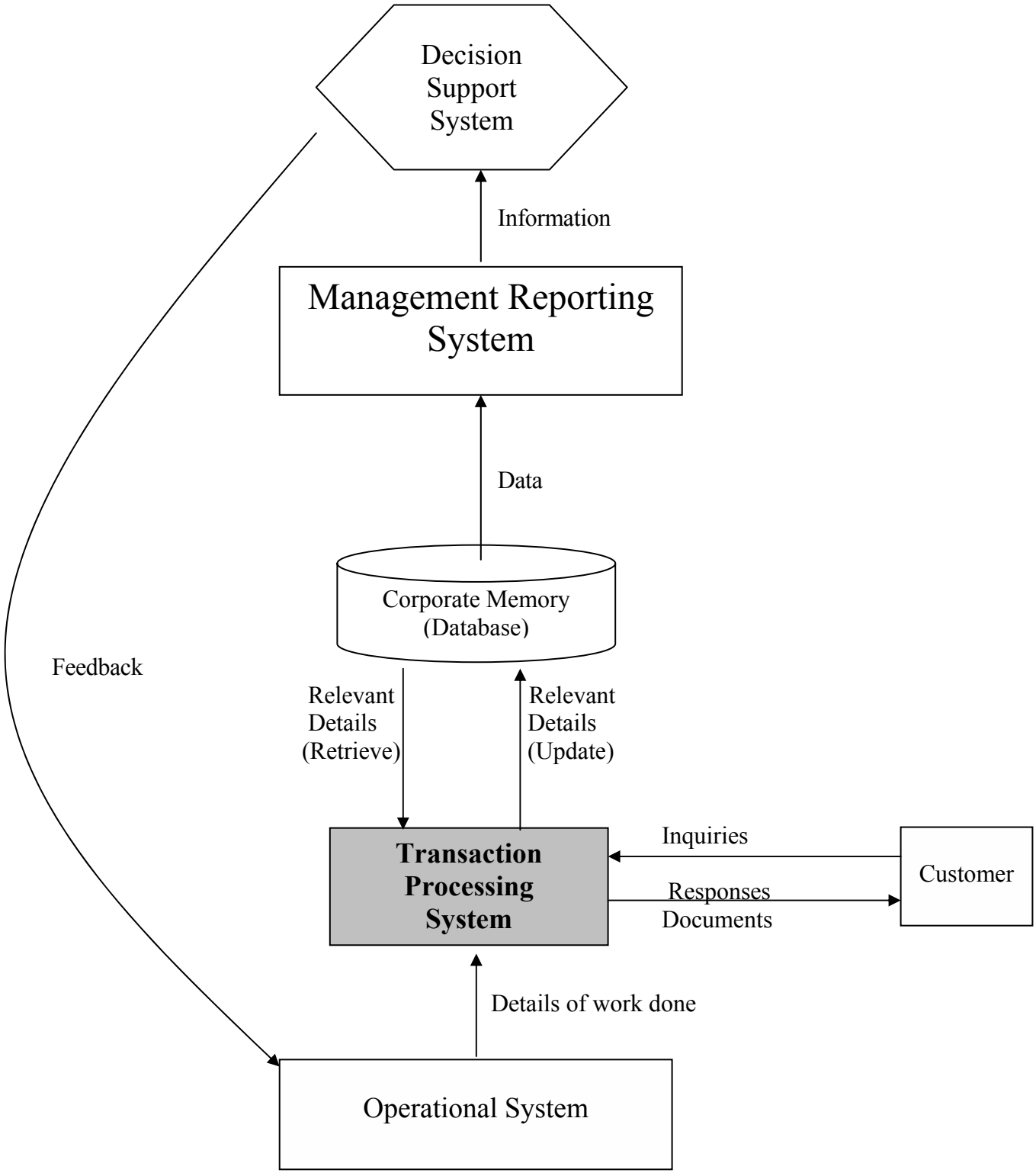
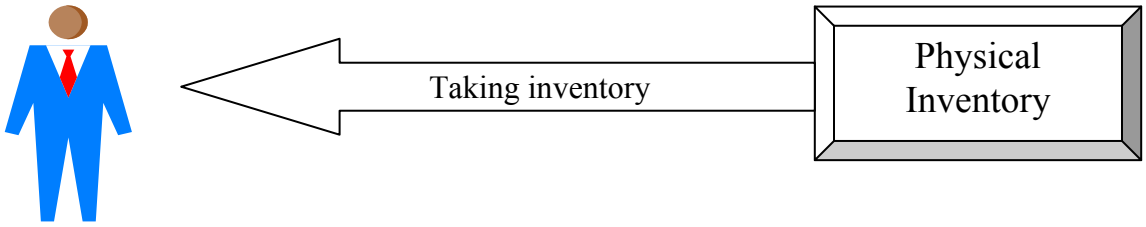
TPS in Context

