MIS710 A
Process Innovation and Management
Individual Final Assignment
Reengineering the Office Supplies Order Process

Fall 2017

I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination. I further pledge that I have not copied any material from a book, article, the Internet or any other source except where I have expressly cited the source.

Signature ⎫⎯ Zhang   Date: ___10/30/2017_____

Print Name ____LI ZHANG_____

Assignment

1. Read and Assess IS system
- Functional specification
- PROCESS constituents
- Relationship map
- Process map

2. Develop SHOULD system
- Narrative
- Change levers - PROCESS constituents
- Identify the key principles of reengineering you plan to use

3. Develop the following (Rummler)
- SHOULD Organizational goals
- SHOULD Process goals
- SHOULD Process map
- SHOULD Relationship map
- SHOULD Process Map /Sub-Goals
- SHOULD Activity Inputs/Outputs + input screens, output reports
- SHOULD Functional Goal Summary
- SHOULD Job/Responsibility Matrix
- SHOULD Job Model (Design)

4. Develop a high-level conceptual data model (e.g., ER) for the business process

5. Costs & Benefits
- (Not necessarily in dollar terms)

6. Extend the Vision
- Other Processes Impacted
- Future evolution of the System

Supplies Order Process:
Brief Functional/Process Narrative (IS)

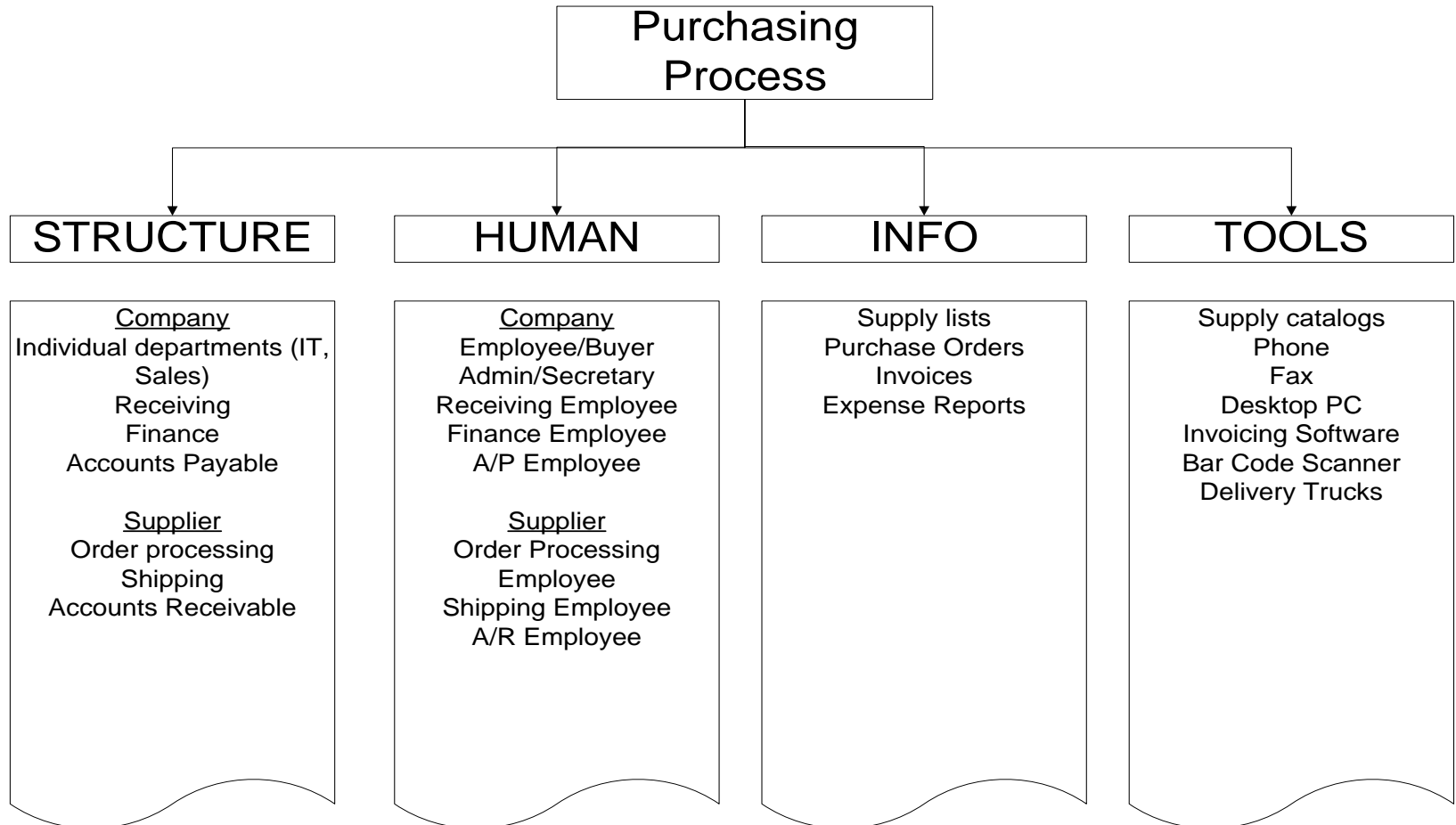Some of the steps taken to order supplies include:

- Every employee follows their own personal process with their own preferred supplier
- Employee requests admin/secretary to order supplies
- Admin/secretary locates supplies in a supplies magazine
- Supplies are ordered via phone
- Invoices are submitted to multiple points of contact and are often lost
- Some are paid for on expense reports
- Often expenses are not taken into account
- Any employee can order whatever they want
- Little to no oversight or approval for who can order what

