

IT Course of e-Professional Training for ADOC in Peru

System Architecture Design in Enterprise



Robert C. Wu, DBA/PsyD
wu.chibin@msa.hinet.net

Agenda

- ✍ Overview
- ✍ Information Technology in Enterprise
- ✍ Software Implementation in Enterprise
- ✍ Well-engineered Software
- ✍ Software Specification and Design



Background of Instructor

- ✍ 8 Years Solid Working Experience in Enterprise Resource Planning and Supply Chain Management
- ✍ Familiar with Both SAP N1 and Oracle eBS Top Worldwide Enterprise SW System
- ✍ Chief Designer of WinsERP which Is A Package Developed for SME in Oriental



IT in Enterprise

- ✍ Desktop Environment
- ✍ Infrastructures
- ✍ Security
- ✍ Real-time Performance Management
- ✍ Collaboration Accomplishment
- ✍ Customer Satisfaction and Success



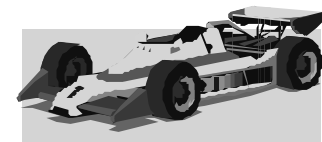
Challenge of Administrating IT

- ✍ Mixed Desktop and Platform Environment
- ✍ Multi-Sites
- ✍ Both Wire and Wireless Streaming
- ✍ Avoiding Attack and Spam
- ✍ Secure Information
- ✍ Deploy Difficult Without Thin-UI

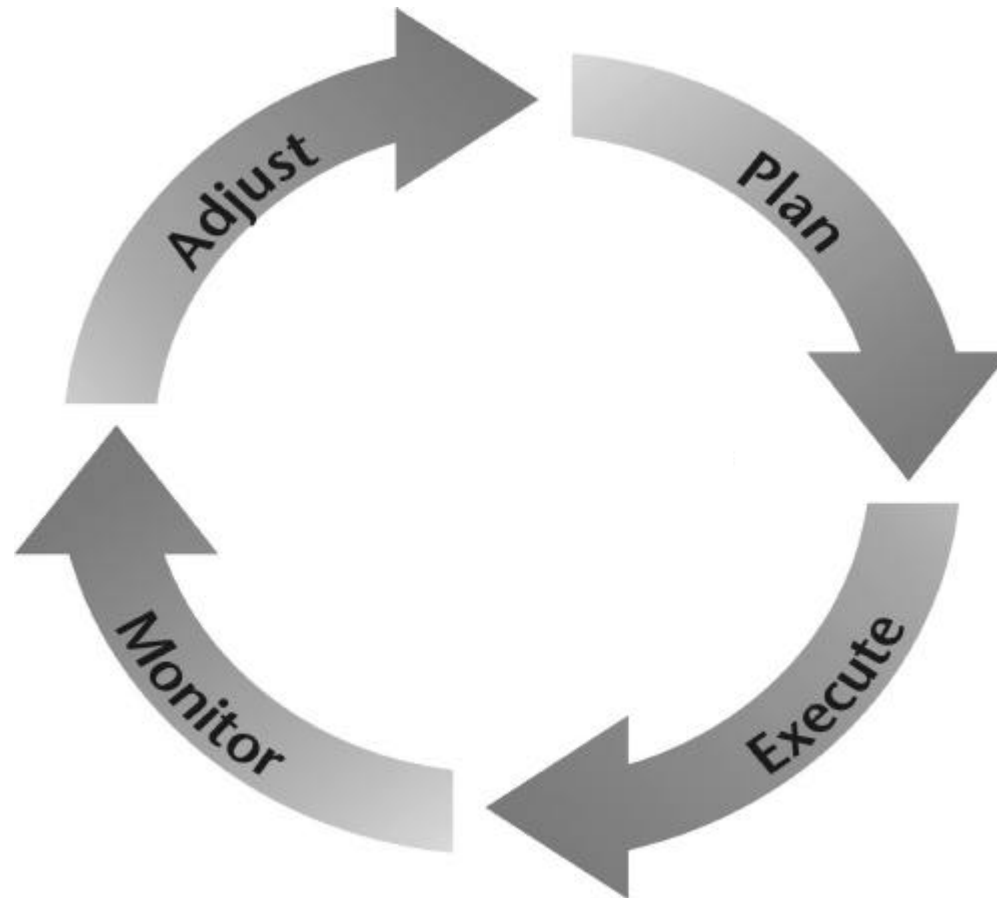


Real-time Performance Management

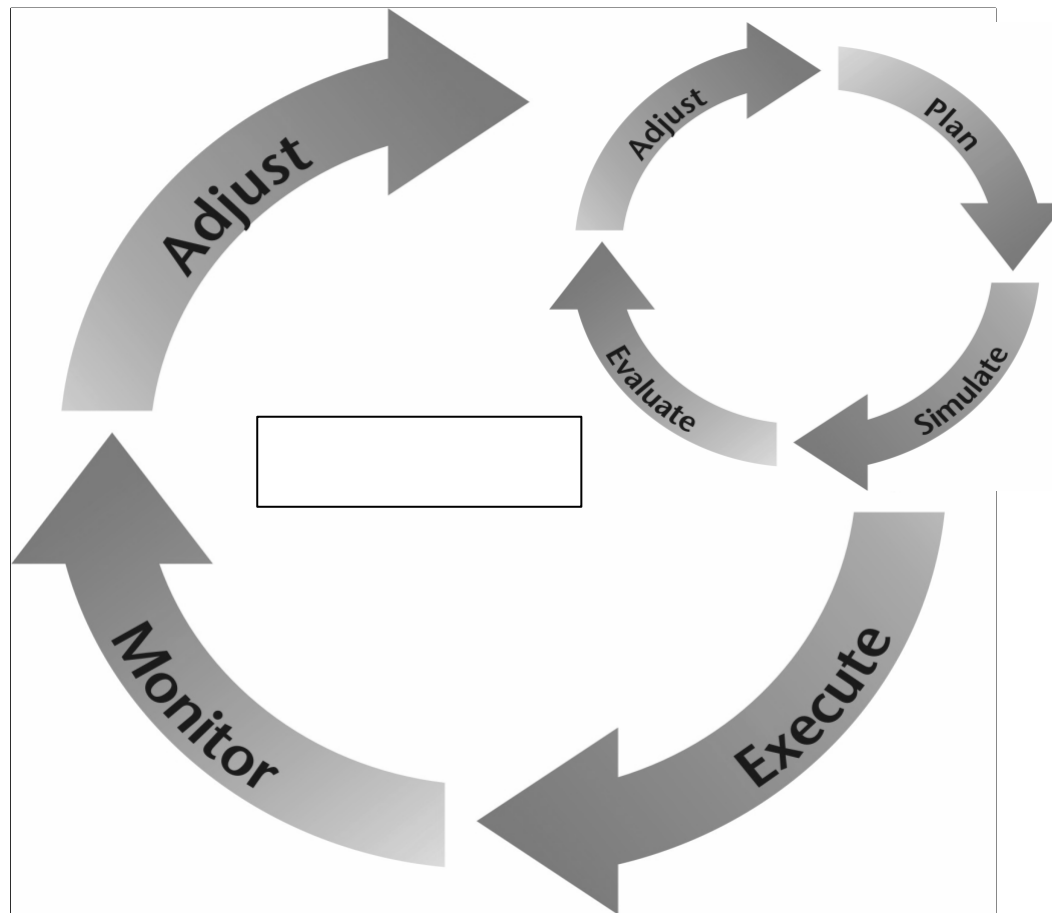
- ✍ Best Description of e-Business
- ✍ On-time Is Only Standard
- ✍ **S**ynchronization of
 - ✍ Operation Scale
 - ✍ Execution Speed
 - ✍ Location Spread
- ✍ En-powering the Real-Time Manufacturer



