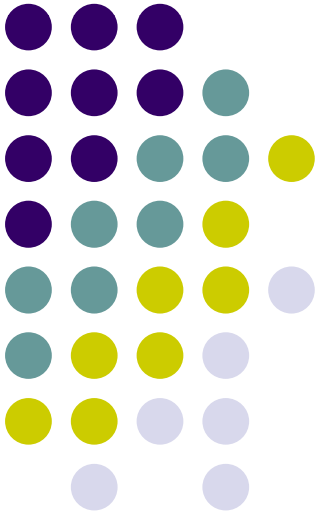
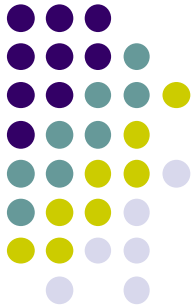
CSI2441: Applications Development

Lecture 10

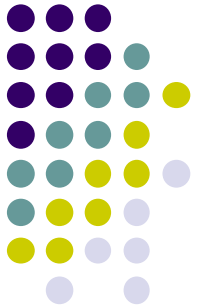
Project Management





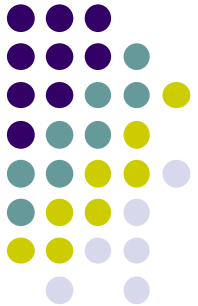
Learning Objectives

- Understand the growing need for better project management, especially for information technology projects
- Explain what a project is, provide examples of information technology projects, list various attributes of projects, and describe the triple constraint of projects
- Describe project management and discuss key elements of the project management framework, including project stakeholders, the project management knowledge areas, common tools and techniques, and project success



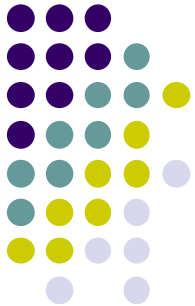
Learning Objectives (continued)

- Discuss the relationship between project, program, and portfolio management and the contributions they each make to enterprise success
- Understand the role of the project manager by describing what project managers do, what skills they need, and what the career field is like for information technology project managers
- Describe the project management profession and the advancement of project management software



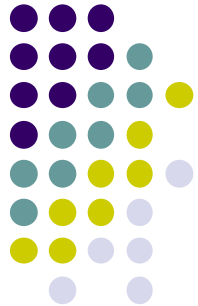
Introduction (continued)

- Many organizations today have a new or renewed interest in project management
- Computer hardware, software, networks, and the use of interdisciplinary and global work teams have radically changed the work environment
- The world as a whole spends nearly $10 trillion of its $40.7 trillion gross product on projects of all kinds
- More than 16 million people regard project management as their profession



Project Management Statistics

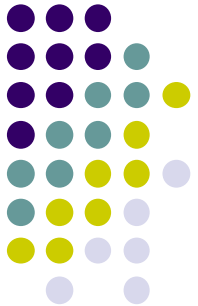
- Total global spending on technology goods, services, and staff was projected to reach $2.4 trillion in 2008, an 8 percent increase from 2007
- In the U.S. the size of the IT workforce topped 4 million workers for the first time in 2008
- In 2007 the total compensation for the average senior project manager in U.S. dollars was $104,776 per year in the United States, $111,412 in Australia, and $120,364 in the United Kingdom
- The number of people earning their Project Management Professional (PMP) certification continues to increase



Why Care About I.T. Project Management?

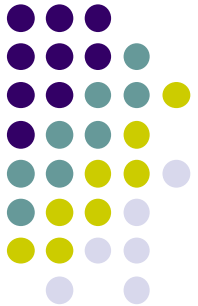
- IT Projects have a terrible track record, as described in the What Went Wrong?

- A 1995 Standish Group study (CHAOS) found that only 16.2% of IT projects were successful in meeting scope, time, and cost goals; over 31% of IT projects were canceled before completion
- A PricewaterhouseCoopers study found that overall, half of all projects fail and only 2.5% of corporations consistently meet their targets for scope, time, and cost goals for all types of project



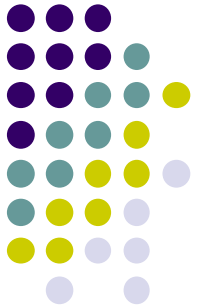
Advantages of Using Formal Project Management

- Better control of financial, physical, and human resources
- Improved customer relations
- Shorter development times
- Lower costs
- Higher quality and increased reliability
- Higher profit margins
- Improved productivity
- Better internal coordination
- Higher worker morale
- ALL on the assumption that each of these is done right



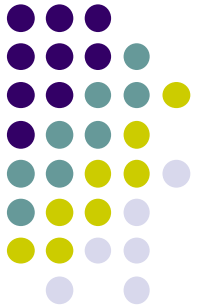
What Is a Project?

