

Managing Multiple Technical Projects:

How does a project manager effectively manage multiple projects concurrently to ensure quality results?

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Agenda

Agenda:

- ✓ Background - Economic Census Dissemination
- ✓ 2007 Economic Census
 - Macro Team Process Approach
 - Development of Macro Team Process
 - Software Quality Assurance (SQA) Evaluation Procedure
 - SQA Activity Tracking
 - SQA Lessons Learned
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- ✓ Successes
- ✓ Current Status
- ✓ Areas of Improvement
- ✓ Next Steps

Background – Economic Census Dissemination

Background – Economic Census Dissemination:

- Economic Census is conducted every 5 years
 - Data collection focuses on years ending in 2 and 7
 - Questionnaire mailout occurs in December of the collection year
 - Data processing and dissemination activities take place for 3 years following mailout
- Covers over 23 million business establishments
- Core Census Programs:
 - > Manufactures
 - > Mineral Industries
 - > Construction Industries
 - > Retail and Wholesale Trade
 - > Service Industries
 - > Finance, Insurance, and Real Estate
 - > Transportation, Communication, and Utilities
- Use of enterprise systems to collect process and disseminate data
- There are approximately 1700 separate data releases over a 2.5 year period

Background – Economic Census Dissemination:

➤ Maintain 11 major systems that support the macro analysis and dissemination of the Economic Census data and its related programs. These systems include, but are not limited to:

- Tabulation – Summary census micro-data, generally by industry, geographic area, other characteristics, or combinations thereof, to produce a rich variety of statistical tabulations for data products. This is where the dissemination process starts.
- Macro Analytical Review System - Used by subject area analysts to review aggregated data published in the Economic Census publications
- Dissemination Metadata Repository (DMR) – A database that includes all the metadata files for both dissemination and forms design.
- Final Data Review Tool – Allows users to add symbols, data flags to the data tables and review data in dissemination formats.
- American Fact Finder – Serves as the external access point for all users to view and download disseminated data

Background – Economic Census Dissemination:

- Each system is supported by the work of a team comprised of staff from:
 - > Economic Planning and Coordination Division (EPCD) – Provides the Business Analysts and the Project Managers. Often times, both of these roles are played by the same individual
 - > Economic Statistical Methods and Programming Division (ESMPD) – Provides the programming and system development staff
 - > Subject matter areas (business units) – Provides the subject matter (data) experts and system users
- The teams strive to maintain and improve, if possible, the standardization of the work of these programs
- Challenge of the EPCD staff is to effectively be both Business Analysts and Project Managers



2007 Economic Census

2007 Economic Census:

- In the conjunction with the Economic Statistical Methodology and Programming Division (ESMPD), The Economic Planning and Coordinating Division (EPCD) developed the 'Macro Team Process'.
- The Macro Team Process is the result of the implementation of project management from the 2002 Economic Census and the project closeout feedback from the project team members and project stakeholders.
- The term 'Macro' refers to the group of projects and staff that are responsible for the Processes and Systems to facilitate the tabulation, aggregate analysis, and dissemination of Economic Census data.

2007 Economic Census (con't):

'Macro Team Process' Approach:

- Re-use best practices from 2002 and use them to develop our Census Software Development Methodology
- Implement Minimum Process for Software Development methods and tools
- Develop standardized tools and procedures that will be used for all macro teams
 - There are 12 distinct project teams and 8 project managers within the 'Macro' group.
- Ensure clear understanding and buy in of roles and responsibilities for all team members
- Avoid duplication of work – perform tasks at the proper level
 - When appropriate, consolidate tasks to encompass multiple projects