Supplies Order Process:
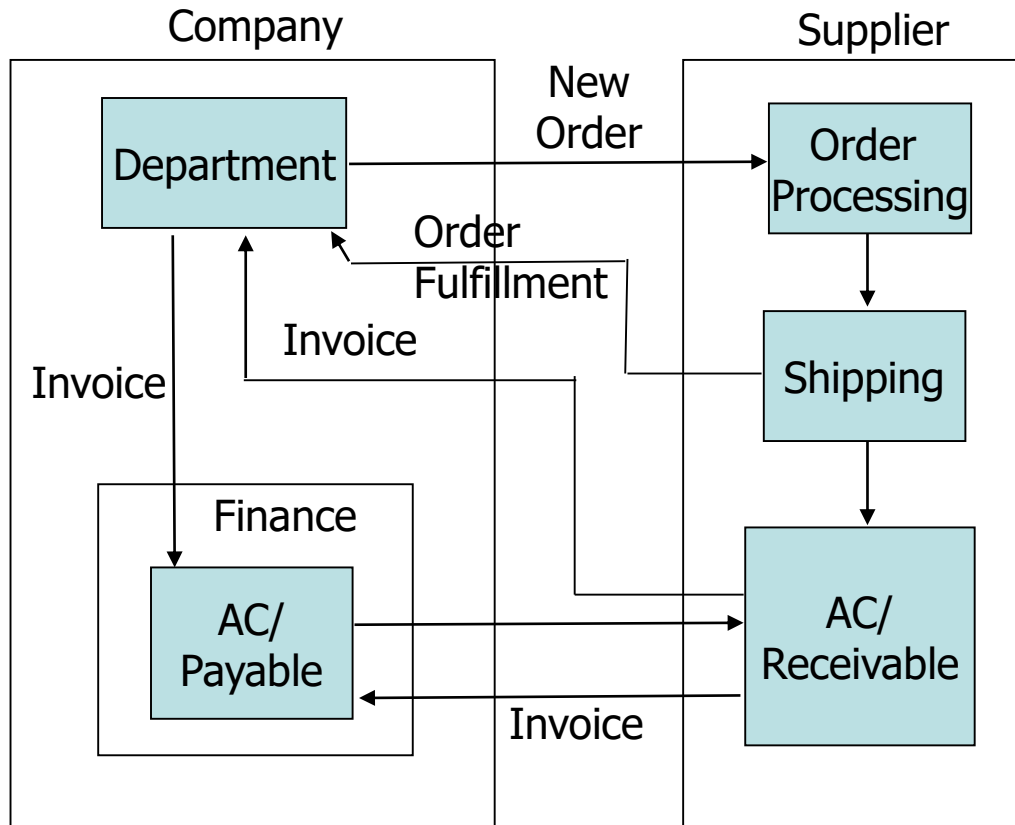## Brief Functional Description (IS)

Some of the problems with the current process:
- Visibility into total spend is virtually non-existent
- Total spend by supplier is not captured
- Aggregated savings opportunities are foregone
- No control over where or how many vendor invoices are outstanding
- Quarterly financial closings are challenging
- Lack of transparency in ordering process
- No checks and balances with current system: 1 person requests, approves, and authorizes payment for purchases
- Purchase records are frequently lost or otherwise not accounted for
- Payments and defective goods claims are frequent and distracting to the organization

Supplies Order Process:
PROCESS Constituents (IS)

```
                    Purchasing
                     Process
```

STRUCTURE	HUMAN	INFO	TOOLS
<u>Company</u> Individual departments (IT, Sales) Receiving Finance Accounts Payable <u>Supplier</u> Order processing Shipping Accounts Receivable	<u>Company</u> Employee/Buyer Admin/Secretary Receiving Employee Finance Employee A/P Employee <u>Supplier</u> Order Processing Employee Shipping Employee A/R Employee	Supply lists Purchase Orders Invoices Expense Reports	Supply catalogs Phone Fax Desktop PC Invoicing Software Bar Code Scanner Delivery Trucks

Supplies Order Process: Relationship Map (IS)

Company

Supplier

New Order

Department

Order Processing

Order Fulfillment

Invoice

Shipping

Invoice

Finance

AC/ Payable

AC/ Receivable

Invoice

Illogical steps

• **Doesn't make sense for supplier to send invoice to customer in functional area if it's really just going to go to Finance anyway**

Missing steps

• **No central ordering standard**

• **No preferred supplier standards**

• **No spending limit standards**

• **No check to correct contact for invoicing**

• **No check for outstanding invoices**
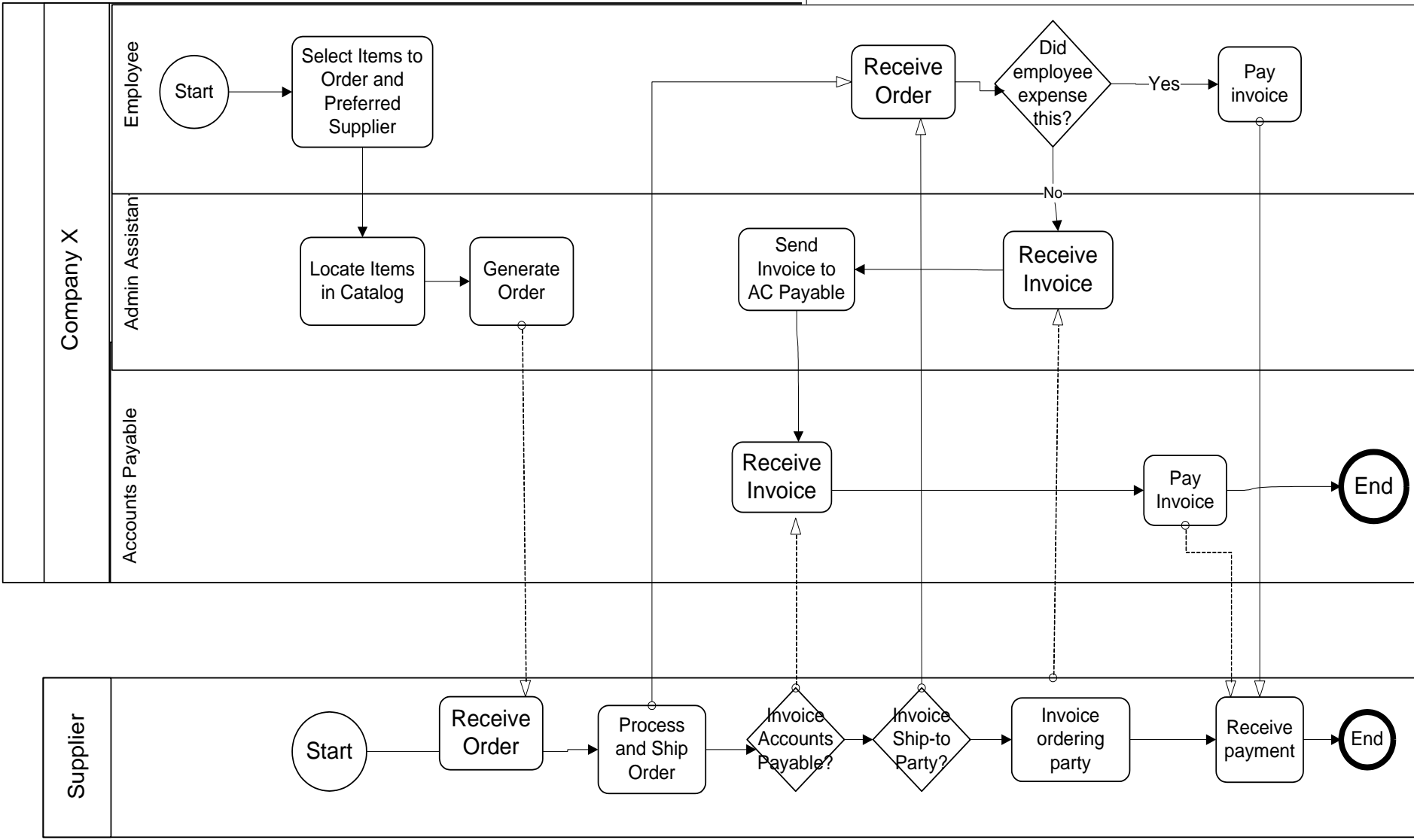
• **No check for total spend**