- A **project** is “a temporary endeavor undertaken to create a unique product, service, or result” (PMBOK® Guide, Fourth Edition, 2008, p. 5)
- Operations is work done to sustain the business
- Projects end when their objectives have been reached or the project has been terminated
- Projects can be large or small and take a short or long time to complete



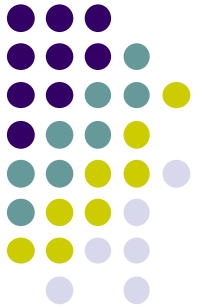
Examples of IT Projects

- A technician replaces ten laptops for a small department
- A small software development team adds a new feature to an internal software application for the finance department
- A college campus upgrades its technology infrastructure to provide wireless Internet access across the whole campus
- A cross-functional task force in a company decides what Voice-over-Internet-Protocol (VoIP) system to purchase and how it will be implemented



Project Attributes

- A project:
  - Has a unique purpose
  - Is temporary
  - Is developed using progressive elaboration
  - Requires resources, often from various areas
  - Should have a primary customer or sponsor
    - The **project sponsor** usually provides the direction and funding for the project
  - Involves uncertainty

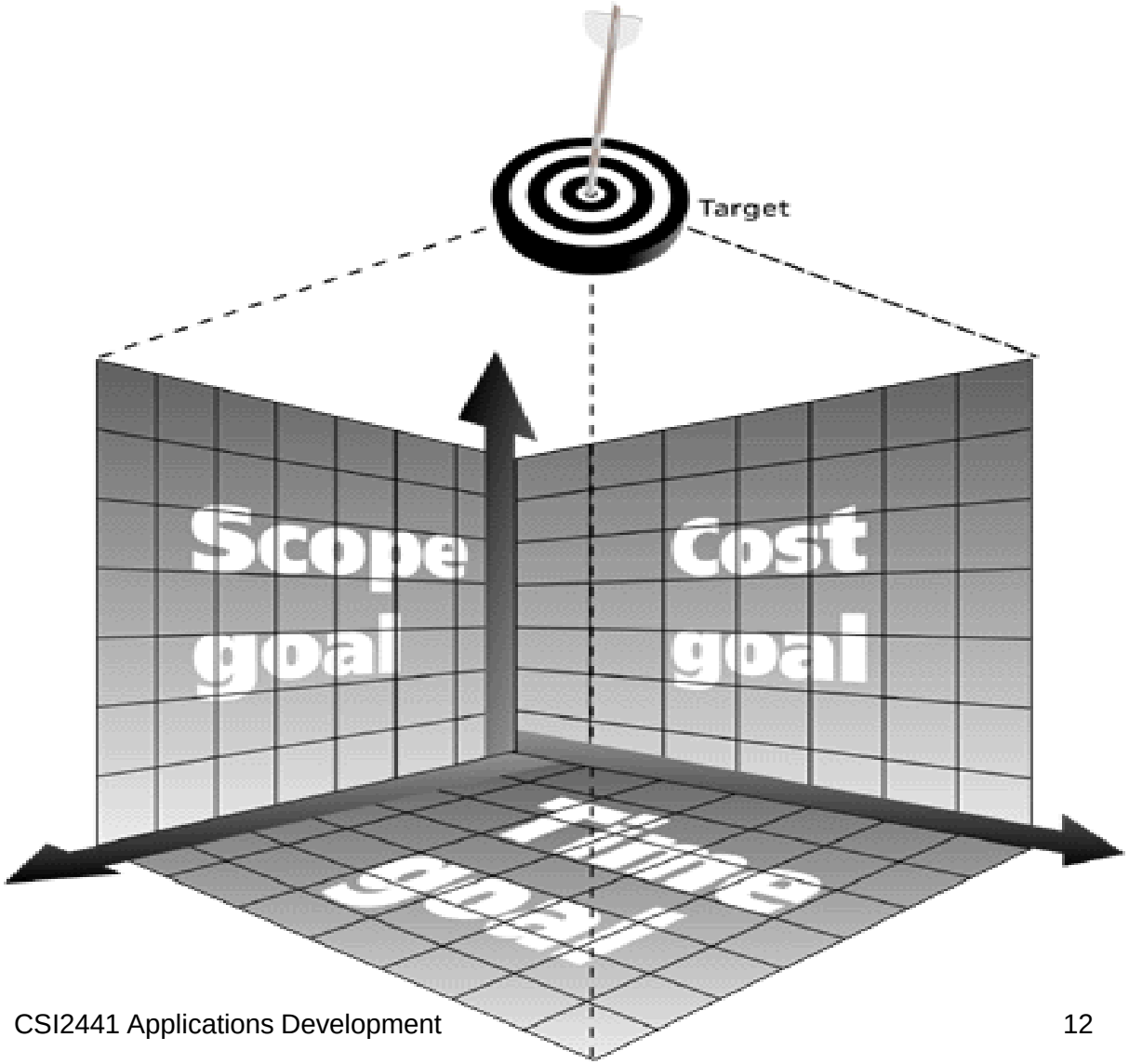


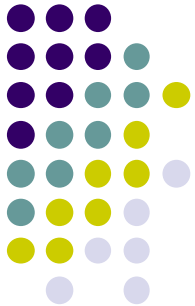
Project and Program Managers

- **Project managers** work with project sponsors, the project team, and other people involved in a project to meet project goals
- **Program**: group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually (PMBOK® Guide, Fourth Edition, 2008, p. 9)
- Program managers oversee programs; often act as bosses for project managers

The Triple Constraint of Project Management

Successful project management means meeting all three goals (scope, time, and cost) – and satisfying the project's sponsor! (stakeholders)



