



Building a Better Mousetrap

**Lessons learned implementing
process management automation
to accelerate quality improvements**

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Background

- **Intel IT Flex Services** is Intel's internal, full-service technology solution provider and consulting practice that offers built-to-order project execution.
- Flex Services is also:
 - Global
 - ~400 internal Intel employees + contingent workers + suppliers
 - A two-time Intel Quality Award recipient
 - The only business group in Intel that does **not** receive an annual budget



Business Lines in Flex

- Application Development/Support and Services in numerous IT disciplines
 - Project Management Service
 - Application Development/System Software: Firmware, BIOS, Drivers, Embedded Applications
 - Software as a Service (SaaS)
 - Quality Assurance/Validation Management and Support
 - Software and Content Localization
 - Security (Encryption, Network, Product)
 - Outsourcing Management Service
 - OpX Consulting Service
 - Small Form-Factor Operations (Push Email)



Quality Management v1.0

QMS V5
Home

Used MS SharePoint*,
MS Office* for process,
MS Excel* for measureme
gathering & analysis

Limited grouping,
views, etc.

Purpose

The Quality Management System contains documentation that describes how Flex performs its work.

Announcements

QMS V5.2 is not to be used for new engagements. It is required that all **new** engagements starting after WW 6.0 (AQMS). See link to right.

Quality Management System V5.2

[Document Link](#)

QMS : 1. Initiating (6)

[INITIATING PROCESS](#)

[Quality Control Risk and Rigor Process](#)

[Repository Process](#)

[Risk Management Process](#)

[Engagement Agreement Template](#)

[Risk Management Job Aid](#)

Category

MAIN PROCESS

Process

Process

Process

Template

Job Aid

+ QMS : 2. Planning (16)

+ QMS : 3. Executing (14)

+ QMS : 4. Closing (6)

+ QMS : Engineering (15)

+ QMS : Measurement Definitions (17)

+ QMS : Org Policy, Process and Procedures (9)

+ QMS : Other Business Processes (7)

+ QMS : PQAG (11)

+ QMS : PRD Templates (8)

+ QMS : Supplier Management (6)

+ QMS : Supporting Processes (19)

+ QMS : Training (7)

Problem Scenario

33 page process!

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More tailoring & notes than steps!

5.5 Budget and Schedule

5.5.1 Select an Engagement Lifecycle

Purpose	Select a lifecycle that allows the engagement to be broken down into stages of manageable size. Define the general approach and strategy the team will take to complete the engagement.
Entry Criteria	A Plan has been established.
Steps	<ol style="list-style-type: none"> 1. Select the lifecycle, from the list of approved lifecycles below that best suits the engagement. Review the Lifecycle Selection and WBS Job Aid for specific details about each lifecycle. The available lifecycles and general considerations for selection include: 2. Document the selected lifecycle in the Plan.
Tailoring	<ul style="list-style-type: none"> Engagements that commit to provide only resources of a specific skill set for a specified period of time to work at the direction of the customer are not required to document a lifecycle. Engagements that commit to provide only expert guidance, but no tangible work products or deliverables (i.e. no reports, white papers, models, etc.) are not required to document a lifecycle. Engagements that don't perform assigned tasks for the customer are not required to document a lifecycle.
Notes	<ul style="list-style-type: none"> The phase names for a given lifecycle may be altered for clarity as long as the intent of the particular phase is still being met. For example, an engagement performing language translation using the Cascading Waterfall lifecycle may rename the "Coding" phase to "Development" or "Translating." If choosing Agile XP, then it is critical that the team is experienced, trained and have an XP Coach as a team member. It is possible that an engagement may require more than one lifecycle, for example, one for development and one for the support that follows. Be sure to update your Plan when the lifecycle changes. Supplier Management: When using suppliers, care must be taken to ensure compliance with contingent workforce policies and processes when executing the selected lifecycle (e.g. do not manage the supplier's execution of individual tasks, do not mandate the supplier's development techniques, etc.) Supplier Management: Regardless of whether the majority of the deliverables, tasks, effort, etc. will be accomplished by the supplier, the BM must select, plan and execute an approved lifecycle for the overall engagement.

Unintended Consequences

- PMs resisted adopting subsequent process versions.
- Misunderstanding, non-compliances, and frustration.