Extraneous steps

• **Customer in function sending invoice to Finance**

Supplies Order Process Process Map (IS)
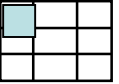
Process 揹ed Flags?

1. No authorization required to order an item of any cost
2. Invoice can go to a different person each time ordered, depending on supplier or relationship with supplier.
3. Invoices can get lost.
4. Invoice can be paid for in various ways.

Company X

Employee

- Start
- Select Items to Order and Preferred Supplier
- Receive Order
- Did employee expense this? — Yes — Pay invoice

Admin Assistant

- Locate Items in Catalog
- Generate Order
- Send Invoice to AC Payable
- Receive Invoice
- No

Accounts Payable

- Receive Invoice
- Pay Invoice
- End

Supplier

- Start
- Receive Order
- Process and Ship Order
- Invoice Accounts Payable?
- Invoice Ship-to Party?
- Invoice ordering party
- Receive payment
- End

Proposed New Design (To-Be)

# Office Supplies Process
Organizational Goals (SHOULD)

In order to reengineer and improve the office supplies process, these organization goals need to achieve:

- Effect centralized control of authority
- Effect information flow
- Suitable span of control
- Specific and clear rules and regulations
- Eliminate unnecessary department

Office Supplies Process
Process Design Goals (SHOULD)
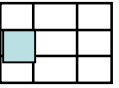
Org. Goal 1 = "Effect centralized control of authority "

Supporting Process Design Goals: Effect order authority and supplies request management.

Org. Goal 2 = "Effect information flow"

Supporting Process Design Goals: Effect info flow between request, order, invoice and monitor/feedback.

Org. Goal 3 = "Suitable span of control"

Supporting Process Design Goals: Effect order authority and supplies request management.

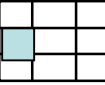Org. Goal 4 = "Specific and clear rules and regulations"

Supporting Process Design Goals: Effect manage order activity and limit order expense.

Org. Goal 5 = "Eliminate unnecessary department"

Supporting Process Design Goals: reduce unnecessary work and cost.

Office Supplies Process
Quantitative Operational Goals (SHOULD)

Quantitatively, the operational goals of the reengineer process should be:

- 70% less in management cost
- 30% less in purchase spend
- 50% less in cycle time
- 50% less defective production purchased
- 80% more effect document record and statistical ability

Office Supplies Process:
Functional View - Narrative (SHOULD)

Required function 1: Employee generate their office supplies request list under rules and regulation, self check list before submit.

Required function 2: Database department receive request list and put it into database of Office Supplies management system.

Required function 3: Administrator of purchase department can access database, fetch request list, and put in generated order document.

Required function 4: After financial approvement form finance department, the order automatically send to the supplier by database software.
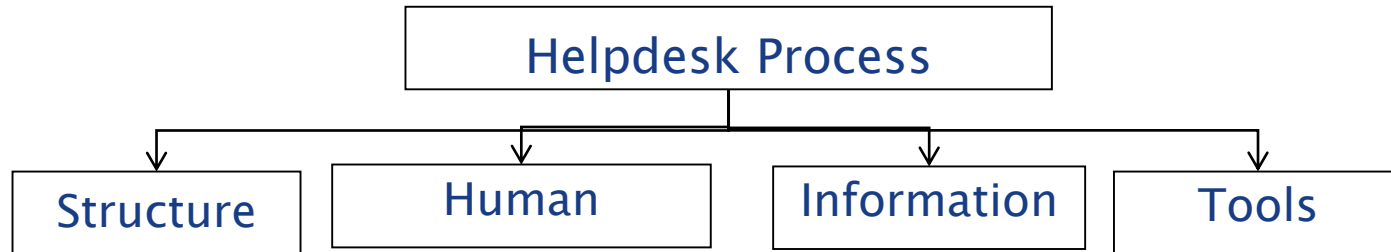
Office Supplies Process:
Functional View Narrative (SHOULD)

- Required function 5: Employee can access the database and get states info of all orders, after they receive order, they need to send report of their order(received? Defective?) to database.

- Required function 6: If the order received and no defective, account payable department will pay the invoice.

- Required function 7: Manual process (inquire, cancel, negotiate, reorder) will be implement when negative order report reported by employee.

- Required function 8: Monthly report, quarterly report, annually report, department report can be statist and generated through database management system.

Office Supplies Process:
2.2 Change Levers/Process Constituents (SHOULD)

```
                    ┌─────────────────────┐
                    │  Helpdesk Process   │
                    └─────────────────────┘
          ┌──────────────┼──────────────┬──────────────┐
          ▼              ▼              ▼              ▼
   ┌───────────┐  ┌───────────┐  ┌──────────────┐  ┌───────────┐
   │ Structure │  │   Human   │  │ Information  │  │   Tools   │
   └───────────┘  └───────────┘  └──────────────┘  └───────────┘
```

Organization Structure (Department changes, etc.):
- Eliminate receive department(order received directedly by employee)
- Add database management department
- Decision making more centralized to administrator and manager
- Large span of control organization structure
- Establish and document specify and clear supply purchase rule and regulator

Human (managers, operators, role changes, etc.)
- Add DBMS manager
- Add database operator
- Employee also is order receiver
- Administrator also response for manual process

Office Supplies Process:
2.2 Change Levers/Process Constituents (SHOULD)

