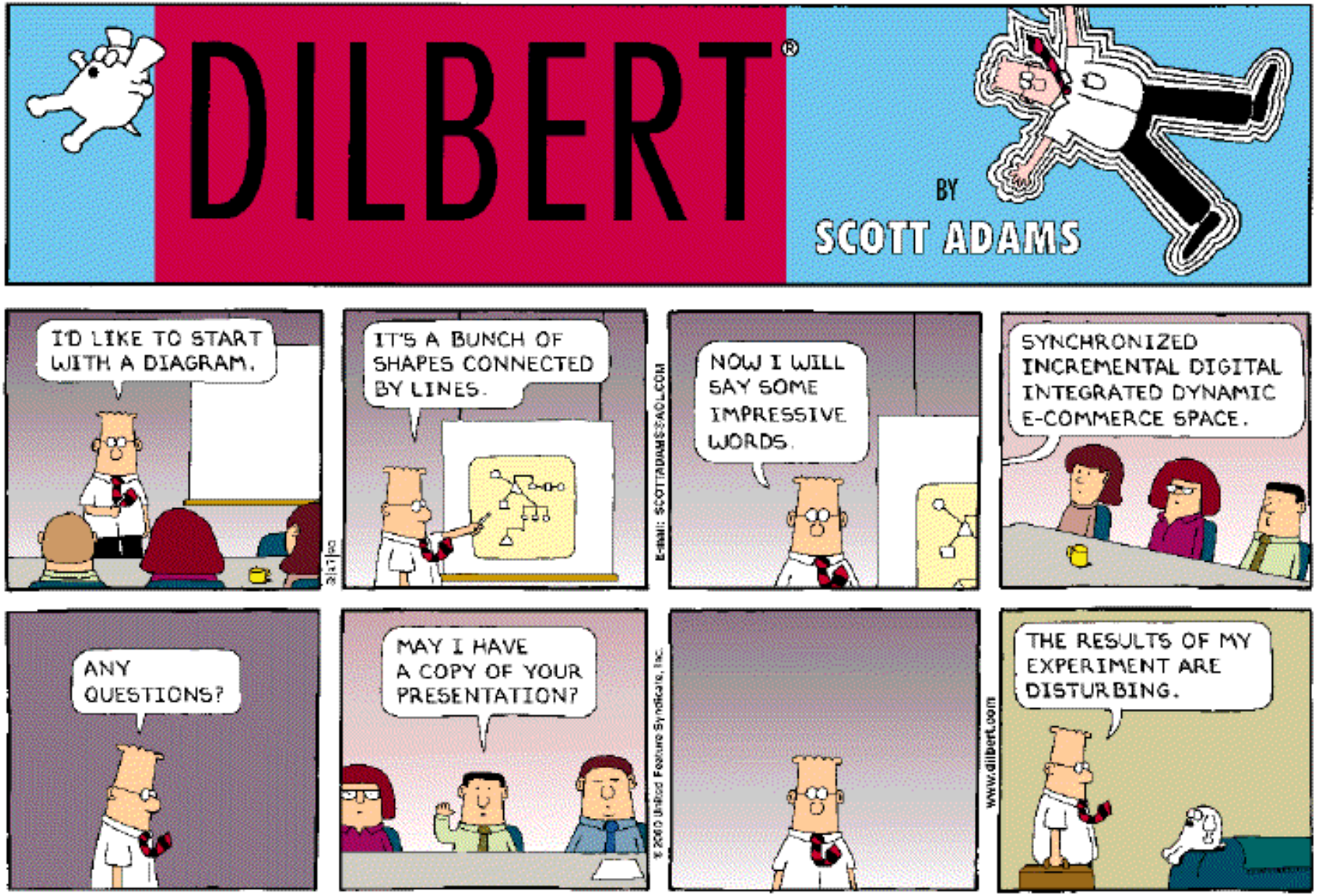
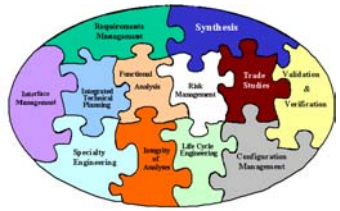