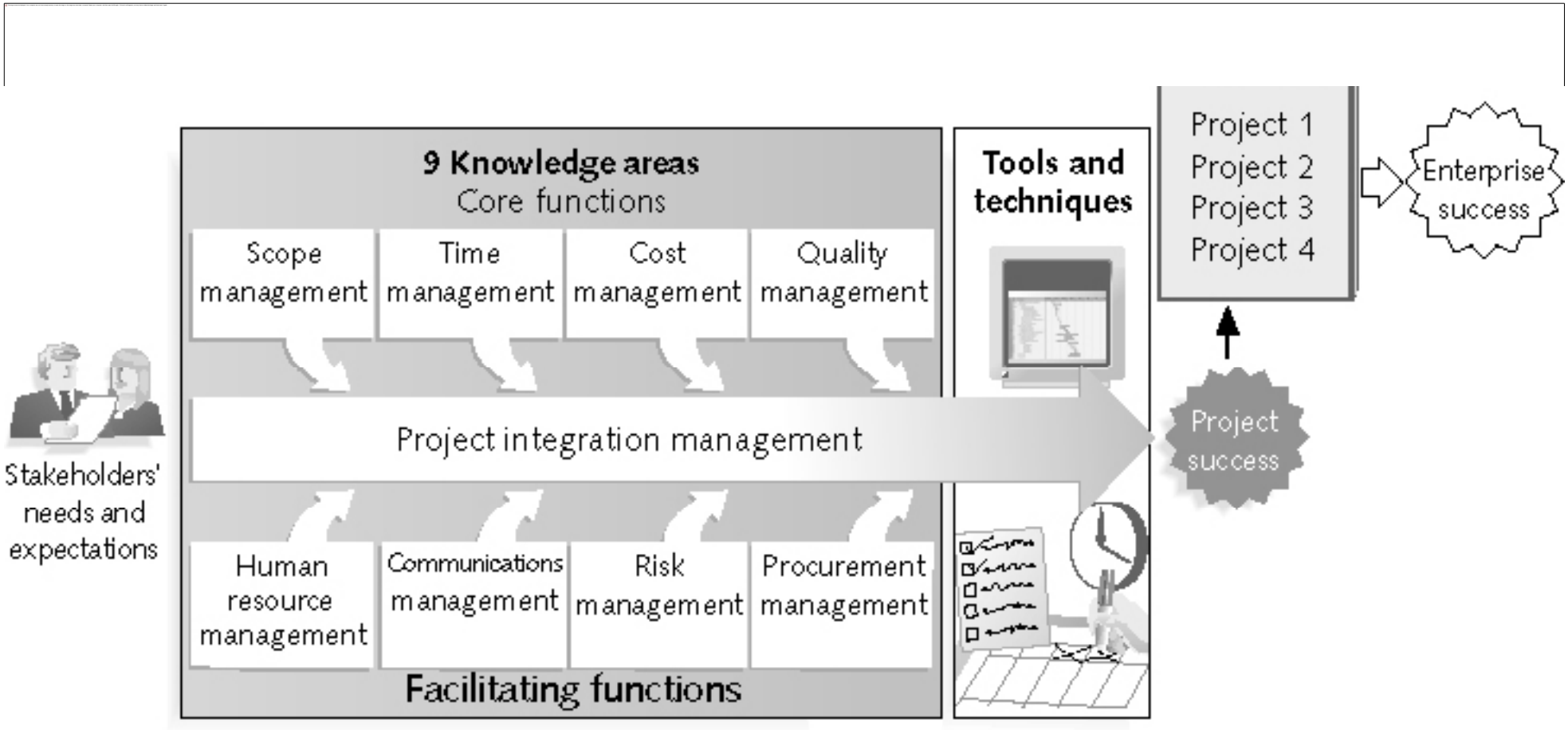


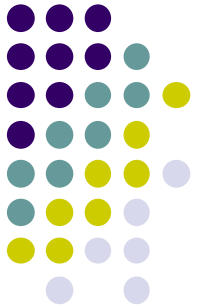
What is Project Management?

- **Project management** is “the application of knowledge, skills, tools and techniques to project activities to meet project requirements” (PMBOK® Guide, Fourth Edition, 2008, p. 6)

- Project managers strive to meet the **triple constraint** by balancing project scope, time, and cost goals

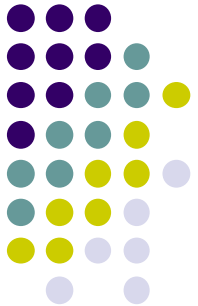
Project Management Framework





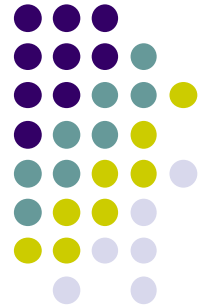
Project Stakeholders

- **Stakeholders** are the people involved in or affected by project activities
- Stakeholders include:
  - The project sponsor
  - The project manager
  - The project team
  - Support staff
  - Customers
  - Users
  - Suppliers
  - Opponents to the project



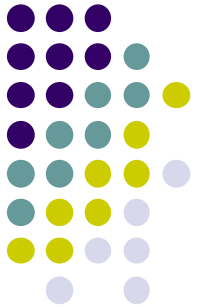
Project Management Knowledge Areas

- **Knowledge areas** describe the key competencies that project managers must develop
  - 4 core knowledge areas lead to specific project objectives (scope, time, cost, and quality)
  - 4 facilitating knowledge areas are the means through which the project objectives are achieved (human resources, communication, risk, and procurement management
  - 1 knowledge area (project integration management) affects and is affected by all of the other knowledge areas
  - All knowledge areas are important!