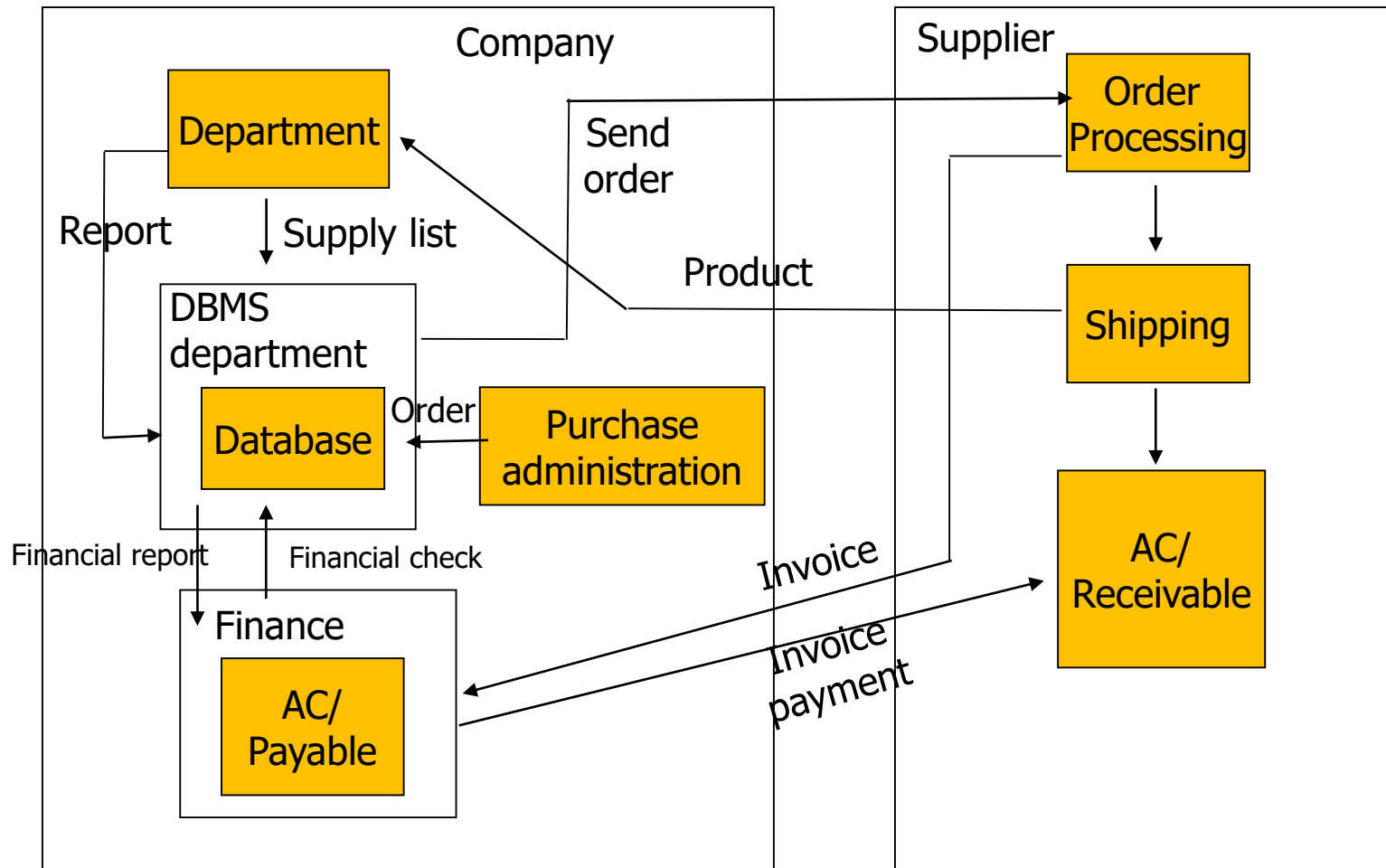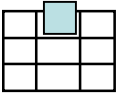Information Structure (data bases, reports, etc.)
- Build database for supply list, purchase order, states.
- Invoice no longer send to employee(customer)
- Add order report (report of receive order)
- Former expense reported replaced by database management system

Tools (equipment, software systems, etc.)
- Establish DBMS
- Auto-order software
- Phone no longer used to place order.

Office Supplies Process:
3. Organizational View: Relationship Map

Company

Supplier

Department

Send order

Report

Supply list

Product

DBMS department

Database

Order

Purchase administration

Order Processing

Shipping

AC/ Receivable

Financial report

Financial check

Finance

AC/ Payable

Invoice

Invoice payment

Consistency Checks to Date - 1

Organizational Entities mentioned in the *Narrative* should be represented in the *Change Levers* and the *Relationship Map*

Human entities/roles in the narrative should be represented in the *Change Levers*

Information flows mentioned in the *Narrative* should be represented in the *Relationship Map*

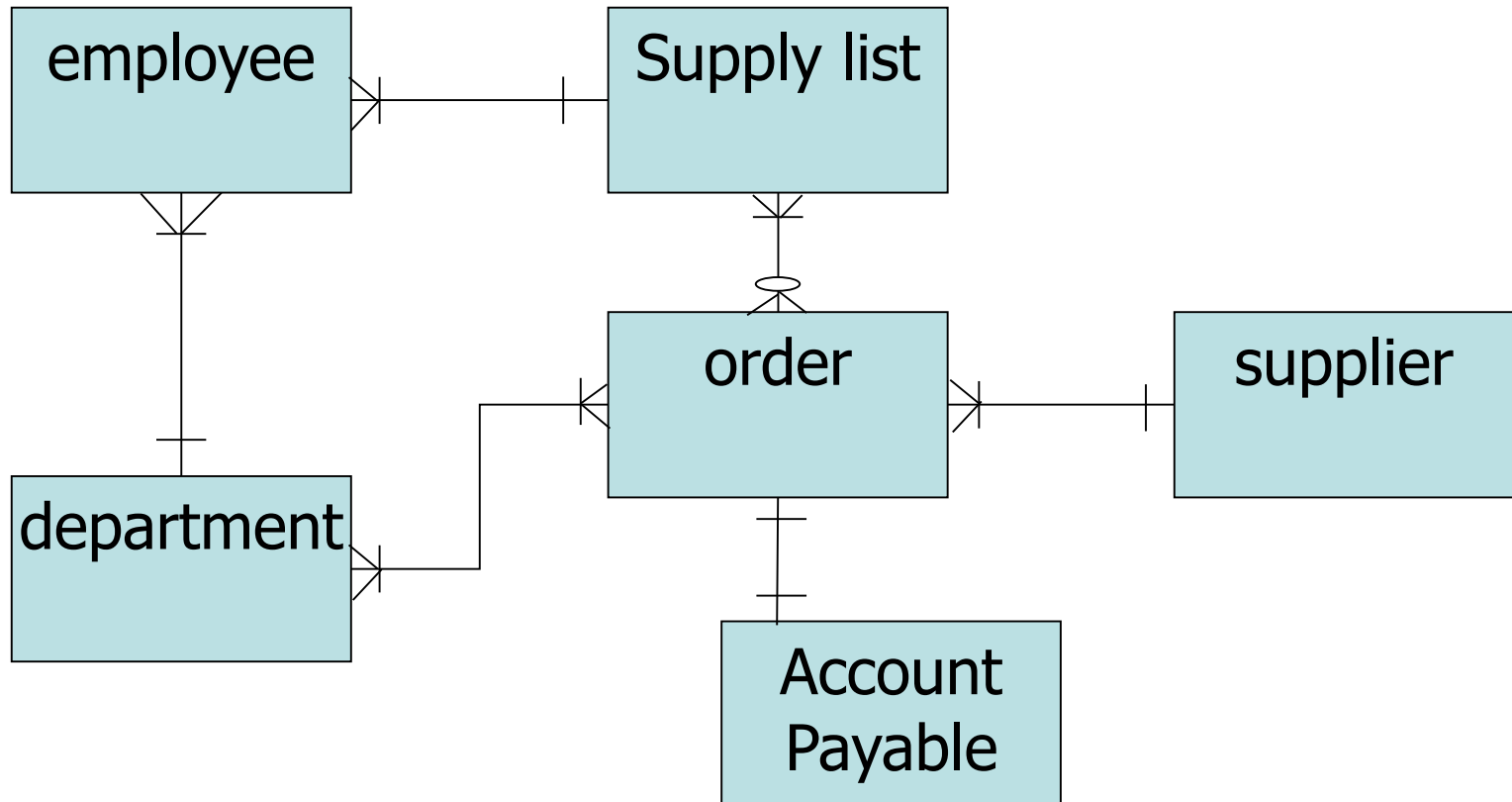# **Office Supplies Process:**
Key Principles of Reengineering Used/How