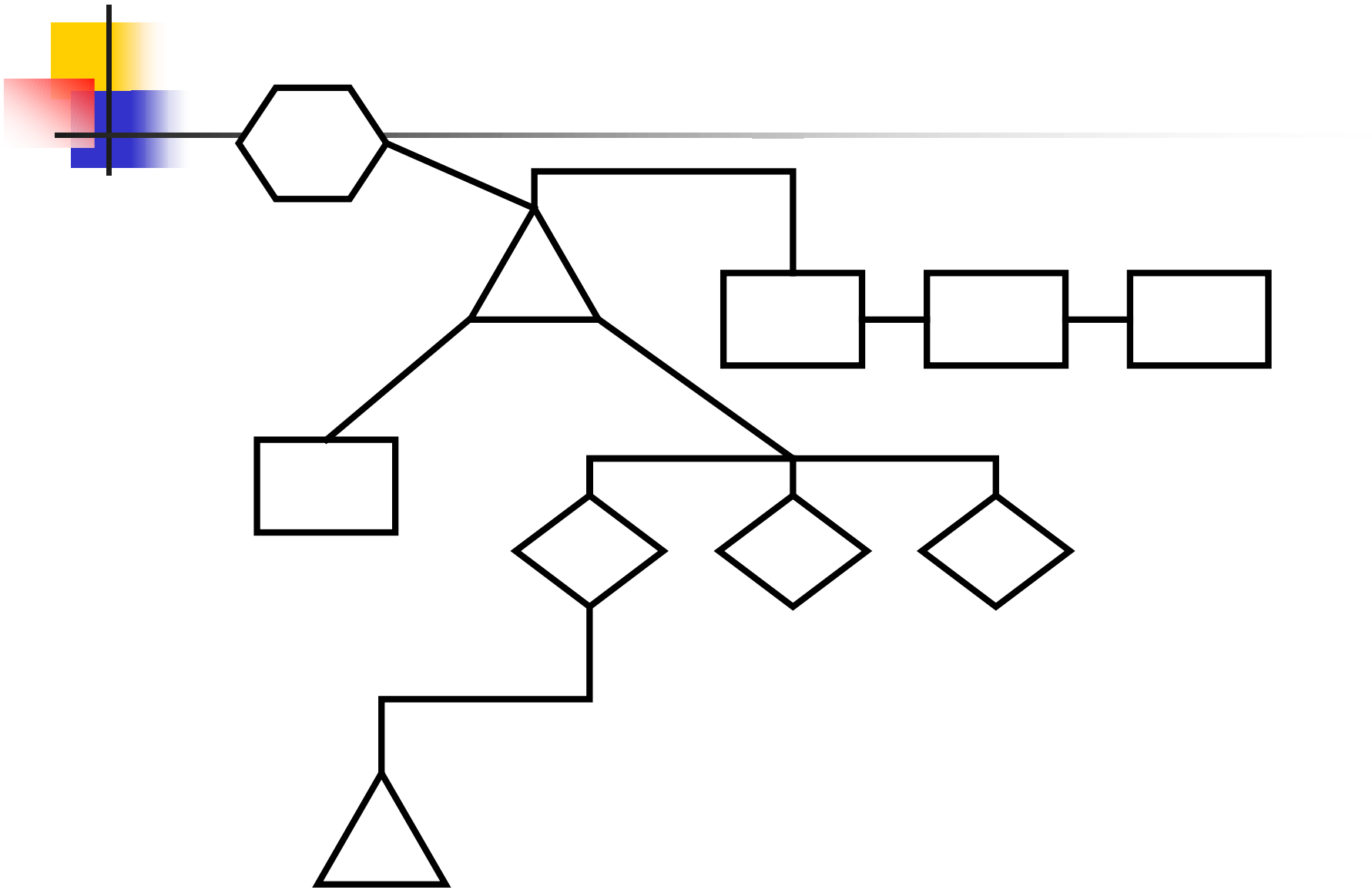