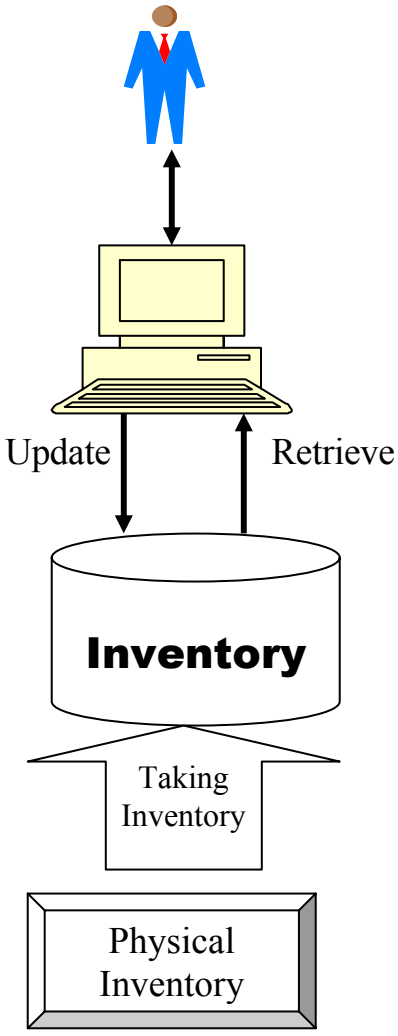


Old Times

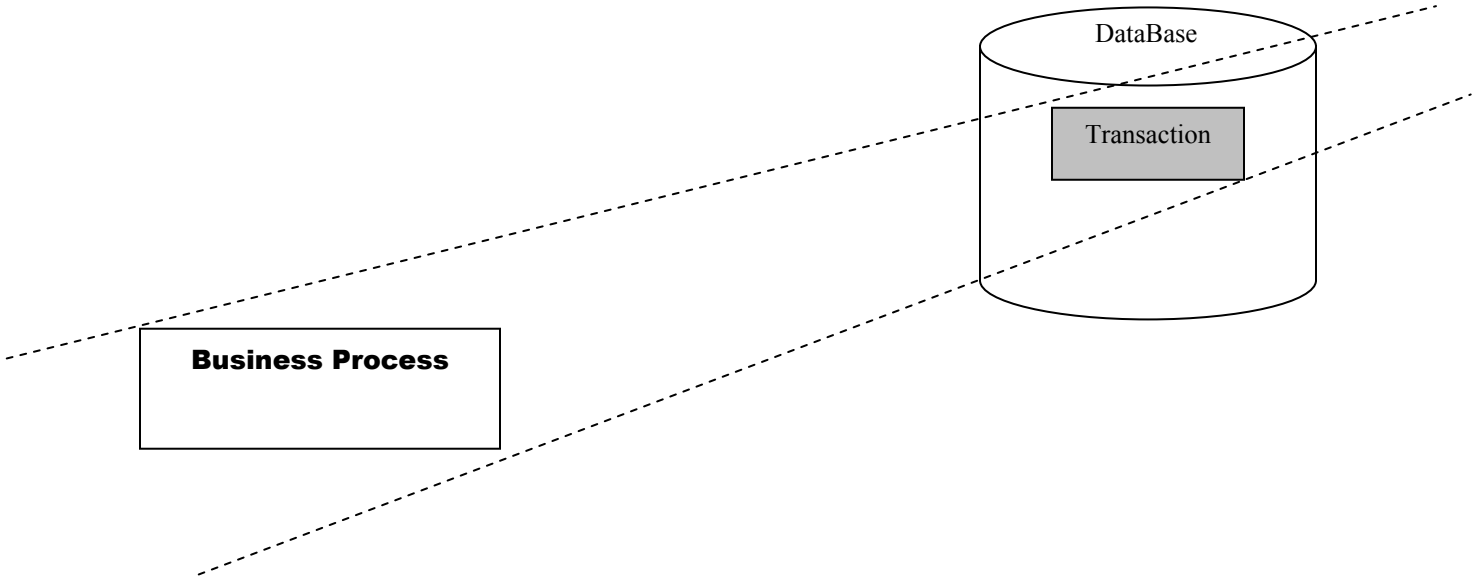


Modern Times

