



# PROJECT MANAGEMENT FOR MODERN INFORMATION SYSTEMS

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# IT and Project Management

q In regard to project management, there are two IT related matters: the utilization of IT in managing all types of projects and the management of IT projects.



# THE INFORMATION REVOLUTION

- q *The changes that IT is bringing about in various aspects of life are often collectively called the “information revolution.”*
- q The current IT revolution is not the first of its kind. Historians and nations may debate the exact time and place of previous information revolutions, but they are as follows:
  - Invention of writing, first in Mesopotamia or China, around 3000 BC
  - Invention of the written book in China or Greece, around 1000 BC
  - Gutenberg’s printing press and engraving, around AD 1450



# THE INFORMATION REVOLUTION

q Major revolutions help some people and some organizations, and, therefore, for them it is the “best of times;” but revolutions also hurt some people and organizations, and for them it is the “worst of times.” With big revolutions, there always will be big winners and big losers.



# THE IMPACTS OF IT REVOLUTION

- q A great digital divide is being created, and this divide has three dimensions: income, age, and education.
- q security and privacy problems are getting out of control, as evidenced by computer viruses, worms, e-mail fraud and spam, compromise of personal and private digital information, spyware, piracy of intellectual property, ID theft, hacking, and other computer crimes.
- q Internet



## INTERNET GROWTH

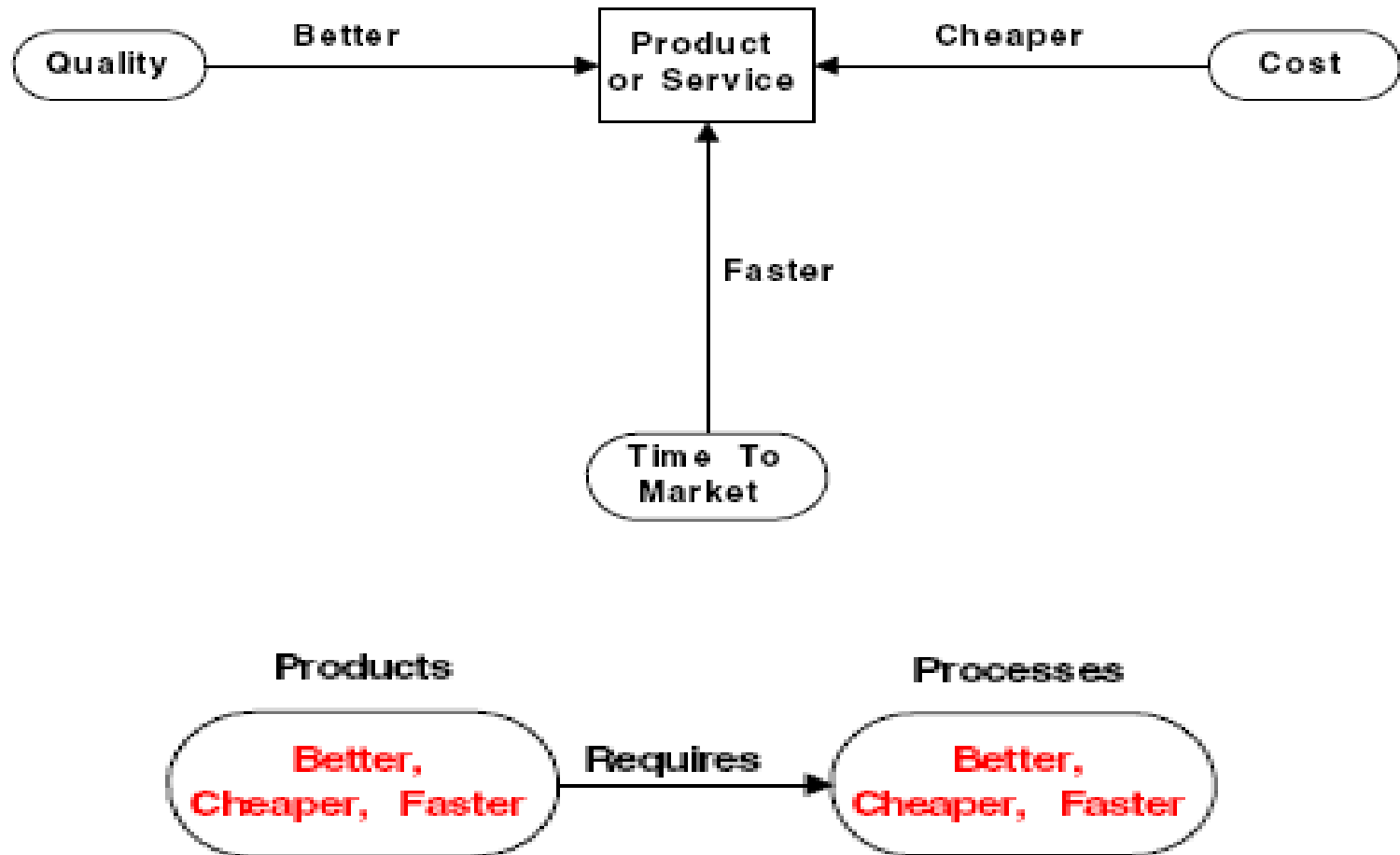
- It took the telephone 40 years to reach 50 million users.
- It took radio 38 years to reach 50 million users.
- It took cable TV 10 years to reach 50 million users.
- It only took the Internet only 5 years to reach 50 million users!