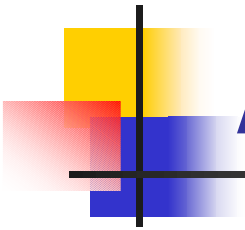


Project Management and its relation to Systems Engineering

Clifton Baldwin, PMP

ACB-210, Systems Engineering Division





Agenda

- Introduction
- The PMBOK and Project Management
- Common Terms Defined
- Systems Engineering
- Roles
- Project Management vs. Systems Engineering
- Conclusion

Who am I?

- Clifton Baldwin
  - Computer Scientist/Systems Engineer
  - Systems Engineering Division, FAA
  - E-mail: clifton.baldwin@faa.gov
  - Phone: 609-485-4832

My Project Management Experience

- Project Management Institute (PMI) Member
- Project Management Professional (PMP)
- PMCDF Project Core Team Member
- PMBOK 2004 Update Project Core Team Contributor

PMBOK

- A Guide to the Project Management Body of Knowledge
  - Generally accepted knowledge and practices for project management
    - Should not be applied uniformly on all projects!
  - A guide, not a recipe book
  - Provides uniform terminology and definitions

Project Management Defined

- "The application of knowledge, skills, tools, and techniques to project activities to meet project requirements" – PMI.
- Project Management is a *discipline* – a field of work requiring specific knowledge and that has a set of rules governing work conduct.

Some Benefits of PM

- Quantify value commensurate with cost
- Optimize the use of organizational resources

