This doc is an aggregation of the files in /notes/comp3009/processfuture

The Future Of Software Processes

1. Process segmentation
    - User programming
    - Infrastructure development
    - System integration.
2. Product-line processes
    - C.f. one-off products
3. RAD, SAIV replace CAIV
4. Model based process tailoring
5. Agent-aided processes
    - Choosing process model
    - Risk assessment
    - Process monitoring

Trends

- Change is faster
- Schedules are so tight you must release bug-ridden S/W
- Management of 'change' is more important , esp. personnel aspects
- Suborn user requirement to cost and schedule

e.g. if you want to build it in 9 months, this is the model to do it

SAIV And PERT

When you save time on an activity, you save time on the overall schedule only if the activity is on the critical path (CP).

CP hard to define because software development is complex.

"RAD Opportunity Tree" a tool to help identify and cut the CP
e.g. Motorola round-the-world testing.

SAIV Approaches

- Build a core capability first
- Prioritise features
- Drop features to meet the schedule
- Identify the areas slowing you down, Pareto analysis.

WIN-WIN Processes (Theory W)

A S/W project has 'stakeholders'
Traditionally stakeholders' concerns are considered in sequence
user input users *developers work* interfacers maintainers (???)
now too late for an architectural change

To address this :

- WIN-WIN SPIRAL MODEL
    - ANSI/J-STD-016
    - ISO/IEC STD 12207

WIN-WIN Steps

1. Identify stakeholders.
2. Identify stakeholders' win conditions.
3. Identify win condition conflicts.
4. Negotiate top-level win-win agreements
    a. Invent options for mutual gain
    b. Explore option trade-offs
    c. Manage expectations.
5. Put win-win agreements into specs and plans.
6. Repeat steps 1 to 5 during product development
7. Tackle new win-lose,lose-lose risk items

WIN-WIN Anchor points
(milestones)

1. **LCO** Life Cycle Objectives - "we are engaged"
2. **LCA** Life Cycle Architecture - "we are married"
3. **IOC** Initial Operational Capability - "we have our first child"

Stakeholders commit at these anchor points
The commital drives the next turn of the spiral model

At an anchor point:

- Stakeholders collaborate using a computer based environment.
- Each stakeholder specifies their "WIN factor"
    - e.g. 'user friendly' 'easy to maintain'
- If all agree then identify the WIN-WIN feature
- If one stakeholder disagrees then concentrate to resolve that disagreement

Model Based Software Engineering (MBASE)
Models needing integration

Success Models

- win-win
- cost/benefit
- fixed price

Model clashes = incompatibilities among underlying assumptions.

Model integration = re-engineering the models to reconcile their underlying assumptions

e.g. COTS versus Waterfall,

Rayleigh curve staffing versus Incremental development.

to reconcile eg WIN-WIN negotiation,

Process model decision table (qv).