1. Value chain redesign: change the value chain by add DBMS, eliminate receive department, invoice no longer send to customer.

2. Self service: request supply list generate and delivered by employee self (customer), under the rule and regulator.

3. Reduce busy work: company place order by auto-software, supplier do not send invoice to customer, financial department do not need to process expense report from employee.

4. Self report: employee self check his/her list before send to DBMS. the received order quality reported by customer self.

5. Centralization: decision making and authority controlled by manager and administrator.

6. Data capture: statistic report and quarterly report fetch from one place.

7. Triage: normal process and manual process both exist.

Office Supplies Process
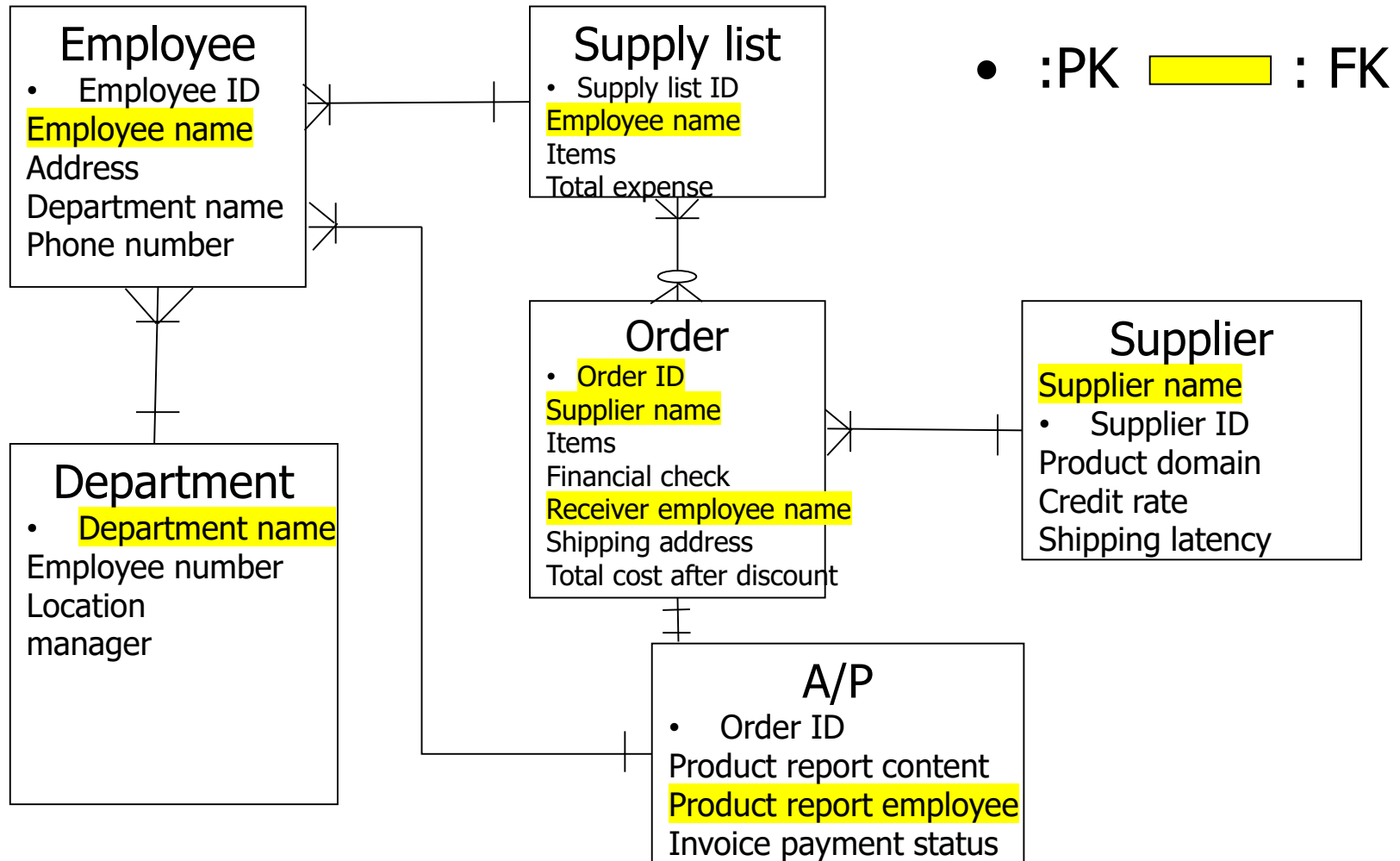## Conceptual Data Model (1)

E-R relation of database:

Office Supplies Process
Conceptual Data Model (2)

RDBMS design of database:

Employee
- Employee ID
- Employee name
- Address
- Department name
- Phone number