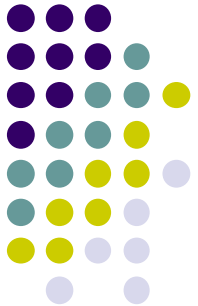
Project Management Tools and Techniques

- **Project management tools and techniques** assist project managers and their teams in various aspects of project management
- Some specific ones include:
  - Project charter, scope statement, and WBS (scope)
  - Gantt charts, network diagrams, critical path analysis, critical chain scheduling (time)
  - Cost estimates and earned value management (cost)



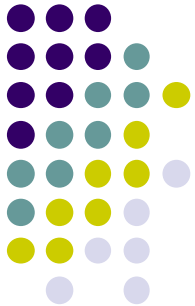
Tools

- Tools that have high use and high potential for improving project success, such as:
  - Software for task scheduling (such as project management software)
  - Scope statements
  - Requirements analyses
  - Lessons-learned reports
- Tools already extensively used that have been found to improve project importance include:
  - Progress reports
  - Kick-off meetings
  - Gantt charts
  - Change requests



Project Success

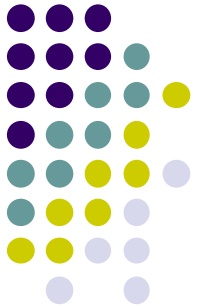
- There are several ways to define project success:
  - The project met scope, time, and cost goals
  - The project satisfied the customer/sponsor
  - The results of the project met its main objective, such as making or saving a certain amount of money, providing a good return on investment, or simply making the sponsors happy
- It is very difficult to conclude a project where ALL parties are happy with the outcome



What Helps Projects Succeed?