# Internet industrial impacts

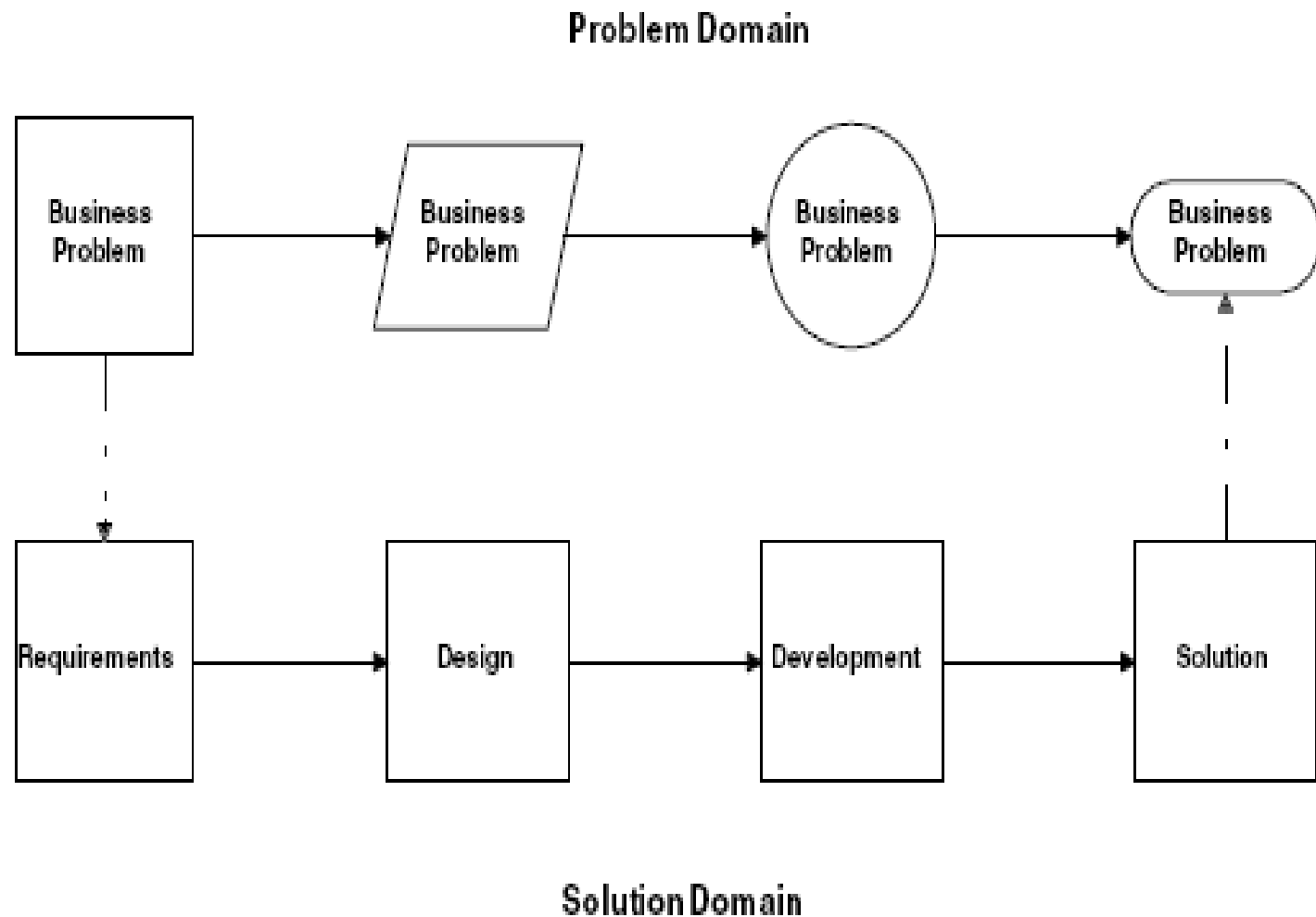
- q Internet shopping is disrupting traditional sales channels for hard goods.
- q Internet sharing and distribution is disrupting traditional intellectual property rights and sales of soft goods (print, audio, video, multimedia).
- q Voice Over IP combined with ultra-high-speed optical and wireless media will start to disrupt traditional telecommunications.
- q Open source software with community online support will start to disrupt the traditional software marketplace.
- q Separation of work from workplace will disrupt corporate and personal real estate and related business sectors.
- q As national barriers (political, physical, economic, and temporal) are removed, massive globalization will allow the free flow of both work and product.
- q The need for retraining and lifetime learning, coupled with distance education, is transforming the traditional higher education landscape.