Supply list
- Supply list ID
- Employee name
- Items
- Total expense

• :PK [YELLOW] : FK

Department
- Department name
- Employee number
- Location
- manager

Order
- Order ID
- Supplier name
- Items
- Financial check
- Receiver employee name
- Shipping address
- Total cost after discount

Supplier
- Supplier name
- Supplier ID
- Product domain
- Credit rate
- Shipping latency

A/P
- Order ID
- Product report content
- Product report employee
- Invoice payment status

Office Supplies Process

6. Information View: Activity **DATA** Inputs/Outputs

Activity Name	Authority/ order generate
Inputs: Supply list Employee info Supplier info Rules and regulation	Outputs: Order Financial check request

Activity Name	Statist report
Inputs: Order info Department info A/P info Employee info Supplier info	Outputs: Expense report Department report Quarterly report Monthly report

Consistency Checks to Date - 2

The *Entities and Relationships* in the Conceptual (E-R) diagram should be represented adequately in the *Tables and Attributes* in the RDBMS and *Primary and Foreign keys* should be identified

Each *Activity* should have the necessary *Data Inputs* and *Data Outputs* identified.

The *Data Inputs* should have *Data Entry Screens* or other sources identified *(Database Tables)* other *Activities, etc.*

The *Data Outputs* should be inputs to *Reports* or other destinations such as *(Database Tables)* other *Activities, etc.*

Office Supplies Process
6. Information View: Input (Data Entry) Screen(s)/Form(s)

Data entry screen

Name	Li Zhang
ID	123456
Department	operation
Address	101 Jersey ave, Jersey city, NJ00156

| Item 1 | chair | 1 | supplier | NJ furnit |
| Item 2 | pen | 50 | supplier | Rose |

Add

| Note | Can not receive shipment at Thursday, gotta do homework at home |

Submit   Cancel

Office Supplies Process
6. Information View: Output Screen(s) / Report(S)

The report(list) sent to administrator:

Request list				
Name	Li Zhang			
ID	123456			
Department	operation			
Address	101 Jersey ave, Jersey city, NJ00156			
Item 1	chair	1	supplier	NJ furnit
Item 2	pen	50	supplier	Rose
Item 3	paper	20	supplier	paperite
Note	Can not receive shipment at Thursday, gotta do homework at home			

Office Supplies Process
Process Map (SHOULD)

Powered by bizagi Modeler
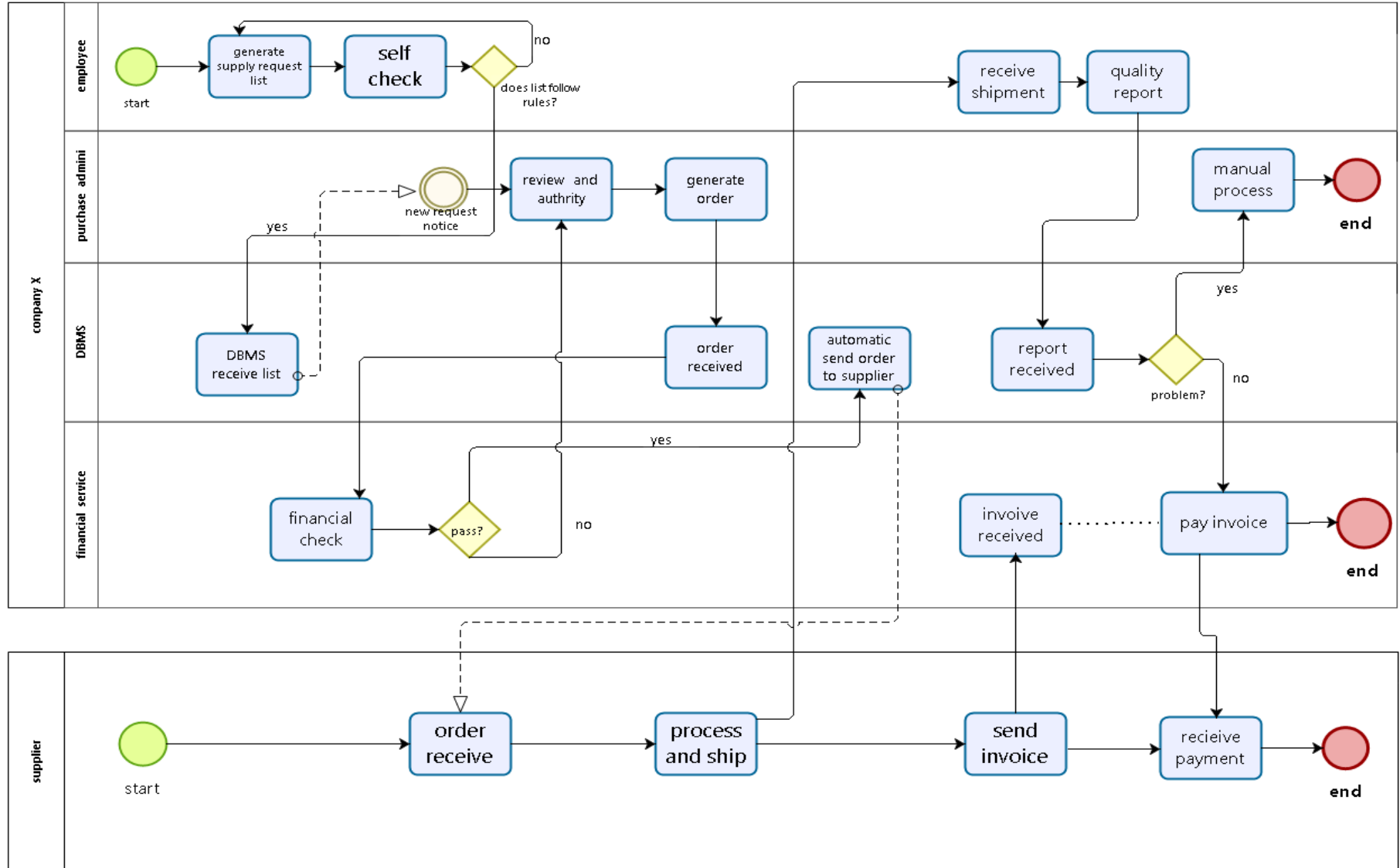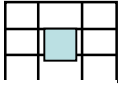
Office Supplies Process:
Process work flow map

start

Built-in self check

Supply list generate   Review and authority   Order generate   Financial check   receive invoice   Pay invoice