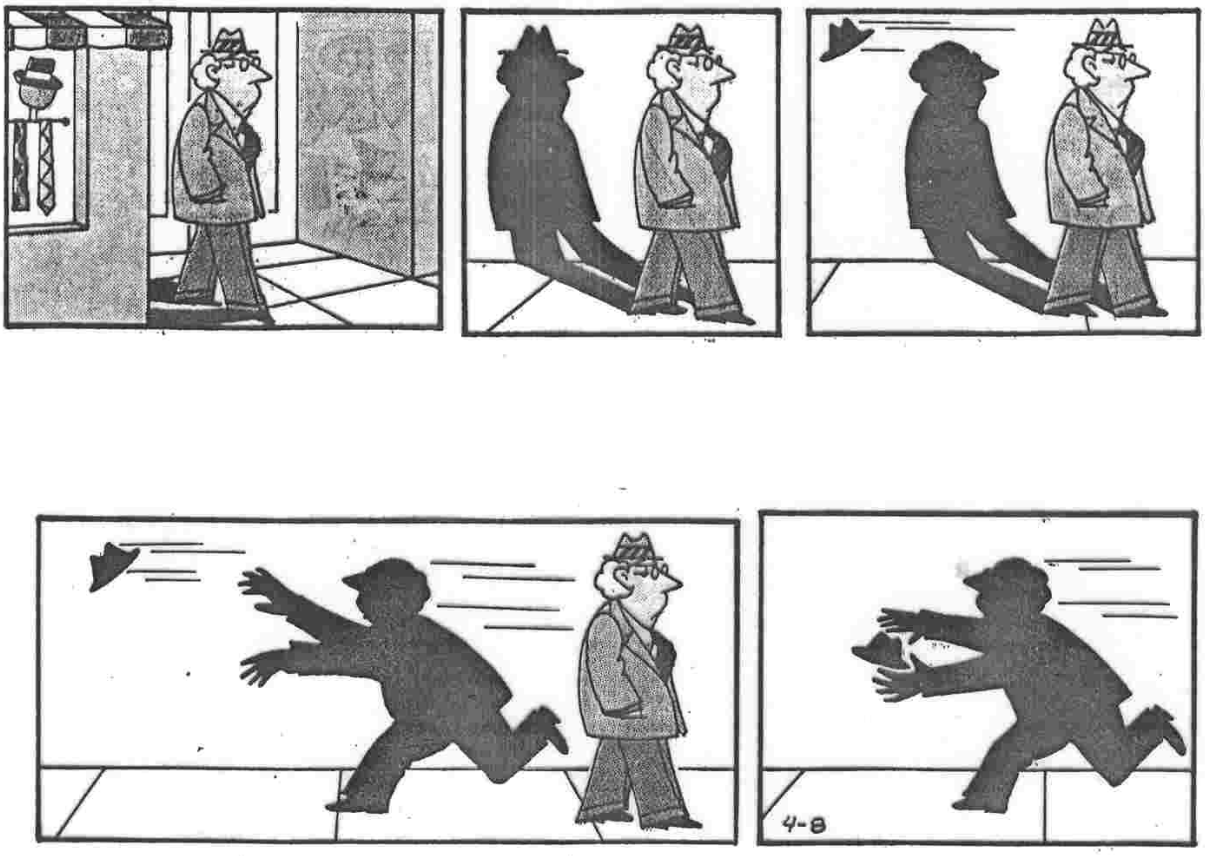
The intermediary linking humans and physical reality: **The Computer!**