Classic Planning Cycle



Real-time Planning Cycle

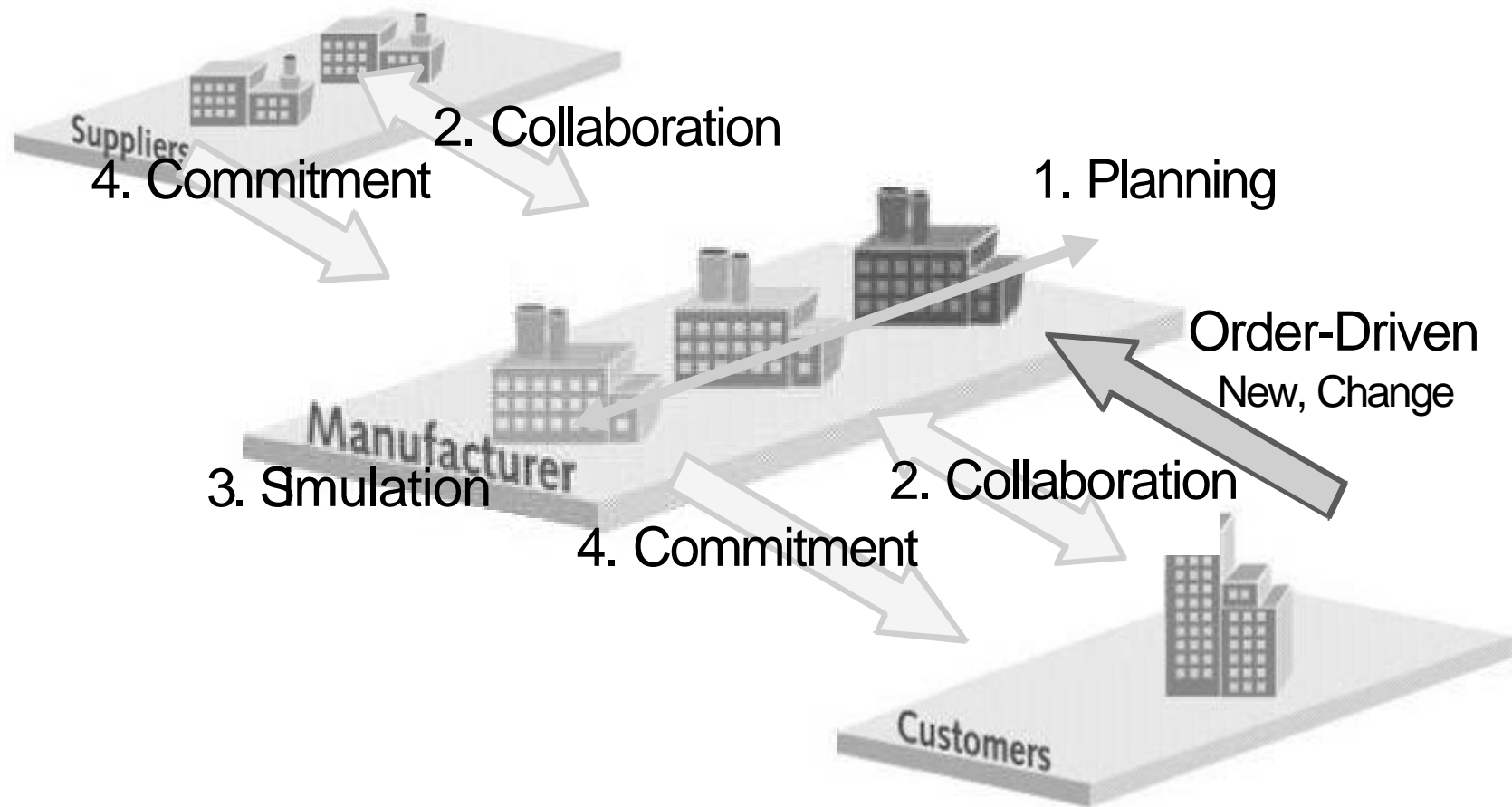


Collaboration Accomplishment

- ✍ Quick & Correct Order Responding
 - ✍ Planning
 - ✍ Collaboration
 - ✍ Simulation
 - ✍ Commitment



