15.566
Information Technology as an Integrating Force in Manufacturing

Session 4 of 24

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Sloan School of Management

Concluding remarks
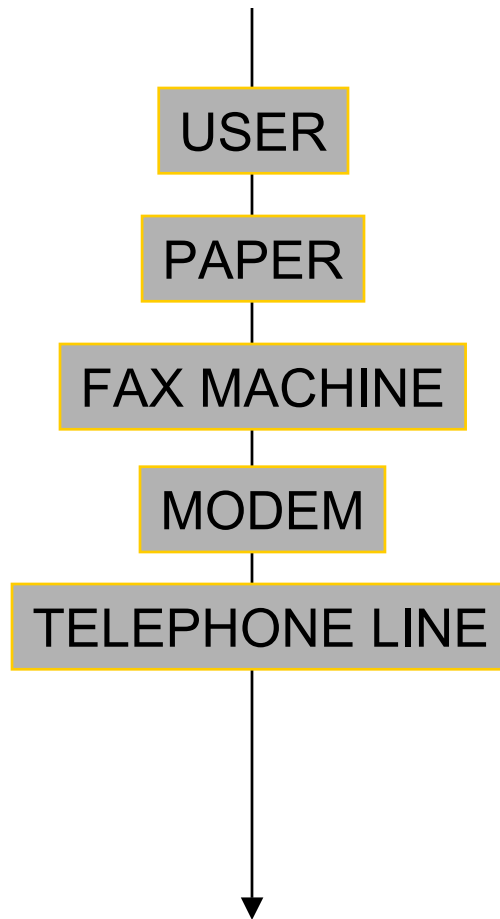
Prof. Brian Subirana

USE CASES

- Contract between stakeholders about system behavior
- Captures:
  - Request from primary actor
  - System response
  - Implications for other stakeholders
- To be agreed by non-technical users
- Usually in text form (also business processes, flow charts, programming languages)
- Used for different purposes
  - To be the functional requirements for a system
  - To describe business processes
  - To form the basis for user documentation
  - To document the design of a system
- One size doesn't fit all
  - Executives need business oriented use cases
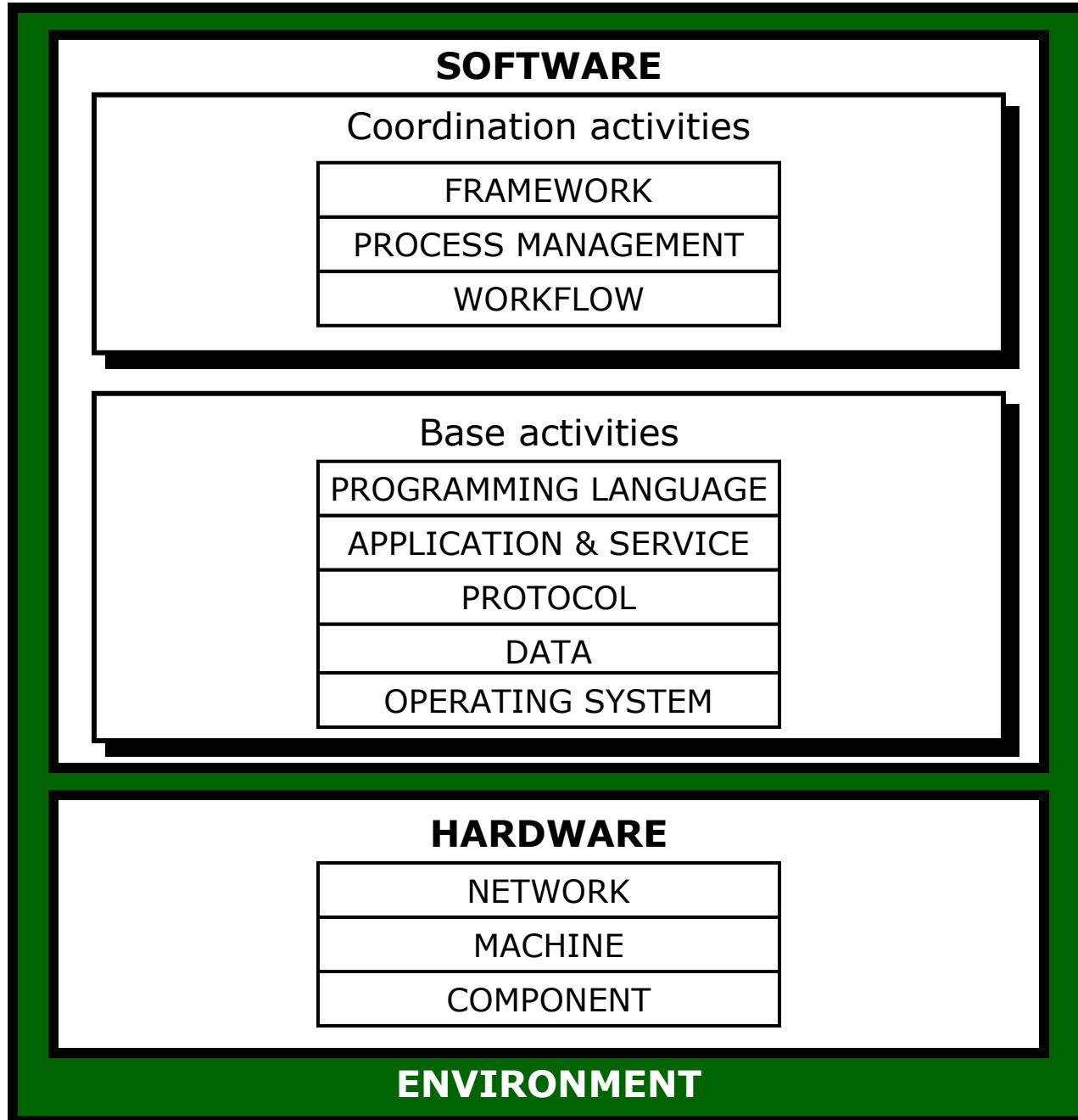 - Mission critical apps require unambiguous, thorough descriptions

