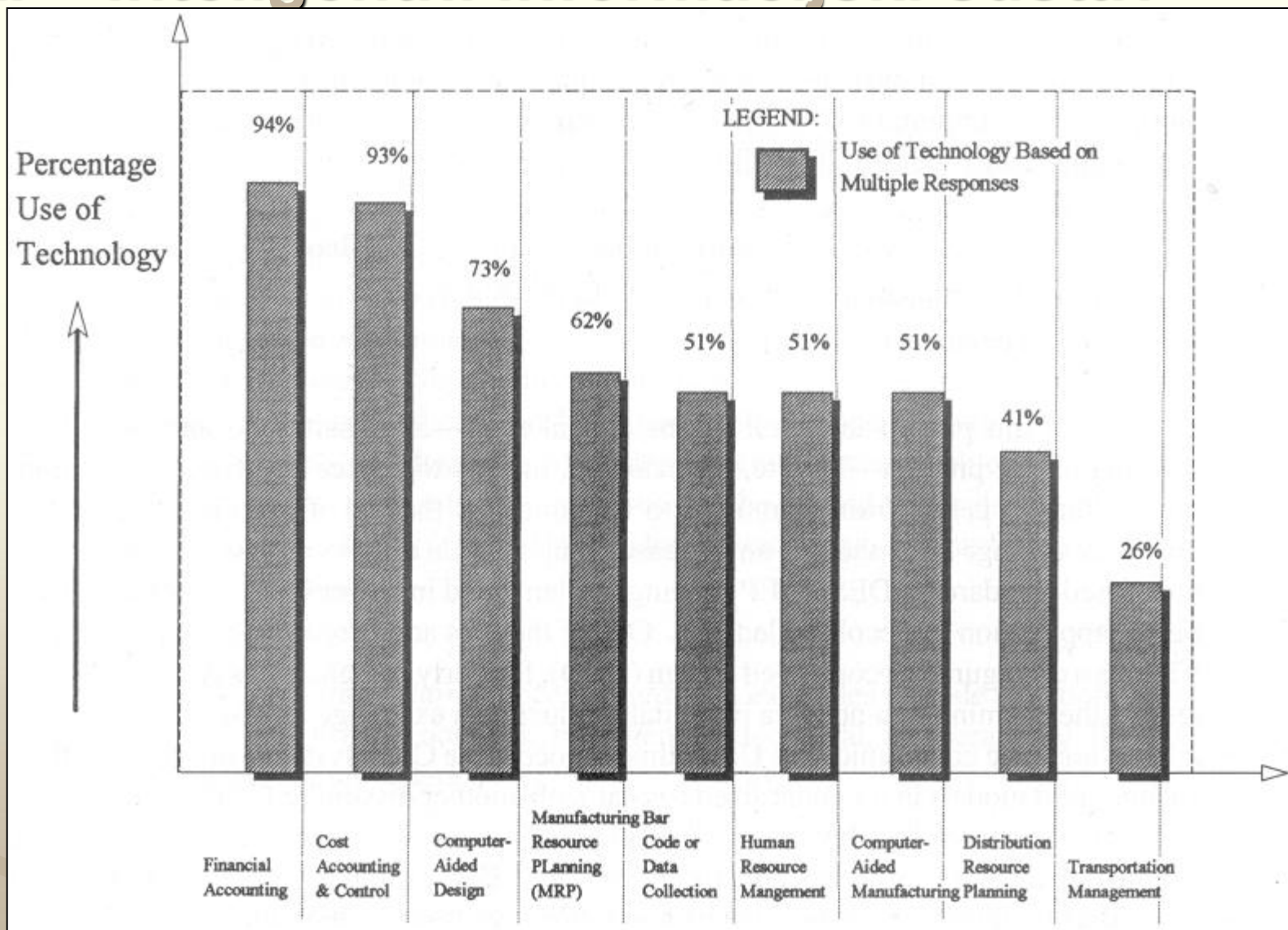


ix. Inteligentni informacijski sustav



Za što koriste informacijske sustave proizvođači srednje veličine? (USA, 1994.)