Collaboration Accomplishment



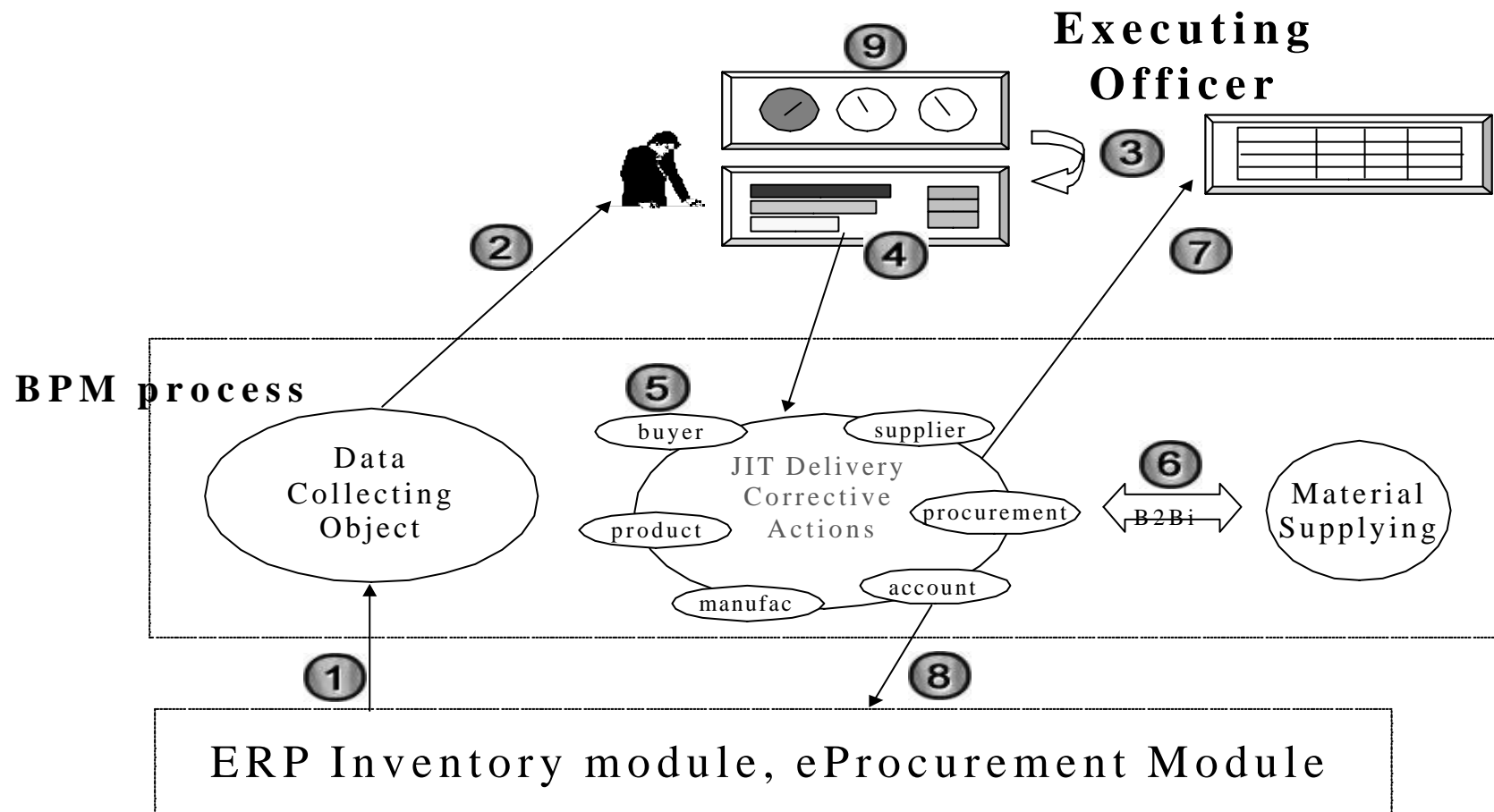
Collaboration Accomplishment

Profitability Analysis



	Base Plan	Scenario 1	Scenario 2	Scenario 3
Metric-1	4,134,987	3,902,640	-232,347	-29,100
Metric-2	345	355,145	+35	-17
Metric-n	134,987	22,992	+11,000	-68,954

Collaboration Accomplishment

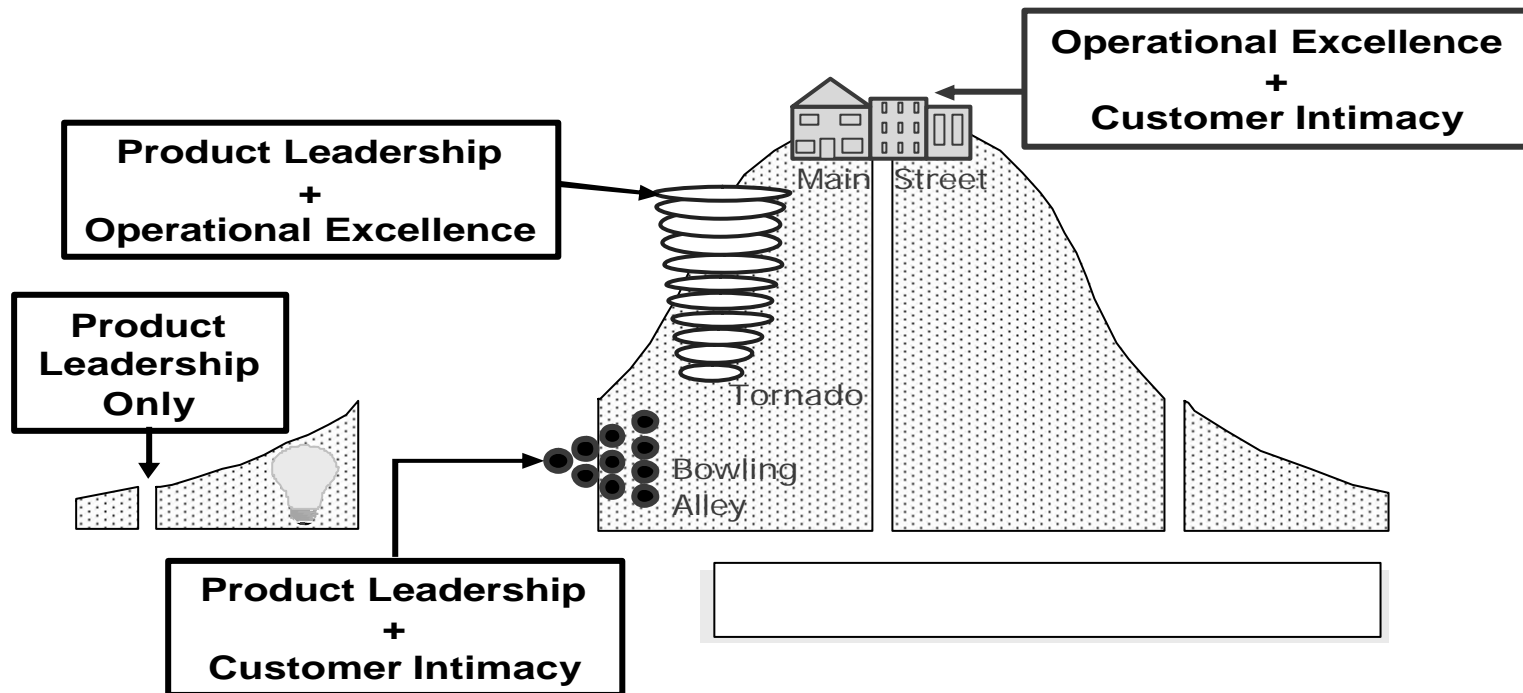


Customer Satisfaction and Success

- ✍ Win Business Opportunity
- ✍ Quick to Market
- ✍ Better Customer Service
- ✍ Accurate Order Confirmation
- ✍ Inventory Reduction
- ✍ On-Time Delivery Improved
- ✍ Visibility of Information Flow Improved