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Challenge: Hard to compare measures and results

- No documented project's defined processes
- No metadata to compare similar project types
- PMs couldn't find truly analogous data
- Financial/billing system metadata was being used for determining what processes should be applied (bad idea!)
- No accurate demographics of project types or process usage
- Continuous improvement to higher maturity behaviors became a *serious* challenge.

Solution: Quality Management V2.0 -- AQMS

- Automated Quality Management System (AQMS)
- Uses a process element database and project characteristics to produce a defined process.
 - Documents and stores the *project-specific* defined process.
 - No need to understand all processes to apply the correct ones to a project.
 - Alternative tailoring is available within key defined processes.

Update Engagement [X]

Title :

Engagement Manager:

Status :

Engagement Repository Link:
[Create Repository](#)

PTOC / EW Link:

SR Number: **ITO Verification**

GMS Release:

Please enter the engagement's characteristics

Characteristic	Value	Unit
Risk Start Approved	False	
EA is an Extension	False	
Internal Engagement	False	
Project	True	
Sarbanes-Oxley Compliance Required	True	
Engagement has only one individual on the team	False	
Supplier Management will be used	True	
Engagement has Configuration Items beyond the EA	True	
Estimated Duration	40.00	Weeks
Estimated Effort	7000.00	Hours
Software or Systems Domain	True	
Vanguard Opt-In	FALSE	
PHI	EV+Confidence	
Part of an IT Project	False	
Deliverable	True >=8 wks	

