Fundamentals of Project Management

CMPUT 299

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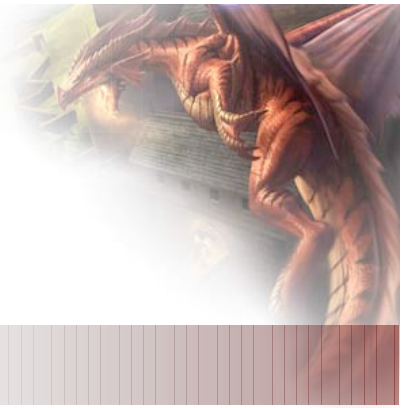
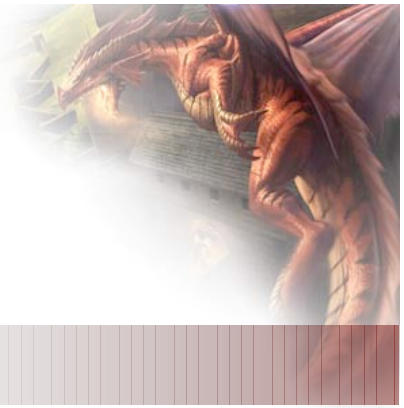
Version 1.1



Management is

- ♣ People
- ♣ Problem Solving
- ♣ Process

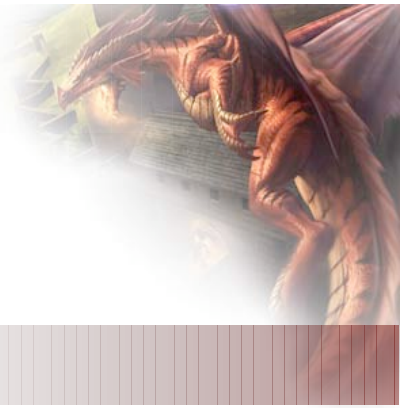


People

- Identify skills - have and missing
- Identify personalities
- Match skills and tasks with people
- Run effective meetings

Process = Planning + Execution

- Problem solving generates tasks
- Planning organizes tasks
- Planning is continuous:
  - Maintain a task queue
  - Assign priority to tasks
  - Assign tasks to people
  - Monitor status to maintain situation awareness
  - Re-evaluate tasks, priorities, assignments



Planning

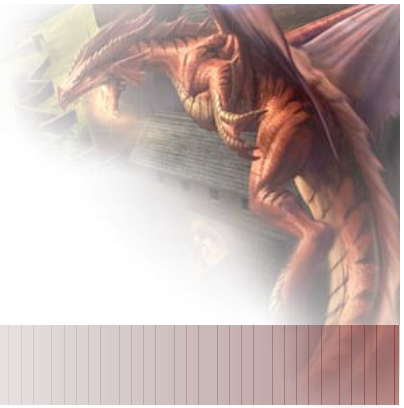
Meetings

+

Task Queue

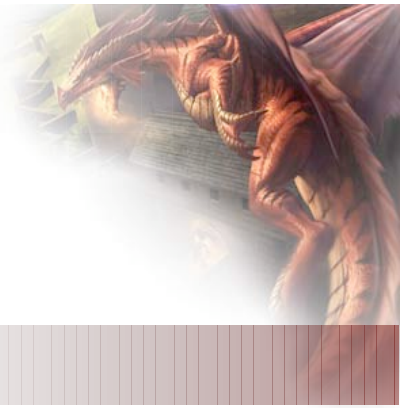
+

Repository



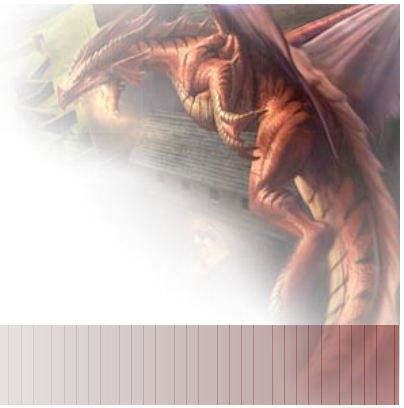
Task Queue

- What - name and short title
- Who - who monitors, who acts, who helps
- Priority and timing
- Current status
- Details and links to other tasks



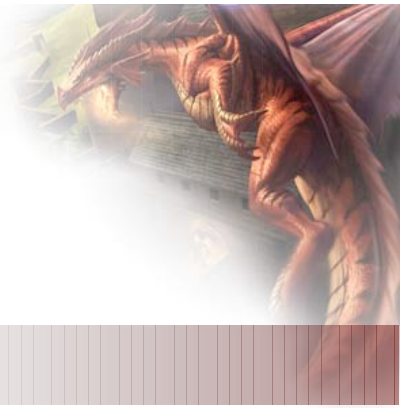
Task Queue

- The task queue is the key management tool
- Keep it current!
- Review it often!



