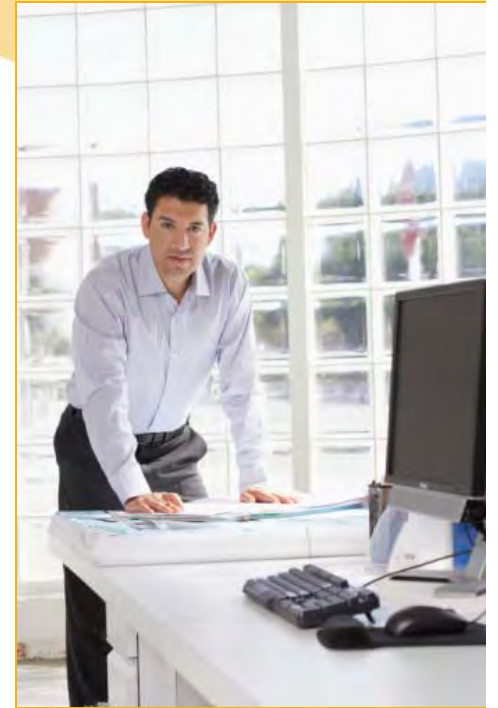


Resource Planning and Management: Job One for Software Project Managers

Arlene Minkiewicz, Chief Scientist
PRICE Systems, LLC
arlene.minkiewicz@pricesystems.com



Optimize tomorrow today.

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE MAY 2011		2. REPORT TYPE		3. DATES COVERED 00-00-2011 to 00-00-2011	
4. TITLE AND SUBTITLE Resource Planning and Management: Job One for Software Project Managers				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) PRICE Systems, LLC,17000 Commerce Parkway,Mt. Laure,NJ,08054				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES Presented at the 23rd Systems and Software Technology Conference (SSTC), 16-19 May 2011, Salt Lake City, UT. Sponsored in part by the USAF. U.S. Government or Federal Rights License					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 21	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Agenda

- Introduction
- Project planning failures
- A good project plan
- Improving project planning
- Institutionalizing good project planning

Historical Context

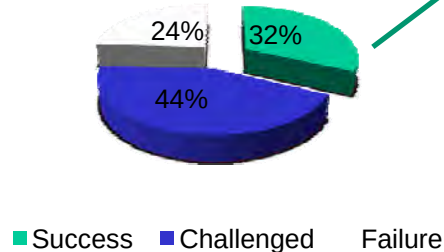
“Which of you wishing to construct a tower does not first sit down and calculate the cost to see if there is enough for its completion? Otherwise, after laying the foundation and finding him unable to finish the work the onlookers should laugh at him and say ‘This one began to build but did not have the resources to finish’”



Jesus to his disciples

(Luke 13:25-33)

Standish CHAOS Summary for 2009



Standish Group reports in 2009 Chaos Study that only 32% of software projects are successful

Paul Michaels reports in a 2007 Computer World article that an estimate \$75B (9 zeros) cost in the US per year for rework and abandoned systems

COMPUTERWORLD

Roger Sessions published a white paper in 2009 that puts the figure at \$1.22 T (even more zeros)

Constant barrage of project doom and gloom....

Optimize tomorrow today.™

Reasons for Project Planning and Management Failures



- **Organizational Failures**
 - Setting unrealistic goals
 - Failure to learn from history and accept reality
- **Project Leadership Failures**
 - Failure to communicate and manage expectations and risks
- **Project Participant Failures**
 - Agile practices bring everyone onto the planning stage

Project Management Triangle

- Projects are performed and delivered under constraints of time, cost, scope and quality
- From geometry we know
 - Can't just change one dimension of triangle
- Successful resource planning and management requires that this fact be respected



Components of Good Project Planning and Management

- **A Good Estimate**
 - Based on history and reality
 - Respects the triangle
- **Organizational Acceptance**
 - Communication
 - Expectation management
- **Response to Change**
 - Respect the triangle
 - Communicate and manage expectations



Improved Project Planning



- Framework for negotiation fueled by
 - Better estimates
 - Better resource allocation
 - Historical analogies
- Success of negotiation predicated on
 - Respect for the triangle
 - Communication
 - Acceptance

Communication, Collaboration, Acceptance

- Project decisions need to be a negotiation based on mutual understanding of and belief in the project management triangle
 - Project leaders need to communicate triangle effectiveness via organizational history
 - Business leaders need to accept history as a valid teacher and avoid...
 - Unrealistic schedule mandates
 - Over optimistic project expectations



Tools for Negotiation

- Frame the conversation with formal estimation tools/methodologies creating common definitions for
 - Project scope factors
 - Project productivity information
 - Project schedule
 - Project activities and resources
- Use common definitions to create historical analogies
- Base future plans to mirror past successes

Slide 10

afm2 "Strategy Slide"

Through history you can explain thruput. Parametrics supports this process with calibration engine for common process for data collection

minkiewicz, 8/2/2010

Weaknesses in Estimation Practices

- Effort estimating techniques which link time and schedule but ignore scope are limited
 - Most Project Management and EVM tools/methodologies lack a link to scope
- Effort estimating techniques which don't acknowledge organizational history are limited
- Estimates that are not credible and defensible



Better Estimates

- Better estimating is achieved when a methodology is used that
 - Calculates effort and schedule based on scope
 - Facilitates trade-offs between effort, schedule, and quality
 - Can be fine tuned with an organization's history
 - Supports successful negotiations