- Reduced Schedules
- Put strategic plans into practice

- Reduced Risk
- Consistent Tracking and Reporting

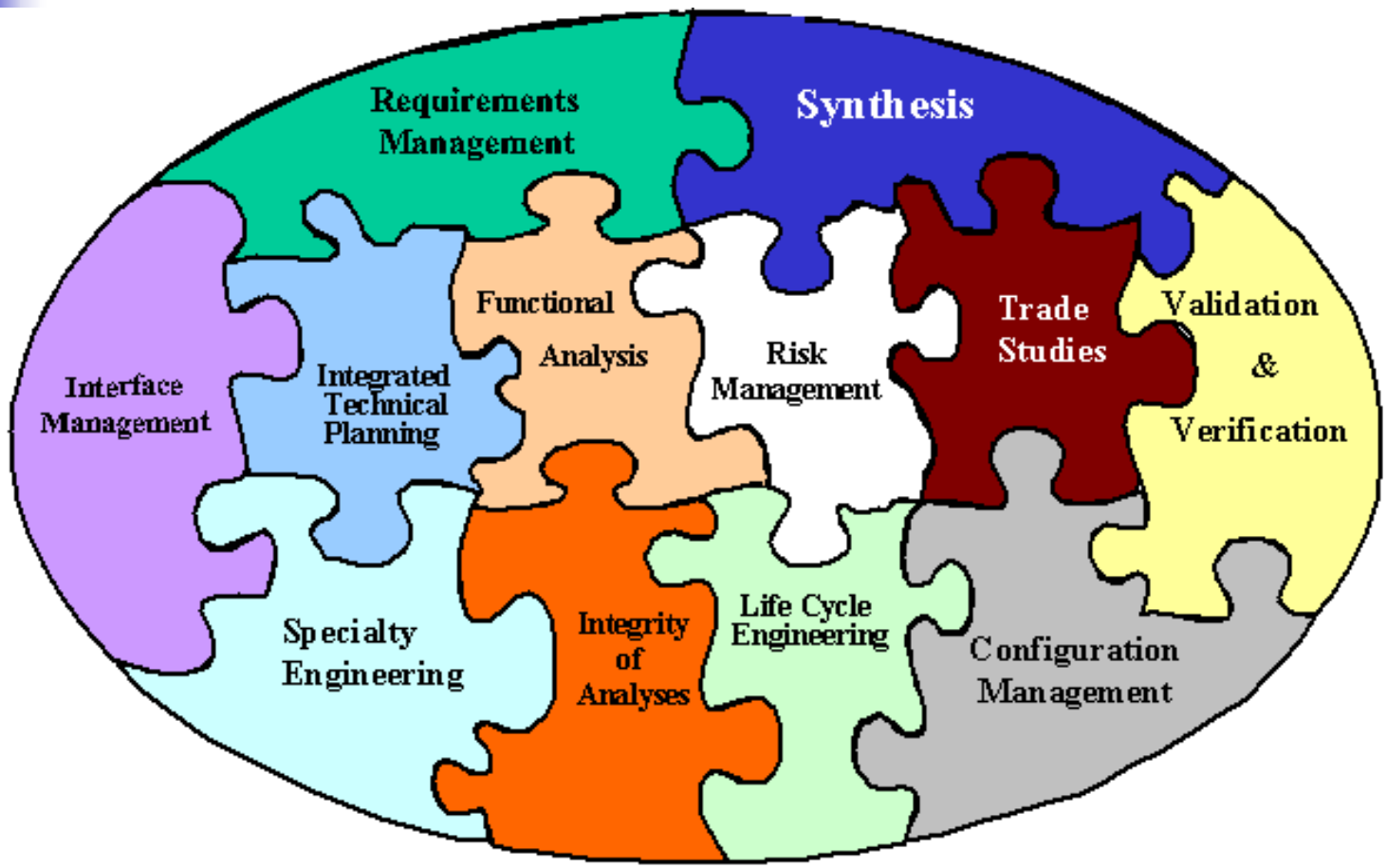
Uniform Terminology / Definitions

- **Project** - a temporary endeavor undertaken to create a unique product or service, and has the characteristic of progressive elaboration.
- **Program** - A group of related projects managed in a coordinated way. Programs usually include an element of ongoing work.
- **Deliverable** – Any verifiable product, document, or capability to perform a service.
- **Project Success** – to be determined!!!

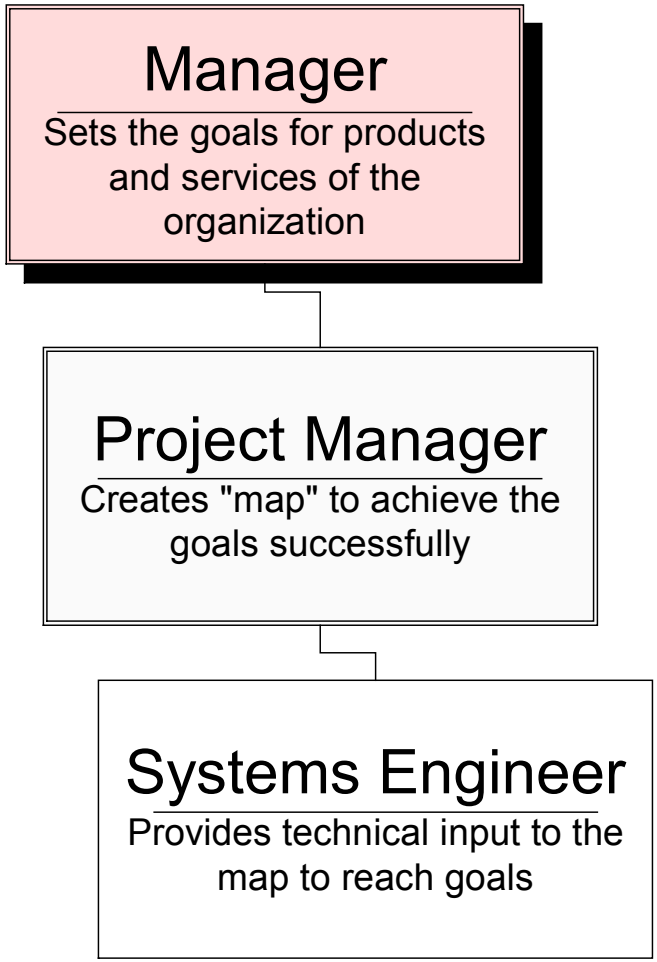
Systems Engineering Defined

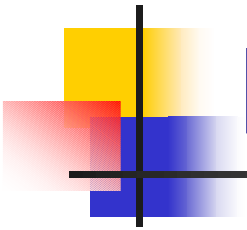
- "An interdisciplinary approach and means to enable the realization of successful systems." - INCOSE
- Combines elements of many disciplines such as operations research, system modeling, specification writing, risk management, requirements development, and project management.