company

list   list   Order   Info

info

DBMS

Invoice   Manual process   Money

Order   shipment

start

Order receive   Process and ship   Send invoice   Payment received
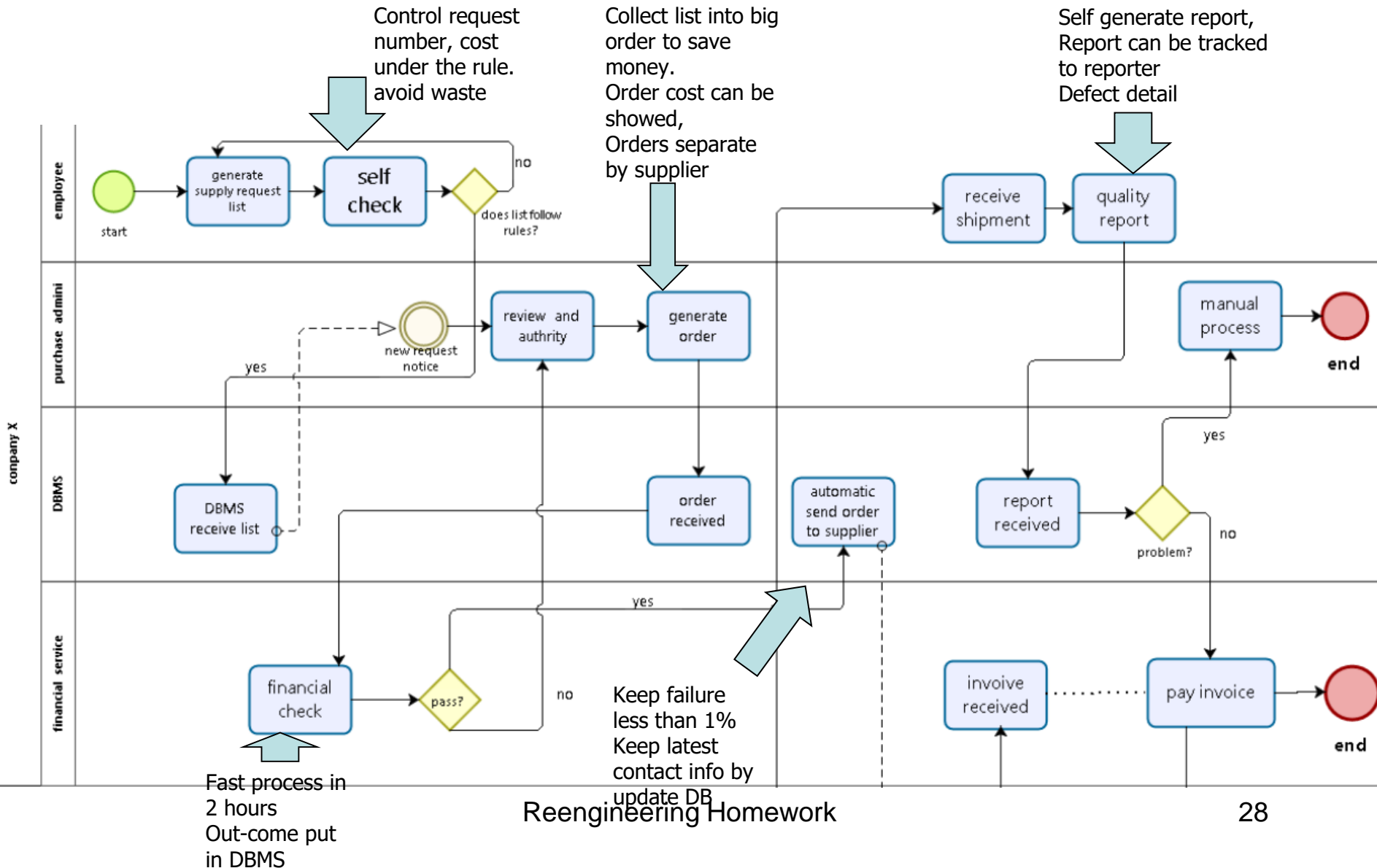
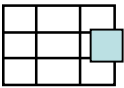supplier
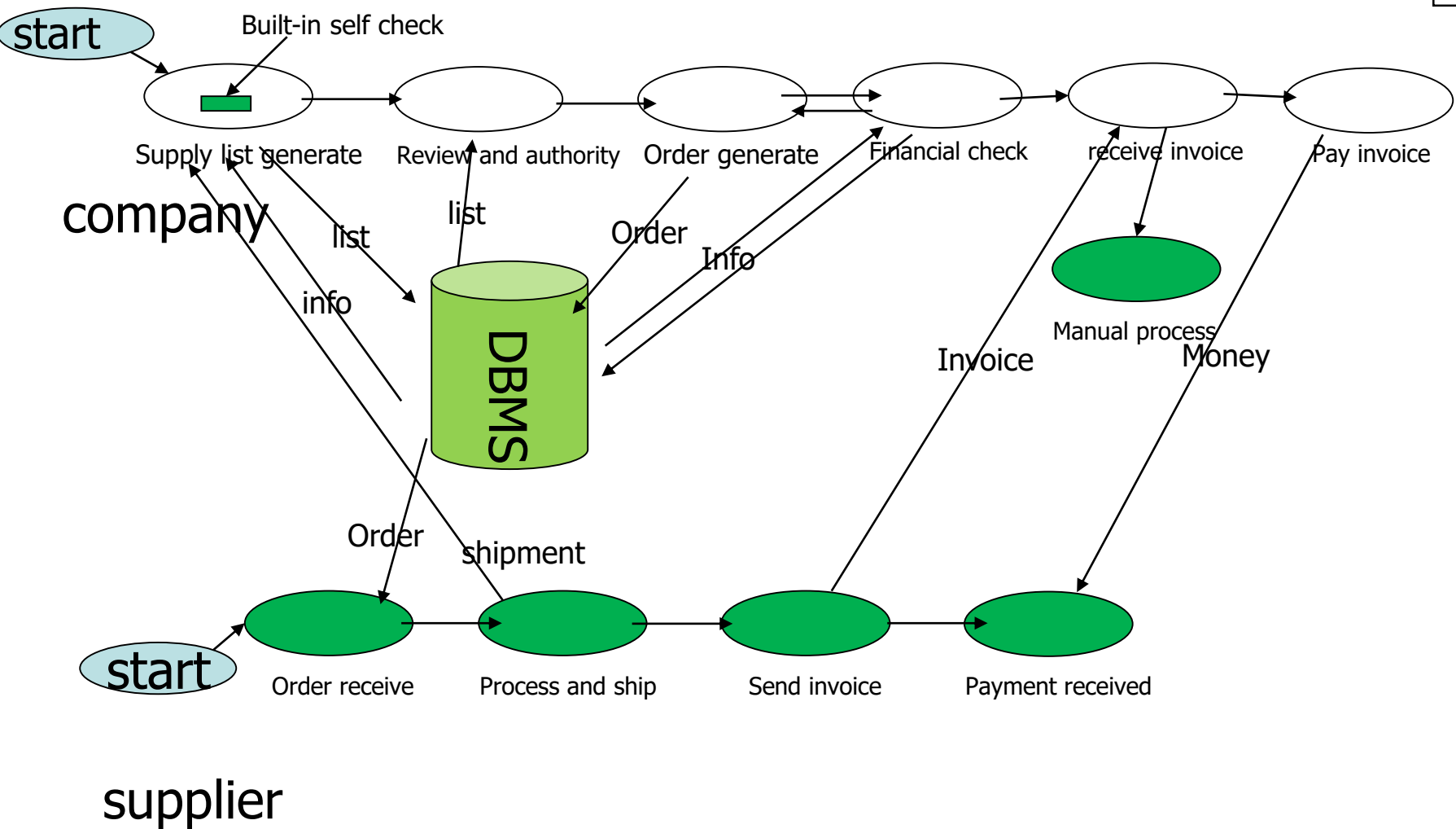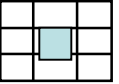
Consistency Checks to Date - 3

