NORTHROP GRUMMAN

Lessons Learned Piloting the CMMI for Services

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Northrop Grumman Information Systems (IS) Sector

IS Sector

- $10 billion in sales in 2008
- 7,000 contracts
- 33,000 employees

Products and Services

- Mission support
- Cybersecurity
- Command, control, and communications
- Enterprise applications
- IT & network infrastructure
- Management & engineering services
- Intelligence, surveillance, & reconnaissance

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IS as a CMMI for Services Early Adopter

- IS has a history of successful CMMI adoption
  - One of the first large organization adopters
  - Over 80 organizations (over 250 projects) appraised at Level 3 or higher
- IS was very interested in applying our successes to services
- Strong IS involvement in developing the CMMI for Services model
  - Hal Wilson – CMMI Steering Group advocate for developing the model
  - Craig Hollenbach – Model Project Manager
  - Brandon Buteau – Model Architect
  - Roy Porter – One of the model authors
- Made sense for IS to be an early adopter
- IS completed a successful Level 3 SCAMPI A in October 2009
  - Led by Pat O'Toole and 3 lead appraisers (John Clouet, Ron Ulrich, Ravi Khetan)

SCAMPI A Projects

- Started with 4 pilot projects
- Positives
  - All previously appraised at CMMI Level 3 or 5
  - 3 projects were service-only, 1 was software/hardware/service
  - Felt adopting the model would improve their processes
- Negatives
  - Projects were apprehensive about the newness of CMMI-SVC
  - Wanted assurance that IS experts would assist them in understanding the model and helping with improvements and artifacts
- Business reasons eventually reduced the appraisal to 1 project
  - IS and the project could still benefit

7 CMMI for Services Unique Process Areas

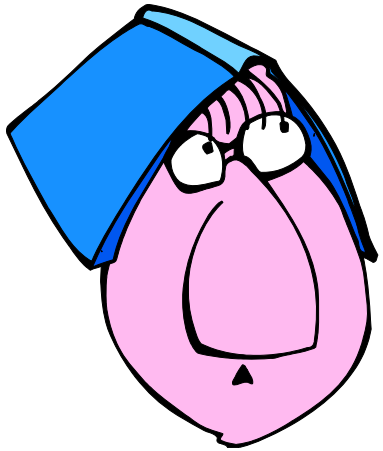
L2 Service Delivery
Deliver services per service agreements

L3 Capacity and Availability Management
Effective performance and resources are used effectively

L3 Incident Resolution and Prevention
Resolution and prevention of service incidents.

L3 Service Continuity
Continuity of services during and following significant disruptions

L3 Service System Development OPTIONAL
Design, develop, integrate, verify, etc. the service system.