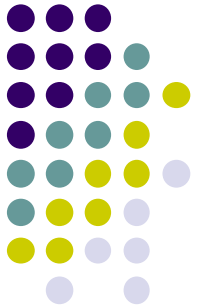
1. Executive support
2. User involvement
3. Experienced project manager
4. Clear business objectives
5. Minimized scope
6. Standard software infrastructure
7. Firm basic requirements
8. Formal methodology
9. Reliable estimates
10. Other criteria, such as small milestones, proper planning, competent staff, and ownership

*The Standish Group, “Extreme CHAOS,” (2001).



What the Winners Do…

- Recent research findings show that companies that excel in project delivery capability:
  - Use an integrated project management toolbox (use standard/advanced PM tools, lots of templates)
  - Grow project leaders, emphasizing business and soft skills
  - Develop a streamlined project delivery process
  - Measure project health using metrics, like customer satisfaction or return on investment

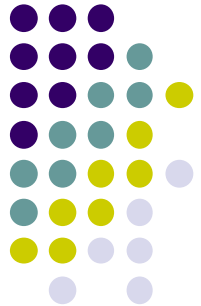


Program and Project Portfolio Management

- A **program** is “a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually” (PMBOK® Guide, Fourth Edition, 2008, p. 9)

- A **program manager** provides leadership and direction for the project managers heading the projects within the program

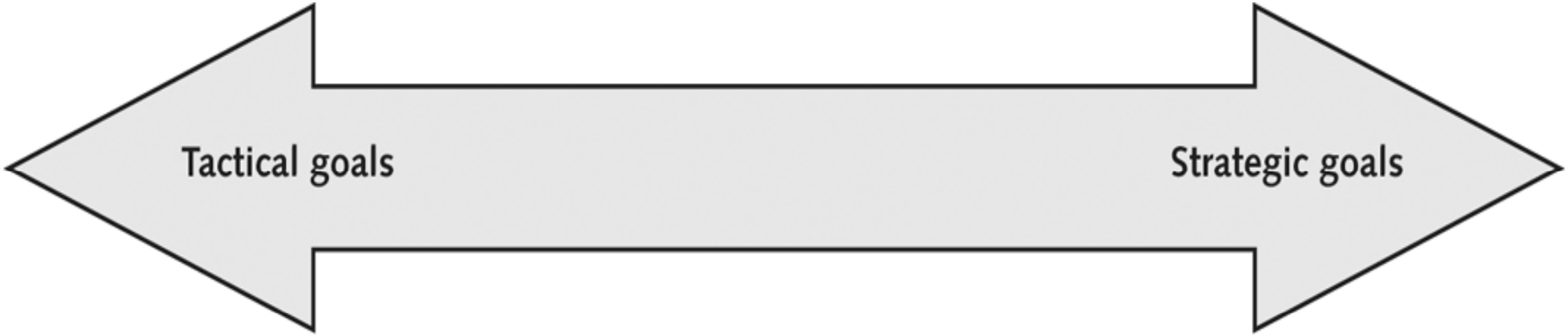
- Examples of common programs in the IT field include infrastructure, applications development, and user support



Project Portfolio Management

- As part of **project portfolio management**, organisations group and manage projects and programs as a portfolio of investments that contribute to the entire enterprise's success
- Portfolio managers help their organizations make wise investment decisions by helping to select and analyze projects from a strategic perspective
- Large organisations never have just one project running at a time – there could be dozens or hundreds

Project Management Compared to Project Portfolio Management

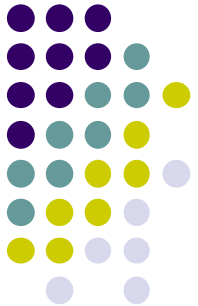


Project management

- Are we carrying out projects well?
- Are projects on time and on budget?
- Do project stakeholders know what they should be doing?