Povezivanje sučelja (pre- i postprocesori)

Interface Matrix	Financial Accounting (FA)	Cost Accounting & Control (CA)	Computer-Aided Design (CAD)	Manufacturing Resource Planning (MRP)	Bar Code or Data Collection (BC)	Human Resource Management (HRM)	Computer-Aided Manufacturing (CAM)	Distribution Resource Planning (DRP)	Transportation Management (TM)
Financial Accounting (FA)	→ ↓	FA→CA	FA→CAD	FA→MRP	FA→BC	FA→HRM	FA→CAM	FA→DRP	FA→TM
Cost Accounting & Control (CA)	CA→FA	↑ ↔ ↓	CA→CAD	CA→MRP	CA→BC	CA→HRM	CA→CAM	CA→DRP	BC→TM
Computer-Aided Design (CAD)	CAD→FA	CAD→CA	↑ ↔ ↓	CAD→MRP	CAD→BC	CAD→HRM	CAD→CAM	CAD→DRP	CAD→BC
Manufacturing Resource Planning (MRP)	MRP→FA	MRP→CA	MRP→CAD	↑ ↔ ↓	MRP→BC	MRP→HRM	MRP→CAM	MRP→DRP	MRP→TM
Bar Code or Data Collection (BC)	BC→FA	BC→CA	BC→CAD	BC→MRP	↑ ↔ ↓	BC→HRM	BC→CAM	BC→DRP	BC→TM
Human Resource Management	HRM→FA	HRM→CA	HRM→CAD	HRM→MRP	HRM→BC	↑ ↔ ↓	HRM→CAM	HRM→DRP	HRM→TM
Computer Aided Manufacturing	CAM→FA	CAM→CA	CAM→CAD	CAM→MRP	CAM→BC	CAM→HRM	↑ ↔ ↓	CAM→DRP	CAM→TM
Distribution Resource Planning (DRP)	DRP→FA	DRP→CA	DRP→CAD	DRP→MRP	DRP→BC	DRP→HRM	DRP→CAM	↑ ↔ ↓	DRP→TM
Transportation Management (TM)	TM→FA	TM→CA	TM→CAD	TM→MRP	TM→BC	TM→HRM	TM→CAM	TM→DRP	↑ ↔