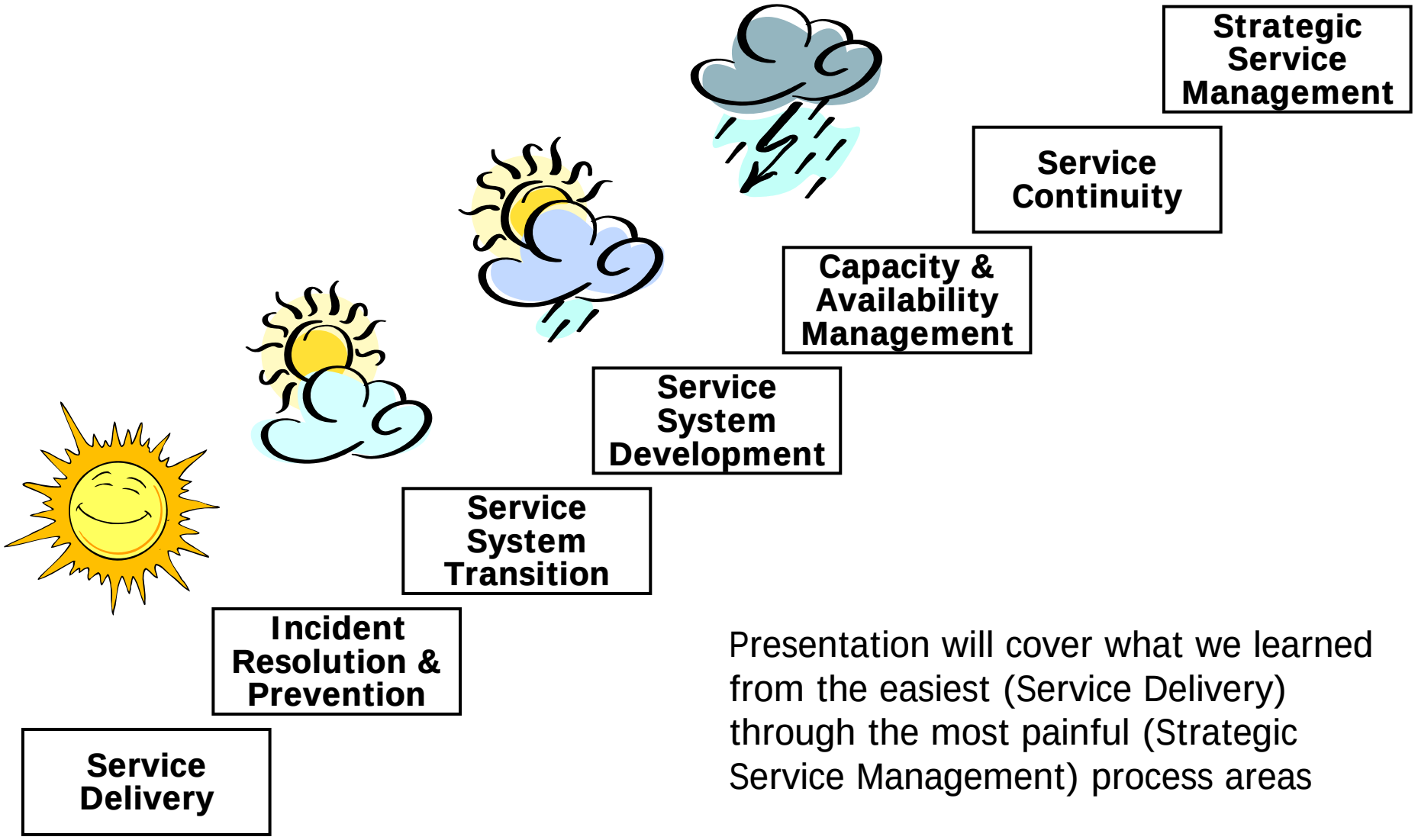


L3 Service System Transition
Deploy a new or changed service system

L3 Strategic Service Management
Standard services per strategic needs and plans

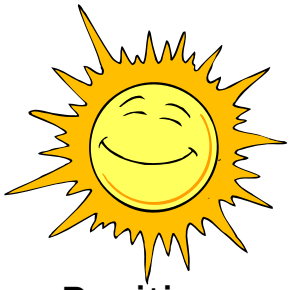
Note: Also 1 new practice in OPD and PP.

Easy to More Painful Process Areas



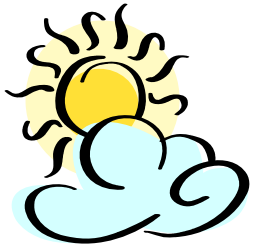
Presentation will cover what we learned from the easiest (Service Delivery) through the most painful (Strategic Service Management) process areas

1 Service Delivery



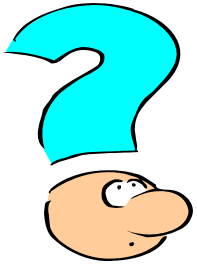
Positives

- Projects naturally implemented service delivery
  - Projects had service agreements
  - Projects prepared for service delivery
  - Projects delivered services



Slight Difficulty

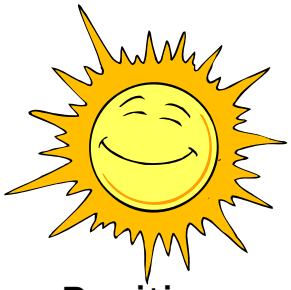
- Analyzing existing agreements and service data (SP 1.1)
  - Projects may or may not do this, and even if they did, it may not be documented



Confusion

- None

2 Incident Resolution and Prevention

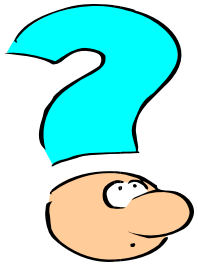


Positives

- Model improves trouble tickets
  - Projects added more fields to capture more data for trending
  - Encouraged capturing information, i.e., write it down