# Better, cheaper, faster

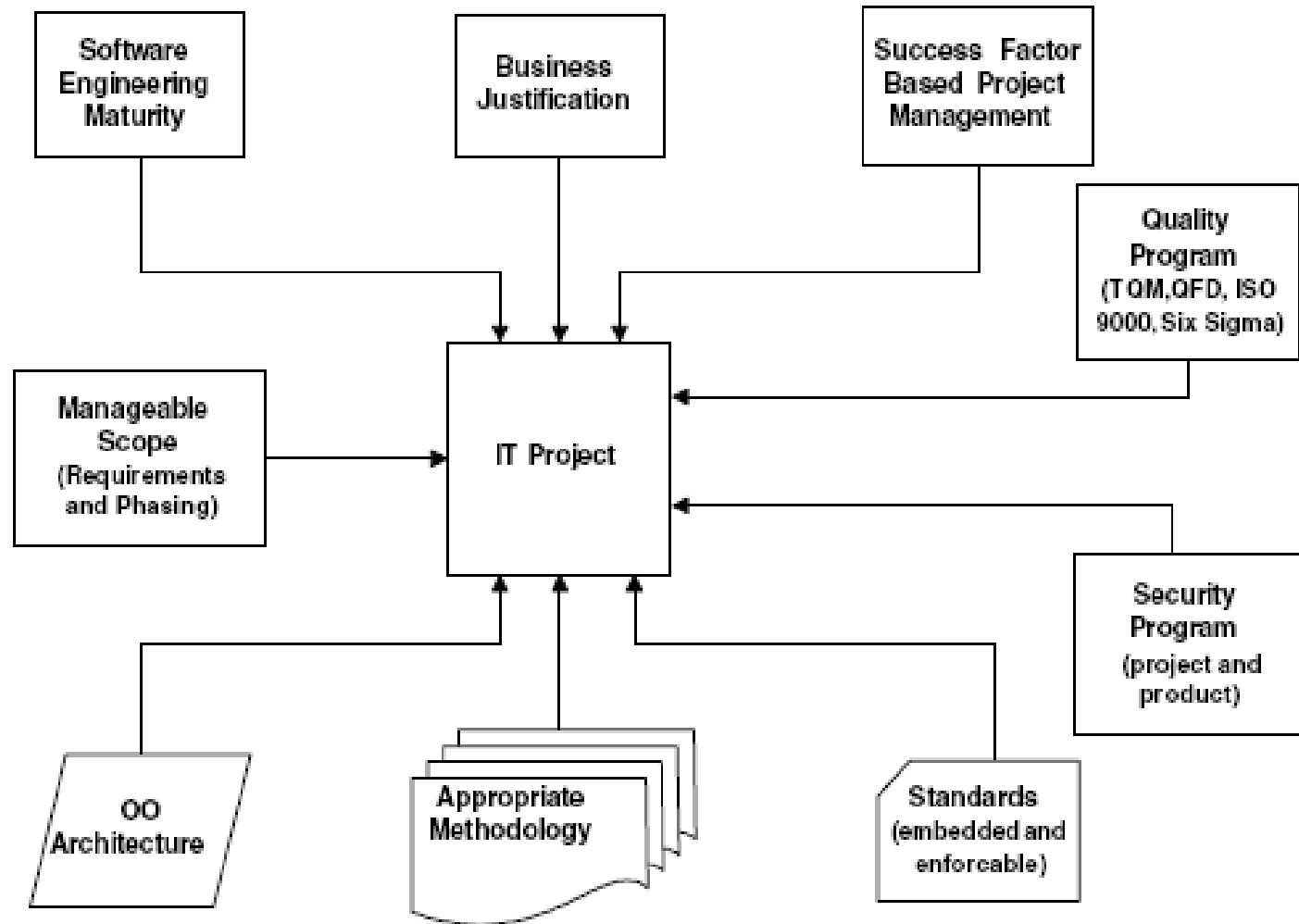




# Changing shape of IT problems



# IT project management maturity





# PROJECT MANAGEMENT SKILLS

- q *Understand project management*
- q *Manage for results*
- q Speak the language of business
- q *Improvise with grace and harmony*
- q Understand IT processes and business processes
- q Make informed business decisions quickly
- q *Know how and when to measure performance*
- q Cultivate an environment of risk tolerance
- q Communicate clearly, appropriately, and relentlessly



# The key characteristics of a project

- ✓ Temporary endeavor with a beginning and an end
- ✓ Often broken into subprojects (or phases)
- ✓ Creates a unique product or service
- ✓ Done for a purpose
- ✓ Has interrelated activities (tasks)
- ✓ Is an instrument of change



# PROJECT MANAGEMENT

- § *Project management is “the application of knowledge, skills, tools, and techniques to the project activities in order to meet or exceed stakeholder needs and expectations from a project” (PMI, 2000).*
- § It involves the planning, organization, monitoring, and control of all aspects of a project and also the management, leadership, and motivation of all involved parties to achieve the project objectives within agreed time, cost, quality, safety, and performance criteria.