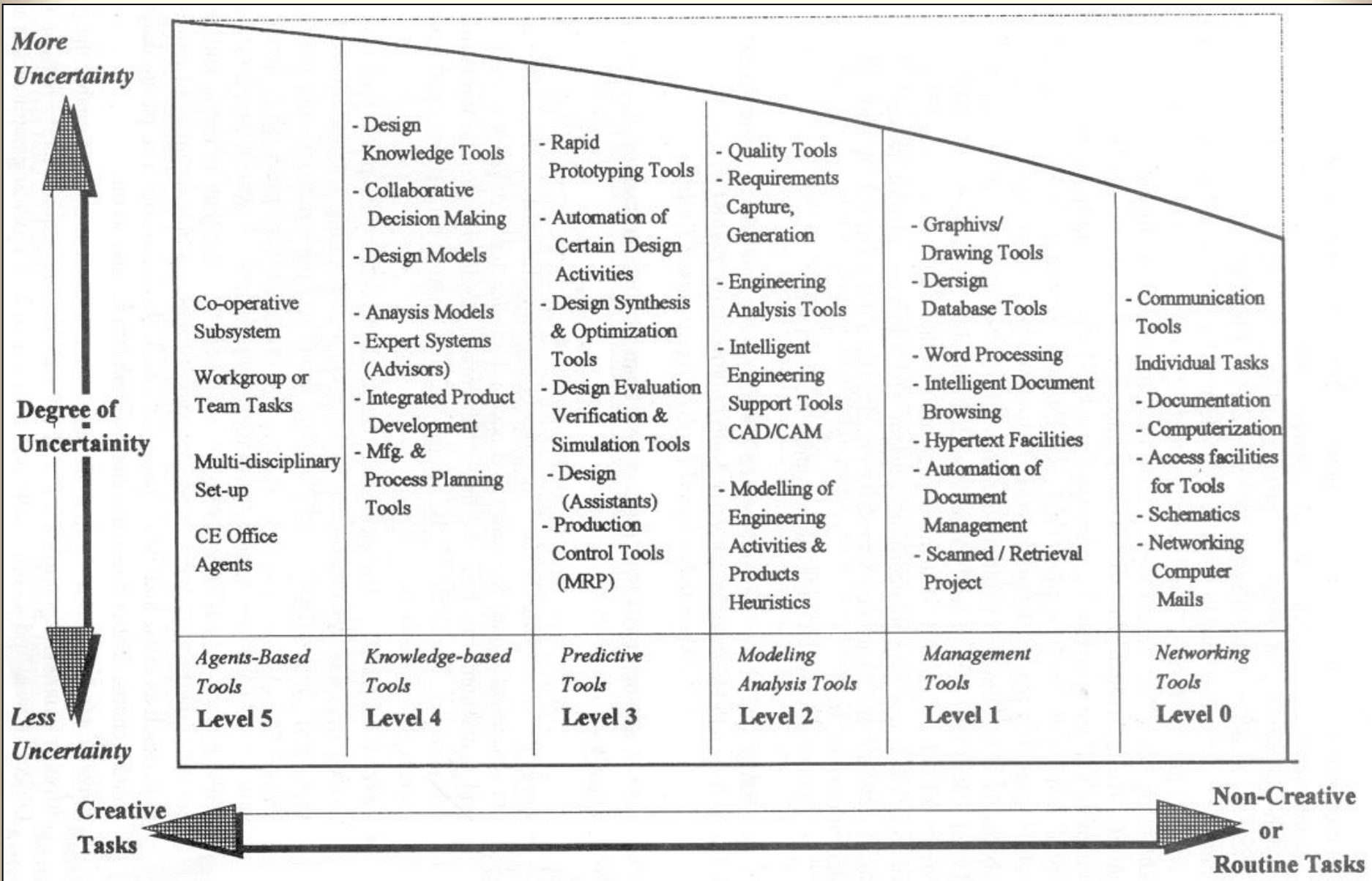
Sedam T-ova

<i>Major Enabling Agents</i>	<i>Factors Showing Scope/Range</i>	<i>What typical questions to ask to determine its (scope's) importance or contribution?</i>
<i>Talents</i>	Expertise (competence), Experience, Negotiation ability, Negotiation Power, Intelligent Quotient (IQ), Job skills, Education, Professional Development. Job Training Programs, Technical and Leadership Training, Culture/Attitude	Is team competent to do the job? Is team experience enough? Is team able to come to consensus? Can team resolve its conflict? Does team apply common sense? Has team basic understanding of the engineering concepts? Does culture of the team conducive to cooperation?
<i>Task</i>	Independent, Dependent, Coupled, Size, Complexity, Novelty, Repetitive, Hierarchy, Breakdown Structure, Numbers, Technical Risk, etc.	Are tasks dependent, independent, or coupled? What is the project's size? How complex is an activity? Have the tasks been decomposed enough? Is the task unique? Are tasks repetitive? Do we understand the tasks' hierarchy? How big/small is each decomposed task/hierarchy? What are the probabilities for its successful completion?
<i>Teamwork</i>	Cooperation, Commitment, Motivation, Trust, Morale, Role Balance, Job Rotation, Group Dynamics, Personal Satisfaction, Empowerment, etc.	Are team members cooperative? Are they committed? Is team motivated? Does team members trust each other? Do they respect each other? Are they concern about their personal gains, security? Does the members help each other in needs? Do the teams change hats? Are the teams able to communicate effectively? Do the teams have open and clear channels of communication?
<i>Techniques</i>	QFD, Quality Engineering, CPI, Process Re-engineering, Taguchi Robust Design, Serial, Concurrent Process, Systematic Approach, Decomposition, Integration, Concurrent Function Deployment (CFD), TQM, etc.	Does the team familiar with CE techniques and its usage? Does the team use QFD, quality engineering and CPI principles while doing their job? Does the team re-engineer the process before automation? Does the team understands differences between serial and concurrent development? Does the team able to decompose products into hierarchical structure? Does team understand Concurrent Function Deployment (CFD)? -- understand Total Value Management (TVM)? -- big picture?