Slight Difficulty

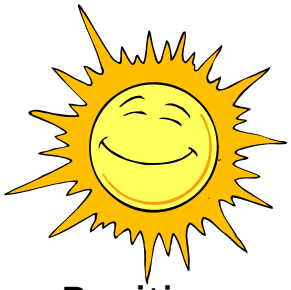
- Workarounds (SP 2.3)
  - Workaround repository is not required, but the model mentions it, and projects generally do not have one
  - Workaround used is not always documented



Confusion

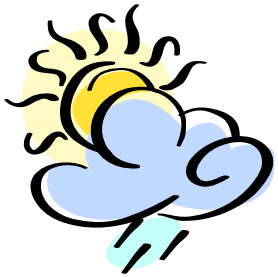
- Incidents (Goal 2) versus problems (Goal 3) not clear
  - Not all “incidents” are a “problem”. Someone might report an incident, “The computer is broken”. Your response, “You didn’t turn it on”. It’s not a “problem” unless it happens a lot.
  - Model team is correcting the confusion in V1.3

3 Service System Transition



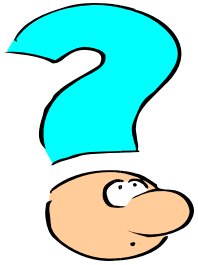
Positives

- Model adds more discipline for transitions
  - Encourages better planning for transitions
  - Ensures impacts are known and impacts are monitored
  - Ensures people are prepared for changes
  - Stops dump and run attitude, “Here you go,... good luck”



Difficult

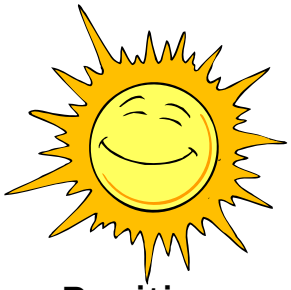
- Transition tends to be informal
  - Transition plans may or may not exist
  - Monitoring impacts tends to be informal, “Hey, how’s it going?”
  - More difficult to gather evidence



Confusion

- None

4 Service System Development

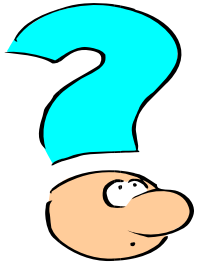


Positives

- Ensures all life-cycle activities are addressed
- Projects are very happy to use a model that fits their work (CMMI for Development more painful)
- Optional (should use for complex service systems)

Difficult

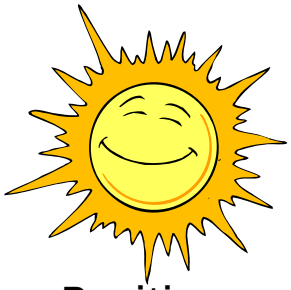
- Software/hardware/service projects miss services
  - Have plenty of evidence, but very little for services
  - For example, GP 2.8 status reports only address the software / hardware product, but not the service system
  - Service-only projects are much easier to work with



Confusion

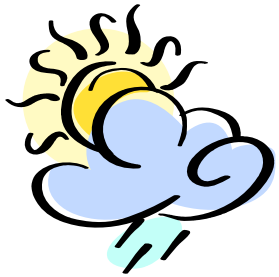
- Include the optional process area or not ???
- In V1.3, SSD will likely NOT be an option. Projects must provide rationale why it is N/A like SAM.

5 Capacity and Availability Management



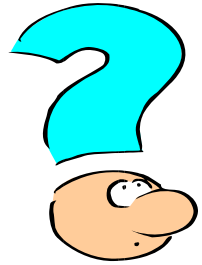
Positives

- Ensures projects monitor these critical items
- Helps formalize both capacity and availability
- Ensures measures are collected and analyzed, which is good



Difficult

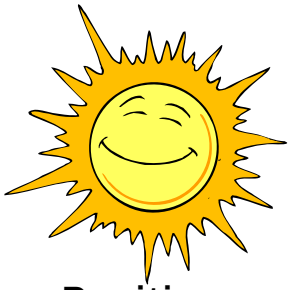
- Availability and/or capacity not done
- If done, not done formally
- Only done well if a contract requirement



