immediately compare the record count and shelf count. If there was a discrepancy, the scanner could alert the counter either through audible tones, flashing lights, or LED displays. The counter could then immediately initiate a recount.



# RFID si IRID

- ✘ Identificare electronica de la distanta pe baza semnalelor RF- radiofrequentia si IR – infrarosu
- ✘ U.S. patents for RFID tags were from Mario W. Cardullo and Charles Watson in 1973



- ✘ Tipuri
  - + Pasiv
  - + Semi-activ
  - + activ

|                                 | Active Tag                               | Passive Tag                             |
|---------------------------------|--|---|
| Tag Power Source                | Internal to Tag                          | Energy transferred using RF from reader |
| Tag Battery                     | Yes                                      | No                                      |
| Required signal strength to Tag | Very Low                                 | Very High                               |
| Range                           | Up to 100m                               | Up to 3-5m, usually less                |
| Multi-Tag reading               | 1000's of Tags recognized - up to 100mph | Few hundred within 3m of reader         |
| Data Storage                    | Up to 128 Kb or read/write & search      | 128 bytes of read/write                 |

# RFID pasiv

- ✗ Nu are nevoie de sursa integrata de putere – cel mai simplu tip si cel mai ieftin
- ✗ Timp de viata mare

# activ

- ✗ Are nevoie de sursa integrata, timp de viata mai mic

An **RFID Interrogator (or Reader)** is a device that is used to interrogate an RFID Tag. The reader has an antenna that emits radio waves; the Tag responds by sending back its data

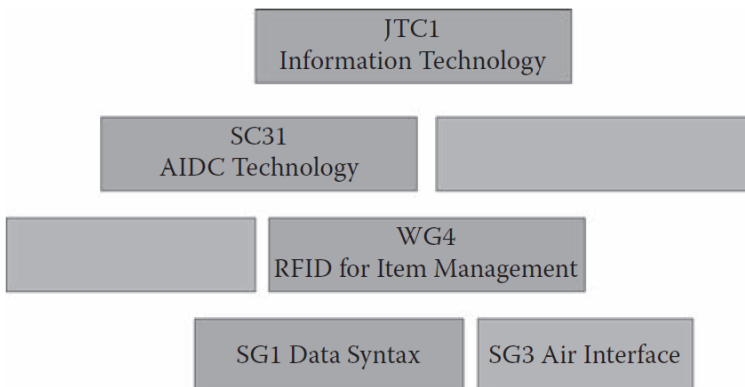
The reader has two basic components:

- A scanning antenna
- A transceiver with a decoder to interpret the data

Readers can be at a fixed point such as:

- Entrance/exit
- Point of sale
- Warehouse

Readers can also be mobile, tethered, hand-held, or wireless.



Performa Long Range Reader



Fig. 7: RFID Interrogators

# EPC code – electronic product code

01.0000A89.00016F.000169DC0

|                    |                          |                            |                             |
|--------------------|--------------------------|----------------------------|-----------------------------|
| Header<br>0-7 bits | EPC Manager<br>8-35 bits | Object Class<br>36-59 bits | Serial Number<br>60-95 bits |
|--------------------|--------------------------|----------------------------|-----------------------------|

E.G. 613.23000.123456.123456789 (96 bits)

- **Header** - defines data type (8 bits)
- **EPC Manager** - describes originator of EPC (Product manufacturer) (34 bits)
- **Object Class** - Could describe the product type (20 Bits)
- **Serial Number** - Unique ID for that product item (34 Bits)

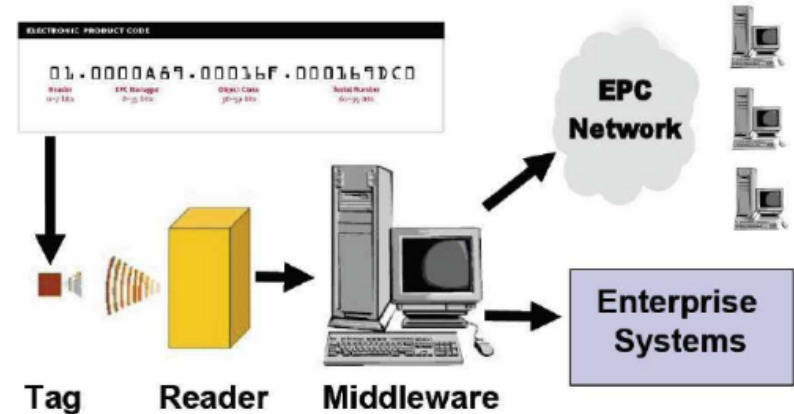
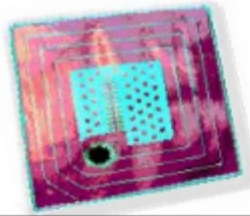


Fig. 8: The Working of an RFID System

## Sequence of Communication

- Host Manages Reader(s) and Issues Commands.
- Reader and Tag communicate via RF signal.
- Carrier signal generated by the reader (upon request from the host application).
- Carrier signal sent out through the antennas.
- Carrier signal hits Tag(s).
- Tag receives and modifies carrier signal & sends back a modulated signal or reflects back the incoming signal depending upon the type of the Tag.
- Antennas receive the modulated signal & send them to the Reader.
- Reader decodes the data & results are returned to the host application.

# Comparatie RFID-barcode



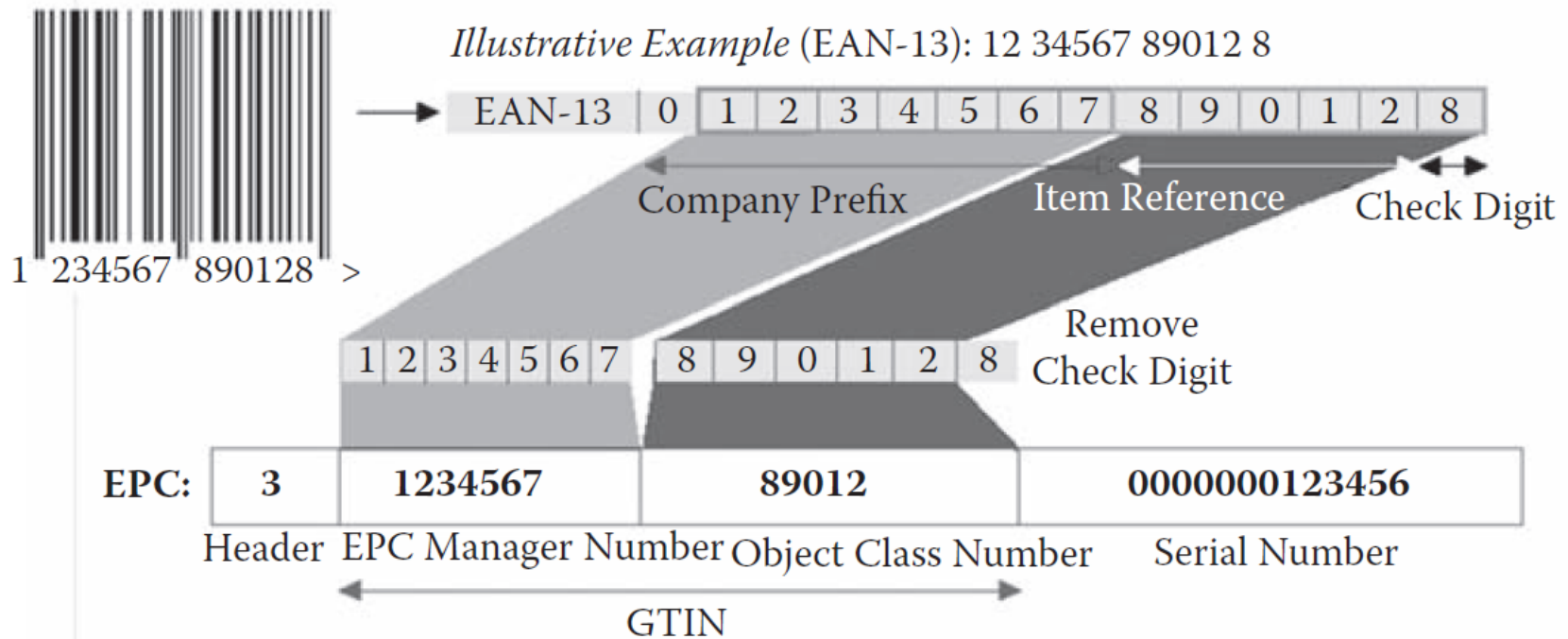
| RFID   | Bar Code                                     |
|--|--|
| Forging is difficult   | Forging is easy                              |
| Scanner not required. No need to bring the Tag near the reader                         | Scanner needs to see the bar code to read it |
| RFID is comparatively fast   |  |
| Can read multiple Tags   | Can read only one Tag at a time              |
| Relatively expensive as compared to Bar Codes<br>(Reader 1000\$, Tag 20 cents a piece) |  |
| Can be reusable within factory premises  | Cannot be reused                             |