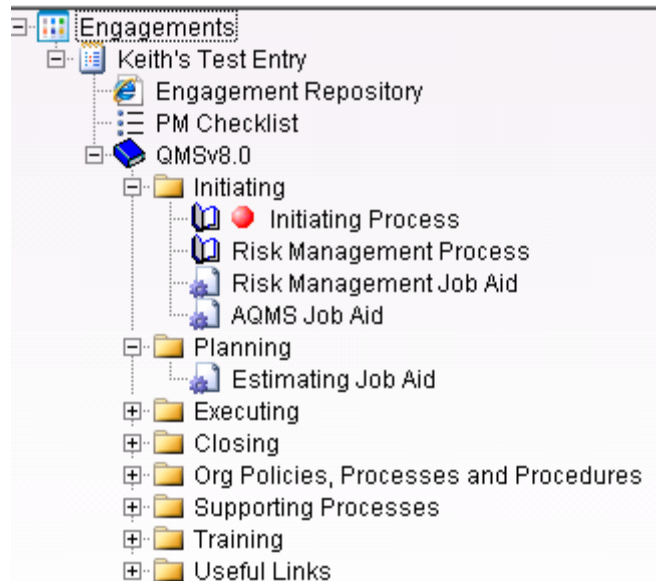
Last Updated By: **KEITH LUTZ**

Last Update On : **Nov 4 2008 4:41PM**

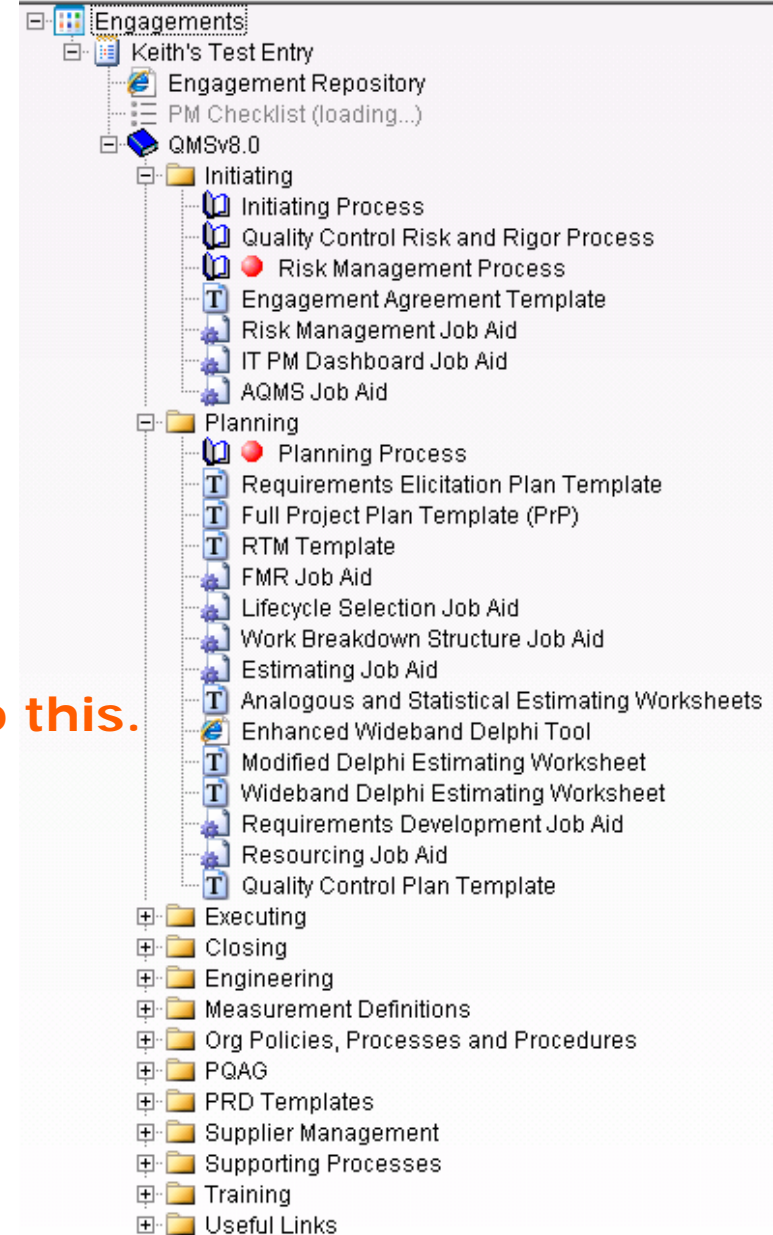
Update **Cancel**