Grow-up Enterprise

Value Disciplines and the Life Cycle

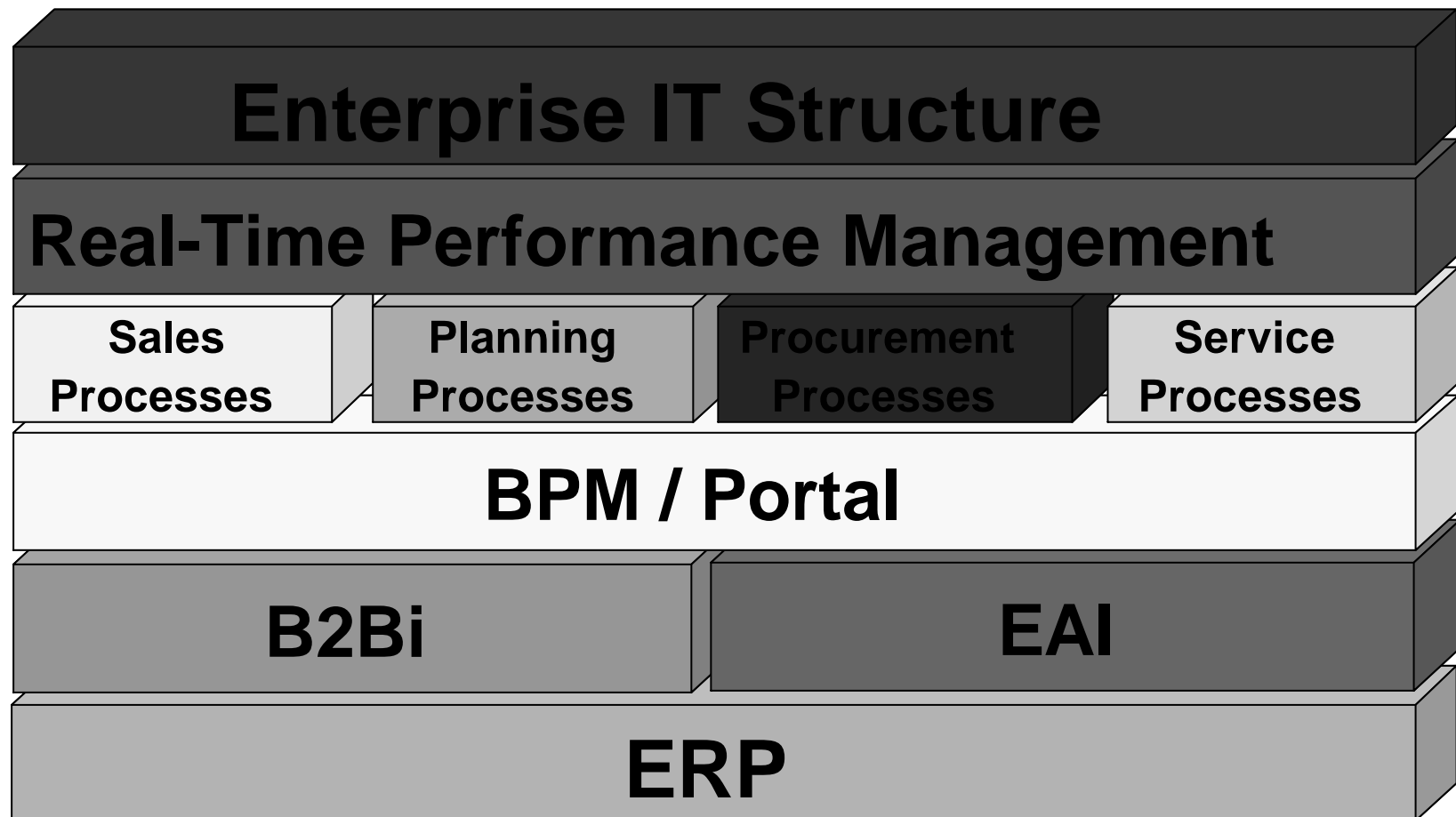


SW Implementation in Enterprise

- ✍ Transaction System
- ✍ Networking System
- ✍ Planning and Analyzing System
- ✍ Collaboration System



Systems Stack



Transaction System

- ✍ Keep Business Operation in Record
- ✍ 4 Purposes to Record
 - ✍ Administration
 - ✍ Calculation
 - ✍ Audit
 - ✍ Analysis
- ✍ Foundation of e-Business