FAA's System Engineering Manual



Overview of Roles





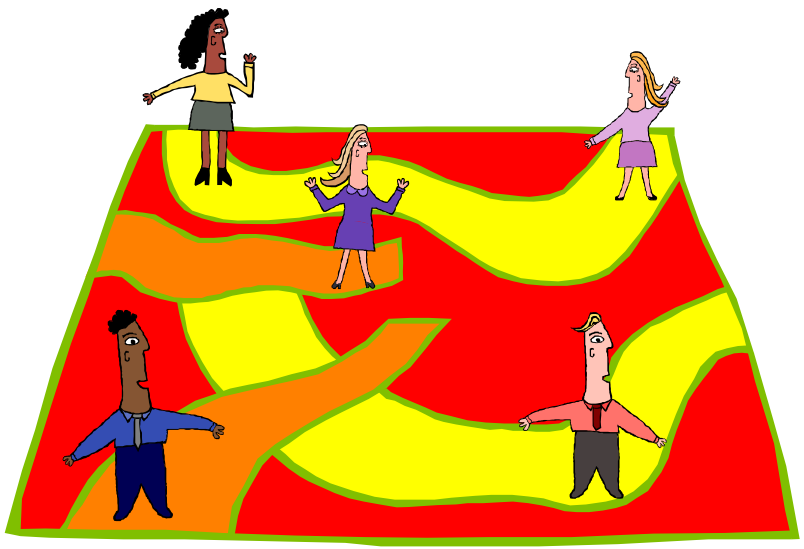
Manager's Role

- Sets goals
- Provides direction
- Selects projects
- Determines success criteria

Project Manager's Role

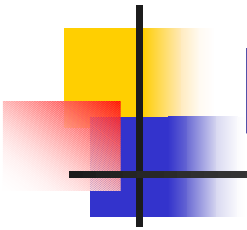
- Understands the processes
- Needs input from the experts
- Project Managers are not management

Project Manager's Role (cont.)



- A project manager has knowledge of the generally accepted ways to complete a project.
- There are always more than one correct way!

Project Manager and Manager



Project Manager Expertise

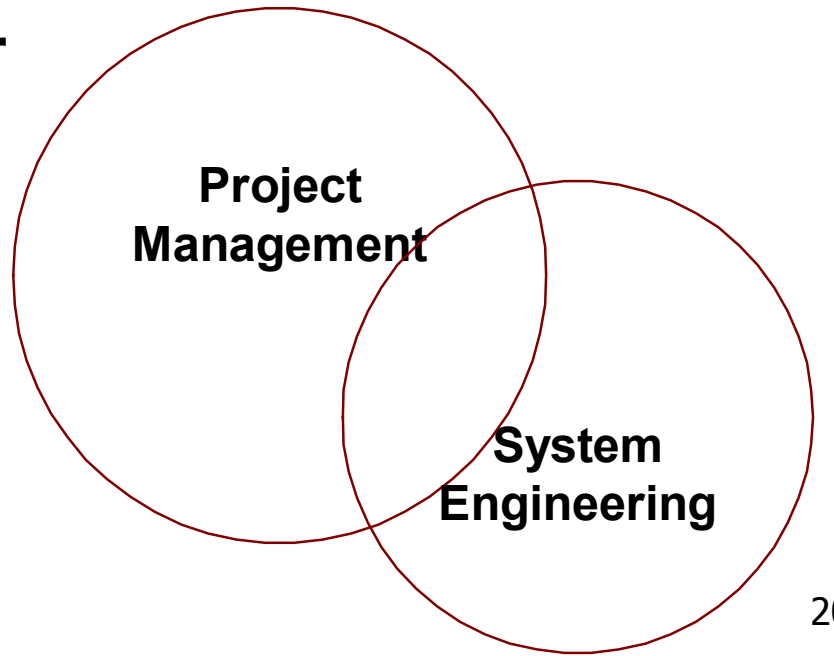
- Effective project management requires:
  - Familiarity with the project management body of knowledge.
  - Application area knowledge, standards and regulations.
  - Understanding the project environment.
  - General management knowledge and skills.
  - Human relations skills.