Project's Defined Process Based on Characteristics

Processes can be tailored from this...

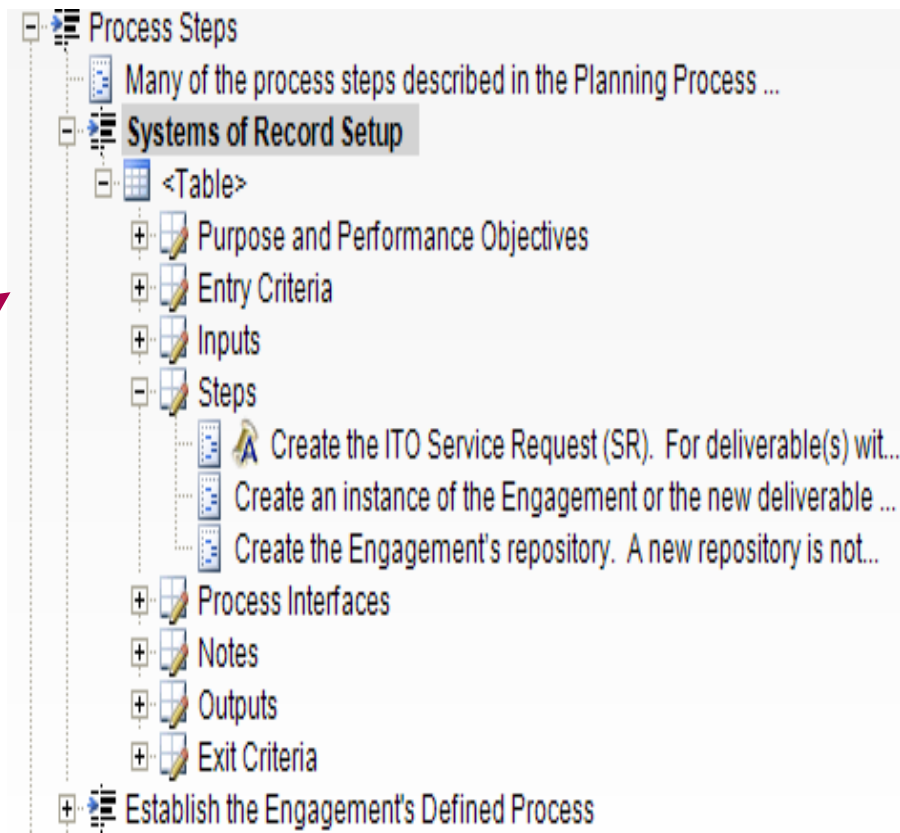
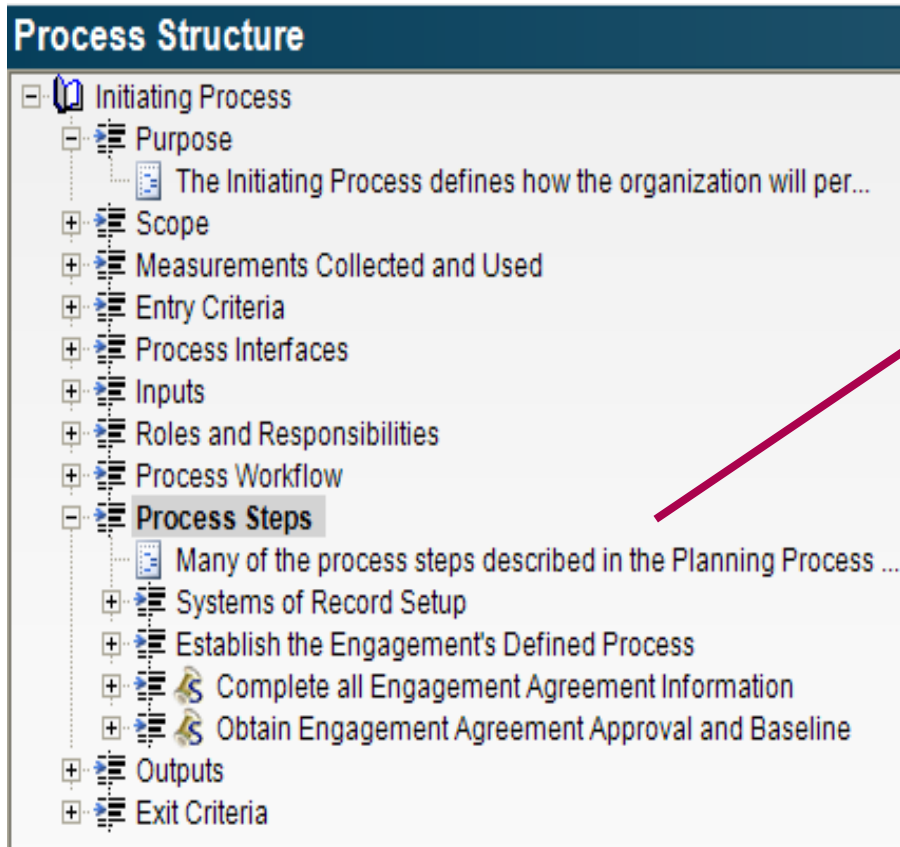