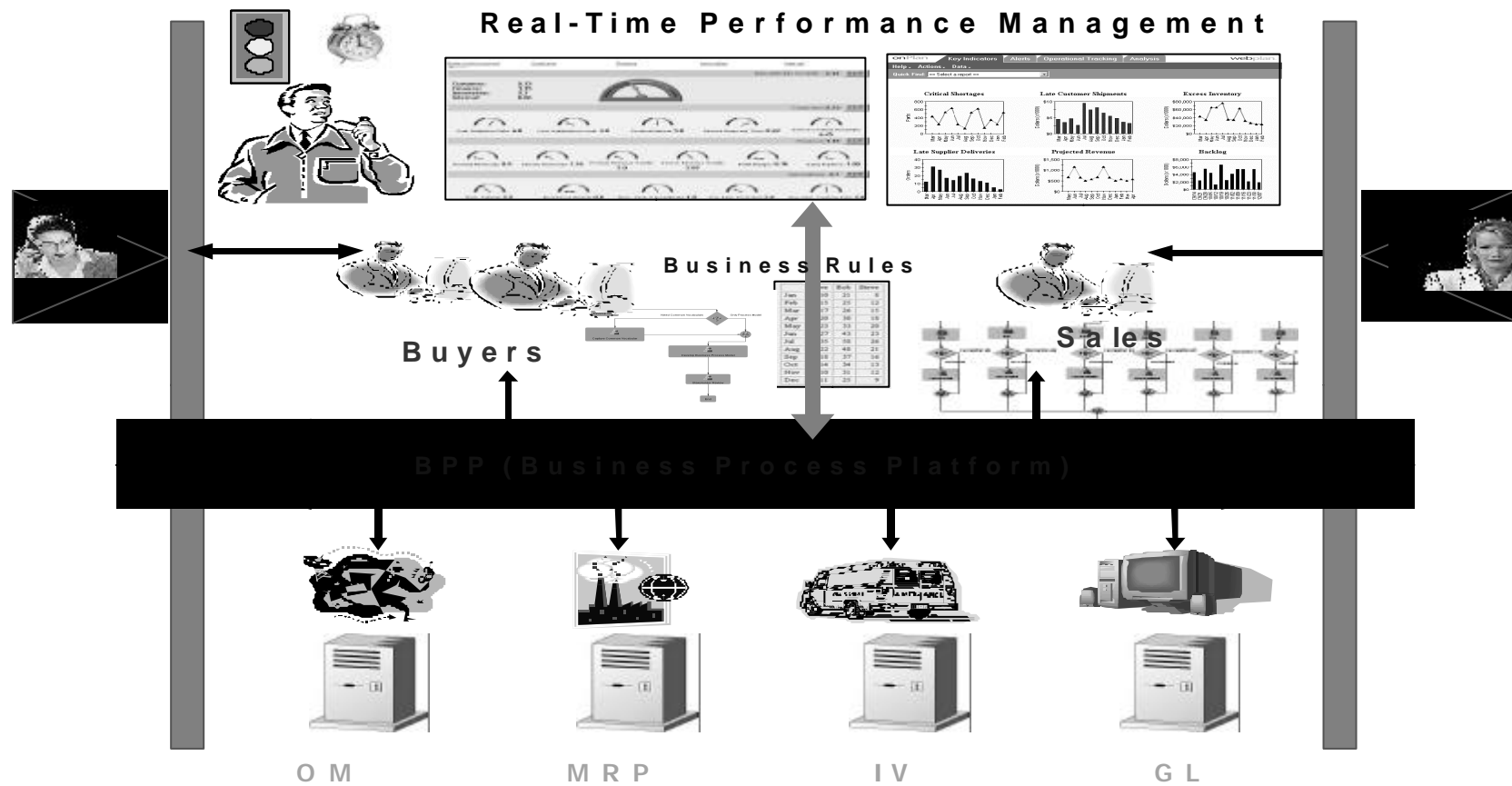


Networking System

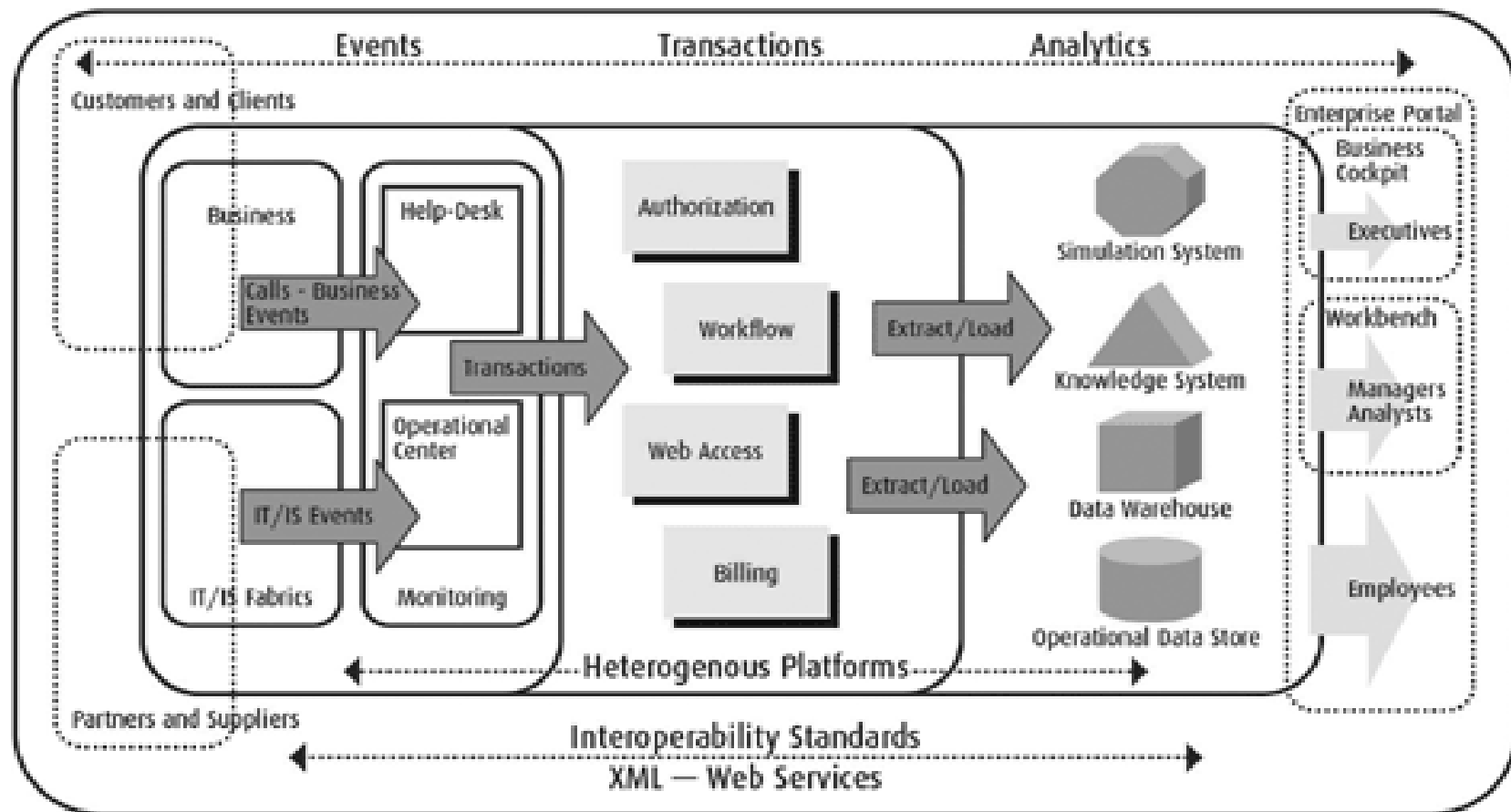
- ✍ Provide Information Super Highway
- ✍ Link All Stand Alone Computers Into Web
- ✍ Administrate Different Types or Size
 - ✍ LAN
 - ✍ WAN
 - ✍ VPN



Process Through Network

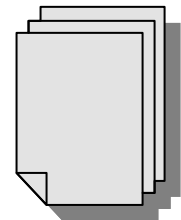


Networking Business Transactions

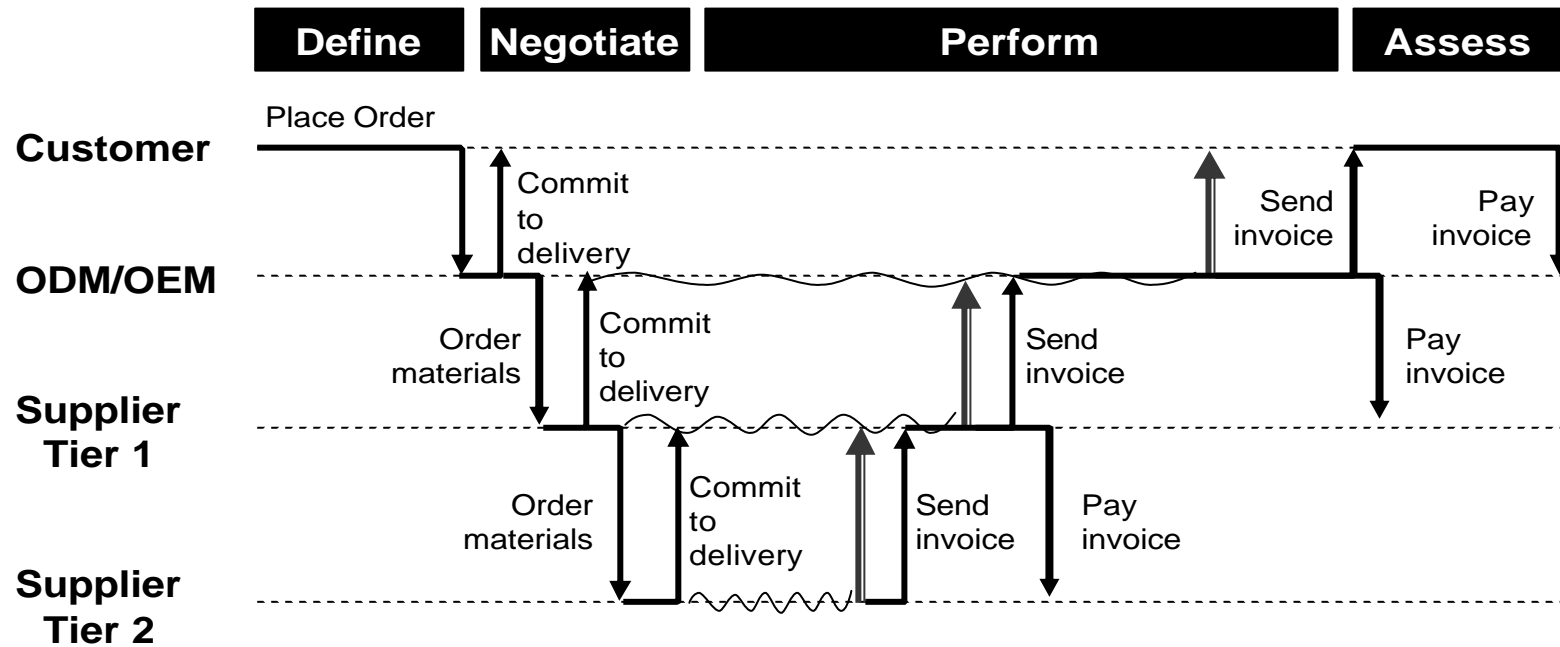


Process Is Soul of SW

- ✍ Process Is The Enterprise Know-how
- ✍ Solid Process Makes Create Key Performance Index (KPI) Possible
- ✍ SW Operated by Computing Logic that is Business Process in Enterprise
- ✍ Data (Transaction) Analyses by Business Logic that is Effect of Process