Table 2: RFID vs. Bar Code



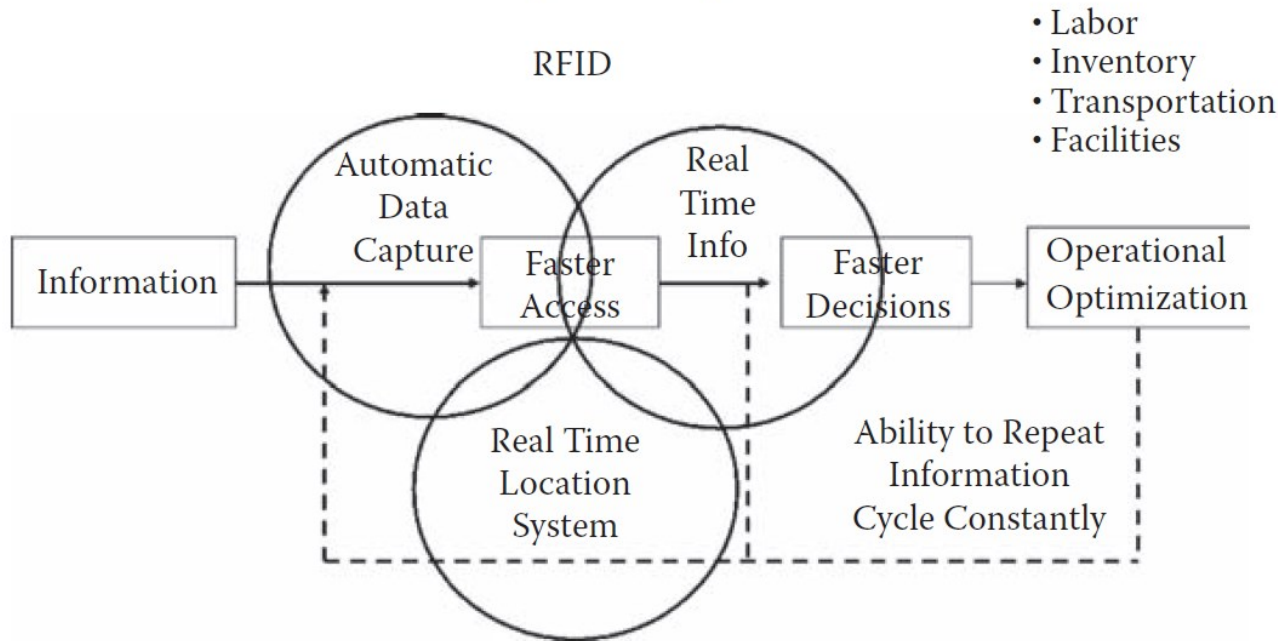
# Compatibilitati

## An Example of How GTIN Integration Works With the EPC

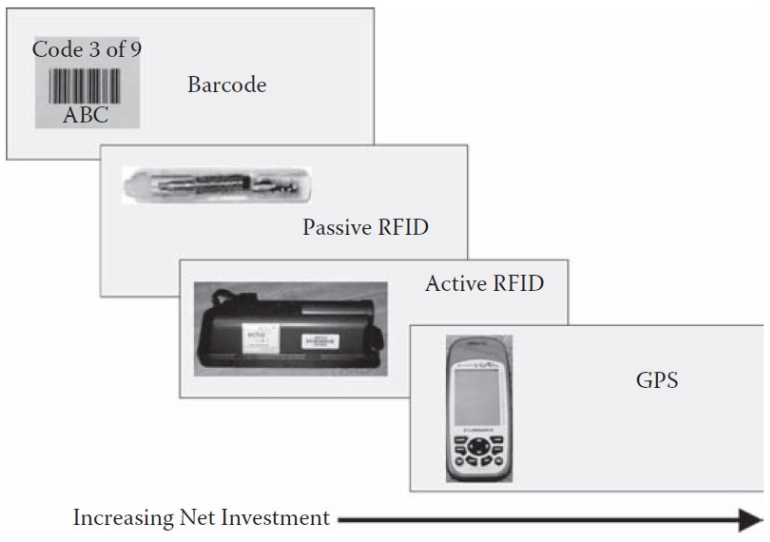


# Sistemul care contine RFID-ul trebuie proiectat in prealabil, dupa parametrii prestabiliti

## RFID Enabling Technologies

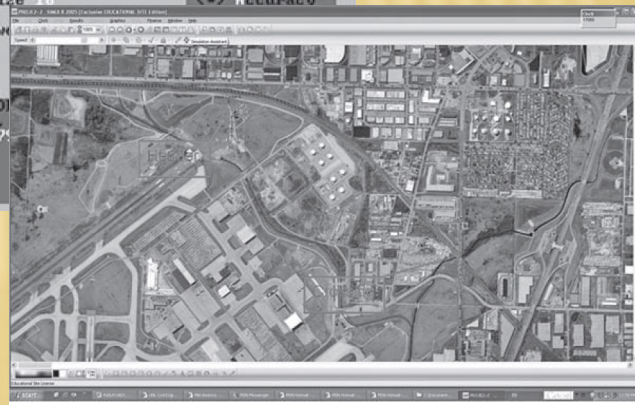


- Labor
- Inventory
- Transportation
- Facilities



```

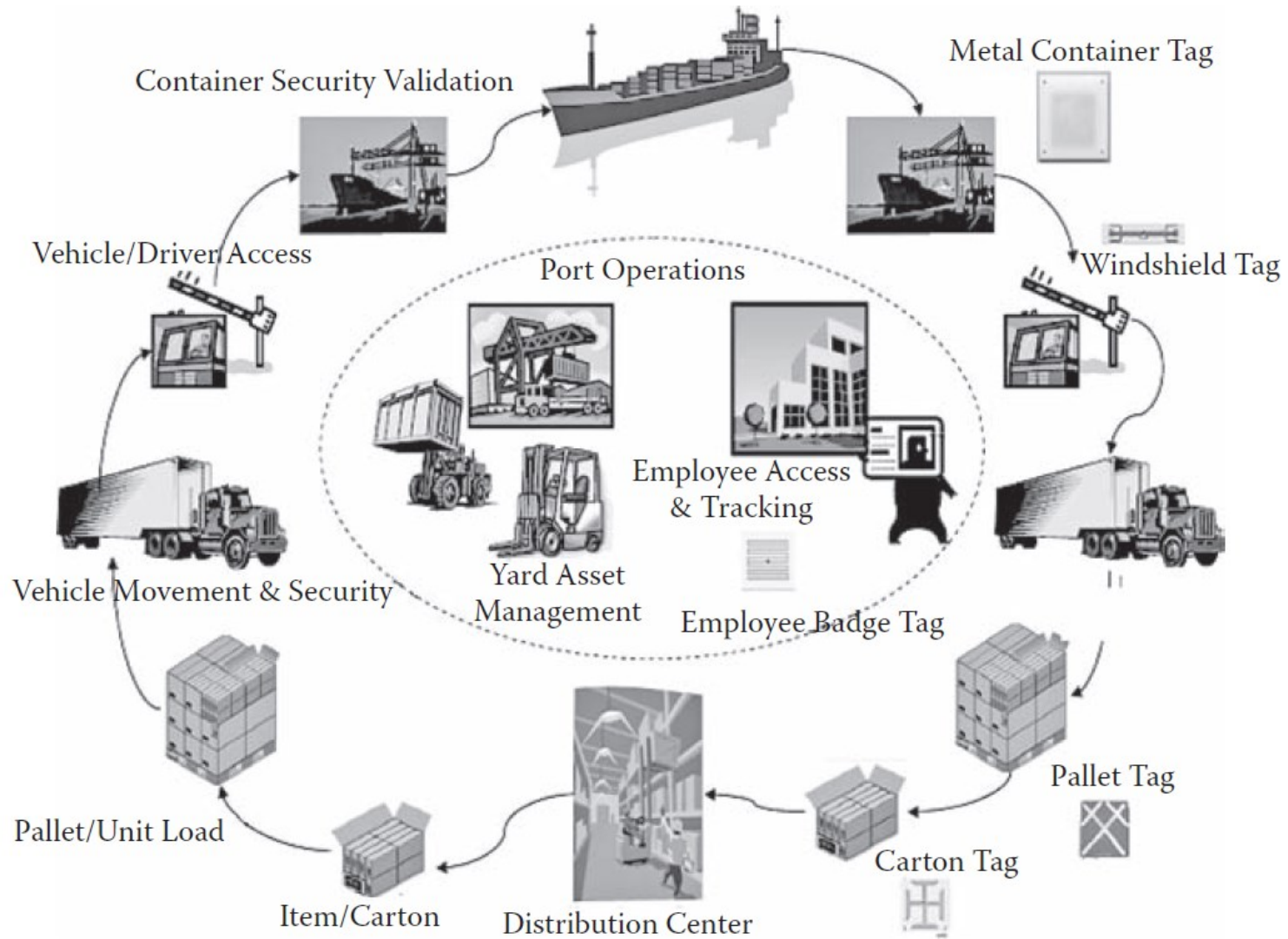
GPOWER.EXE
Tests Colors 144kB free 23:15:12
Calculate Calc Effectsize Graph Analysis
Effect size f^2 1.5 Lambda 27.0000
Alpha 0.05 Critical F(4,13)=3.1791
Power 0.95 Total sample size 18
Predictors 4 Actual power
Protocol
F-TEST IN MULTIPLE REGRESSION, A PRIOR
Effect size f^2=1.5, Alpha=0.05, Power=0.95,
Total sample size=18, Critical F(4,13)=3.1791
    
```



# Exemple de aplicatii specifice

- × Animal Tracking RFID Applications
- × Credit Device RFID Applications
- × Secure Document RFID Applications
- × DOD RFID and Wireless Communications Initiatives
- × Entertainment RFID Applications
- × Evaluating RFID Solutions for Health Care Improvement
- × RFID Applications in Libraries
- × Marine RFID Security Applications
- × Inventory Tracking on International Space Station Using RFID Technology
- × Individual Sport Competition RFID Applications
- × Surgical RFID Technology Applications
- × Tollway RFID Applications
- × RFID Transportation Systems Applications
- × Marine Terminal RFID Applications
- × RFID Uses in Warehousing

# RFID





# E-commerce

## × Comertul virtual

- + Asigura acelasi rang pentru activitatile de comert pentru o societate de bussiness mic ca cel pentru o corporatie de dimensiuni mari
- + Servicii de tip B2B si B2C, de cost mic si in timp real
- + Reducerea timpului de inventariere si a timpului per-global (time cycle)
- + E-store, e-catalog, e-order entry, e-payment
- + Interfete Web pentru :
  - × requests for quotations (RFQ),
  - × requests for information (RFI),and
  - × requests for proposals (RFP)

Link : <http://www.wimbosman.be/en/e-logistics/introduction.aspx>

<http://www.epple.co.uk/>

# Aplicatii e-commerce

Advertising  
Distance learning  
Electronic conferencing  
Electronic mail (e-mail)  
Electronic posting  
Health-care management  
Home shopping  
Interactive games  
Inventory management  
Marketing  
Newsgroups and discussions  
News on demand  
Online banking  
Online employment  
Online software distribution  
Online training  
Politics (voting, participating in political forums and chat groups, keeping in touch with the White House, Senate, and the Congress, using the Web for political fundraising).  
Remote login  
Sale of products and services  
Software distribution  
Telecommuting  
Transferring files with file transfer protocol (FTP)  
Video on demand  
Videophones  
Virtual classrooms bring the world into your home anywhere in the world with Internet connection by tapping into expertise throughout the world.  