Transactions: Virtual Shadows of Physical Events



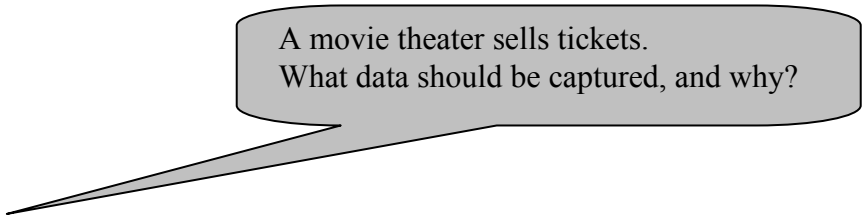
What if your shadow does not follow you?!



What is a Transaction?

A **TRANSACTION** is a

- business event
- whose relevant attributes need to be recorded
- either internally (in the corporate database),
- or externally (as a document produced for a customer or supplier),
- or both,
- due to the impact this information will have on other operations or decisions.



Clarifications

1. Types of relevance:

   - Operational:
     relevant to doing the work ➔ Transaction Data
   - Managerial:
     relevant to monitoring how well the work is done ➔ Control Data

2. Occurrences that do not happen, but are *expected* to happen, also constitute transactions.

3. Queries are ordinarily not transactions, unless tracked.

What happened vs. what was recorded

The event: Returning a rental item (such as a videotape) on time.

	It was recorded	It was not recorded
It really happened	Example: A rental item is returned on time and is recorded as having been returned on time ↓ OK	Example: A rental item is returned on time but is mistakenly stamped as having been returned late. ↓ Loss of Customer Good Will
It really did not happen	Example: A rental item is returned late and it is stamped as having been returned late. ↓ OK	Example: A rental item is returned late but is not recorded as such (is recorded as having been returned on time. ↓ Loss of Revenue