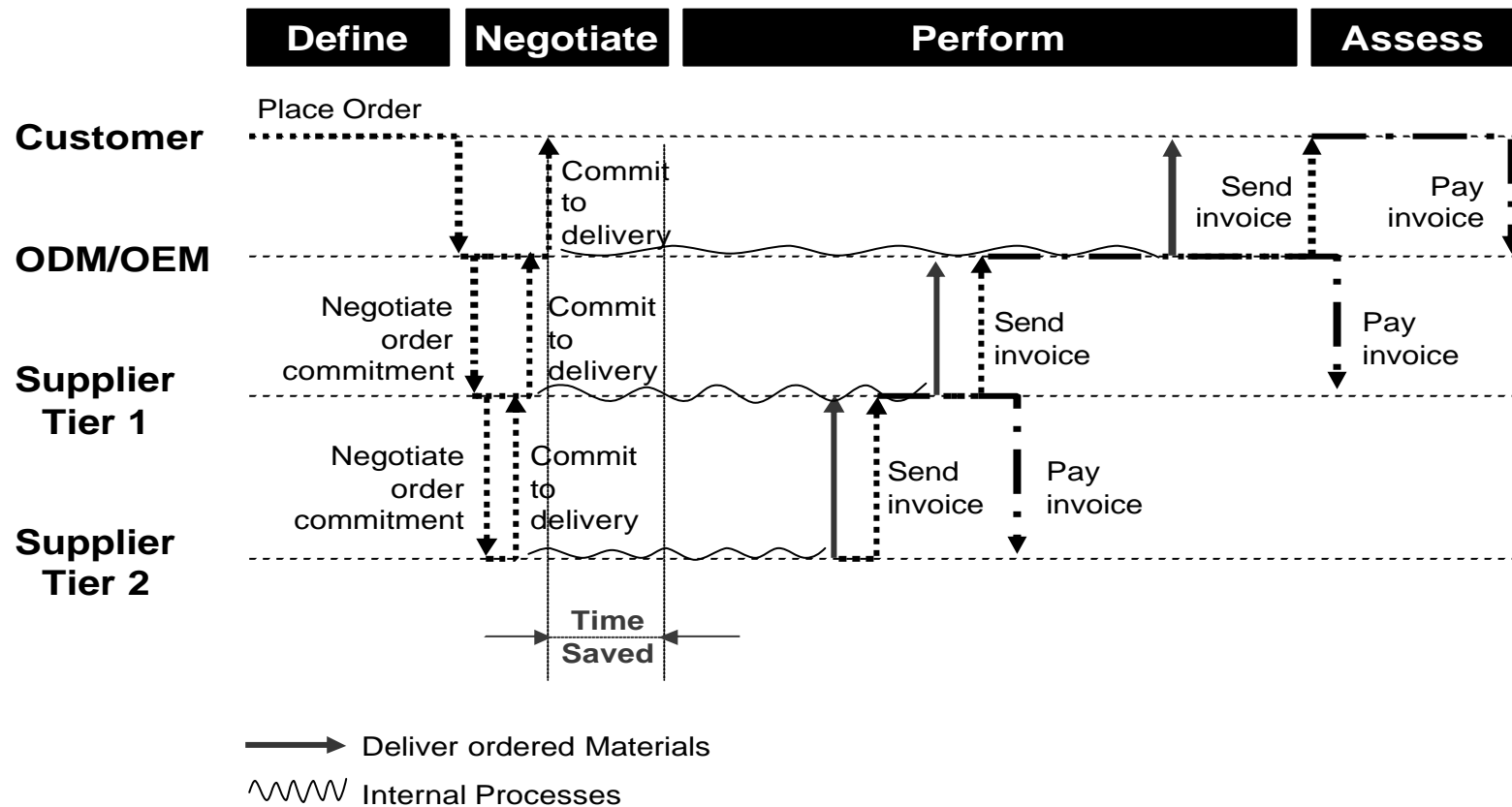
Enhancing Process (As Is)