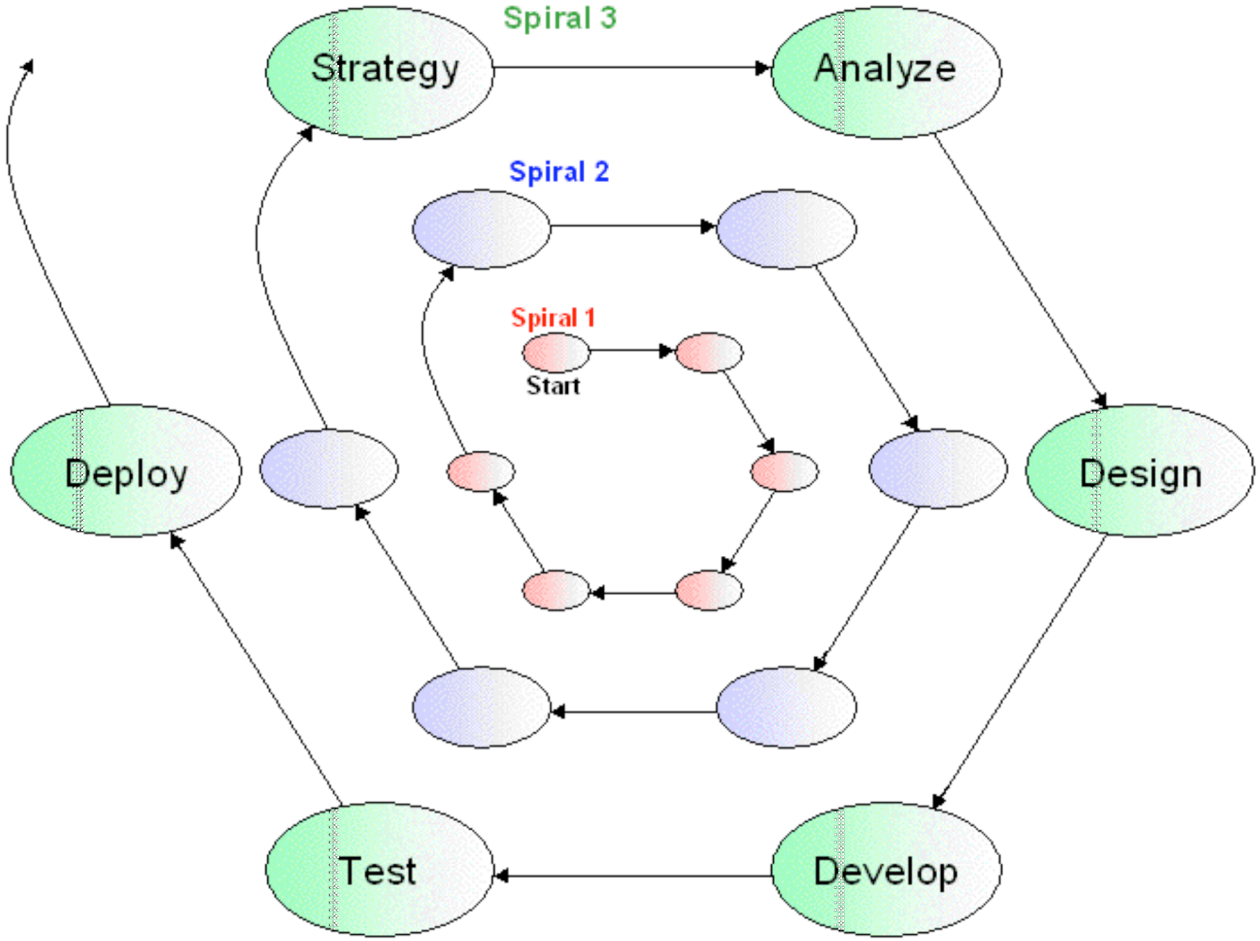
Repository

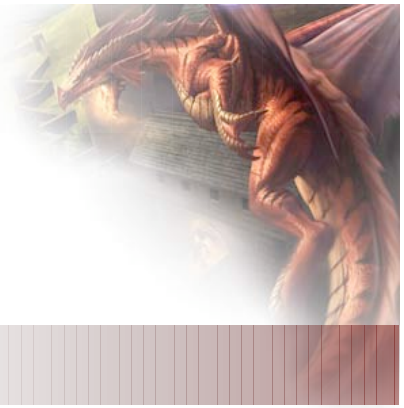
- Keep everything in a repository
- Keep under version control
- Maybe keep under access control
- Keep a history
- Backup the repository!