...to this.



Process built in AQMS Client – Process Level

Processes built in AQMS follow a standard format to ensure consistency.



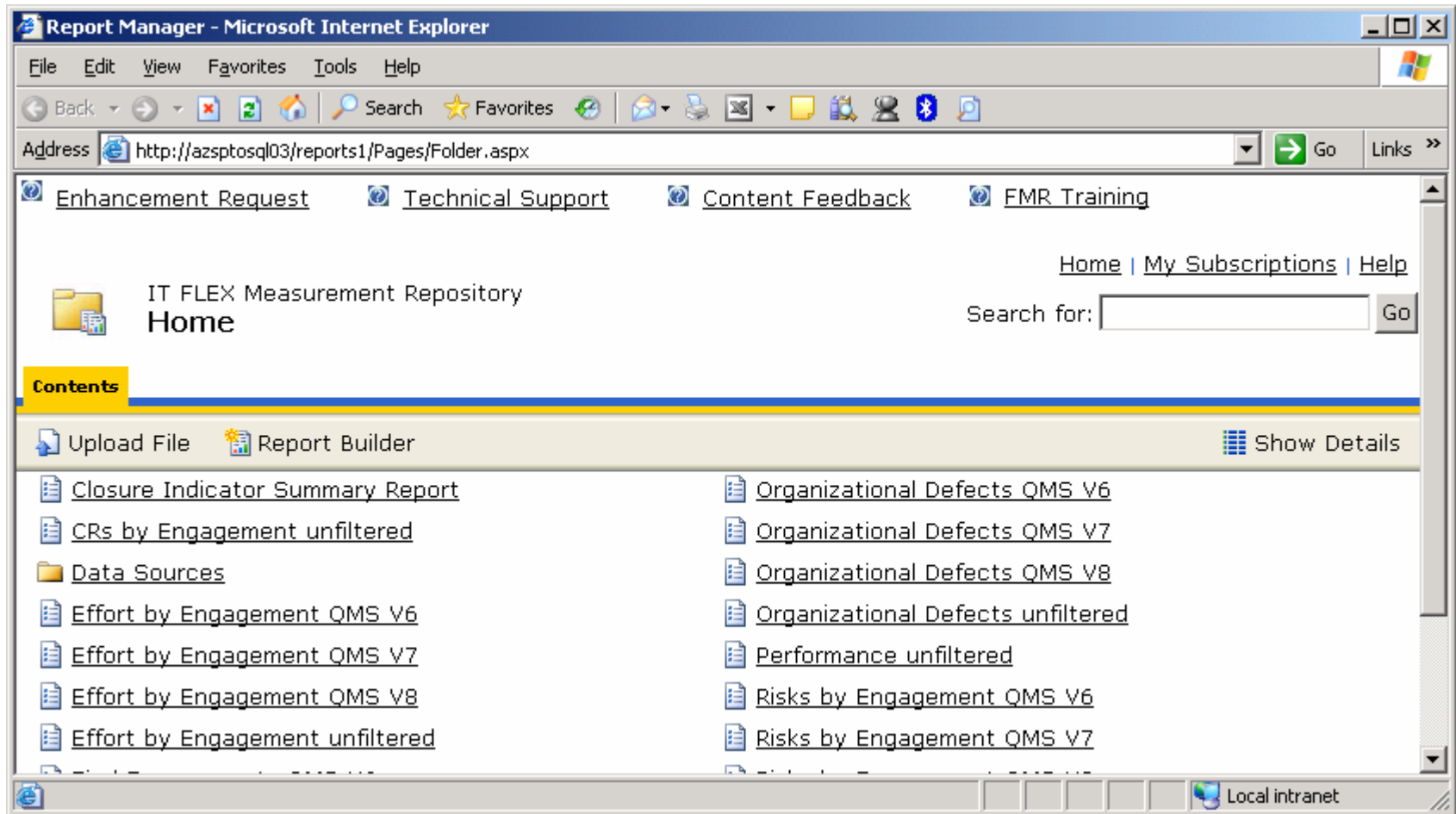
Process Built in AQMS – User View

8. Process Steps **Display appearance matches MS Word* format**

8.1. Identify Risks

Purpose and Performance Objectives	Identify engagement risks that should be planned for and monitored during the engagement.
Entry Criteria	Engagement is in the initial planning stages or a new risk has been identified during the engagement.
Inputs	Risks from analogous engagements (if used)
Steps	1. Identify the engagement's risks starting in the initiating phase (include key stakeholders including those not on the engagement team (customers)).
Process Interfaces	Initiating Process, Planning Process, Executing Process
Notes	<ul style="list-style-type: none">• Identification of risks must consider both internal and external events.• An agile team should identify new engagement risks during each Iteration Planning.• Identifying the risk may be minimized if risks from analogous engagements are used, as long as these are deemed applicable and the likelihood of new risks is low.• The following suggested techniques can be used to identify the risks: Brainstorming, Delphi, SWOT Analysis
Outputs	Documented risks
Exit Criteria	Risks are identified and documented in the Engagement Plan.

Solution: Flex Measurement Repository



Solution: Analogous data and measurement

- Characteristics in AQMS can be queried.
- Measurements & Processes can be correlated.
 - Helps PMs use analogous data from previous projects in planning current projects.
 - Learning and reuse from previous projects is readily available.
 - Effectively evaluate the effect of process changes
- We can now compare project characteristics to measurements and defined processes to identify process performance and process improvements opportunities.

Cool, right? But at what cost?

- Automation tools can be expensive to buy/build and maintain
- Process engineering becomes more complex
- SEPG requires tool expertise
- Complexity increases lead times for implementing changes
- Processes become less portable
- Automation enhancements can become a distraction to process improvement

So Does AQMS Solve All of Our Problems?

- Far from it!
 - PMs have yet to fully embrace the idea of a dynamic defined process.
 - PMs still expect to encounter a large legalese process that they have to comb through to find their process.
 - The idea of changing characteristics and select tailoring options to produce the process needed is still new.
 - Characteristics are still often aligned to our billing processes, which is a carry over from when billing data was our only metadata.
 - We still have some cultural changes to implement that are associated with moving to a PM defined process.
 - It takes time to collect enough data to fully utilize, and justify, the automation solutions.

Questions?



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