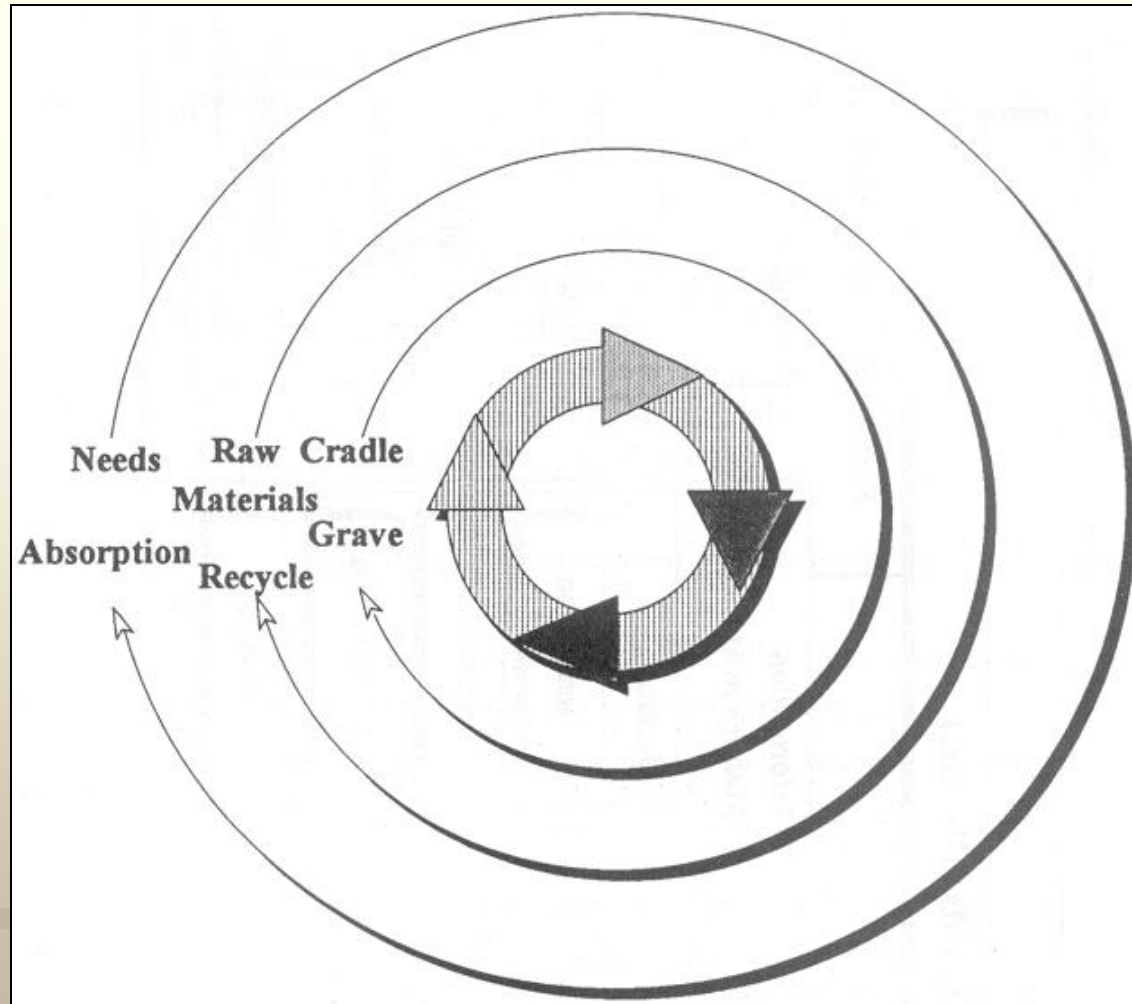
Sedam T-ova (nastavak)

<i>Major Enabling Agents</i>	<i>Factors Showing Scope/Range</i>	<i>What typical questions to ask to determine its (scope's) importance or contribution?</i>
<i>Technology</i>	CAD/CAM/CAE/CIM, JIT, Process Planning, NC, DNC, Workstations, Networks, Client Server, Email, Product Tech., Process Tech., Features, Innovation, etc.	Is the team trained in the use of CAD/CAM/CAE/CIM and JIT software systems? Do they understand its usage in product development? Have they done NC and DNC from the same CAD model environment? Are they computer literate? Are they comfortable working on different workstations, distributed networks and client server environment? Does the team have E-mail capability? Do they understand the current design technology, limitation and new product and process features that are coming to the marketplace?
<i>Time</i>	Start Time, Finish Time, Lead Time, Magnitude, Delivery Time Constraints, Productivity, Schedules	What is the lead time for doing an activity? What's the start and finish times, schedules for completing a task or an activity or a phase? How long an activity can take? Can the project be completed on time? Why it takes so long to do an activity? Do the teams working effectively? Are the tools helpful? robust enough?
<i>Tools</i>	Office Tools, Communication Tools, Networking Tools, Project Management, Computer-based Design Modeling Tools, Computer Aids, Product Models, Process Models, Enterprise Models, Codes and Standards	What are the available tools? Do the teams have enough compute power? Do the teams share the compute resources? Are the office tools meeting the teams needs? How the teams communicate? Are the teams networked? Have the teams cooperative Email facility? Are they able to engage in (over-the-net) discussion of parts features, graphics and video transfer. What are the collaborative tools available? Are relevant design codes and standards incorporated?