Online demo of products and services throughout the world  
Virtual reality games

# Ce este necesar

- ✘ O conexiune la Internet (ISP)
- ✘ Acces direct (Internet) sau securizat (Intranet, Extranet) pe baza unui cont
- ✘ Un browser
- ✘ O aplicatie specifica
  - + cu continut fix – ex de tool pentru e-commerce Zen Cart - <http://www.zen-cart.com/showcase.php?do=showcat&catid=14> , Referinta - “E-commerce Application Development – A step by step application development”
  - + sau variabil (care sa fie actualizat periodic) – cu o BD (baza de date -consistenta)- pagini web, SAP
- ✘ Un server de BD (SQL Server sau Oracle)
- ✘ BD cu continut personalizat tipului de activitati specifice organizatiei (ex. Nr de depozite, nr de angajati, numar departamente etc.)

Link referinta- <http://www.consumerreports.org/cro/index.htm>

Link utilizare statistica a internet-ului:<http://www.internetworldstats.com/top20.htm>

# Caracteristici

## Major Beneficiaries of E-Commerce

---

Banks  
 Entertainment  
 Government -administratie  
 Insurance -asigurari  
 Marketing  
 Online publishing -publicatii on-line  
 Retailers -comercianti  
 Training -cursuri de formare  
 Travel industries -turism  
 Universities

---

## Business Uses of the Internet

---

Buying and selling products and services  
 Collaborating with others  
 Communicating within organizations  
 Gathering information  
 Gathering information on competitors  
 Providing customer service  
 Providing software update and patches  
 Providing vendor support  
 Publishing and disseminating information

---

## Popular Products and Services Purchased Online

---

Airline tickets and travel  
 Apparel and footwear  
 Banking services  
 Books and music  
 Computer hardware, software, and other electronics  
 Flowers and gifts  
 Stock brokerage services

---

## E-Commerce versus Traditional Commerce

---

| Activity                   | Traditional commerce | E-commerce                                    |
|----------------------------|----------------------|---|
| Product information        | Magazines, flyers    | Web sites<br>Online catalogs                  |
| Business communications    | Regular mail, phone  | E-mail  |
| Check product availability | Phone, fax, letter   | E-mail, web sites, and extranets <sup>a</sup> |
| Order generation           | Printed forms        | E-mail, web sites                             |
| Product acknowledgments    | Phone, fax           | E-mail, web sites, and EDI <sup>b</sup>       |
| Invoice generation         | Printed forms        | Web sites                                     |

<sup>a</sup>Extranets are the connection of two or more intranets. Intranets are internal networks that use web technologies. (They both will be discussed in Chapter 4.)

<sup>b</sup>Electronic data interchange (discussed in Chapter 5).