Confusion

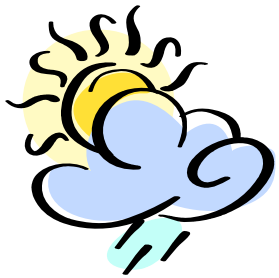
- Should be at the service system level, not component level, although key components should do it
- Service system representation (SP 1.3) does not have to be graphical, but must provide useful information (Buteau)

6 Service Continuity



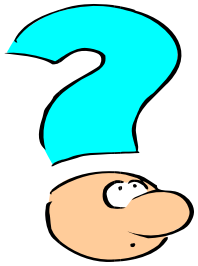
Positives

- Projects generally do not think of continuity until a major disruption occurs
- Puts things in place BEFORE a major disruption occurs
- Brings structure to planning and implementation



Difficult

- Lack of Service Continuity Plans (SP 2.1)
  - Assume they will not have sufficient plans
  - Created a detailed 53 page Service Continuity Plan Template
  - Template helped projects tremendously



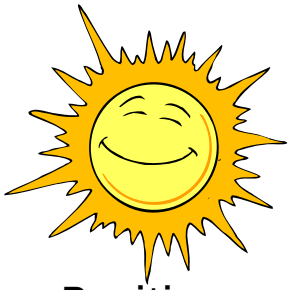
Confusion

- Verify and validate the Service Continuity Plan (SP 3.2)
  - People are not used to testing and validating a “plan”
  - Educated the project using the template
  - Key services and essential functions and resources in the plan should be verified and validated (Buteau)

7 Strategic Service Management

Last but not least,…
Strategic Service Management

7 Strategic Service Management (1 of 2)



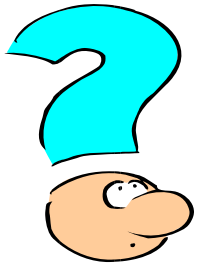
Positives

- Ensures the long term health of the service
- Evolves the service per market and customer needs so service does not stagnate over time
- Makes it very clear what services are provided

Very Difficult

- Properties of standard services and service levels (SP 2.1)
  - Model fits cell phone companies with similar services
  - Much more difficult with companies as diverse as Northrop Grumman (Red Cross blood bank project, anti-terrorist FBI project, Internal Revenue System (IRS) project, etc.)
  - Pick the level in the organization where things become more common
  - Used project evidence. Project had a “Chinese Menu” where you order this for your site, and that for your site, etc.

7 Strategic Service Management (2 of 2)



Confusion

- STSM is project or organization?
  - Immediate reaction was STSM was a project-level process area
  - STSM is not in the Process Management category like OPD, OPF, etc.
  - According to the authors, it was intended to be organizational, similar to OPD, OPF, etc.
- STSM is not like OPD, OPF, etc.
  - OPD, OPF, etc. evidence works whether there is 1, 2, or 100 projects
  - In STSM, switching to 1 project changes the evidence
  - Populated PIID with Sector, Division, Department, and project evidence
  - Appraisal team called a 1 hour telecon for STSM
  - Debated on who should do this, Sector? Division? Business Unit? Department? Project?
  - Model authors stated practices could be done at one or more levels, ... it depends

Miscellaneous

- What is a service project
  - A “project” covers the scope of one service agreement, which may contain several services (Buteau)
  - One appraisal team member felt each service within a project could be treated as a separate “project” and should do every practice
- Enhance training
  - Expand appraisal team member training
  - Appraisal team appraised development projects for so long, they may not be able to shift their thinking to services
- Typical “gap analysis” approach won’t work
  - Address the 7 new service-specific PAs and the 1 additional practice in PP and OPD and I’m done,... WRONG
  - Half way through, realized OPD, OPF, etc. only contained evidence for systems/hardware/software but nothing for services. Reworked OPD, OPF, etc. to add service-specific evidence.

Summary

- Don’t assume if you address the 7 new service-specific Process Areas (and 1 PP and OPD practice), you’re done
- Beware of Strategic Service Management
- Overall, transitioning to the new CMMI for Services model was a great idea
- Recommend using the model, ... I like it!

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