# THE PROJECT MANAGER

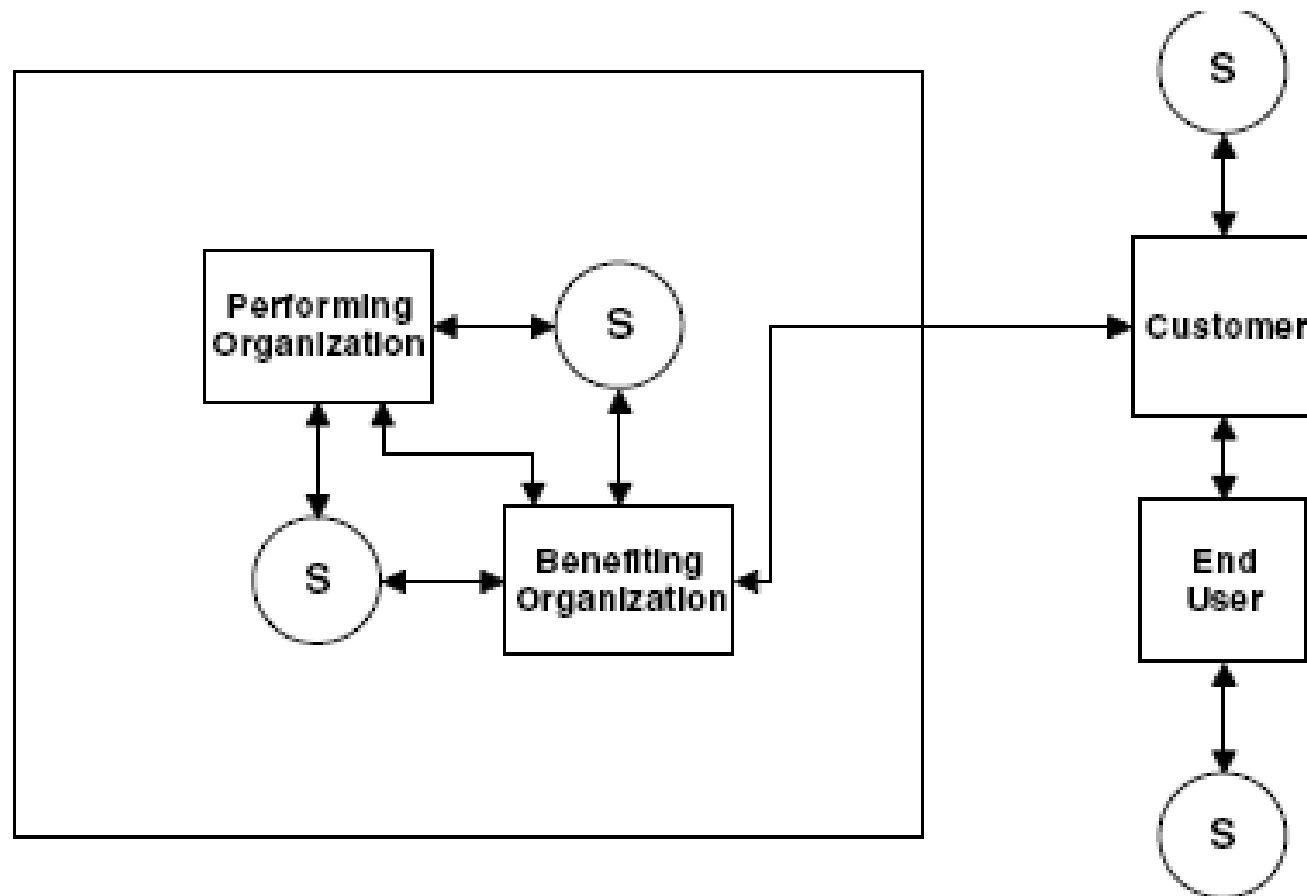
- ✓ The project manager (PM) is the leader of a team performing a project. The project manager and his team must identify the stakeholders, determine their needs, and manage and influence those needs to ensure a successful project.



# ROLES OF A PM

- Identifying the requirements and risks
- Making plans and organizing the effort
- Qualifying and possibly selecting project team, vendors, and other participants
- Communication among team, management, stakeholders
- Assessing the probability of occurrence of problems
- Developing solutions to problems (both in advance and on the spot)
- Ensuring that progress occurs according to the plan
- Deliverable management
- Running meetings
- Acquiring resources for the project
- Influencing the organization
- Leading and team building
- Negotiation (external and internal)