# Model B2C si B2B

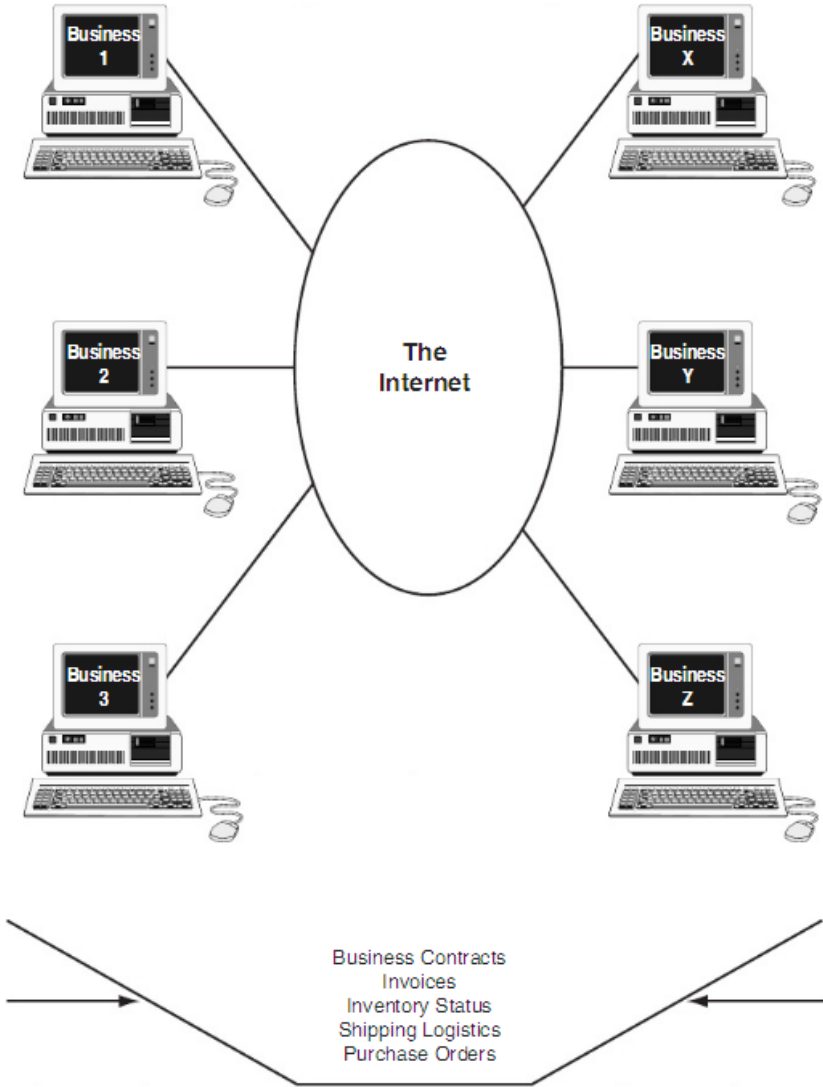
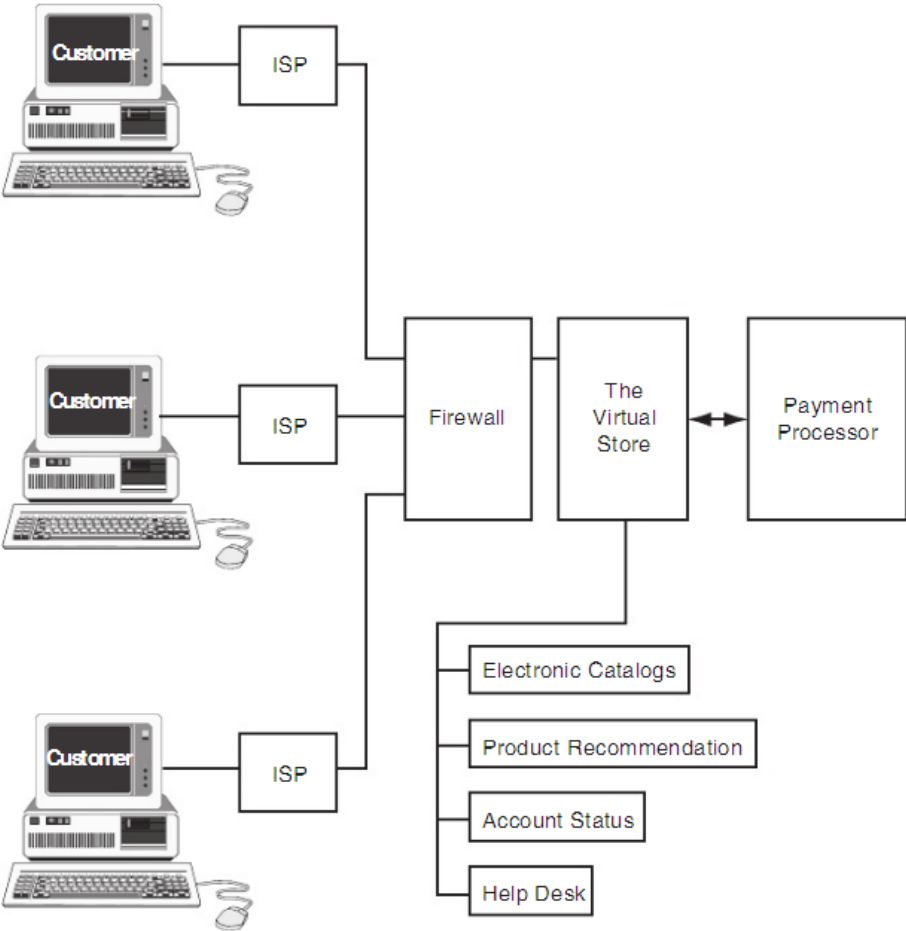


Figure 2-2 A generic business-to-business (B2B) e-commerce configuration.

# Operatii B2C

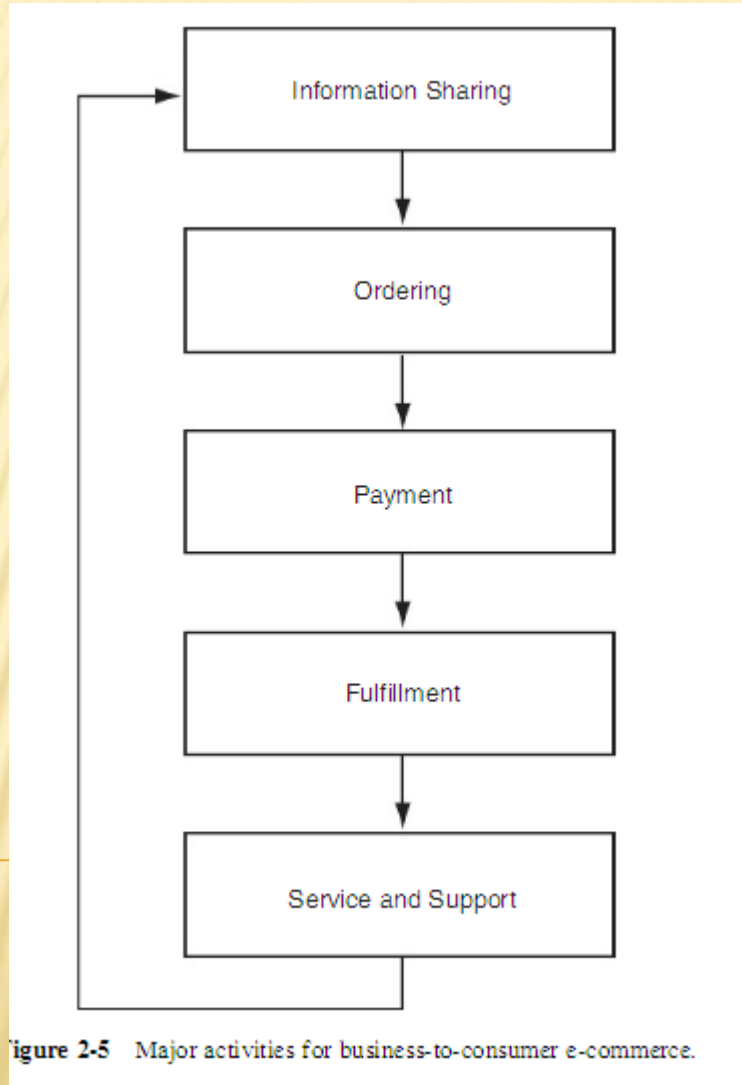


Figure 2-5 Major activities for business-to-consumer e-commerce.