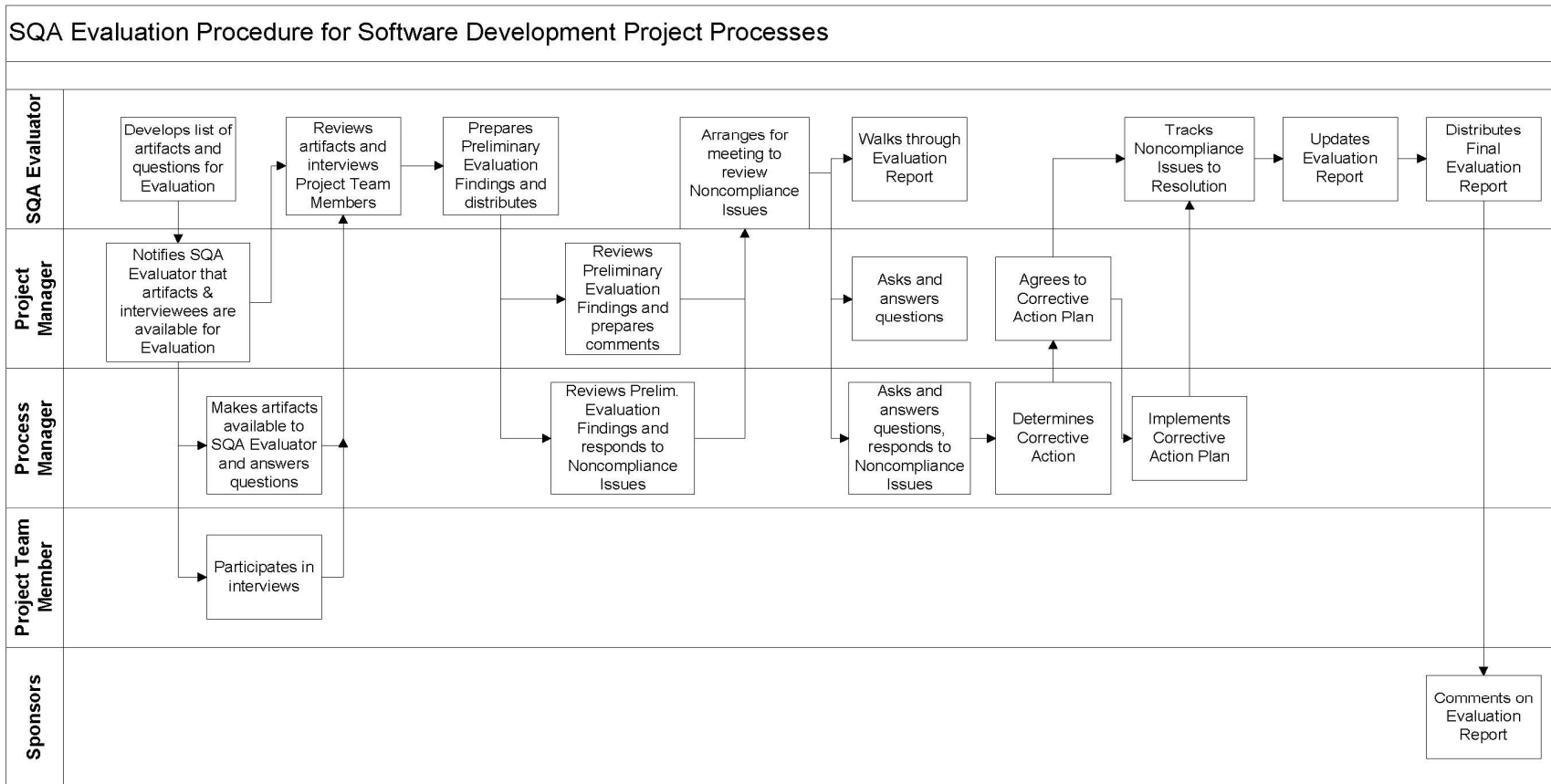
2007 Economic Census (con't):

Development of the 'Macro Team Process':

- Uses a Capability Maturity Model Integrated (CMMI)¹ based software development model which details the minimum requirements and processes that all software projects must follow
- The cornerstone of the 'Macro Team Process' is the implementation of an overall business requirements gathering process to document and verify the business need of each macro project
- The use of standardized templates for specification, requirement, and planning documents is encouraged
- Upon Project kick-off each team meets and reviews all required work products and verify the relevance of each item
- Throughout the project lifecycle, work products and processes are reviewed to ensure compliance to agreed upon standards (SQA Audits)

¹CMMI is a software development process designed by the Carnegie Mellon Software Engineering Institute
(www.sea.smu.edu/cmmi/)

SQA Evaluation Procedure:



SQA Activity Tracking:

	PDS	Disclosure	AFF	EMR	DPD	FDRT	DMUI	MES	MARS	TABS	SODS	Website
Project Registration	#10999	#10999	#9528	#10177	#9267	#10999	#10999	#10999	#10930	#10921	#10963	#10931
Project Plan	#9246	#9245	#9524	#9283	#9503	#9665	#9363	#9521	#9768	#9810	#9785	#9845
Project Schedule	#9248	#9248	Network	Network	Network	Network	Network	Network	Network	Network	Network	Network
SCM Plan	#9310	#9311	#10659	#10660	#10661	#10663	#10662	#10665	#10664	#10667	#10666	#10668
SQA Evaluations Complete - Planning	5/23/07	5/23/07	1/10/08	1/10/08	1/10/08	1/10/08	1/10/08	1/10/08	1/10/08	1/10/08	1/10/08	1/10/08
Requirements Elicitation	#9678	#9679	#9526	#10973	#9745	#9794	#9820	#9520	#9787	#9852	#10975	#10791
Interactive System Performance Requirements	N/A	N/A	N/A	N/A	N/A	#11098	#11099	N/A	#10825	N/A	#11085	N/A
Interactive System Performance Test Plan	N/A	N/A	N/A	N/A	N/A	#11098	#11099	N/A	#10825	N/A	#11085	N/A
ERD	N/A	N/A	N/A	#10572	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Requirements Walkthrough	#9678	#9679	#10362	#10263	#11074	#10212	#10225	#10476	#10497	#10532	#11080	#11081
SQA Evaluations Complete - Req's	3/17/08	3/17/08	3/17/08	3/17/08	4/9/08	4/9/08	4/9/08	4/9/08	4/9/08	3/17/08	4/9/08	3/17/08
Subsystem Arch. Framework	Required	Required	N/A	N/A	N/A	Required	Required	Required	Required	Required	Required	Required
Subsystem Integration Test Plan	Required	Required	N/A	N/A	N/A	Required	Required	Required	Required	Required	Required	Required
Specifications	#11263	#11263	N/A	Required	Required	#9818	#10173	Required	#10824	Required	#11215	#11264
Unit Test Plans	Required	Required	N/A	Required	N/A	Required	Required	Required	Required	#11265	Required	Required
Design Walkthroughs	N drive schedule	N drive schedule	N/A	N drive schedule	Standards Required	N drive schedule	N drive schedule	N drive schedule	N drive schedule	N drive schedule	N/A	N drive schedule
SQA Evaluations Complete - Design and Test Plans												