Organizational Entities & Roles mentioned in the *Relationship Map* should be represented in the Process Map

Activities mentioned in the Narrative should be represented in the *Process Map*

Information flows mentioned in the *Relationship Map* should be represented in the *Process Map*

Office Supplies Process
Process Map with Task Sub-Goals

Control request
number, cost
under the rule.
avoid waste

Collect list into big
order to save
money.
Order cost can be
showed,
Orders separate
by supplier

Self generate report,
Report can be tracked
to reporter
Defect detail

conpany X

employee

- start
- generate supply request list
- self check
- does list follow rules? — no
- receive shipment
- quality report

purchase admini

- new request notice
- review and authrity
- generate order
- yes
- manual process
- end

DBMS

- DBMS receive list
- order received
- automatic send order to supplier
- report received
- problem? — yes / no

financial service

- financial check
- pass? — no
- yes
- invoice received
- pay invoice
- end

Keep failure
less than 1%
Keep latest
contact info by
update DB

Fast process in
2 hours
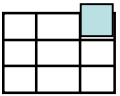Out-come put
in DBMS

Reengineering Homework

Consistency Checks to Date - 4

Process Goals mentioned earlier should be realized by the Process Map Design

The sub-task goals for all the Activities in the Process Map should realize the overall Process Goal
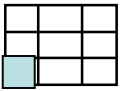
Office Supplies Process
Functional Goal Summary

|	Department		Jobs & Responsibilities	
Major Process Steps	**Outputs**	**Goals**		
1. Employee generate supply list and self check	supply list	• Avoid request abuse • Reduce process time • Reduce cost • Record/inquire in • DBMS	Job: employee(customer) Resp: check office need, generate supply list, Self check under the rule, submit to DBMS	
2. Review and Authority list/ Generate order In purchase administration	order	• Authority control • reduce order number • Big order saving-Opportunity • Record/inquire in DBMS	Job: department clerk Resp: review and Inspect list, generate Order(composite lists into big order),send to Manager, end to DBMS After authorized	Job: manager Resp: Review order and authority them
	Denied list	• Avoid unnecessary cost; • Authority control; • Inquire in DBMS;		
3 A/P receive Invoice and Pay it	Payment accomplish	• Avoid invoice at several place • All order in one payment method • Effect way deal with Product defection	Job: department clerk Resp: receive invoice, Check cost amount, file Invoice, payment problem Solve, file invoice after paid	Job: manager Resp: Review invoice and authority payment

Office Supplies Process
Job/Responsibility Matrix

Job Responsibility Matrix						
Process Steps	**Employee**		**Manager**		**operator**	
	Accomplishments	**Goals**	**Accomplishments**	**Goals**	**Accomplishments**	**Goals**
Send Request list	Request send through the system input screen	• every person send one list cover their need. • No self-pay list	/	/	/	/
Review request/ order generate	Review the request list and check with supply rule	• Divide special list with general • Miss check rate down to 1%	Authority request/ generate large order	• Consider company financial situation • Follow supply rule • Seek large order discount • Order format easy to entry in DBMS	Receive order/ put in DBMS/ send financial check request	Finish task in one day
DBMS operate/maintenance	/	/	/	/	Receive info Store info Maintain system	Accident rate less than 2%
AC payment	Product report	• Problem detail • Send to DBMS	/	/	Choose payment method/Pay the invoice	/

Office Supplies Process
Job Model (Design)
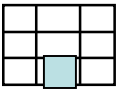
JOB: purchase administration manager

PROCESS: supply list authority processing

ACCOMPLISHMENTS SUBACCOMPLISHMENTS	CRITICAL DIMENSIONS	MEASURES	STANDARDS
Request authority Check list cost Verify employee ID Prevent over request Collect and generate large order Seek large order discount chance Type in info to DBMS	Accuracy Timeliness	Percentage of request list pass rate Orders discount rate Work time consumed in hour Type-in mistake occur percentage	No larger than 95% Average 10% discount 5 hours per order generated Less than 5% occur chance

Office Supplies Process
Costs & Benefits brought by reengineer

Costs

Implementation Costs:

- DBMS build cost
- Receive department eliminate compensate
- Software cost (buy software)
- Supply purchase rule and regulation formulate cost
- Financial check mechanism establish cost

Operational Costs:

- DBMS operation and maintenance cost
- Manual process operation cost
- Financial check operation cost

Benefits

Tangible Benefits:

- Process cycle time reduced
- Process operate/management cost reduced
- Supply order expense reduced
- Information flow speed increased

Intangible Benefits:

- Enforce order authority control
- Avoid multi payment-method
- Avoid invoice transfer and lost
- Management can be inspect and check through database (more transparent)
- Reduce defect by customer report
- Manual process to handle unexpect
- More convenient and precise statistic and report

Office Supplies Process:
Other Processes Impacted

- IT develop process of company may be impacted.

- Financial analysis and report process may be impacted.

- Pubic relationship build process may be impacted

Office Supplies Process
Future Evolution of the System

- If the company grow larger in the future and have more employee and department, the DBMS and finance function may build in every department.
- If the company become more horizontal structure and more organic. The authority may transfer down to employee.
- strategic cooperation between company and supplier may built in future, the DBMS may become shared system by two company.
- If company acquire supplier(supplier become part of company), there will be financial report instead of invoice and payment step.