# Avantaje si dezavantaje

## Selected Possible Advantages of E-Commerce

---

Doing business around the globe 7 days a week, 24 hours a day  
Gaining additional knowledge about potential customers  
Improved customer involvement  
Improved customer service  
Improved relationships with suppliers  
Improved relationships with the financial community  
Increased flexibility and ease of shopping  
Increased number of customers  
Increased return on capital and investment, since no inventory is needed  
Personalized service  
Product and service customization

---

Table 2-3

## Some Disadvantages of E-Commerce

---

Possible capacity and bandwidth problems  
Security issues  
Accessibility (not everybody is connected to the Web yet)  
Acceptance (not everybody accepts this technology)  
A lack of understanding of business strategy and goals

---

## Advantages of Business-to-Business E-Commerce

---

Lower production cost  
More timely information  
Increased accuracy  
Improved cycle time  
Increased communications  
Improved inventory management

---

# Model intranet

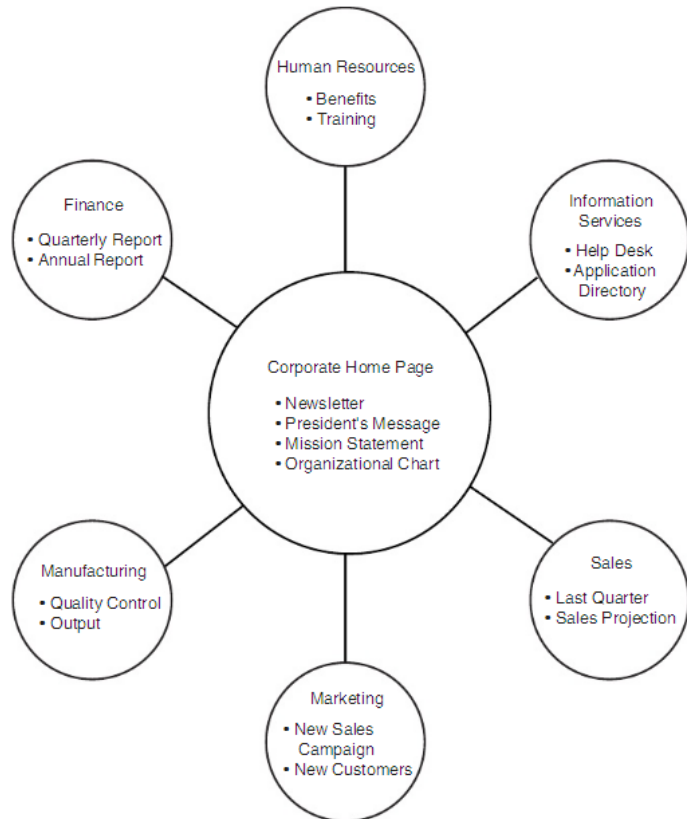


Figure 4-2 An organization intranet structure.

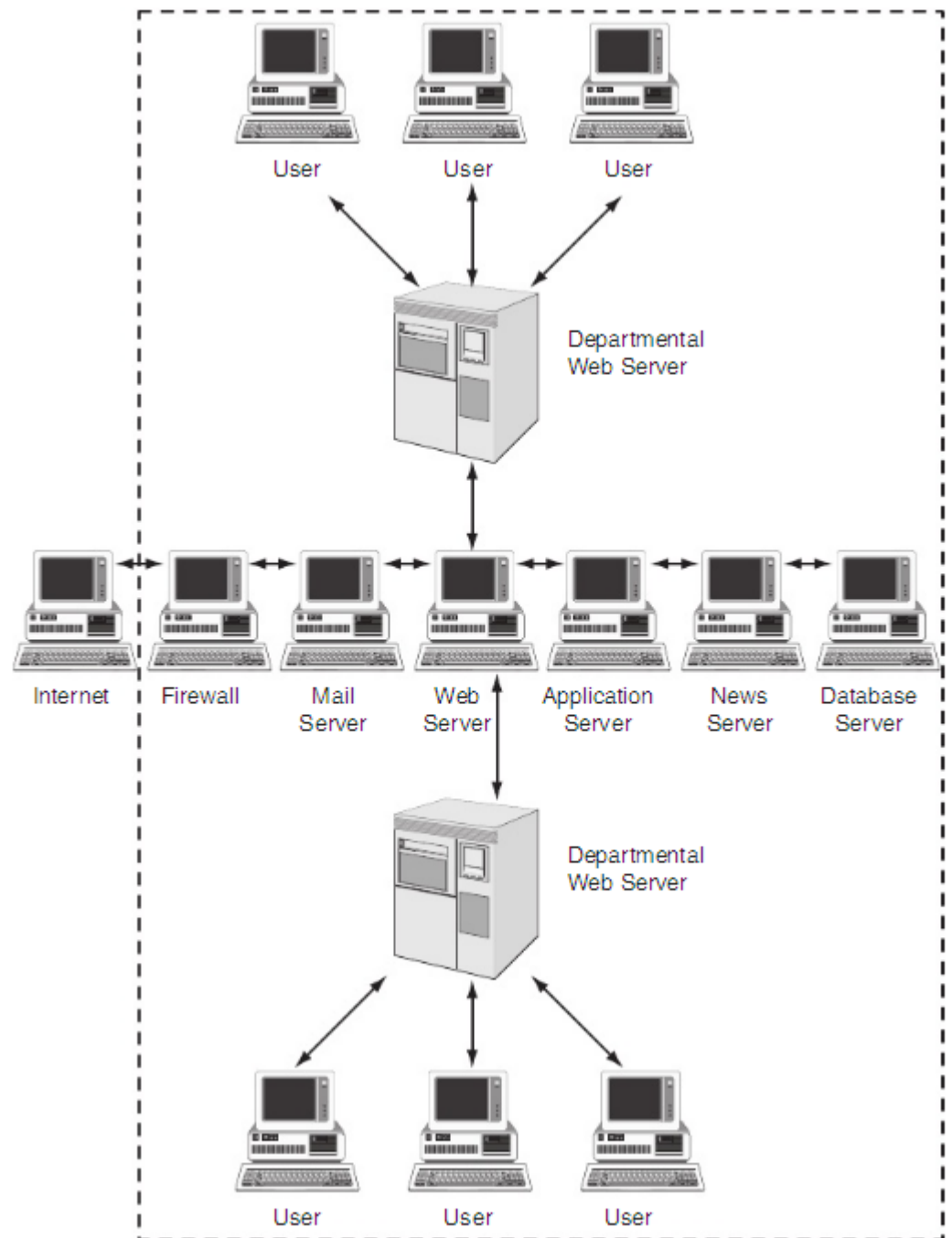


Figure 4-1 A simple intranet configuration.