Project portfolio management

- Are we working on the right projects?
- Are we investing in the right areas?
- Do we have the right resources to be competitive?

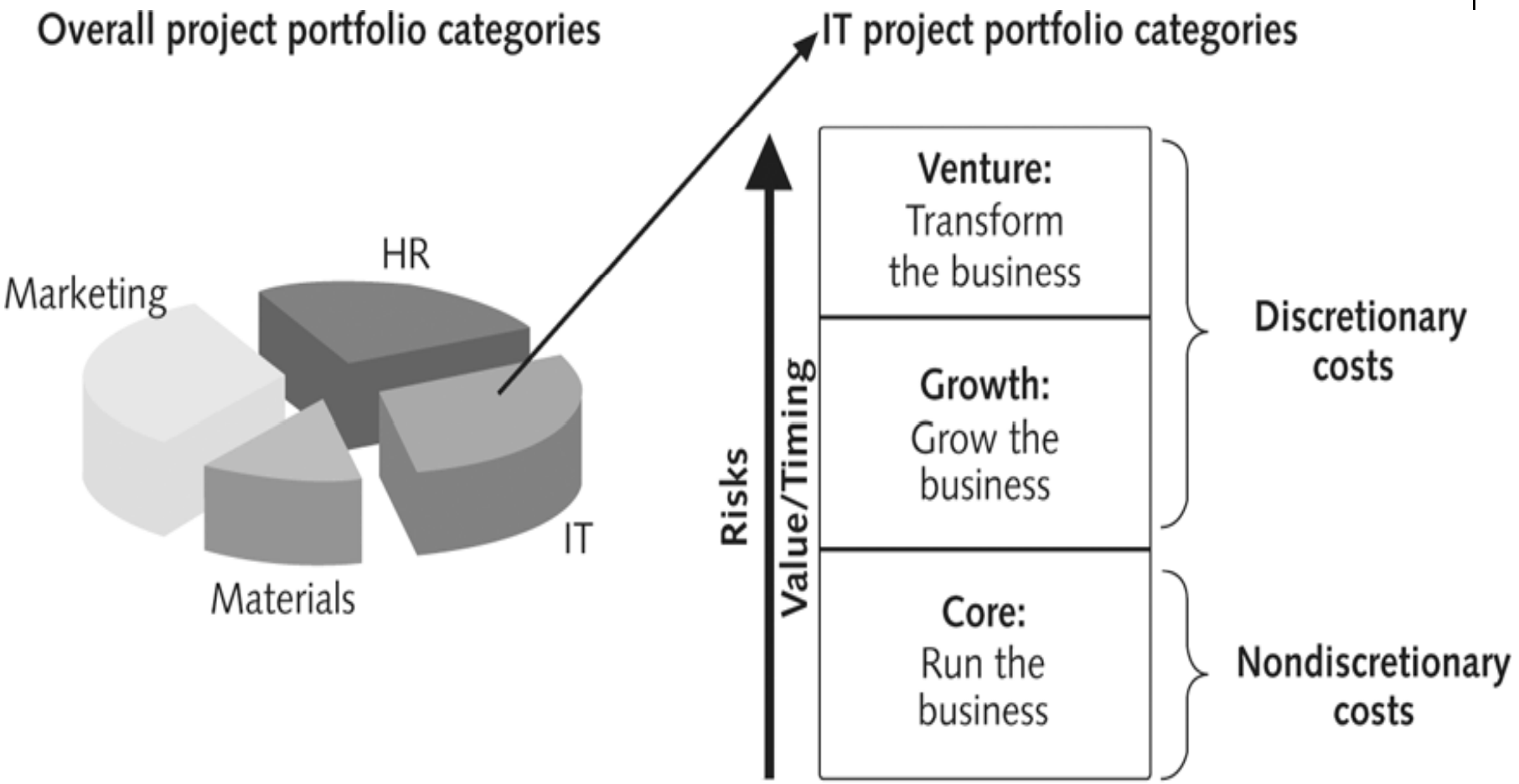


Best Practice

- A **best practice** is “an optimal way recognized by industry to achieve a stated goal or objective”*
- Robert Butrick *suggests that organizations* need to follow basic principles of project management including:
  - Make sure your projects are driven by your strategy; be able to demonstrate how each project you undertake fits your business strategy, and screen out unwanted projects as soon as possible
  - Engage your stakeholders; ignoring stakeholders often leads to project failure; be sure to engage stakeholders at all stages of a project, and encourage teamwork and commitment at all times

