

APPENDIX A

Project Management Information Systems

Teaching Strategies

- Project management information systems range from simple tracking software to complex integrated systems. Many of the systems have common features. Have students evaluate the common features and determine which are most appropriate for their project situations.
- Demonstrate several project management information systems to the class. Have the class suggest industries or project types that could use the systems.

Optional Supplemental Activities

- Have the students read the chapter and answer the questions at the end of the chapter. **(See Premium Deck for Slides.)**
- Have them download a project management information system and evaluate it.
- Have students watch videos on using project management information systems and evaluate what systems would be easiest to use and the most appropriate for their project situations.
- Invite a guest speaker to class to talk about how their organization uses project management information systems.

Appendix Concepts

- Discussions of:
 - The common features available in most PMISs
 - Criteria for selecting a PMIS
 - Advantages of using a PMIS
 - Concerns of using a PMIS
 - How to find vendors offering PMISs

Appendix Concepts

- Numerous project management information systems (PMISs) are available that allow the user to plan, track, and manage their projects. In recent years, PMISs have become very easy to use and often can be customized to fit the needs of the user.
- A PMIS provides a powerful suite of Web-based tools to support many of the topics covered in this text.

This appendix provides:

- Discussions of:
 - The common features available in most PMISs
 - Advantages of using a PMIS
 - Concerns of using a PMIS
 - How to find vendors offering PMISs
- Criteria for selecting a PMIS

Project Management Information System Features

- Budgeting and Cost Management
- Communications
- Documentation Management
- Integration and Customization
- Online Tutorials
- Project Planning
- Project Portfolio Management
- Project Tracking and Control
- Report Generation
- Resource Management
- Risk Management
- Sales and Business Development
- Security and Access Controls

Project Management Information System Features

- Some features of project management information systems include:
- Budgeting and Cost Management: One of the most important features of a project management information system is the ability to effectively plan and manage the costs of projects. Features often include:
 - Billing and billing methods
 - Cost-to-completion tracking
 - Earned value management
 - Multiple currency
 - Payroll integration
 - Percent-to-complete tracking
 - Project accounting and cost control
 - Project cost estimating
 - Time and expense reports
 - Communications: The communication features of project management information systems have come a long way. Most systems provide a suite of tools such as these noted below.
 - Automated e-mail notifications
 - Collaboration management
 - Customer collaboration
 - Discussion forums
 - Email integration
 - File attachments
 - International characters
 - Message center
 - Mobile access
 - Multiple languages
 - Online meetings
 - Documentation Management: One of the most important features of project management information systems is the ability to document a project from beginning to end. They offer many features that are available to help.
 - Approval process and routing
 - Change order management
 - Contract management and automation
 - Meeting management and action items
 - Project charter information
 - Requirements management
 - Time-off requests
 - Integration and Customization: Most project management information systems allow for the customization of the user interface and reports to suit the particular needs of a project. In addition, they provide linkages with many other popular information systems.
 - Customizable user interfaces
 - Importing/exporting
 - Multimedia integration
 - Online Tutorials: Help tools for project management information systems often include detailed demos, online help, in-depth tutorials, and even full video presentations.
 - Project Planning: All project management information systems allow the user to define the activities and resources that are needed to perform a project. Some of the most important project planning features are:
 - Network diagrams and bar (Gantt) charts
 - Project time estimating
 - Scheduling
 - Task management and interdependencies
 - What-if analysis
 - Project Portfolio Management: Many project managers today run multiple projects simultaneously and must keep track of significant issues related to those projects.
 - Work breakdown structure
 - Issue management
 - Multiple project management
 - Knowledge management
 - Project Tracking and Control: Tracking progress, actual costs, and actual resource use is a fundamental component of project management. Project management information systems allow the user to define a baseline plan and compare actual progress and costs with those in the baseline plan. Most systems can track tasks in progress, completed tasks, associated costs, time expended, start and finish dates, actual dollars committed or spent, and resources used, as well as remaining durations, resources, and expenses. Some of the features offered in PMSs are:
 - Milestone tracking
 - Subcontractor tracking
 - Task priorities
 - Task reminders
 - Report Generation: New project management information systems can generate many different types of reports.
 - Reports on the project as a whole
 - Reports on major milestones
 - Reports that provide a variety of information with respect to a date range
 - Financial reports that show a full range of information
 - Earned value analysis and management reports
 - Resource allocation reports for each resource or group of resources involved in a project
 - Baseline-to-actual variance reports
 - The features provided by these systems thus include:
 - Customizable reporting
 - Dashboard indicators
 - Filtering
 - Real-time reporting
 - Sorting
 - Resource Management: Project management information systems can maintain a resource database of names, the maximum amount of time resources are available, standard and overtime rates, accrual methods, and descriptions of the resources. Constraints can be assigned to each resource, such as the number of hours or times that it is available.
 - The system will highlight and help correct over-allocation of resources and perform resource leveling and resource smoothing. Features available are:
 - Assignment tracking
 - Calendars
 - Resource allocation and planning
 - Resource utilization
 - Skills tracking
 - Risk Management: Project risks are uncertain events or circumstances that could have an impact on a project. The degree to which project management information systems support risk management varies greatly. Several tools allow the user to define possible risks, determine the probability that they will occur, and predict the impact on the schedule and budget if they occur.
 - Sales and Business Development: Some project management information systems include a feature related to business development. Some of the features include:
 - Automated lead generation
 - Client management
 - Sales dashboard
 - Security and Access Controls: A critically important feature in project management information systems is security and access rights features. Some systems provide password access to the project management program itself, to individual project files, and to specific data within a project file. Different views can be assigned to the project manager, team members, and the client.