# Informatii disponibile prin intranet

## Possible Information Provided by the Intranet

|  |  |
|--|--|
|  | New product offerings  |
| Budget planning  | Newscast on demand to desktop, custom filtered to client profile |
| Calendar events  | Online training  |
| Call tracking  | Order placement  |
| Company mission statement and policies                                 | Order tracking   |
| Competition data regarding the latest actions taken by the competitors | Organizational charts  |
| Contest results  | Patient treatment sign-off                                       |
| Customer information   | Personnel policy   |
| Department information   | Press releases   |
| Employee classified  | Product catalog  |
| Employee stock options   | Project information  |
| Equipment inventory  | Salary ranges  |
| Expense report   | Sales tips   |
| Facilities management  | Software program tutorials                                       |
| Industry news  | Suggestion box   |
| Job postings   | Telephone listings   |
| Job descriptions   | Time cards   |
| Leave of absence and sabbatical news                                   | Training manuals   |
| Maps   | Training schedules   |
| Medical benefits   | Travel authorization   |
| Meeting minutes  | Upcoming functions   |
| New hire orientation materials   |  |

# Model Extranet

✘ Conexiune securizata pentru accesul la informatii despre/pentru partenerii de afaceri:

- + Clientii
- + Vanzatorii
- + Furnizorii
- + Consultantii
- + Distribuitorii
- + Resellers
- + Exemplu – urmarirea unei comenzi livrate pe baza codului comenzii – transparenta doar pentru client

Comparison of the Internet, Intranet, and Extranet

|             | Internet   | Intranet                   | Extranet                            |
|-------------|------------|----------------------------|-------------------------------------|
| Access      | Public     | Private                    | Private                             |
| Information | Fragmented | Proprietary                | Shared by close business partners   |
| Users       | Everybody  | Members of an organization | Groups of closely related companies |

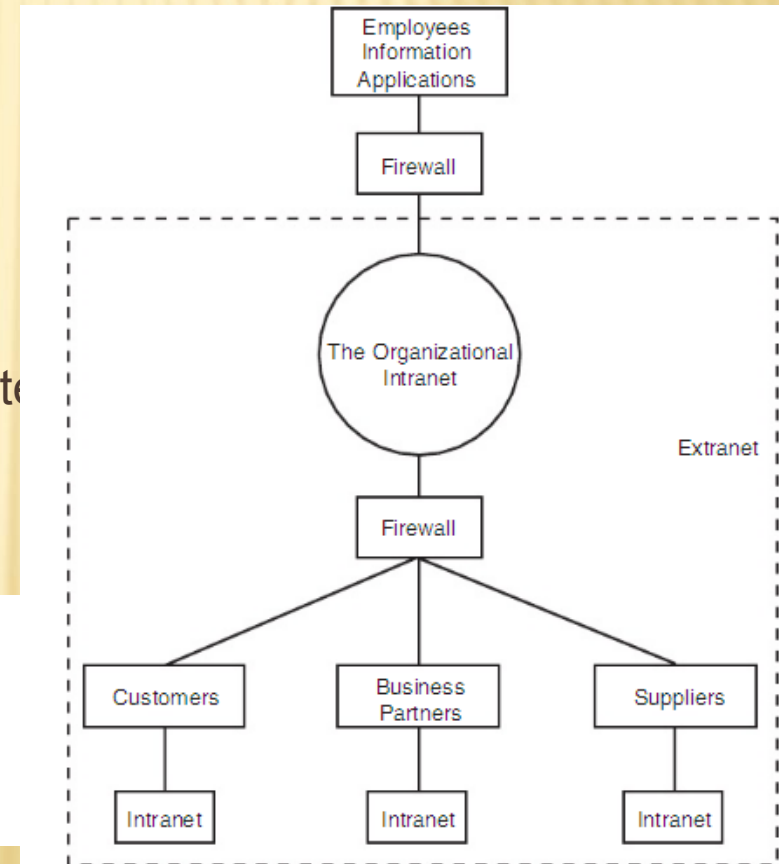
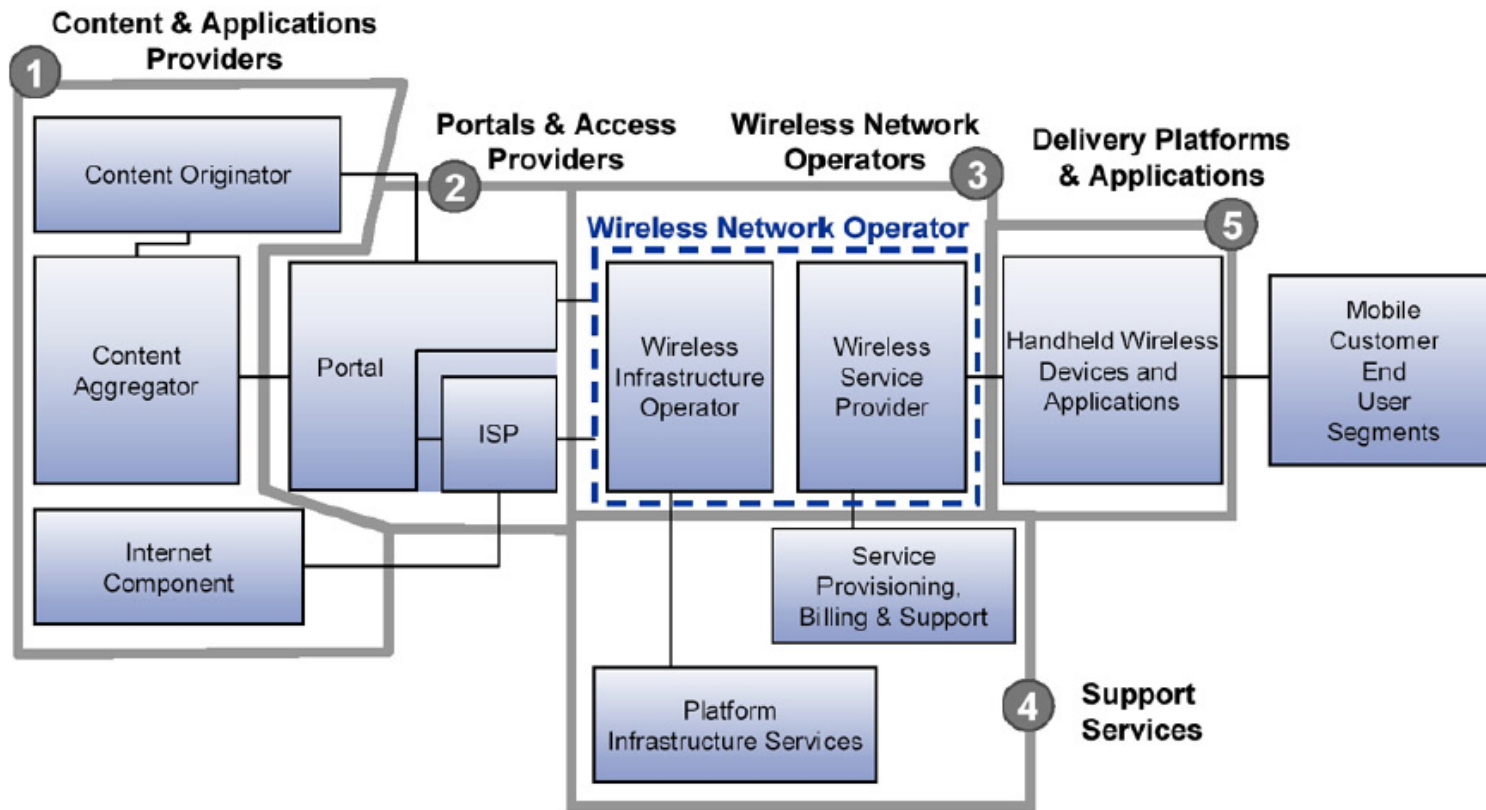


Figure 4-3 A typical extranet configuration.

# Model comunicatii mobile



# E-Logistics

- ✘ Include e-commerce – in stransa legatura cu activitatile de vanzare, depozitare, aprovizionare (link util - <http://www.scribd.com/doc/6822967/Electronic-Commerce-Principles-and-Practice-0120959771>)
- ✘ Include informatii despre – nivelul stocurilor (ex. Senzori), inventariere (pe baza codului de bare), transport (RFID, GPS), statistici de analiza a eficientei modelului logistic - Inventory Control Basics, RFID Supply Chain Planning Levels
- ✘ Reducere costuri operationale prin folosire RFID – Modern execution systems such as warehouse management systems (WMS) and transportation management systems (TMS) and related execution modules in enterprise resource systems (ERP)
- ✘ Generatii RFID - high-frequency (HF) 13.56 passive tag is used to track retail over-the-counter drugs at the item level, ultra-high-frequency (UHF) 915-MHz passive RFID tags can be used to track inventory at the case- and pallet-level inventory, and UHF 303-MHz active tags track the status of inventory on tractor trailers (Generations 1 and 2 UHF 856–915 MHz passive tags)

### ***B2C/C2C m-transactions***

Services aimed at consumers to do mobile transactions

- Stock trading
- Mobile banking
- Location based advertising
- M-tailing
- M-wallet

