PSM Acquisition Measurement ICM Table, v7
March 6, 2005
See "definitions" tab for definitions of columns C through G

INFORMATION CATEGORIES	MEASURABLE CONCEPTS	PMM	APM	AEM	SPM	SEM	Questions Addressed	PROSPECTIVE MEASURES	NOTES
Schedule and Progress	**Milestone Completion**	x					Are the supplier's development activities completed as scheduled? Is the product delivered as scheduled? Will the program (all activities) be completed on time, after accounting for any slippages?	**Milestone Dates**	
		x	x				Is the contract schedule realistic?		For the development activities of requirements analysis through integration and test.
		x	x	x			Are external organizational interfaces between stakeholders being completed as planned?		
		x	x	x			Are risk mitigations on schedule?		
			x				Are acquisition office activities completed as scheduled?		For the acquisition office activities, e.g., RFP, bidding, source selection, award, contract mods, contract monitoring and review activities. There are milestone activities at the acquisition office level, that are not applicable to the supplier - these need to be tracked and monitored by the acquisition office - including funding milestones (e.g. capital budgeting, POM process)
			x				Are milestone review (e.g. milestone B/C) activities complete as scheduled?		For both supplier and acquisition office activities.
				x			Are all programs within this enterprise on track? Are programs heading in the right direction? What programs are in trouble?		For both supplier and acquisition office activities.
				x			What is the work backlog?		Generally used for commercial projects
				x			What is my value delivered?		Generally used for commercial projects
				x			What is the priority of my programs / backlogs? What should be scheduled next?		
	Acquisition Plan Realism		x				Are acquisition office activities realistically scheduled?	**Milestone Dates**	Note: need to make sure that there is a separate, realistic schedule acquisition office activities, including realistic review and approval times (not pipe dreams). Need to make sure it is correlated to earned value and risk management (mitigation) processes.
			x				Is the RFP development schedule realistic?		
			x		x		Is the transition to support schedule realistic?		
		x					Are the schedules for building teams realistic? Are team plans correlated with the program schedule?		
		x	x	x			Are plans for external organizational interfaces between stakeholders defined and realistic?		
		x	x	x			Have critical paths been identified (at multiple levels)?		
		x	x	x			Have we identified and planned for budgetary milestones (Have we planned to play the money game)?		
				x			What are enterprise norms for completion of developments?		E.g. total program from requirements analysis through integration and test
	Critical Path Performance	x					Are supplier's activities on the critical path completed as scheduled?	**Slack Time** **Obligation Rates** **Disbursement Rates**	For the acquisition office activities, e.g., RFP, bidding, source selection, award, contract mods, contract monitoring and review activities.
			x				Are acquisition office activities on the critical path completed as scheduled?		
			x				Are any critical dependencies impeding RFP development progress?		
			x				Are any critical dependencies impeding the progress of acquisition program office activities?		
		x	x	x	x	x	What are the top schedule / progress risks?		
			x	x			Have we played the money games well - are we meeting key schedule requirements for funding requests and info?		

	Work Unit Progress	x	x				Are the requirements/capabilities (technical) being met as specified in the contract?	**Requirements Traced**	Might be done by IV&V agent, FFRDC, or other support organization that are part of the Program/Project Office. This is a rqmts monitoring task.
		x	x				Are contractual commitments being satisfied (both ways - e.g. is GFE supplied by acquirer as specified, are reviews completed as planned)?	**Requirements Tested**	Typically against high-level requirements. Might be done by IV&V agent, FFRDC, other support organizations, or an external test organization. This is a rqmts monitoring task to ensure that all (top-level) requirements are met.
			x				Are contract modifications made in a timely manner?	**Reviews Completed**	
			x				Are we ready to begin RFP development / review / award?	**Test Cases Attempted**	Only against high-level testing against requirements. Lower-level measures for testing of units or integration testing is covered by the "normal" PSM ICM table.
			x				Is RFP development progressing as planned?	**Test Cases Passed**	Only against high-level testing against requirements. Lower-level measures for testing of units or integration testing is covered by the "normal" PSM ICM table.
			x				Are we making suitable progress in requirements and architecture definition (with appropriate criteria)?	**Action Items Opened**	Includes PM taskers.
			x				Have my interdisciplinary stakeholder teams been formed and trained? Are the teams performing well (play well together)?		
			x				Are plans available as needed? Is work completing as scheduled? Is work replanning necessary? Are replans complete?		
				x			What are enterprise norms for completion of development activities (e.g. design, implementation, I&T)?		
		x	x				Have risks that may impede WUP being addressed?	**Action Items Completed**	Includes PM taskers.
		x	x				How is rework affecting WUP?		
								Tasks Planned / Completed	
								Contract Modifications	
	Incremental Capability	x					Is functionality being developed as scheduled? Are any functions being bow-waved (e.g. replanned to future builds)?	**Functionality Integrated**	Against high-level requirements. Note: Need to ensure that acquisition office activities don't impede meeting incremental incentives.
		x	x				Are incremental capabilities correlated with the build plans?		
		x	x				Have the delivery of increments been incentivized? (e.g. award fee criteria defined)		
		x	x				Does the money correlate with the bow-wave of functionality?		
Resources and Cost	**Personnel Effort**			x			How many personnel (or effort) are needed to staff acquisition program offices?	**Staff Level**	b and c) For the acquisition program office.
		x	x	x			Is the program meeting staffing / cost plans?		
		x					Is the amount of rework above a reasonable threshold? What are the impacts?		
		x	x	x			Do we have sufficient teamwork at the project, organization, and enterprise level?		
		x	x	x			What personnel and skill levels are required to the work? What are the impacts if necessary personnel are not available?	**Effort**	b) For the acquisition program office.
		x	x	x			How old is the workforce? Do we have sufficient experienced personnel to complete assigned tasks? Are necessary skill-sets available in industry?		
		x	x	x			What are the anticipated and actual turnover rates?		
			x				Are people assigned to work "too many tasks in parallel"? What are the impacts?		
			x	x			Do we have sufficient experienced personnel in the acquisition office (including supporting staff)? Do we have the right skill mix?	**Experience Level**	e.g., authorization levels, specific qualifications for work categories