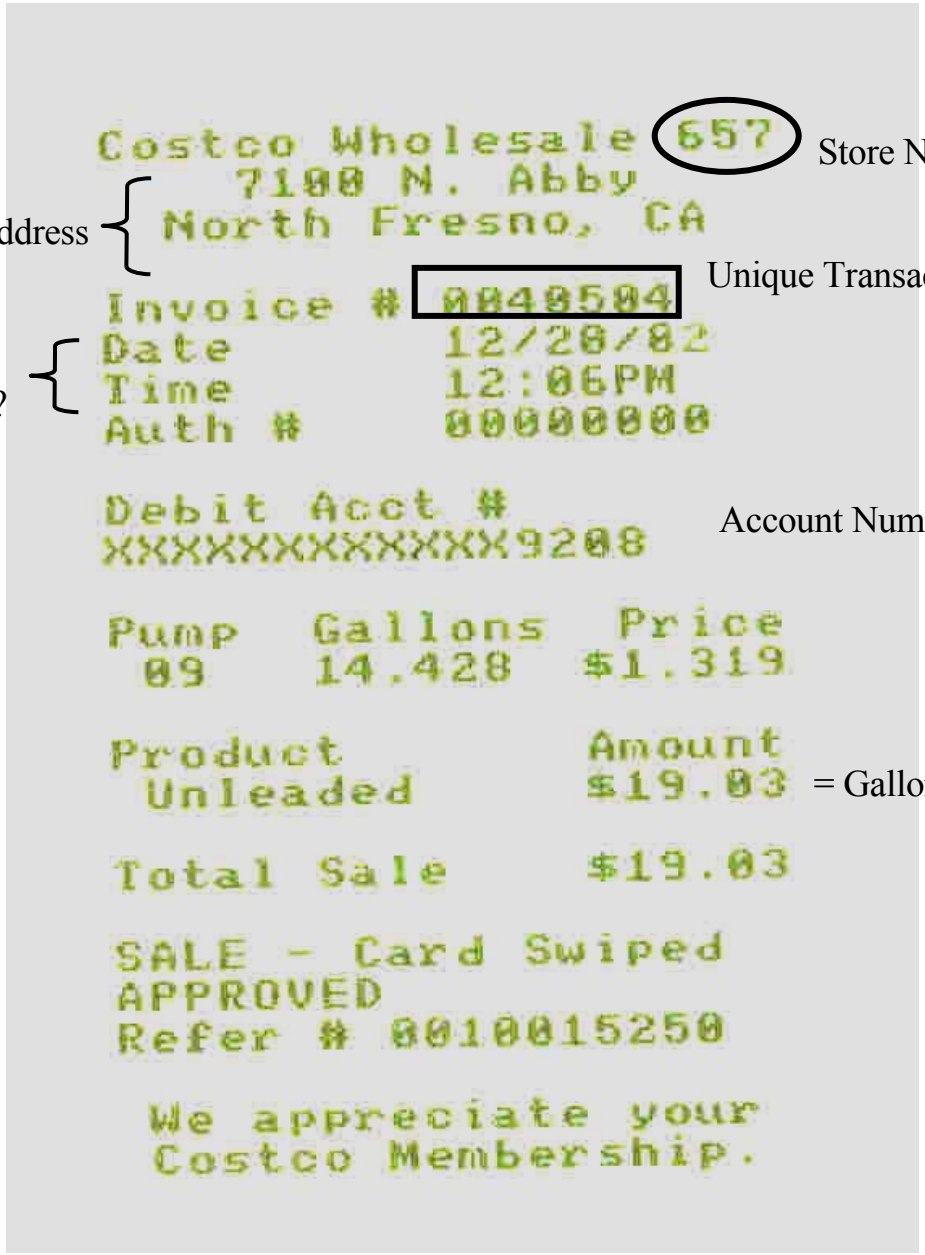
The Vulnerable TPS

1. The customer picks up an item from the store, goes to the Returns Department, says he wants to “return” this item but has lost the receipt, gets a “refund” and leaves.

2. The customer buys an item. A few days later, he takes it to the Returns Department, shows his receipt as proof of purchase, returns the item, and gets a refund. A few days later, he takes his receipt, picks up a similar item from inside the store, takes it to the Returns Department again, shows his receipt as proof of purchase, “returns” the item, and gets a refund for the second time.

3. The customer buys an item, shows his receipt at the exit as proof of purchase, and takes it to his car. An hour later, his friend takes the receipt, enters the same store, picks up a similar item, shows his receipt at the exit as proof of purchase, and takes it out.

4. The customer buys an item that costs $7 and tenders a $10 bill. When he receives $3 in change, he claims that he had really tendered a $20 bill and therefore should be paid $13 in change.



Store Number

Store Address

Unique Transaction Number

Why Capture?

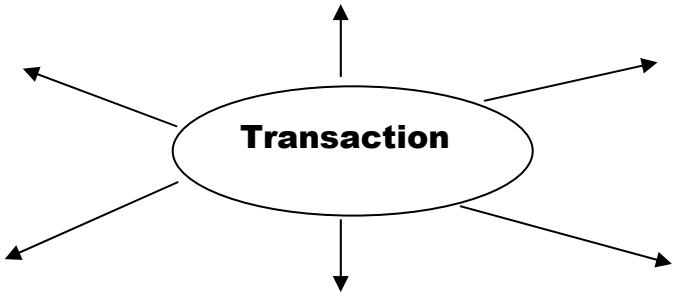
Account Number

= Gallons * Price

Sale = <u>Sale-Number</u>, Store-Number, Account-Number, Date, Time, Gallons, Price, Amount (?), Pump (?), Payment-Type (?)