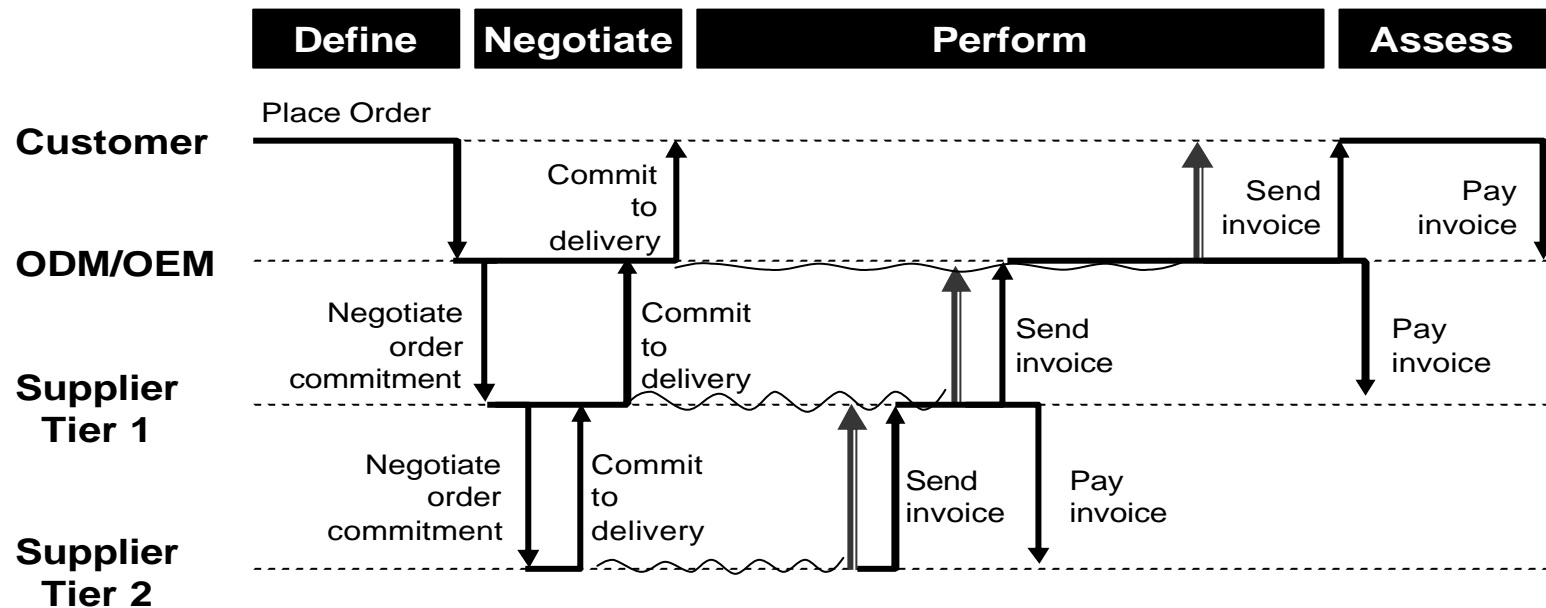
⇒ Deliver ordered Materials

~~~~~ Internal Processes

# Enhancing Process (To Be)



# Enhancing Process (To Be)

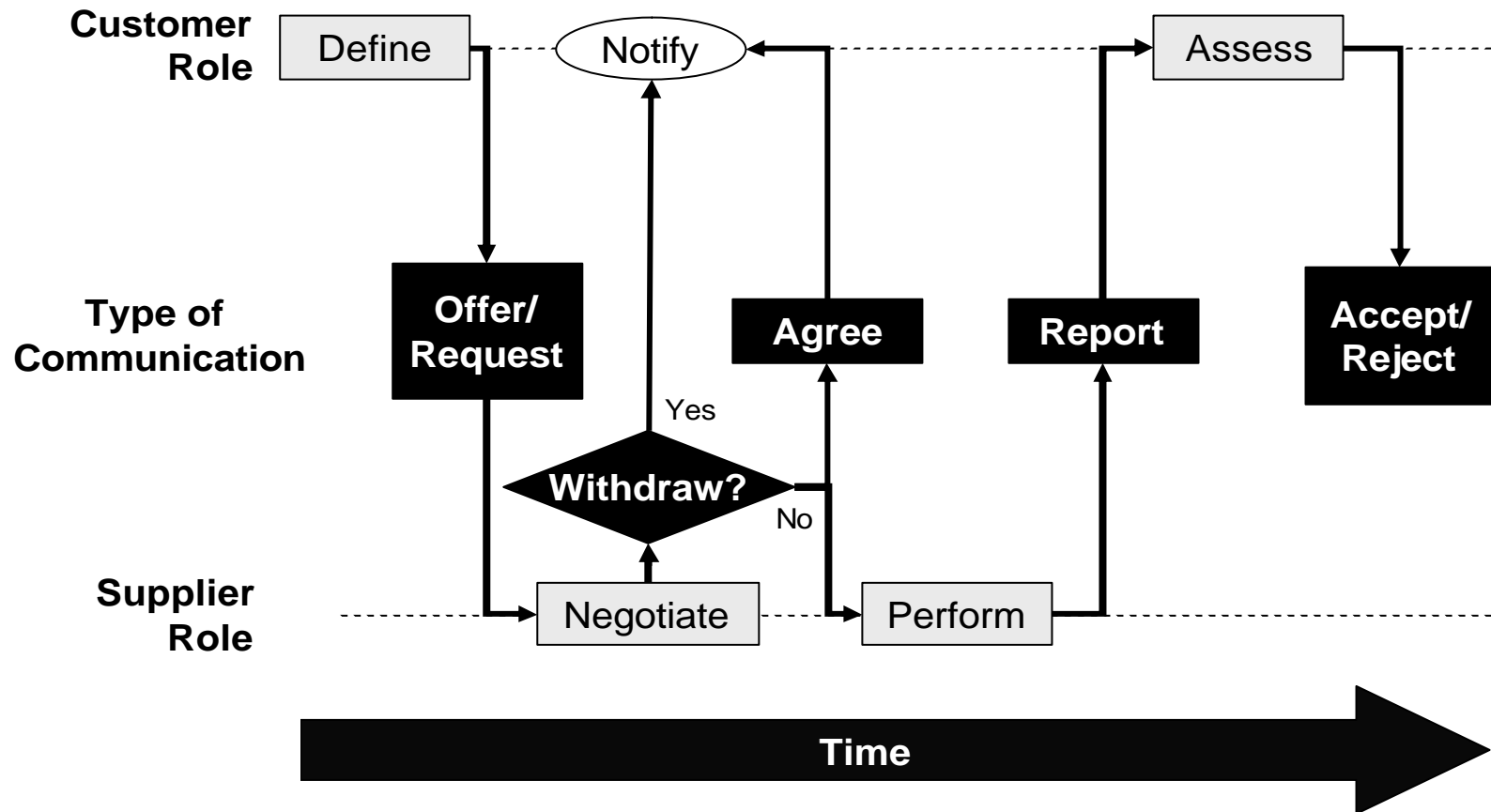


→ Deliver ordered Materials

∩∩∩∩ Internal Processes



# Flow of Standardize Processing



# Advancing to Collaboration

- ✍ Processes Between Companies that is Basic Meaning of Collaboration
- ✍ Co-working Like A Virtual Team
- ✍ Platform Provided Needed for Communicate for Business Issues



# Collaboration Processing Structure

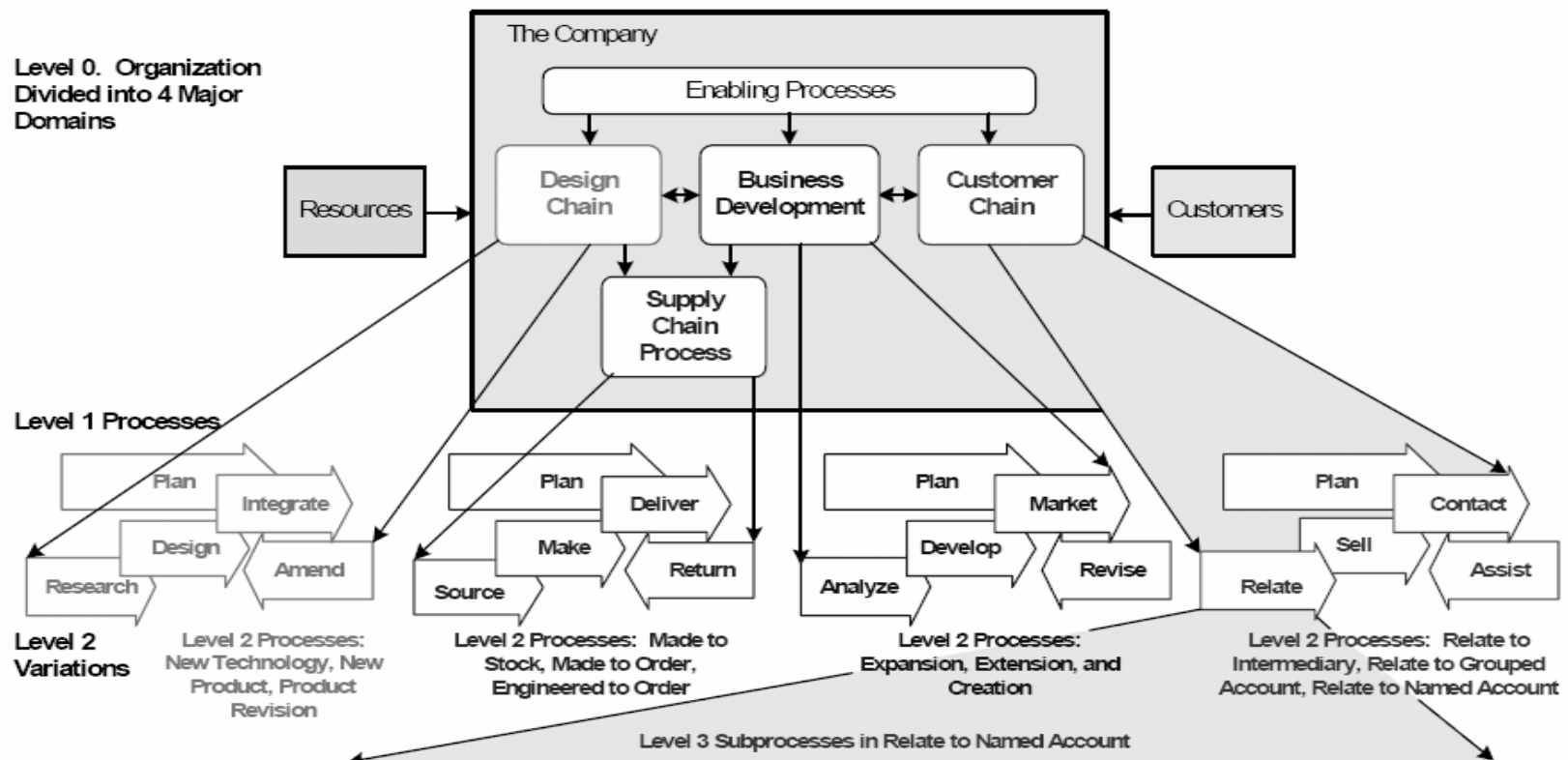


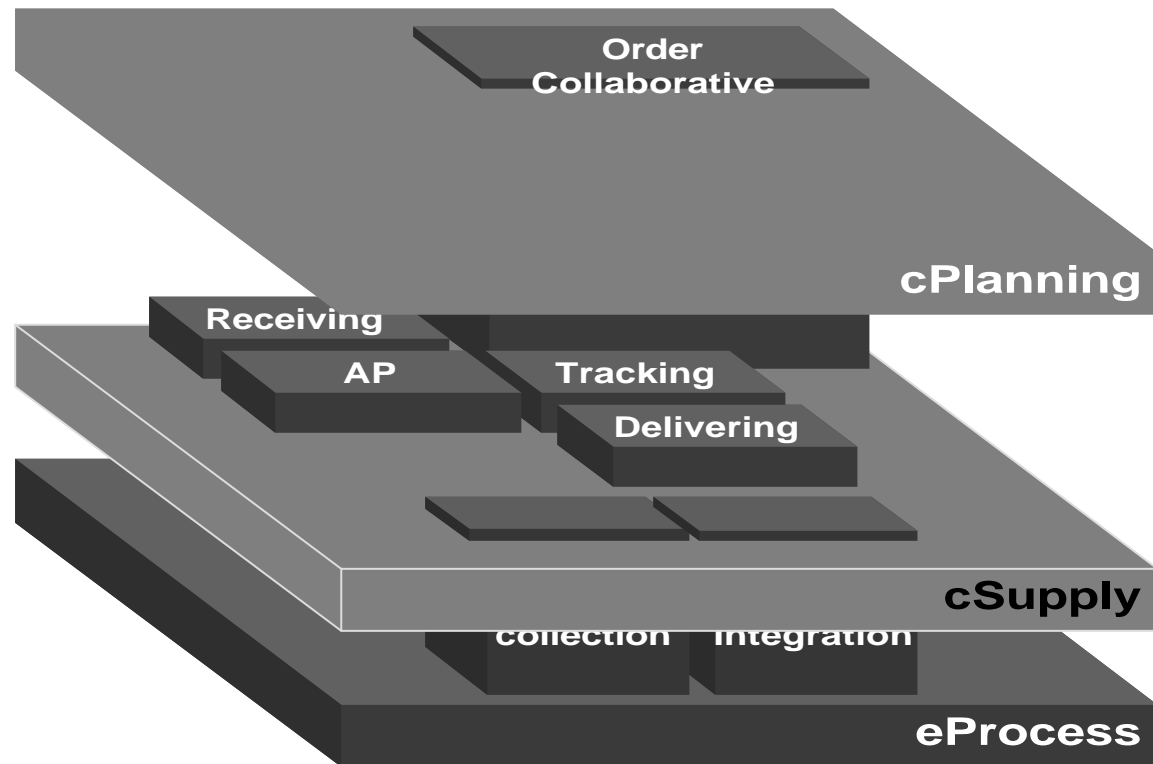
Figure 5. HP's Current Business Process Frameworks.

# Collaborations Cause Chain

- ✍ To The Side of Some Tiers Suppliers that is Supply Chain
- ✍ To The Side of Some Tiers Customers that is Demand Chain
- ✍ Enhancing Performance of Chain that is Basically Process Re-engine

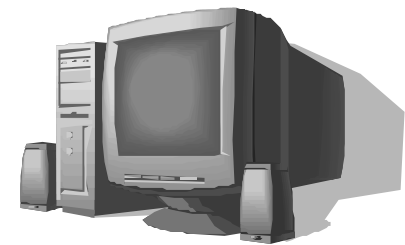


# Model of Chain Operating



# Well-engineered SW

- ✍ Key Attributes
- ✍ The Software Process
- ✍ Management Process Models



# Advantages of Well-engineered SW

- ✍ Stable in Perform Production of Enterprise
- ✍ Reducing Cost in Re-design or Spec Changing
- ✍ Correction Assure, Avoiding Garbage-in Garbage-out



## Key Attributes of Well-engineered SW

- ✍ The SW should be **maintainable**. As long-lifetime SW is subject to regular change, it should be written and documented so that changes can be made with undue costs.
- ✍ The SW should be **reliable**. This means that it should perform as expected by users and should not fail more often than is allowed for in its specification.

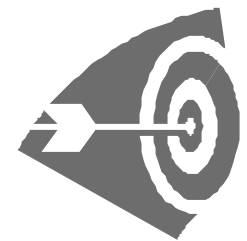


## Key Attributes of Well-engineered SW

- ✍ The SW should be **efficient**. This does not necessarily mean that the last ounce of performance is squeezed out of the system HW; maximizing efficiency may make the SW more difficult to change. Efficiency means that a system should not make wasteful use of system resources such as memory and processor cycles.

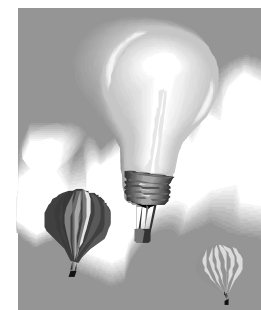
## Key Attributes of Well-engineered SW

- ✍ The SW should offer an **appropriate user interface**. Much SW is not used to its full potential because its interface makes it difficult to use. The user interface design must be tailored to the capabilities and background of the system users.



# Waterfall Model of SW Development

- ✍ Requirements analysis and definition
- ✍ System and SW design