# PROJECT STAKEHOLDERS







# DIFFERENCIES BETWEEN IT AND OTHER PROJECTS MANAGEMENT

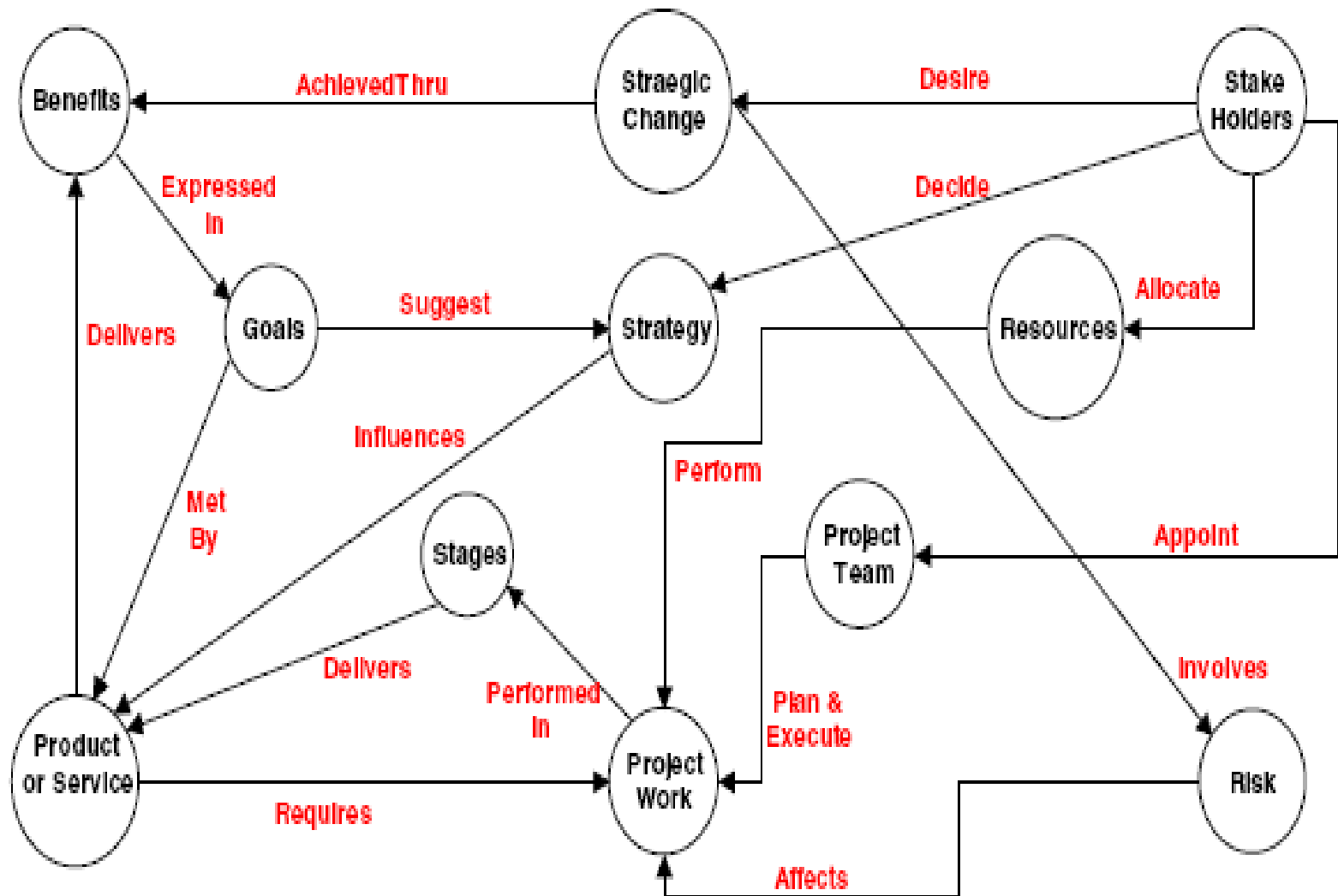
- The major cost is labor with high degrees of specializations
- There is a large difference in productivity rates of the human resources even in same job category
- There are multiple quality dimensions and criteria
- Cost and time estimation is more complex
- There are multiple architectures, methodologies, tools, et cetera, and these are constantly changing
- Projects have a high degree of complexity
- Projects may effect the entire organization or beyond
- Projects have a large amount of changes to requirements
- Projects usually have a high degree of significant risks, including



# DIFFERENCIES BETWEEN IT AND OTHER PROJECTS MANAGEMENT(CONT)

- Projects usually have a high degree of significant risks, including New features
  - New algorithms and methods
  - New languages, platforms, architectures, and supporting tools
  - New operating systems, telecommunications, interfaces
  - New technology in general
- Measurement of return on investment (ROI) and other business metrics is difficult
- There are often unrealistic goals and pressures placed upon project managers and project teams to deliver software products better-cheaper-faster
- Today, IT projects often involve many outside parties as consultants and vendors
- Today, IT projects often involve offshore resources