### ***B2B m-transactions***

Services aimed at businesses to do B2B m-transactions

- Access to B2B e-commerce marketplaces
- Access to bilateral online trading systems
- Banking services

### ***Personal life management***

Services providing true mobility of everyday activities

- E-mail
- Chatting, instant messaging
- Entertainment
- Information services

### ***Mobile office***

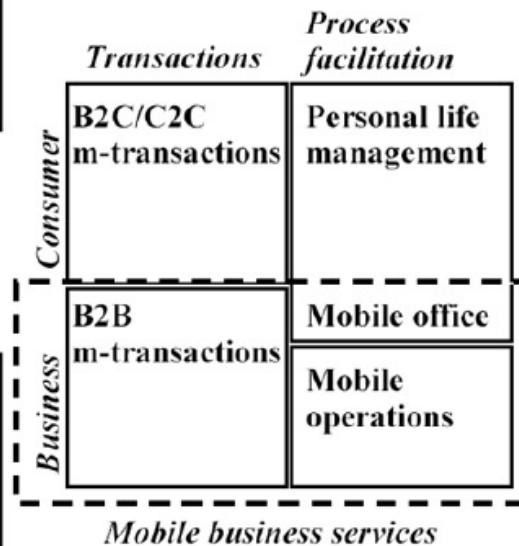
Services providing true mobility of office work

- E-mail
- Calendar
- Groupware
- Information services

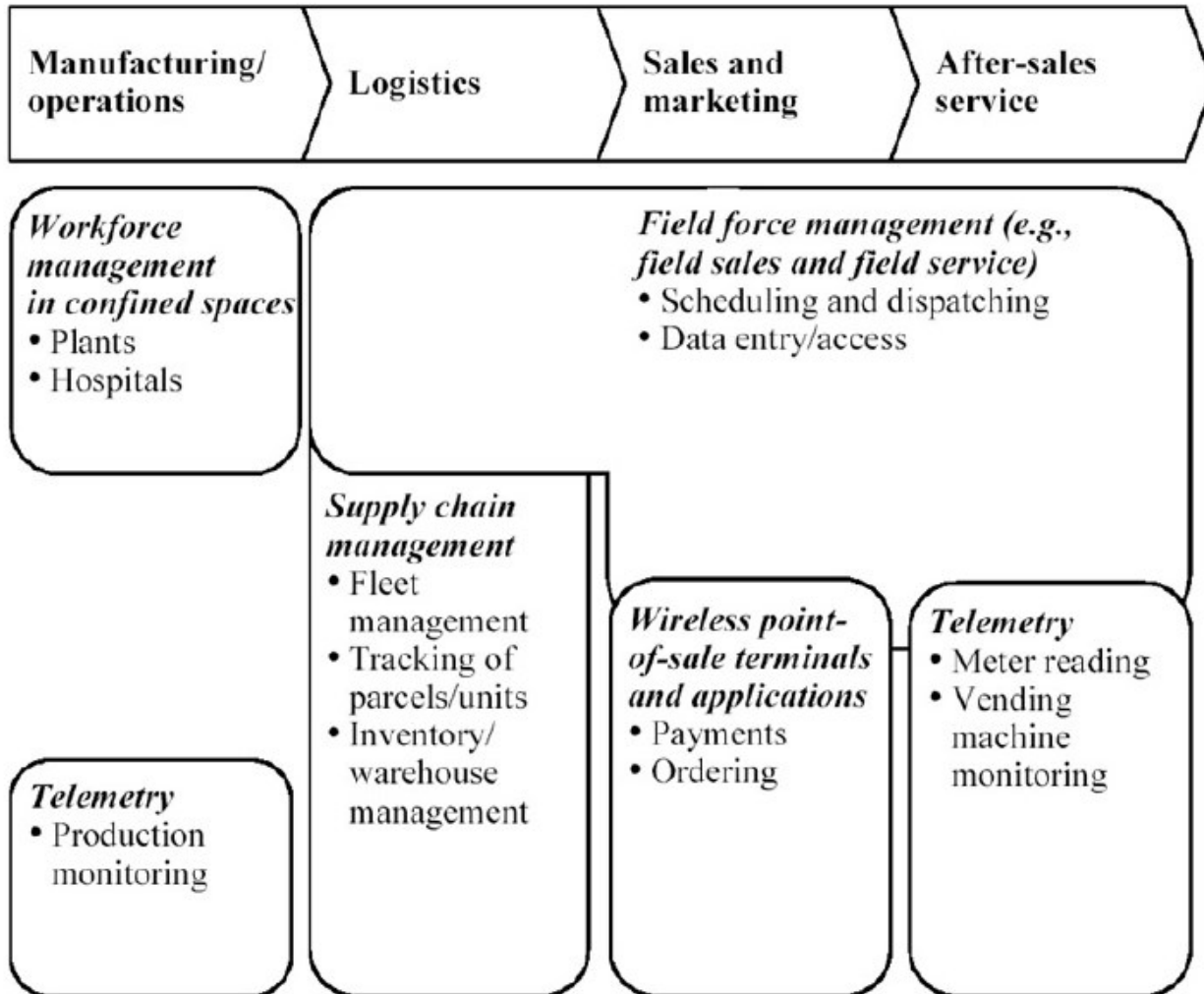
### ***Mobile operations***

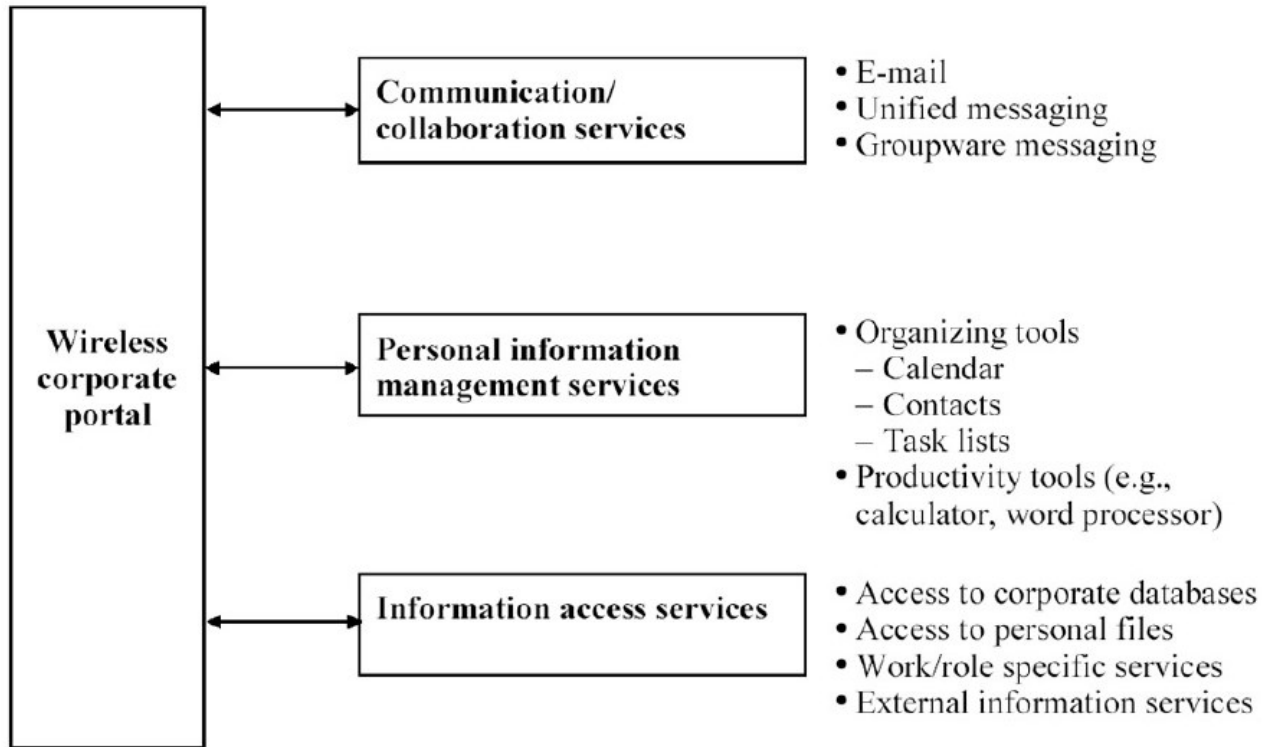
Services enhancing business process efficiency and effectiveness