Criteria for Selecting Project Management Information Systems

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| ■ Capacity | ■ Integration with other systems |
| ■ Documentation and online help facilities | ■ Internet features |
| ■ Ease of use | ■ Reporting capabilities |
| ■ Features available | ■ Security |
| ■ Installation requirements | ■ Vendor support |

2. Criteria for Selecting Project Management Information Systems

There are many factors to consider before purchasing a project management information system.

- Capacity: You need to be sure that the system can handle the number of tasks you expect to perform, the number of resources you expect to need, and the number of projects you expect to be managing simultaneously. However, for the needs of most organizations, the information system capacity is not an issue.
- Documentation and online help facilities: Consideration should be given to the readability of the online user's manual, the logical presentation of ideas, and the level of detail of the manual and on-line help.
- Ease of use: How do you like the "look" and "feel" of the system, the menu structures, available short-cut keys, color displays, the ease with which data can be entered, the consistency among screens, etc.?
- Features available: Does the system include work breakdown structures? How good are the resource-leveling and smoothing algorithms? Can the system sort and filter information, monitor the budget, produce customized calendars, help resolve overallocation of resources, etc.?
- Installation requirements: Top considerations are the memory required, the amount of hard disk space required, the processing speed and power required, the type of graphics display needed, and operating system requirements.
- Integration with other systems: Some systems allow very basic integration with a few popular information systems, whereas others provide sophisticated integration with distributed databases and even object-oriented databases.
- Internet features: Although all modern project management information systems allow project information to be posted and shared directly through the Internet, there is great variance in the web-based tools they contain.
- Reporting capabilities: These vary in the number and types of reports they provide. Make sure the system you choose offers the reports you are going to need.
- Security: Some project management information systems provide greater levels of security than others.
- Vendor support: Special attention should be given to the price of customer support and the reputation of the vendor.

Advantages of Using Project Management Information Systems

- Ability to handle complexity on large-scale projects
- Accuracy
- Affordability
- Ease of use
- Maintainability and modifiability
- Record keeping
- Speed
- What-if analysis

3. Advantages of Using Project Management Information Systems

There are numerous advantages of using project management information systems. Some of them are:

- Ability to handle complexity on large-scale projects.
- Accuracy. Information systems have accurate algorithms for calculating project information.
- Affordability. Excellent PC-based project management information systems can be purchased affordably.
- Ease of use. They can often be mastered with only a minimal amount of training.
- Maintainability and modifiability. Any change in the data will automatically be reflected in all the project documents, such as the diagrams, the cost tables, and the resource allocation charts. This is especially important on large projects with lots of data.
- Record keeping. Data can be kept on individual team members' schedules, each task, costs, and resources used.
- Speed. Calculations and revisions can typically be performed in seconds.
- What-if analysis. One further feature allows the user to see the effects of various scenarios on a project.

Concerns about Using Project Management Information Systems

- Becoming distracted by the software
 - Focus on the people!
- A false sense of security
 - Too much; Fix slippage; GIGO
- Information overload
- The learning curve
- Overreliance on software
 - SW just a tool; must know PM basics

4. Concerns about Using Project Management Information Systems

There are also a few concerns to be considered when choosing a PMIS.

- Distraction. Becoming distracted by the system. A manager can spend too much time focusing on the system and forget about the most important part of a project: the people.
- False sense of security. Project managers might believe that, because they have a powerful project management information system, they can manage and accomplish more than is actually feasible. Managers rely on a PMIS excessively, even thinking that, although a project is slipping, the system will be able to figure out a way to get it back on track. Managers should be wary of relying on the information system. They should always employ their own judgment as well.
- Information overload. Project managers have to resist the temptation to use features that produce reports or data that do not contribute to the successful completion of the project. While PMISs can do many things, managers should only focus on the features that are necessary for any given project.
- Learning curve. The amount of time required to learn a system varies, depending on the individual's background.
- Overreliance on information system. Individuals with little or no knowledge of the fundamentals of project management sometimes use the system without really understanding what they are doing. Even though technology has made project management easier in some respects, it is important to always know what is happening so that if something goes wrong, the manager can go to the root of the

problem.

Project Management Information Systems Vendors

- Numerous systems are available
 - Provide support for project management process
 - Provide online demonstrations or free trials
- Evaluations of top selling systems online
 - Comparison of popular systems
 - Lists of features
 - Summary of strengths and weaknesses

5. Project Management Information Systems Vendors

Numerous project management information systems are available that provide support for the project management process.

- Almost all vendors provide online demos of their products or free trial software that can be downloaded.
- A simple Internet search for "project management information system," "project management software," or "project management information system directory" will provide links for hundreds of vendors and consultants.
 - Several websites provide a list of the top-selling project management information systems, as well as reviews of their features.
 - Other sites actually compare popular systems and report which features they provide and give summaries of their strengths and weaknesses.

Summary

- Project management information systems include a number of features . The most common are budgeting and cost management, communications, documentation management, integration and customization, portfolio management, online tutorials, project planning, project tracking and control, report generation, resource management, risk management, sales and business development, and security and access controls.
- Criteria for selecting a project management information system include capacity, documentation and online help facilities, ease of use, features available, integration with other systems, installation requirements, reporting capabilities, Internet features, security, and vendor support.
- The benefits of project management information systems include accuracy, affordability, ease of use, ability to handle complexity, maintainability and modifiability, record keeping, speed, and what-if analysis.
- The concerns about project management information systems include becoming distracted by the project management information system, a false sense of security, information overload, the learning curve, and overreliance on the project management information system.

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