# PM





## 3 challenges to software engineering projects in the 21st century

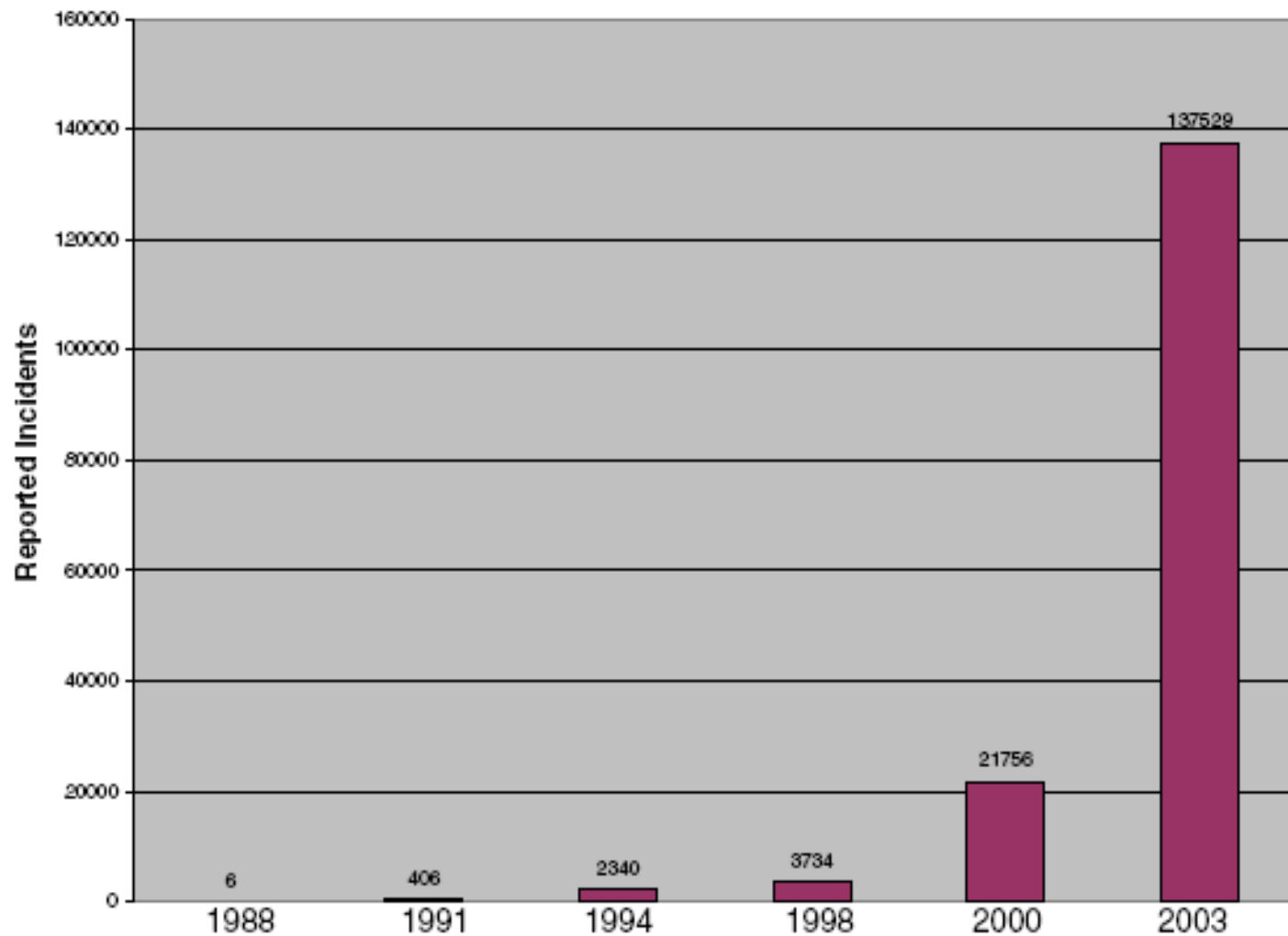
1. *The Heterogeneity Challenge: Flexibility to operate on and integrate with multiple hardware and software platforms from legacy mainframe environments to the landscape of the global Web.*
2. *The Delivery Challenge: Ability to develop and integrate IT systems rapidly in response to rapidly changing and evolving global business needs.*
3. *The Trust Challenge: Being able to create vital (mission and/or life critical) software that is trustworthy in terms of both security and quality.*



# IT ADVANCES

- Price for computational resources has dropped so low that even the smallest of organizations and countries can obtain massive power
- Advances in data storage technology mean that huge amounts of data can be stored cheaply
- Advances in data mining techniques mean that huge amounts of data can be analyzed in many ways
- Advances in data networking mean that the cost and time of moving and accessing data has become very low, and that computers both inside and outside of an organization are increasingly connected

# SECURITY INCIDENTS GROWTH





## SECURITY ISSUE IN IT PROJECT MANAGEMENT

- Being able to shield the project work, project team, and other resources from security threats.
- Being able to build adequate security protection into the product that is the subject of the project