- Sales force support
- Field service management
- Fleet management
- Remote monitoring



**Flow of communication**





- Enabling service platform, e.g.,
  - Access and authentication
  - Content format and protocol translation
  - Service administration

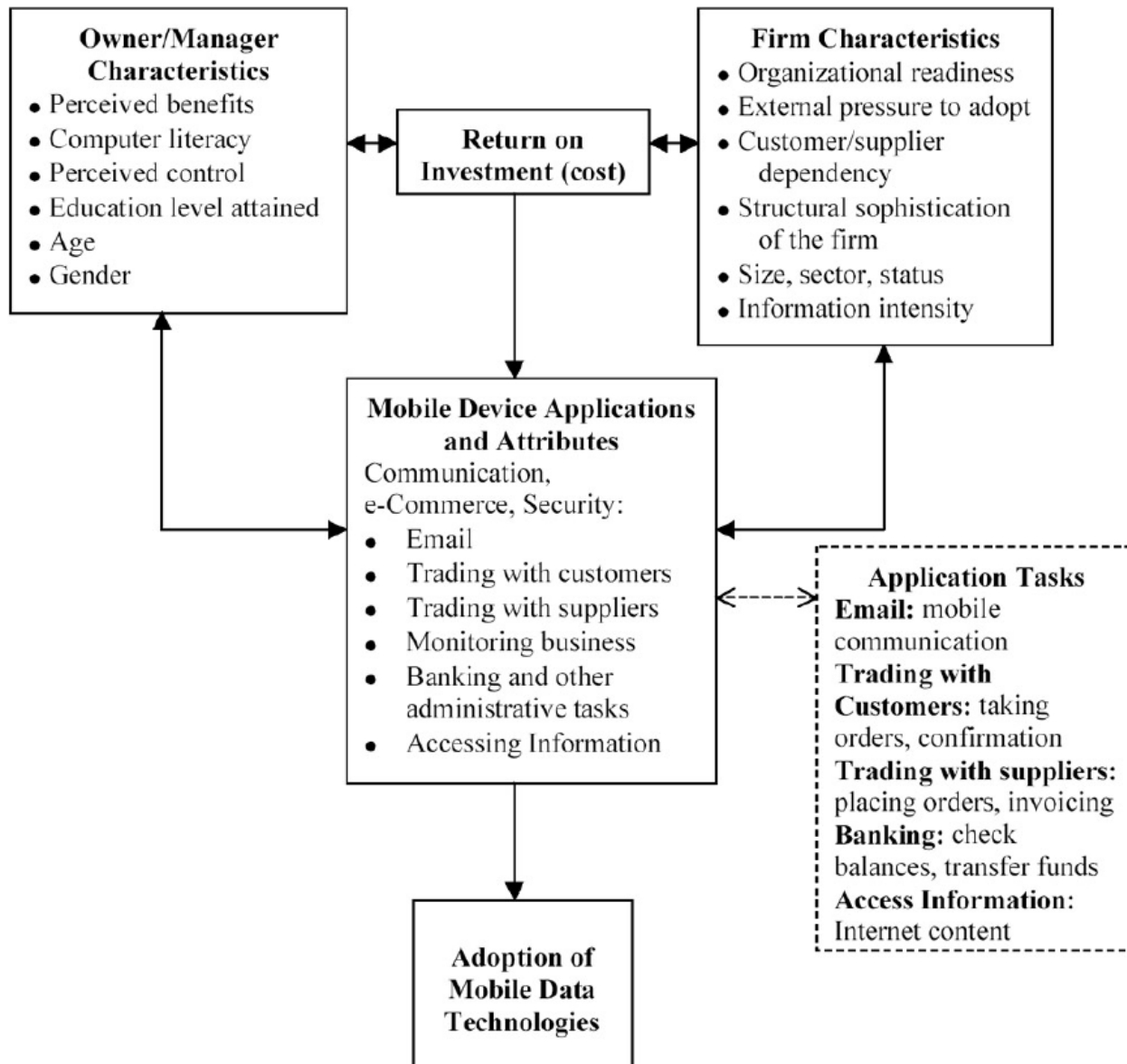


Figure 2: Factors Impacting Small Business Adoption of Mobile Data Technologies



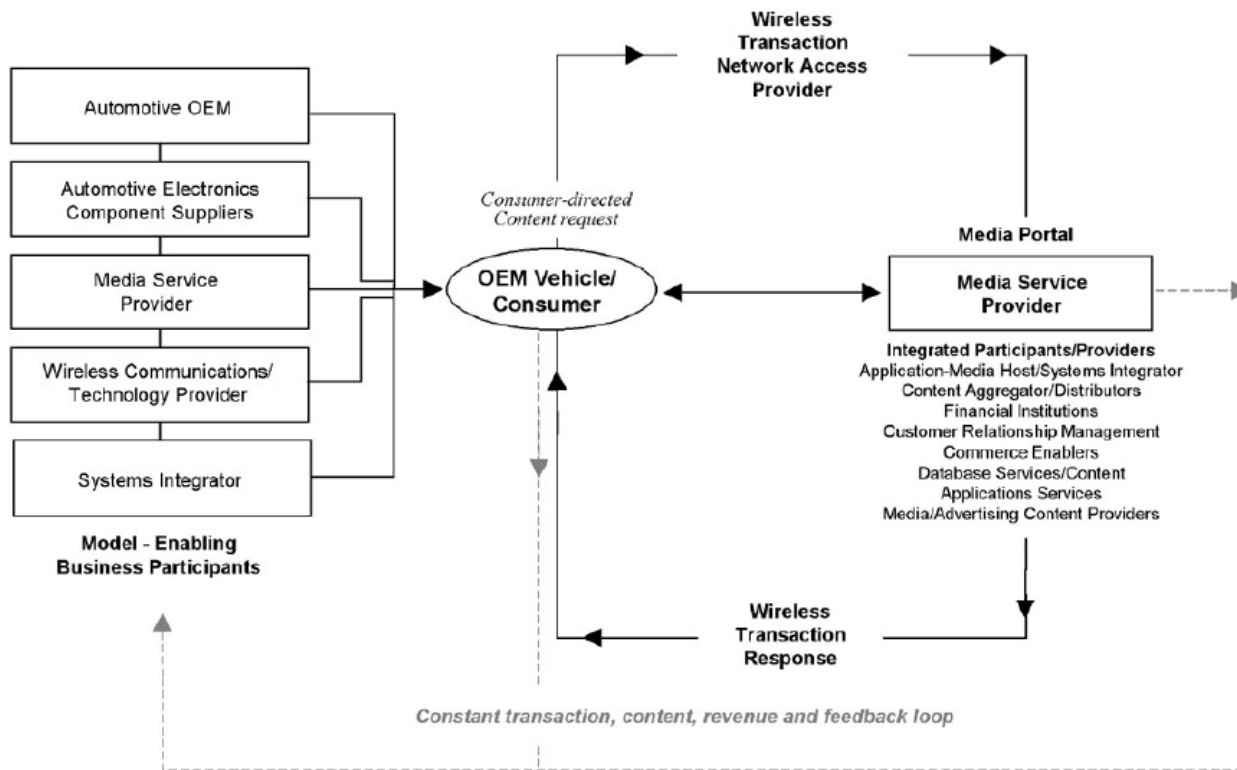


Figure 2: Illustration of how several satellite, electronic and automotive component suppliers work to satisfy a consumer-related content request