- ✍ Implementation and unit testing
- ✍ Integration and system testing



# Waterfall Model of SW Development

- ✍ Make up of a number of stages then defined it is “signed-off” and development proceeds to the following stage (Waterfall Model)
- ✍ Exploratory programming
- ✍ Prototyping
- ✍ Formal transformation
- ✍ System assembly from reusable components

# Managing by Document

- ✍ The timing of management requirements may not necessarily correspond with the time required to complete an activity so artificial documents may be produced
- ✍ The need to approve documents tends to constrain process integration as the costs of going back and adapting a completed deliverable are high

# Managing by Document

- ✍ The notion that document from one stage should act as the defining input to the next stage is flawed
- ✍ The time required to review and approve a document is significant and there is rarely a smooth transition from one phase of the process to the next.

# Documents for Activity

- ✍ Requirements analysis ? Feasibility study, Outline requirements
- ✍ Requirements definition ? Requirements specification
- ✍ System specification ? Functional specification, Acceptance test specification, Draft user manual

# Documents for Activity

- ✍ Architectural design ? Design architecture specification, System test specification
- ✍ Interface design ? Interface specification, Integration test specification
- ✍ Detailed design ? Design specification, Unit test specification
- ✍ Coding ? Program code



# Documents for Activity

- ✍ Unit testing ? Unit test result report
- ✍ Module testing ? Module test result report
- ✍ Integration testing ? Integration test report,  
Final user manual
- ✍ System testing ? System test report
- ✍ Acceptance testing ? Final system

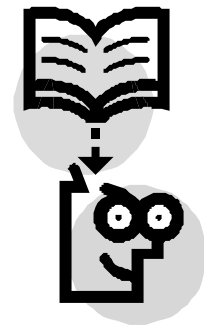


# Documents for Activity

- ✍ Suitable: Waterfall model, Formal transformations
- ✍ Not Suitable: Exploratory programming, Reuse-oriented model
- ✍ Prototyping: Uneconomic to generate documents during initial phase of fast integration; later phases OK if waterfall model followed

# SW Spec and Design

- ✍ Requirements Definition
- ✍ System Modeling
- ✍ Software Prototyping
- ✍ Software Design
- ✍ Real-Time Systems Design
- ✍ User Interface Design



## Q & A

- ✍ Thank You All, and Hope Being Helpful
- ✍ Welcome to Reach Me by e-mail
  - ✍ [wu.chibin@msa.hinet.net](mailto:wu.chibin@msa.hinet.net)
- ✍ ADOC Office Locally