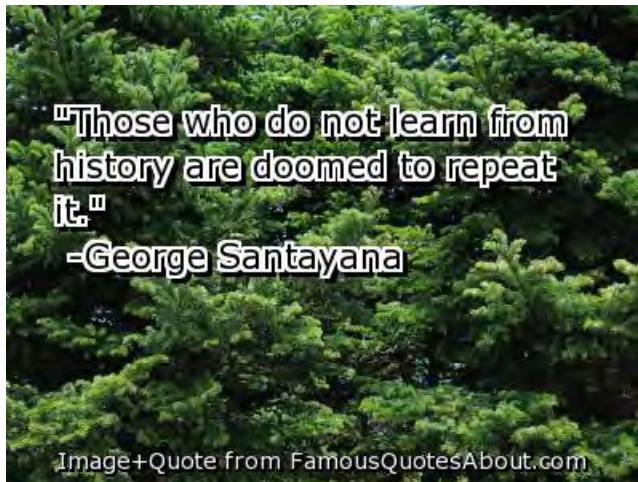


Better Resource Allocation

- Start with good effort and schedule estimates
- Create project plan to allocate resources with
 - The right capabilities
 - The right availability at the right time
- This information feeds the estimate which then feeds the project plan
- Accept change as a constant

Section Name	Input Field
1. Capability of Analysts and Designers	
Please select an option:	☐ Expert
	☐ Highly Capable
	☒ Capable
	☐ Still Learning
	☐ Novice
2. Capability of Programmers	
Please select an option:	☐ Expert
	☐ Highly Capable
	☒ Capable
	☐ Still Learning
	☐ Novice
3. Experience with Language	
Please select an option:	☐ More than 10 yrs
	☐ 5-10 yrs
	☒ 2-5 yrs
	☐ Less than 2 yrs
	☐ Novice
4. Familiarity with Product	
Please select an option:	☐ More than 10 yrs
	☐ 5-10 yrs
	☒ 2-5 yrs
	☐ Less than 2 yrs
	☐ Novice
5. Familiarity with Development Platform	
Please select an option:	☐ More than 10 yrs
	☐ 5-10 yrs
	☒ 2-5 yrs

Institutionalizing Project Planning



- Educate the organization
 - Project leadership must understand the triangle
 - Business leaders must buy into the triangle
 - **This discussion should be fueled with real examples from organizations history**
- Create processes (if they don't exist) for....
 - Historical data collection
 - Good estimating practices
 - Reconciling estimates against constraints and re-planning as things change

Historical Data Collection

- Common definitions
 - Activities
 - Resources
 - Project Start and End
 - Metrics
- Data to collect
 - Scope (Size, Complexity)
 - Resources (Effort, Cost, Capability)
 - Schedule (Months)
- Start small
- Commit to data collection going forward



Slide 15

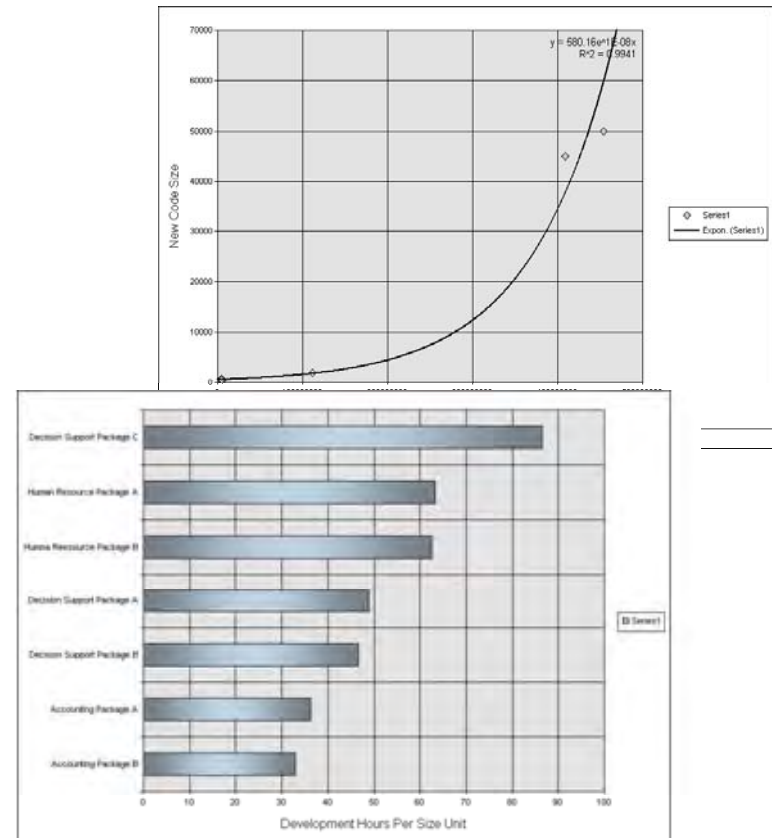
PSITG2

They may already have PPM tools in place that they are not utilizing to tackle some of these issues

Information Technology Group, 8/2/2010

Good Estimation Practices

- Create and maintain links between
 - Scope
 - Resources / Cost
 - Schedule
- Repeatable methodology enforced by model(s)
- Align with historical data
- Cross checks important



Reconciling For Constraints



- Estimating methodology produces estimate for....
 - Effort (Cost)
 - Schedule
- There are other project constraints
 - Time to market
 - Resource availability
- Create a process for negotiation around the triangle

Conclusions

- Software project planning and management is complex
- Project Management Triangle creates a framework for discussion and negotiation
 - Project Leaders need to understand this
 - Business leaders need to accept this
- Organizations should institutionalize around the triangle with...
 - Good estimation practices
 - Good negotiation techniques
 - Communication and expectation management