*Project Management Institute, *Organizational Project Management Maturity Model (OPM3) Knowledge Foundation (2003), p. 13.*

Sample Project Portfolio Approach

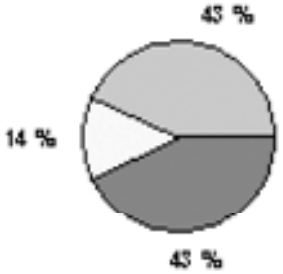


Sample Project Portfolio Management Screen Showing Project Health

PLANVIEW

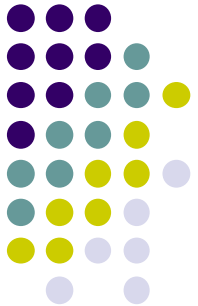
Project Health (Effort Based)

Schedule Variance	Project Count
On Target	4
In Trouble	3



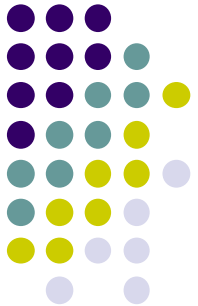
Cost Variance	Project Count
On Target	3
At Risk	1
In Trouble	3

Work Id	Project	% Complete	Schedule Variance		Cost Variance		Budget Variance		Risk Pct	
0000051	Upgrade Sales Staff Laptop PC's	100.0 %	✓	0.0	▲	-74.0	▲	-74.0	✓	-
CAW-035	CRM Website	75.8 %	✓	8.0	✓	18.0	✓	18.0	●	39.7 %
CW-2002	MyMystic.com Customer Website	97.0 %	●	-120.0	●	-343.0	●	-263.0	✓	-
PARMS-0	PARMS Implementation	50.4 %	●	-440.0	●	-192.0	✓	-8.0	✓	3.9 %
POS-2002	PlanView and SAP Financial Integration	98.6 %	✓	0.0	●	-221.0	●	-221.0	✓	-
SSR-012	Strategic Systems Review	0.0 %	✓	0.0	✓	0.0	▲	-72.0	▲	15.9 %
TAU-2002	Tax Accounting Update 2002	24.9 %	●	-119.0	✓	-15.0	✓	33.0	✓	0



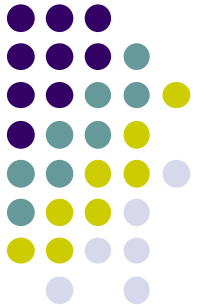
Suggested Skills for Project Managers

- Project managers need a wide variety of skills
- They should:
  - Be comfortable with change
  - Understand the organizations they work in and with
  - Be able to lead teams to accomplish project goals
  - It helps to be technically literate in the given field being managed



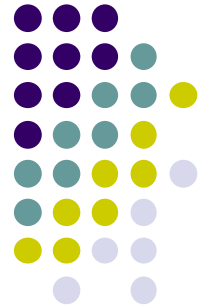
The Role of the Project Manager

- Job descriptions vary, but most include responsibilities like planning, scheduling, coordinating, and working with people to achieve project goals
- Remember that 97% of successful projects were led by experienced project managers, who can often help influence success factors
- Thus, being involved in successful projects early is essential



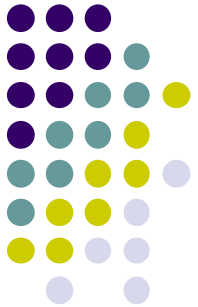
Suggested Skills for Project Managers

- The Project Management Body of Knowledge
- Application area knowledge, standards, and regulations
- Project environment knowledge
- General management knowledge and skills
- Soft skills or human relations skills – ie being the go-between for clients, developers, users and other stakeholders



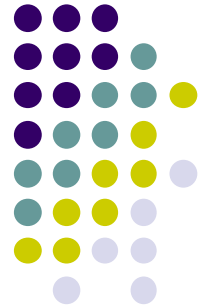
Most Important Skills and Competencies for Project Managers

1. People skills
2. Leadership
3. Listening
4. Integrity, ethical behavior, consistent
5. Strong at building trust
6. Verbal communication
7. Strong at building teams
8. Conflict resolution, conflict management
9. Critical thinking, problem solving
10. Understands, balances priorities