The Transaction Ripple Effect

- Transaction data are stored locally in a file bearing the name of the transaction type.
- Typical transaction file contents:
  Identification data
  Transaction data (what, who, how much, etc.) – collected to run operations
  Control data (why, where, when etc.) – collected to run operations well
- Transaction data travel to other parts of the organization to inform those impacted by it.
- Transactions in one part of the organization trigger events in other parts



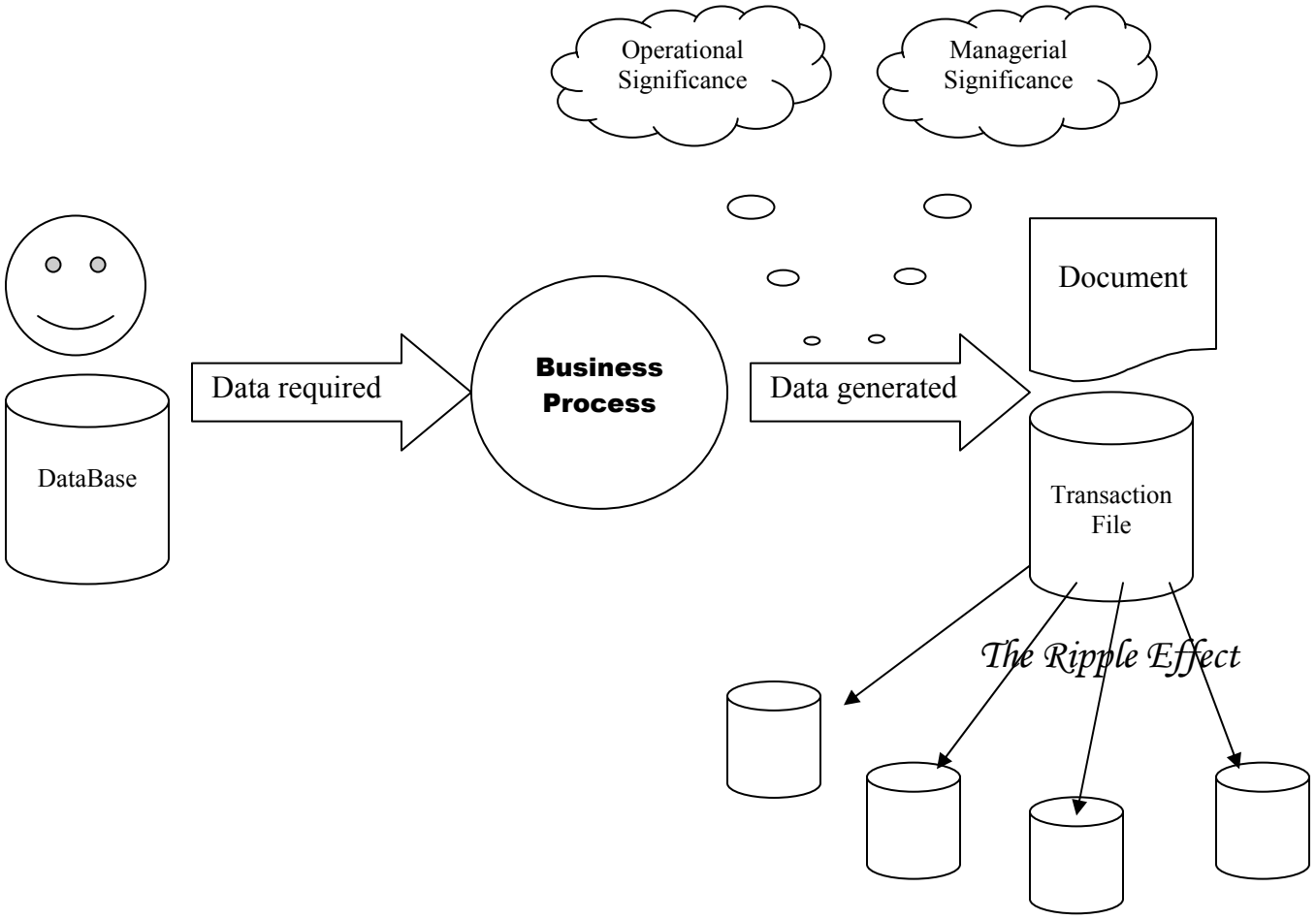
Transaction: Ship customer order

Ripple Effects:

- Reduce inventory quantity-on-hand
- Update customer balance-due
- Reduce customer credit-available

A customer returns a defective product	A sales rep takes a prospective customer to lunch
Identification data:	Identification data:
Transaction data:	Transaction data:
Control data:	Control data:

TPS : The Big Picture



Characteristics of TPS

- Large amounts of data
- Generated and processed on a regular, continuous basis
- In multiple locations
- The computations are not mathematically complex
- High reliability is required

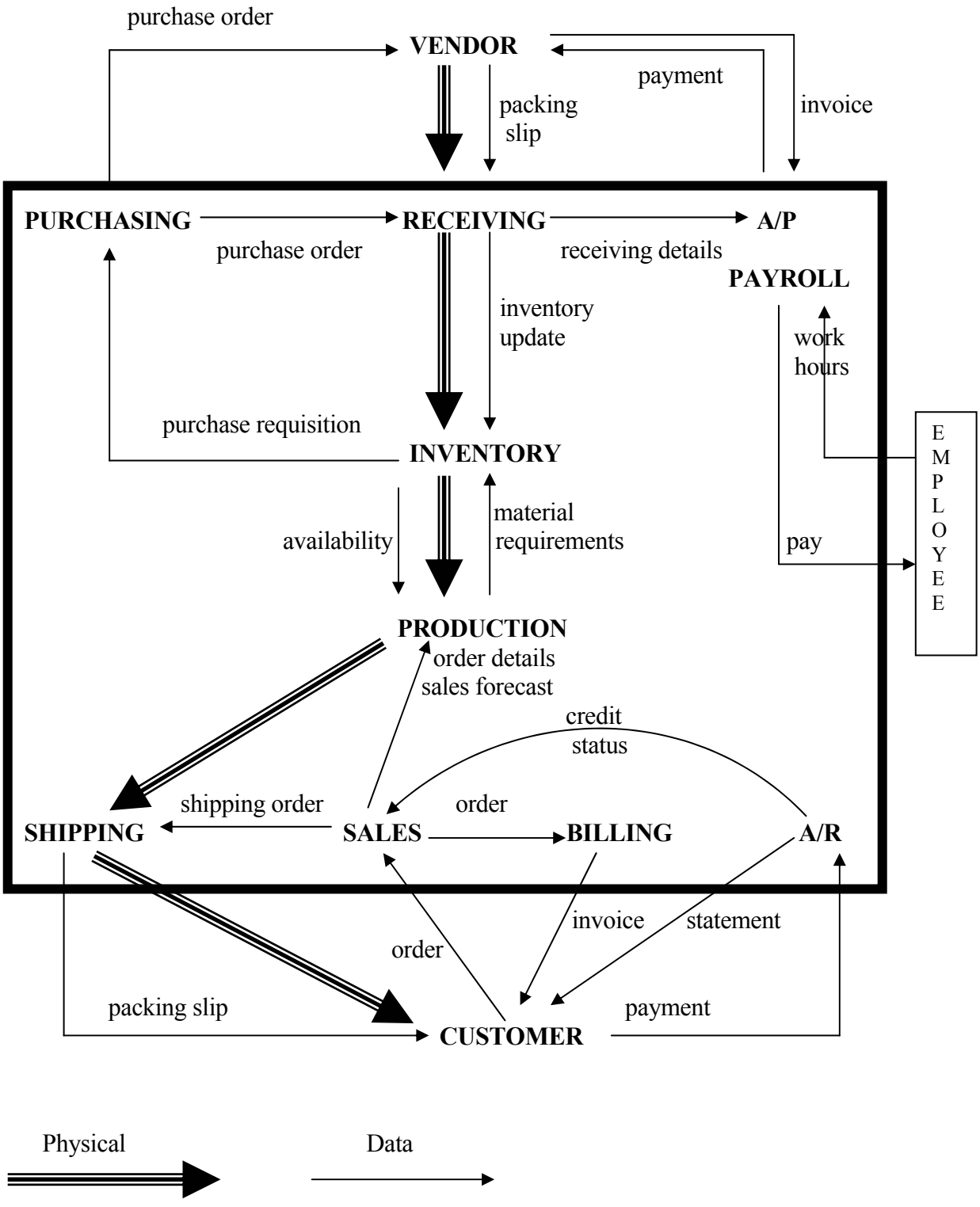
The Two Dimensions of a TPS

	Logical	**Physical**
External	The information exchanged between the external entity (especially customer) and the organization.	The technology (media) used for exchanging the information.
Internal	The flow of the information within the organization.	The technology (media) used for supporting the information flows within the organization