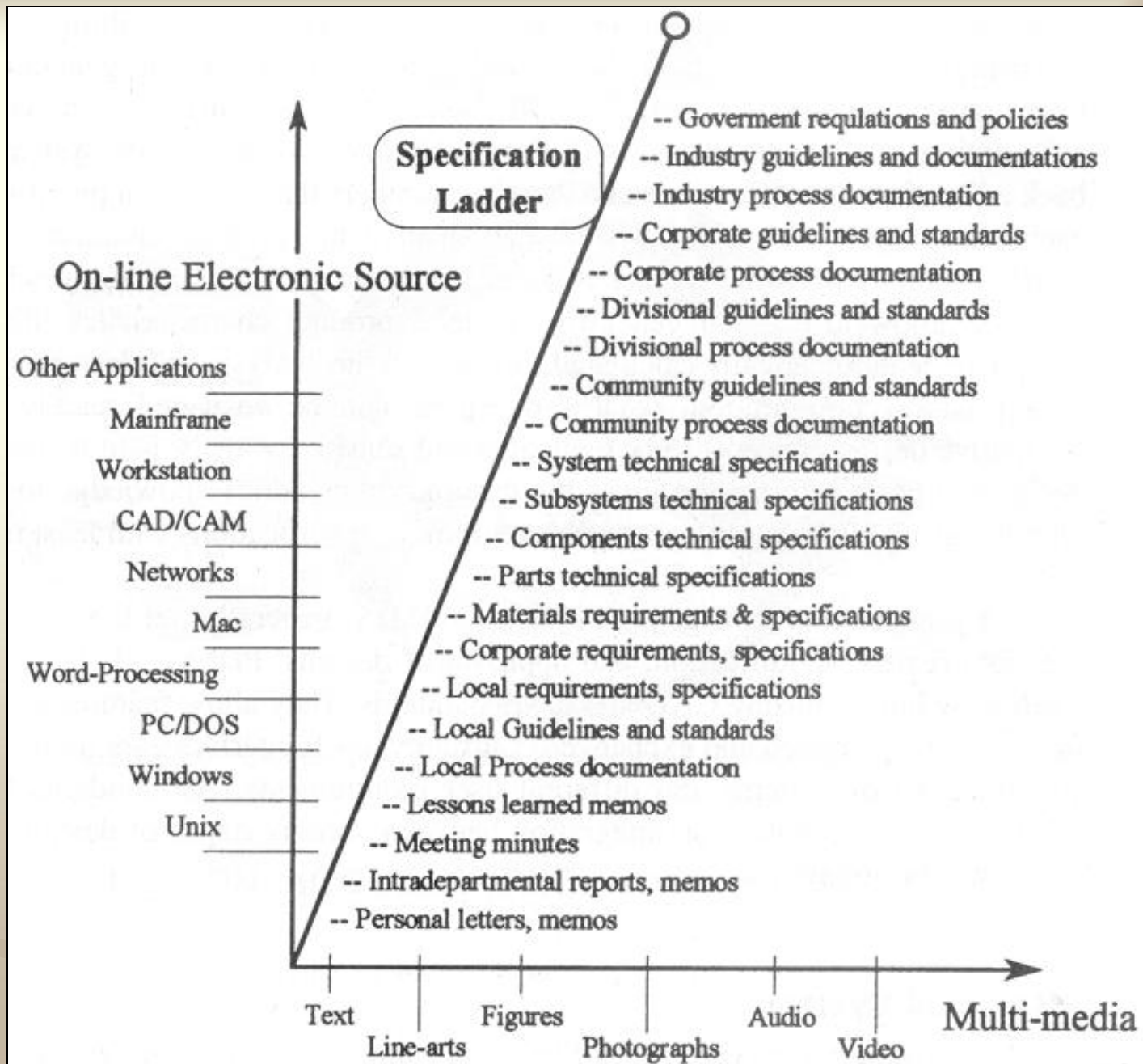
Razine automatizacije računalnih alata u CE uredu