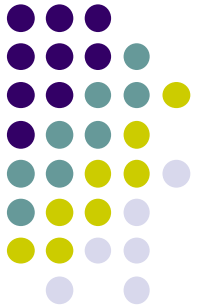
Different Skills Needed in Different Situations

- Large projects: leadership, relevant prior experience, planning, people skills, verbal communication, and team-building skills were most important
- High uncertainty projects: risk management, expectation management, leadership, people skills, and planning skills were most important
- Very novel projects: leadership, people skills, having vision and goals, self confidence, expectations management, and listening skills were most important



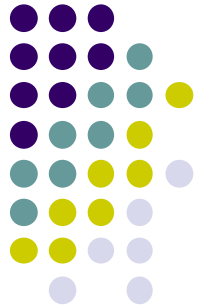
Importance of Leadership Skills

- Effective project managers provide leadership by example
- A **leader** focuses on long-term goals and big-picture objectives while inspiring people to reach those goals
- A **manager** deals with the day-to-day details of meeting specific goals
- Project managers often take on the role of both leader and manager



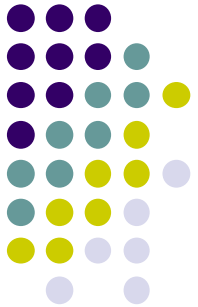
The Project Management Profession

- The profession of project management is growing at a very rapid pace
- It is helpful to understand the history of the field, the role of professional societies like the Project Management Institute, and the growth in project management software
- Some people argue that building the Egyptian pyramids was a project, as was building the Great Wall of China
- Most people consider the ***Manhattan Project*** to be the first project to use “modern” project management
- This three-year, $2 billion (in 1946 dollars) project had a separate project manager and a technical manager



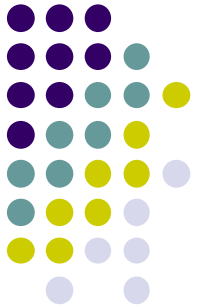
Project Management Software

- There are hundreds of different products to assist in performing project management
- Three main categories of tools:
  - Low-end tools: handle single or smaller projects well, cost under $200 per user
  - Midrange tools: handle multiple projects and users, cost $200-600 per user, Project 2007 most popular
  - High-end tools: also called enterprise project management software, often licensed on a per-user basis, like VPMi Enterprise Online (www.vcsonline.com)
- See the Project Management Center Web site or Top Ten Reviews for links to many companies that provide project management software



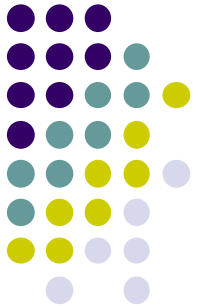
Project Management and You

- For those of you who go on to become developers, you can expect to code for ~5 years
- Eventually you will become more useful managing younger developers to deliver software projects to scope, time and cost
- You will (should) know all the tricks of the trades
- Know the risk to watch out for
- Know the shortcuts that lead to problems down the track
- Know the cost of bad assumptions and poor testing
- Even if you do not go on to be a coder, if you work long enough in I.T. it is likely you will end up doing some PM



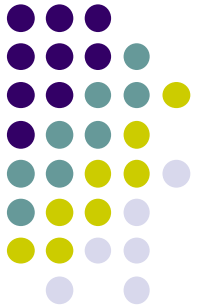
Take It Seriously

- Students often dismiss PM as boring and tedious
- However, like systems analysis, if learned and applied properly, it is a lifelong skill that will help develop and progress your career
- Project managers invariably earn more than coders
- Not everyone is cut out to be a project manager, but everyone will have to work with one (or more)
- If you do contract work, you may end up being both coder and project manager



Conclusion

- If you do end up working as a contractor or doing some contract work, project management skills are essential
  - You cannot allow scopes to change (creep)
  - You have to get sign-offs at every stage of the project
  - You have to be able to say ‘project is now complete’ – not all clients know when done is done
  - Decision audit trails are essential – what was decided by who, when and why?
- Always endeavour to **Promise less and deliver more** – never the other way around ☺



Reading

- **Schwalbe, K. (2010). *Information Technology Project Management*, 6th Edition (Chapters 1 & 11)**