USE CASE 5	Buy Goods	
Goal in Context	Buyer issues request directly to our company, expects goods shipped and to be billed.	
Scope & Level	Company, Summary	
Preconditions	We know Buyer, their address, etc.	
Success End Condition	Buyer has goods, we have money for the goods.	
Failed End Condition	We have not sent the goods, Buyer has not spent the money.	
1a, 2a Actors	Buyer, any agent (or computer) acting for customer. Credit card company, bank, shipping service	
Trigger	purchase request comes in.	
DESCRIPTION	**Step**	**Action**
	1	Buyer calls in with a purchase request
	2	Company captures buyer's name, address, requested goods, etc.
	3	Company gives buyer information on goods, prices, delivery dates, etc.
	4	Buyer signs for order.
	5	Company creates order, ships order to buyer.
	6	Company ships invoice to buyer.
	7	Buyers pays invoice.
EXTENSIONS	**Step**	**Branching Action**
	3a	Company is out of one of the ordered items: 3a1. Renegotiate order.
	4a	Buyer pays directly with credit card: 4a1. Take payment by credit card (use case 44)
	7a	Buyer returns goods: 7a. Handle returned goods (use case 105)
SUB-VARIATIONS		**Branching Action**
	1	Buyer may use phone in, fax in, use web order form, electronic interchange
	7	Buyer may pay by cash or money order, check, credit card