Problem Solving

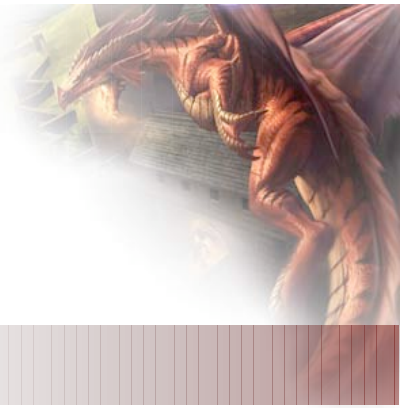
- There is a general problem solving process
- Works for all domains
- Iterative and Incremental
- Fractal Spiral Model


Spiral 3
Strategy
Analyze
Spiral 2
Spiral 1
Start
Deploy
Design
Test
Develop



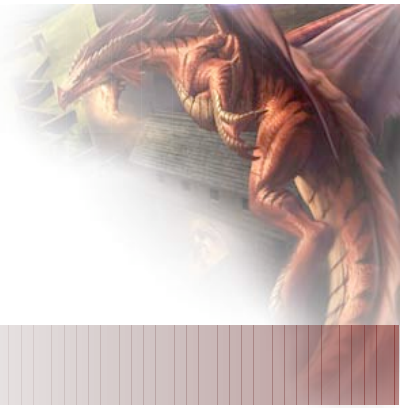
Steps of the Spiral

- Strategy -
  - What are we trying to do?
  - Does it make business sense?
  - How do we measure success?
- Analyze - what do we want to do?
- Design - how are we going to do it?
- Implement - do it
- Test - did we do what we intended?
- Deploy - evaluate and release results to next spiral



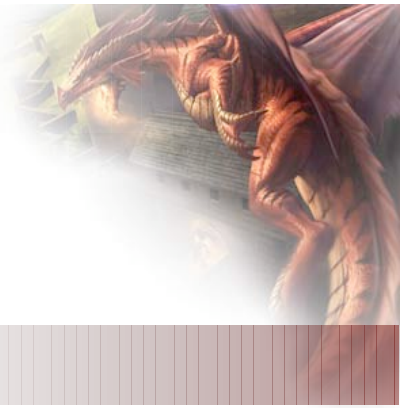
Recursive Spiral Model

- It is self-similar. Each step is executed via a sub-spiral.
- Deployment in a sub-spiral transitions to the next step in the larger spiral.
- Recursion into sub-spirals stops on reaching a step with an obvious well-understood solution.



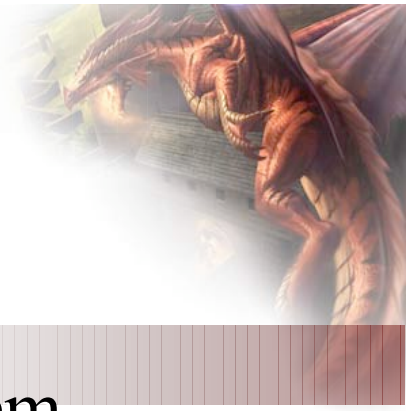
Example

- ♣ Writing a paper for a course
- ♣ Strategy: time lines, resources, cost/benefit, domain, evaluation mechanism
- ♣ Analyze: topic (sprial to choose one?), research?
- ♣ Design: research?, outline
- ♣ Implement:
- ♣ Test:
- ♣ Deploy:



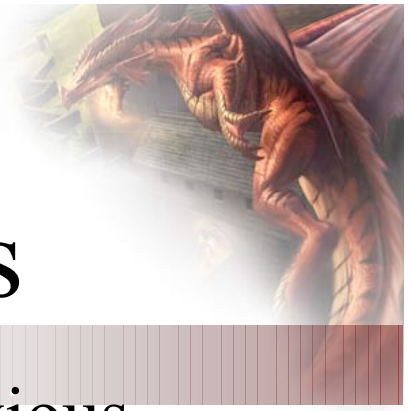
Project Spirals

- Project spirals from inside out.
- Each spiral achieves an increment in the project.
- A spiral will have a mix of increment styles as determined by the strategy step of the spiral.



Spiral Increment Goals

- *Broad and shallow* - covers every subsystem from the outset, but only with limited functionality. Works well for generally understood domains.
- *Narrow and deep* - focuses on substantially implementing a small but problematic subset of the system. Works well with risky parts of the system. Risks are addressed first and can be evaluated before heavy investment in the rest of the system.



Spiral Increment Results

- *Evolutionary iteration* - builds on the previous ones, discards or modifies very little of the previous effort.

- *Prototyping iteration* - produces an artifact that resolves some issue, or demonstrates some capability. Used to evaluate and manage risk, and are intended to be discarded.