		x	x	x			Are resources being projected to accomplish the expected work?		
			x	x			Are acquisition office personnel available as planned and required (including supporting staff)?		
			x				Do the qualifiations and quantity of personnel involved in requirements analysis match the qualifications/quantity needed?	**Staff Turnover**	
			x	x			Are personnel communicating as necessary?		
			x	x			Do we sufficient cleared personnel and facilities (with appropriate security clearances)?		
				x			What is the ratio of supplier to acquirer (including internal/external acquirer) personnel across the projects?		
		x	x	x			Do personnel take advantage of learning opportunities (culture of learning)? Are you meeting training plans?		
		x	x	x			Is personnel performance incentivized? Are incentive plans effective?		
	Financial Performance		x				Are acquisition office schedules and costs in accordance with plans?	**BCWS, BCWP, ACWP**	
			x				Are acquisition funds available as needed (for both acquisition offices and suppliers)?		
			x				Am I getting bang for the buck? Do I get the expected ROI for enhancements to the process?	**Budget**	
			x	x			Are burdened rates being controlled? Are organizational taxes being accounted for? Is inflation and cost of money accounted for?		
				x			What funds are required to complete an acquisition? Are funds generally available as needed (acquisition offices and suppliers including capital budgets)?	**Cost**	
		x	x	x			Do you have sufficient management reserve?		
		x	x	x			Is financial data updated frequently enough to give a good picture of status?		
		x		x			Is the money arrival synchronized against the need and obligation dates? Is color of money accounted for adequately?	**Funding Availability**	Planned funding (blocks), actuals by fiscal years, pull-backs, plus-ups, multiple contracts, follow-ons, contract / support / assessments / studies / extras
	Environment and Support Resources		x				Do we have the required resources / infrastructure in place (facilities, equipment, material, labs, SCIF, software tools)?	**Quantity Needed** **Quantity Available** **Time Available** **Time Used**	Other than personnel. Typically for test organizations in support of acquisition office (e.g. test labs and equipment), simulation tools and labs, etc.
		x	x	x			Are environment and support resources maintained? Do the meet the current and future needs of the system?		Other than personnel. Typically for test organizations in support of acquisition office (e.g. test labs and equipment), simulation tools and labs, etc.
			x				Have we identified the resources needed for operations, maintenance, and disposal? Are those available as needed? Have we factored in life-cycle costs for those resources?		Other than personnel. Typically for test organizations in support of acquisition office (e.g. test labs and equipment), simulation tools and labs, etc.
Product Size and Stability	**Physical Size and Stability**	x					Are external interfaces developed and tested as planned?	**Interfaces**	Possibly tracking external interfaces to other systems or program offices.
			x				How many external interfaces exist in a program? Are all external interfaces clearly identified? Are the interfaces stable?	**Number of contracted components**	
			x	x			How many organizations are involved in this program or enterprise? How many external (suppliers, support contractors) and internal organizations are involved?	**Number of organizations**	
			x	x			How big are the systems managed by this program or enterprise? How many systems are in development? How big are they? How many systems are being maintained? How big are they? What are the trends over time?	**Number of suppliers**	
	Functional Size and Stability	x	x				Are requirements changes at an acceptable level? What are the expected cost, schedule, performance, and quality impacts of requirements changes?	**Functional Capabilities**	Operational Capabilities Documents, operational scenarios and changes, operational capabilities, performance specs
		x	x				Is the level of requirements decomposition appropriate for the expected effort? How much does change to one requirement affect other requirements?	**Requirements**	