SQA Activity Tracking:

	PDS	Disclosure	AFF	EMR	DPD	FDRT	DMUI	MES	MARS	TABS	SODS	Website
Code Inspection	Required	Required	N/A	Required	N/A	Required	Required	Required	Required	Required	Required	Required
SQA Evaluations Complete - Code												
Unit Testing	Required	Required	Required	Required	N/A	Required	Required	Required	Required	Required	Required	Required
Integration Testing	Required	Required	N/A	N/A	N/A	Required	Required	N/A	Required	Required	Required	Required
Interactive System Instructions & Training	N/A	N/A	N/A	N/A	N/A	Required	Required	Required	Required	N/A	Required	Required
Batch System Operations Manual	Required	Required	N/A	N/A	N/A	Required	Required	If Needed	Required	Required	Required	If Needed
SQA Evaluations Complete - Testing												
Project Status Meetings	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required
Configuration Management	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required
Progress Reports to Management	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required
Scorecards	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required
Change Requests	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required
Lessons Learned	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required
SQA	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required	Required
SQA Evaluations Complete - On Going Activities												

SQA Lessons Learned:

- Auditing for presence only does not offer much value
- Having the SQA staff trained to review the contents of each document and not just the template that is used, would offer more value
- After several rounds of auditing with no noncompliance issues, it might be acceptable to only audit a subset of projects

Implementation Challenges

Implementation Challenges:

- Challenges from Technical and Project Management staff:
 - Additional time and work required for planning up front
 - Lack of obvious benefits from the process change. Does adherence to the process produce better results?
- Challenges from Project team members:
 - Time intensive
 - No clear cut improvement in the end product from the user's perspective
 - New requirements process inhibits ability to freely make changes during the course of the project
 - Top down requirements process may cause important scope to be excluded / slip through cracks
 - Use as training tool. Will this develop backups for key processes?

Successes

Successes:

- Successful initiatives from the requirements and design phases:
 - Clearly defined project goals and individual roles help to reduce ambiguity of tasks
 - Utilization of standard specification templates reduces the learning curve for team members who serve on several teams
 - Integration of schedules at a program level helps to forecast conflicts of resources and allows easier load balancing for all team members
 - Including end users and technical staff in a single meeting helps to clarify communication and allows for quicker feedback on prototypes
 - Synchronization of tasks from project to project helps team members to assimilate to each project quickly without having to adjust to a new process

Current Status

Current Status :

➤ Current Status:

- The overall macro group has administered a high level business requirements gathering process utilizing the 'use case' approach
- All projects are currently in development and testing
- Several of the project teams have made preliminary deliveries of production applications
- Project teams have conducted lessons learned sessions to gain feedback
- Began third party verification of work products
- Instituted a formal change control and configuration management process
- All systems are expected to be ready on or before October 31, 2008

Areas for Improvement

Areas for Improvement:

- Initiatives and Processes that need to be reviewed and possibly altered to be more effective in subsequent projects
 - Requirements gathering process should be better defined in scope and goal in order to more accurately
 - All team members need to be included in schedule development process to ensure accurate durations and consideration of work outside of the project team
 - Improved communication plans
 - Within the project management group
 - Within the different groups of stakeholders
 - Need for a stronger oversight committee to centrally disseminate progress of all projects within the program to the end users and stakeholders throughout the project lifecycle

Next Steps

Next Steps:

- Receive feedback from all participants during each phase of the project and make modifications where feasible
- Continue to carry out each macro project and perform an evaluation of the 'Macro Team Process' upon the closeout of all projects
- Upon final evaluation, make high impact modifications to the process and begin planning phases for the next project cycle

Contact Information

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