x. Mehanizacija životnog ciklusa



Primjeri
zahtjeva,
specifikacija i
standarda

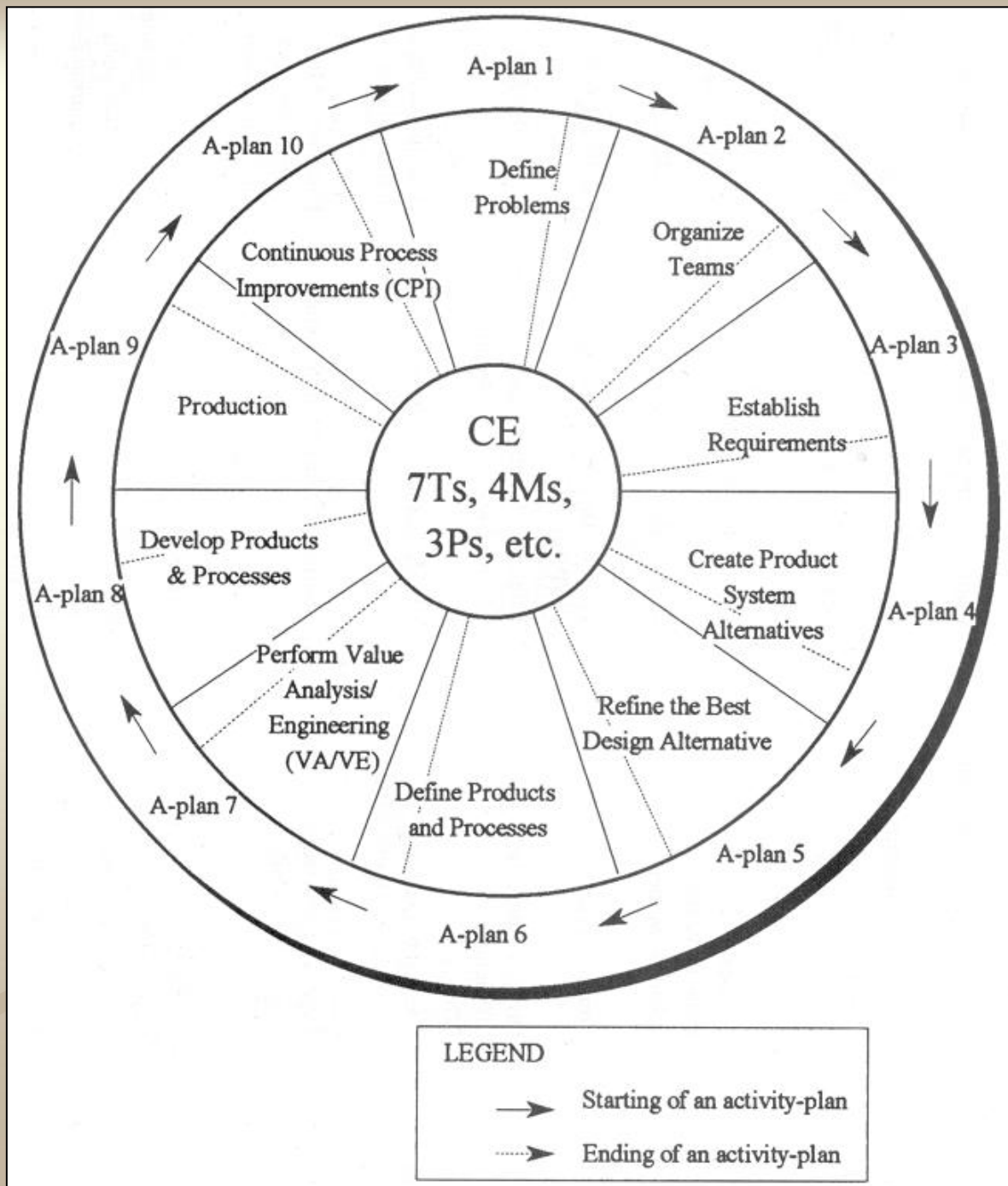


xi. Uspostava IPD metodologije

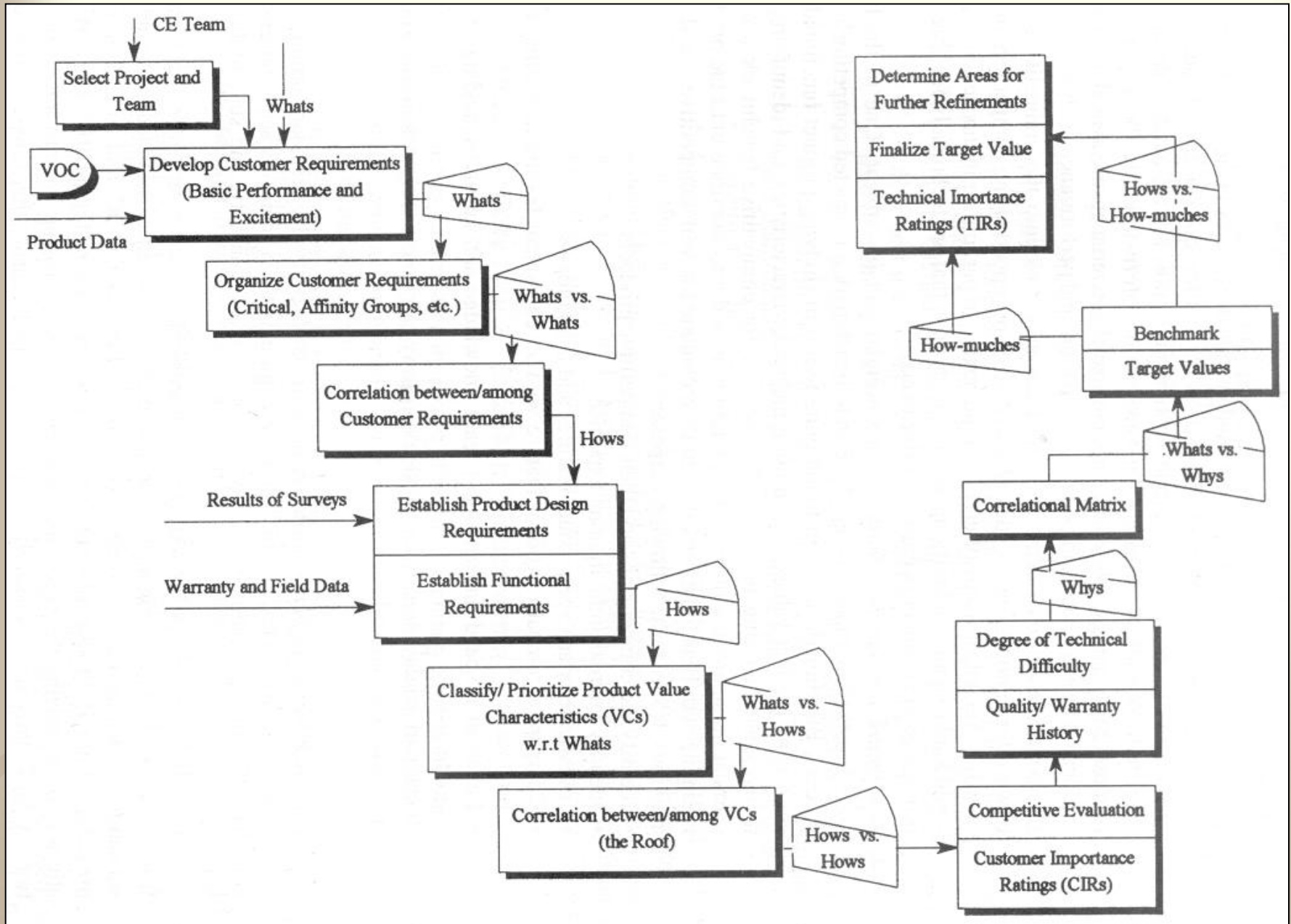


tab 10.1

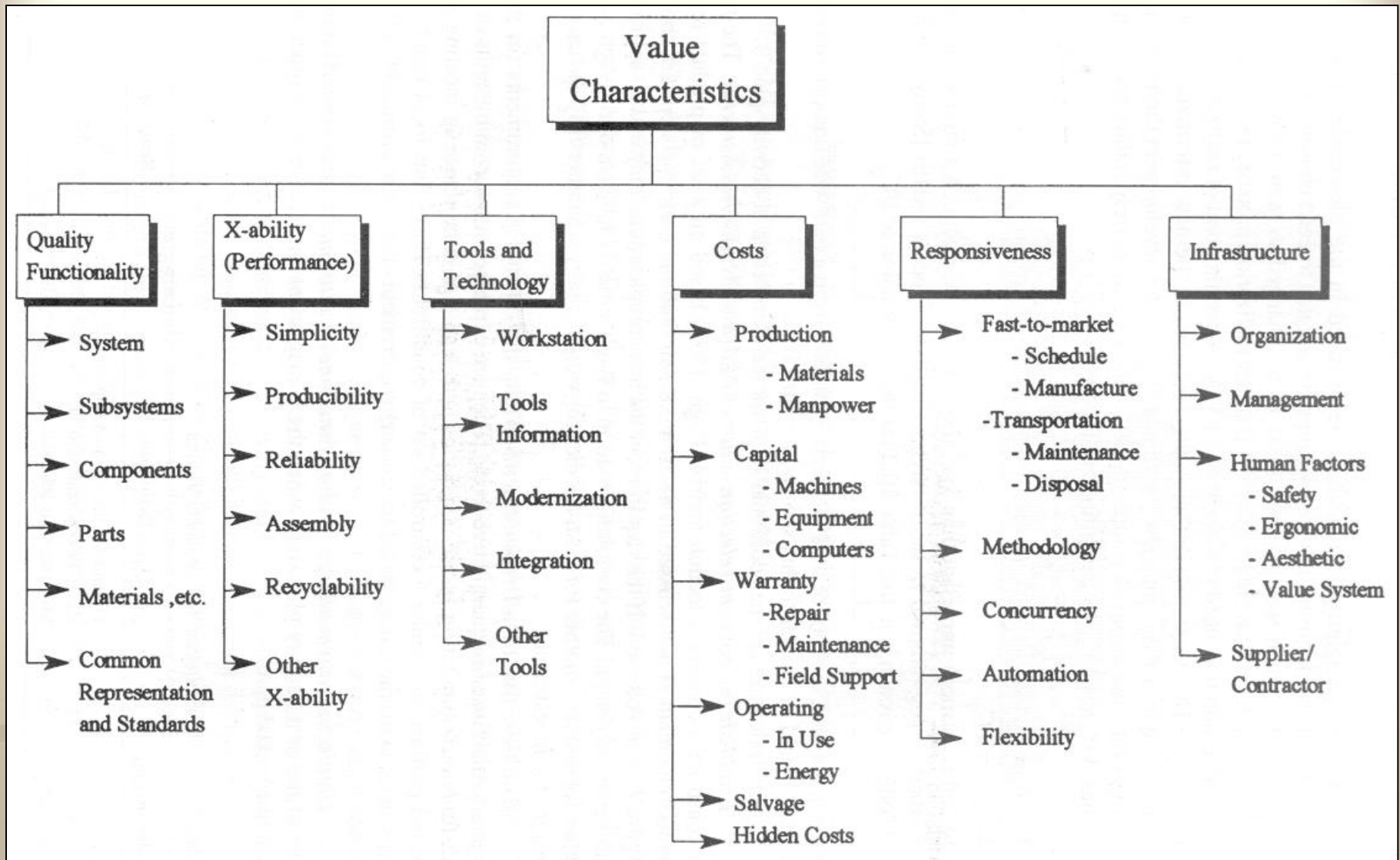
Deset zapovijedi
IPD
implementacije



Karta aktivnosti pri planiranju proizvoda



Taksonomija zasnovana na značajkama vrijednosti



CE povijest

Some Case-Histories of CE						Source of Data or Contact Person
Company	Product	Best Development Time			Target of Improvement	
		Before (months)	After (months)	Reduction		
Instron Corp.	Physical Test Equipment	-	-	-	M, T	Stephen Eis
Government Electronic Systems Div, GE Aerospace	Phased Array Antenna Systems (Ground-based)	6-9	3	50-75%	M,T, S	Timothy Fuhr
Thiokol Corp., Strategic Operations	Rocket Motors (Booster Rocket)	24-36	12	50-75%	M, P	Greg Goin