Project Manager Competence

- Three Dimensions of Competencies
  - Knowledge of Project Management
  - Application of Project management
  - Personal Competencies
    - Achievement and Action
    - Helping and Human Service
    - Impact and Influence
    - Managerial
    - Cognitive
    - Personal Effectiveness

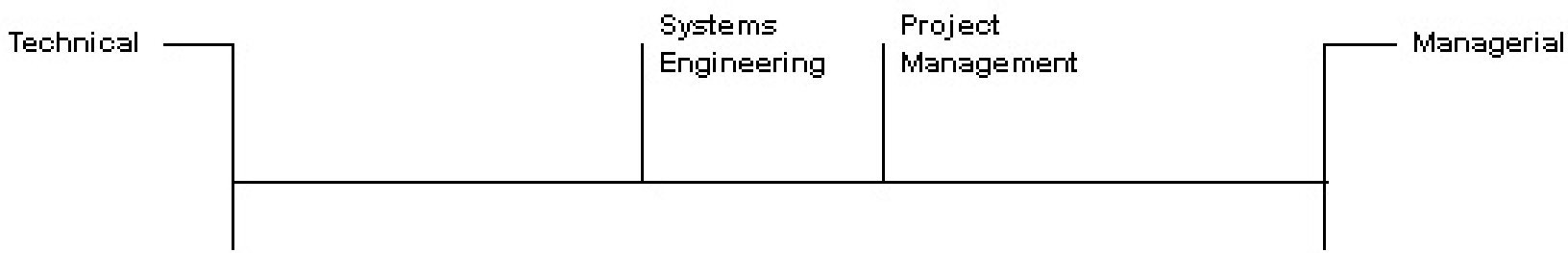
Systems Engineer's Role

- Understands the processes
- Needs input from specialized experts
- Basically, a specialized "technical" project manager



Project Management vs. Systems Engineering

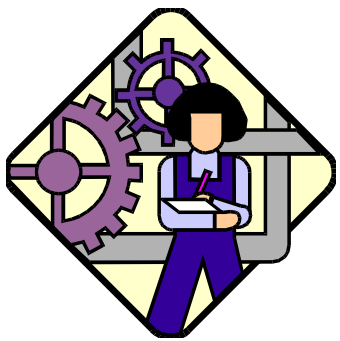
- Differences
  - Systems Engineering requires more "technical" skills but not technical expertise
  - Project Management requires more "managerial" skills but not management



Project Management vs. Systems Engineering

Differences continued…

- Project Management
  - Communication planning
  - Team building
  - Procurement management
- Systems Engineering
  - Functional Analysis
  - Requirements Management
  - Synthesis
  - Trade Studies
  - Interface Management

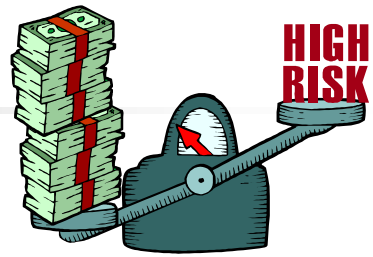


Project Management vs. Systems Engineering

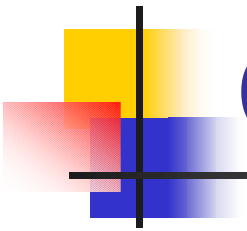
- Similarities
  - Plan for producing a product or service
  - Conduct stakeholder analysis
  - Account for scope, time, cost, quality, risk, and the human resources to complete the project