SIMPLE EXAMPLE OF COMMUNICATION – SENDING A FAX

telecommunication is achieved through the layered exchange of symbols

USER

PAPER

FAX MACHINE

MODEM

TELEPHONE LINE

GENERIC IT ARCHITECTURE ABSTRACTION STACK

SOFTWARE

Coordination activities

FRAMEWORK
PROCESS MANAGEMENT
WORKFLOW

Base activities

PROGRAMMING LANGUAGE
APPLICATION & SERVICE
PROTOCOL
DATA
OPERATING SYSTEM

HARDWARE

NETWORK
MACHINE
COMPONENT

ENVIRONMENT

A "Real" Computer Architecture

Keyboard

Mouse

Clock

CPU

001

Instruction
Counter

0101

1101

Registers

Monitor

Laser printer

Memory
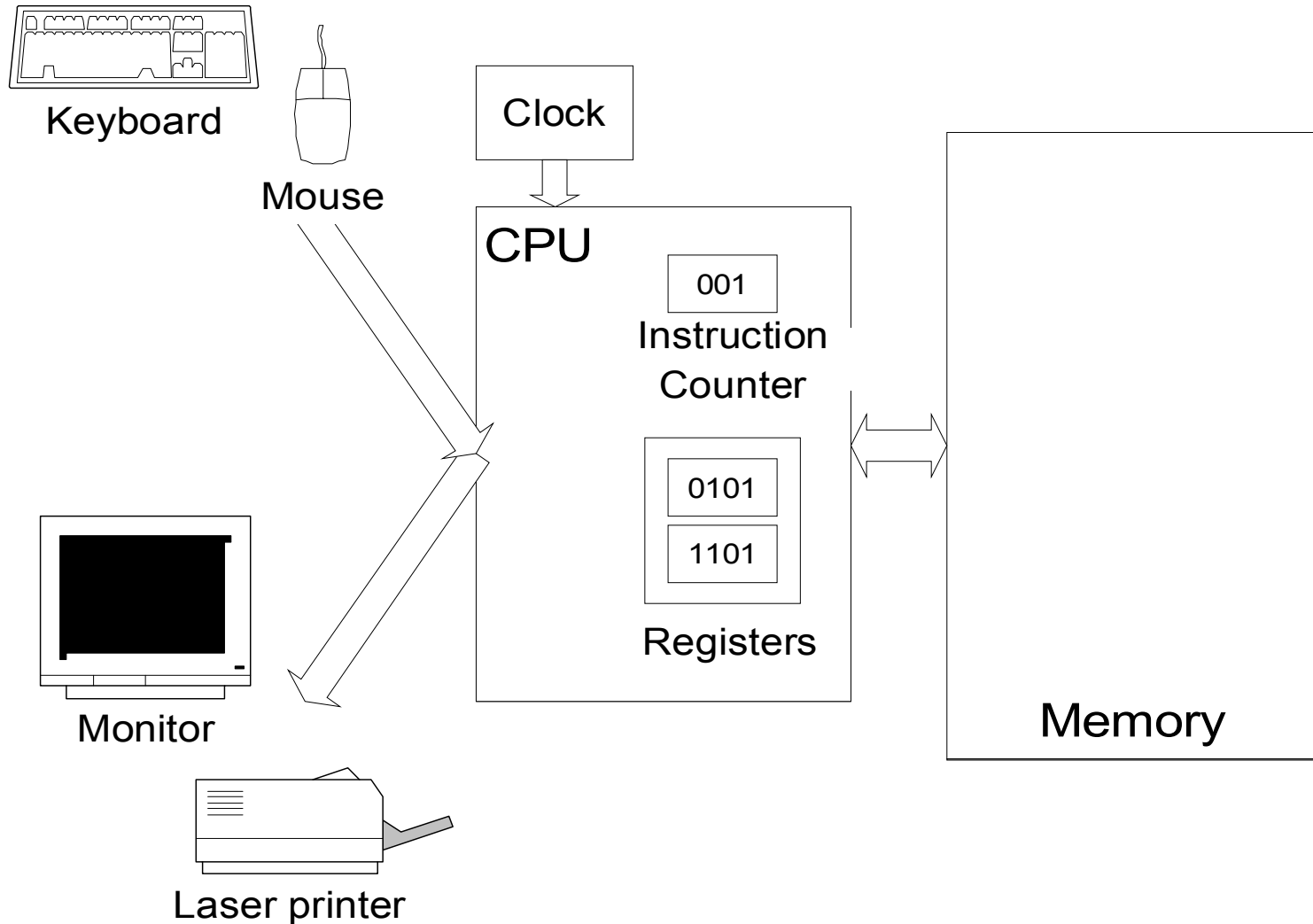
A Simplified Computer The LMC = Little man computer

NETWORKING

I-O REGISTERS

P1 - - - - → | 400 | →
P2 - - - - → | 400 | →
P3 - - - - → | 400 | →
P4 - - - - → | 400 | →
P5 - - - - → | 400 | →
P6 - - - - → | 400 | →

INPUT

P7 - - - - → | 400 | ←
P8 - - - - → | 400 | ←
P9 - - - - → | 400 | ←
P10 - - - - → | 400 | ←
P11 - - - - → | 400 | ←
P12 - - - - → | 400 | ←

OUTPUT

RESET

PROCESSOR

NEXT INSTRUCTION

| 12 | ←

M. RETRIEVE

DATA REGISTER

| 400 |

ADDRESS REGISTER

| 400 |

ALU

ADDRESS NEXT INSTRUCTION

| 002 | →

| 4 | **CLOCK STATUS**

MEMORY

ADDS.	DATA
001	010
002	007
003	008
004	003
005	002
…	
017	005
018	011
019	008
020	400
021	400
022	400
023	400
…	
997	400
998	400
999	400