The external logical view of a typical sales TPS

Customer ⟹ TPS	TPS ⟹ Customer
Preliminary request for information - Functionality - Price - Availability - Transaction alternatives	
	Preliminary information - Functionality - Product name/number - Price - Availability - Transaction alternatives
Order details - Product - Quantity - Transaction specifics Customer details - Name - Address - Financial details	
	Confirmation of receipt of order Confirmation of details
	Request for payment - Amount - Payment alternatives
Payment	
	Receipt of payment
	Confirmation of shipment - Order number - Date-to-be-shipped - Date-shipment
Request for delivery status	
	Delivery status

A Generic View of a TPS

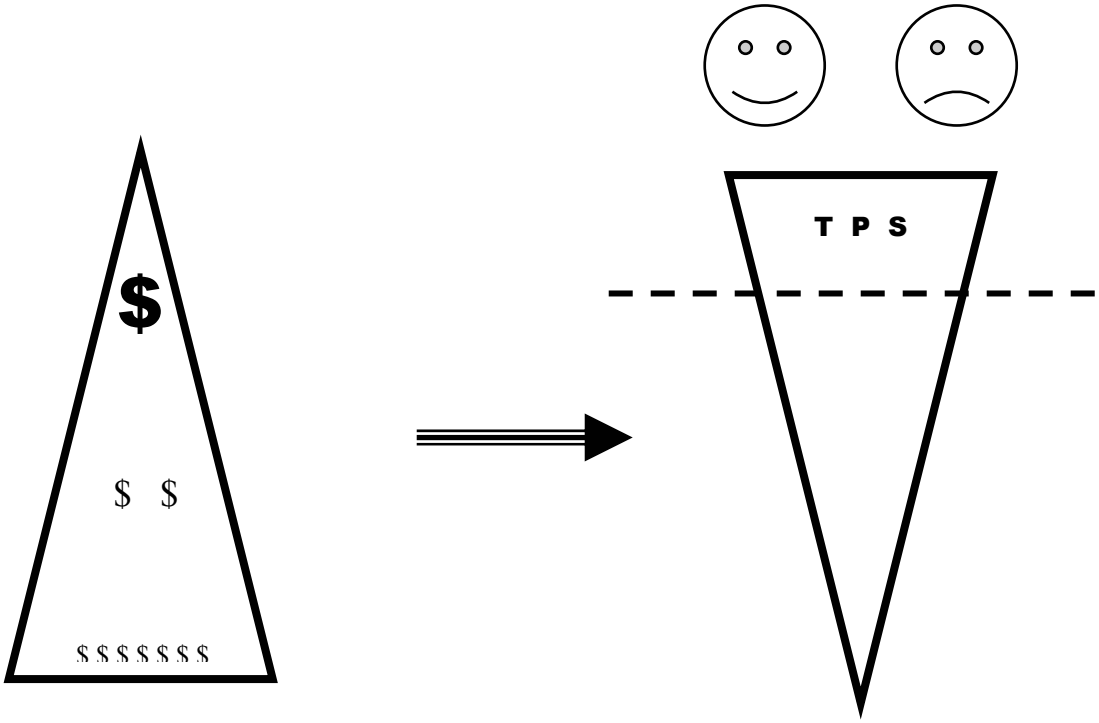


Note:
In a retail environment, there is no production subsystem connecting sales and inventory.

The Strategic Significance of TPS

Customer satisfaction has to do with

- Product/Service
- Process of purchasing product/service



Conventional View **Strategic-TPS View**

"What on earth is strategic about order processing?!"

Typical TPS
- Huge amounts of data
- Generated/accessed 24/7/365
- In multiple locations

Customer Value
- Speed
- Accuracy
- Flexibility
- Reliability

Recorded business event

Data used for *running* the operations

Data used for *improving* the operations

The Ripple Effect: Data traveling to other departments where needed

Documents produced as *proof of transaction*

TPS Template for: _____

Transaction	Transaction Data	Control Data	Related Data Updated	Output