Project Management vs. Systems Engineering

Similarities continued…



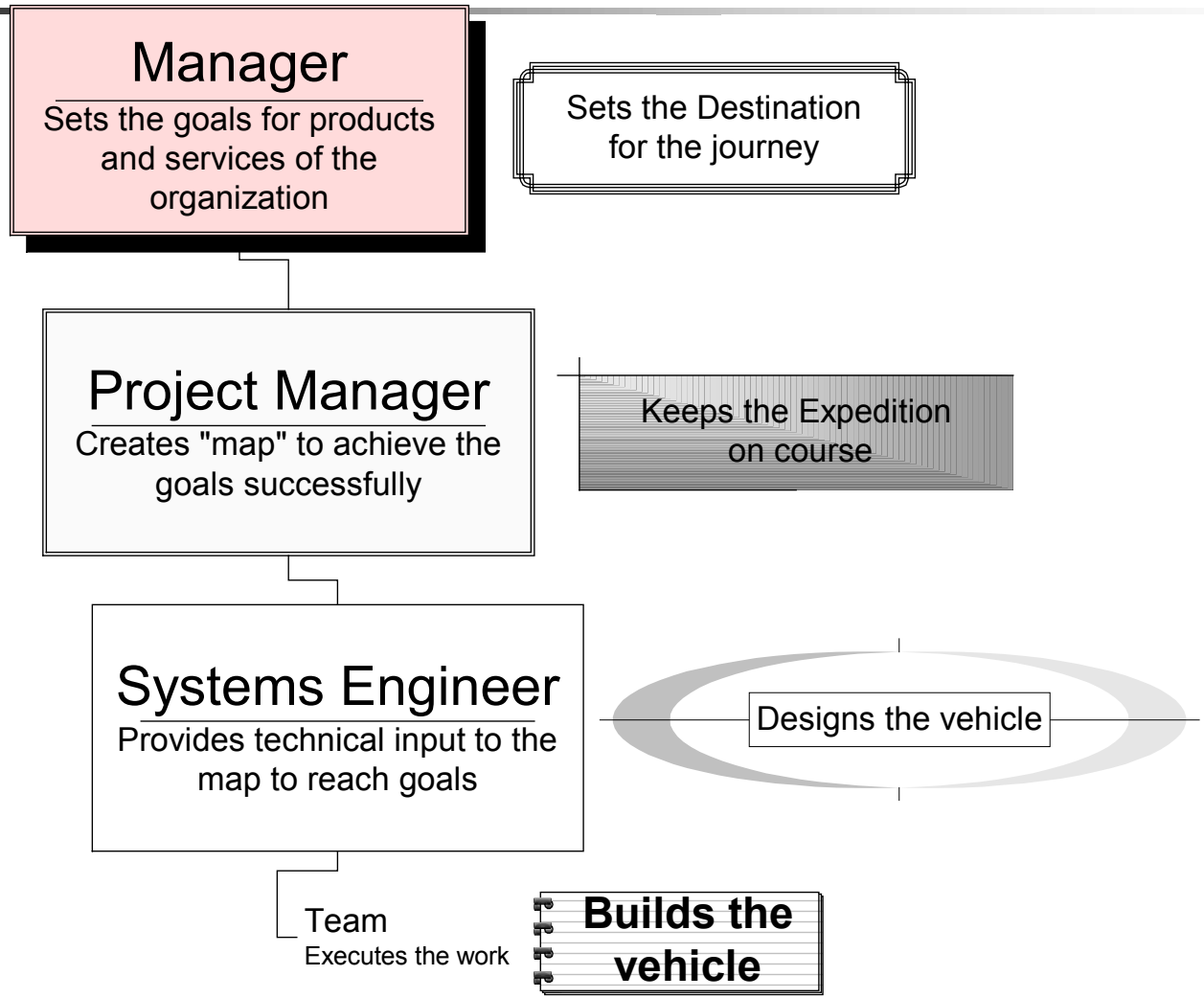
- Risk Management
- PMBOK
  - Risk management planning
  - Risk identification
  - Risk analysis
  - Risk response planning
  - Risk monitoring and control
- INCOSE Handbook
  - Risk planning
  - Risk identification
  - Risk assessment
  - Risk analysis
  - Risk handling



Conclusions

- A project manager has the competencies for the best chance to "successfully" complete a project
- A project manager does not set the goals for the project – that is left to management
- A systems engineer is like a project manager with specialized technical skills

Analogy of Roles



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  - Project Management Institute

Thank you