GE Canada's Dominion Engineering Works	Hydroelectric Power Generators and Turbines	24	9-12	50%	A, C, M	Norea Nuon
Litton Guidance & Control Systems	Gyroscopes and Accelerometers	-	-	-	A, C	Douglas Roberts
Abbott Laboratories's Diagnostics	Medical Instruments	-	-	-	A, C	David Mulholland
GE's Fanuc Automation Div.		-	-	-	A, P	
3M Telecom Systems Group	Fiber Optics products	-	-	-	A, P	
Vought Aircraft Company		-	-	-	A, P	
GE's Aerospace Division		-	-	-	A, P	Welch/ Fullmer
GenCorp Aerojet Div.	Aerospace Equipments	-	-	-	A, P	Bob Culver
Power Team Div. of SPX Corp.	High Pressure Hydraulic Tools and Work Holding Components	-	-	-	A, P	Rick Henderson
United Technologies, Hamilton		-	-	-	A, P	
Telco Systems Fiber Optics Corp.	High Performance Telecommunication Equipment	-	-	-	A, C	Gary Wenger
Westinghouse Electric Corp.'s Electrical Components Div.	Industrial Power Equipments	-	-	-	A, P, S	Bob Beatty
AMP Inc., Automotive Group		-	-	-	A, P	
General Dynamics Corp., Land Sys.		-	-	-	A, P	
Sanborn Manufacturing Co.		-	-	-	A, P	

SOURCES: Machine Design, "How to make Concurrent Engineering Work,"

- Part 1: CE: The Need and Enabling Technologies, August 6, 1992;
- Part 2: Prerequisites for Successful Implementation, September 10, 1992;
- Part 3: Core Technology for Successful Implementation, October 22, 1992;
- Part 4: Selling CE to Management, July 23, 1993;
- Part 5: Benchmarking Your Company for CE, October 22, 1993;
- Part 6: Measuring Success from CE, November 26, 1993

LEGEND:

- M: Multi-functional Teams;
- C: Computer Integrations,
- A: Analytical Methods and Tools;
- S: Suppliers in the Project Team
- T: Ties between Engineering Model, Drafting and Manufacturing
- P: Capturing the Process and Manufacturing Rules



KONAC