		x	x				How good are the requirements? Are they complete, testable, verify-able? Were users involved in their development (to what extent, the right users, etc.)?		
			x				Is the concept of operations changing?	**Functional Changes**	
			x				Is the architecture stable? Can it support anticipated change and growth? What do stability trends indicate? What characteristics of the project / product are contributing to architectural instability and to what degree? Is information needed to develop the architecture available and good? (e.g. operational, technical, systems, and software architectures)		
			x	x			How big are the systems managed by this program or enterprise? How big are the systems in development? How big are the systems being maintained? What are the trends over time?		
			x	x			Are requirements changing? If so, are changes due to acquisition office changes, user changes, the addition of derived requirements, rework, etc.?		
		x	x	x			How much size change is occurring to new or existing programs? Is size growth due to changing requirements or due to poor estimates?		
		x	x	x			How good are product size estimates (e.g. what is the knowledge of system-of-systems or particular domains)?		
		x	x				What is the plan for allocation between new and non-development items (e.g. reused, COTS, etc.)? Is this plan being realized?		
Product Quality	**Functional Correctness**	x	x				Did the product meet: • user expectations • TPMs • delivery criteria • a permissible level of delivered defects?	**Number of comments accepted**	Note: Need to have objective criteria for acquisition work product "goodness" and a plan for how those criteria are used (e.g. a review or milestone).
		x	x				Are known problems being resolved? • During warranty? • What is the backlog of issues?		
			x				Is the product good enough for delivery to the user?		
			x				Is the RFP and other acquisition work products (e.g. architectural analysis, CONOPs) suitable and approved?		
			x				Are the supplier's deliverables sufficiently reviewed/tested?		
			x	x			How many defects exist in the acquisition work products for this program or organization (e.g. defects normalized by size)?		
			x	x			During which phase(s) are most defects found and resolved?		
			x	x			What does it cost to resolve defects in the field?		
			x	x			How effective and efficient is the acquisition office in identifying defects in system products?		
							Have the Functional needs verified with the users?		
							Is the Developer Evaluation for the Functional Expertise carried Out? Does the contract support Functional Correctness?		
							Is the requirement and concept development mature enough for the System development? Is the requirement volatility related to the functional correctness?		
							Are the cost optimizations followed for allocations of the funds to that appropriate system Functionality? Have they been followed?		
							Are the System and Subsystem functional Tracking approach identified in the contract? Have they been followed?		
							Are the Functional evaluation approaches adequately identified in the contract? Have they been followed?		
							Are the transitions to support for different functionalities of the system identified? Are they being used?		
							Are functional Risk Areas identified? Have they been monitored?		
	Supportability - Maintainability	x	x				How difficult is the product to maintain? How much will it cost? How many people are required for a certain level of support?		

	x	x	x			How many NDI products are part of the system that must be maintained? How much effort is expended to manage the maintenance and integration of these NDI products?		
Efficiency								
Portability		x	x			Can acquisition work products be reused (e.g. an acquisition office WBS, document outlines and boilerplate, source selection guide)?		Porting can't be blind. Don't reinvent the wheel.
		x	x			How many acquisition work products have been reused?		
						What are the portability needs of the system?		
						Are we evaluating the Portability experience of the possible Suppliers before soliciting one? What are the evaluation Criteria?		
						Are the portability requirements defined and can be evaluated?		
						Are the portability needs/requirements cost effective? Are they possible under the contract cost and schedule (including all phases, dev, testing in the lab and on the sites)? Are they being followed?		
						Are the System and Subsystem portability Tracking approaches identified in the contract? Are they being followed?		
						What are the labs and environment needs for testing portability of the system?		
						Have we estimated the Support needed for Portability?		
						What are the risk factors for the Portability? Are they being managed?		
Usability	x	x				What is the performance in the field?		
		x				Are the requirements specified clearly, effectively, and with sufficient flexibility? Are they testable?		
						What are the Usability needs for the system? What are the future trends for the system expansion? Who are the possible additional users for the system and how their needs may affect the system Requirements?		
						Has the Supplier identified the costs of reusable software or components? Are we providing any incentives for usability?		
						Are the usability requirements defined and are being implemented? Have the requirements being used in the overall and ultimate system design?		
						Are the usability needs/requirements cost effective and possible under the contract cost and schedule (including all phases dev. to support)? Are they prioritized under different builds/versions?		
						Is the System and Subsystem usability requirement tracking approach is identified in the contract?		
						What are the labs and environment needs for testing the future usability of the system?		
						Have we estimated the Support needed for different uses and users of the system?		
						What the Risks for the Usability? Are we monitoring the Risks (e.g., the loss of possible users)?		
Dependability - Reliability		x	x			Have we established reliability warranty requirements and are we accomplishing the associated activities for warranty logistics?		
						What is the track record of the supplier ? - Past performance for similar projects - Morale of staff (are they going to ride it out)		
						What is the mean-time-to-repair or implement change requests ?		
						How effective are the change requests ?		
						What is the average downtime ?		
						What is the reliability (99.99999 %) ?		
						How reliable is the interoperability capability ?		
						What is reliability for COTS equipment used for development ?		
						What is your test coverage ?		
						How reliable is your defect containment ?		
						How reliable is your transition to support ?		

							What is reliability of traceability of contractual requirements and the supplier Team products. Completed performance of bi-directional traceability for all components (sub-systems) of the system		
							What are open risks closed versus closed risks (closure rate per unit of time)		
							Have the individuals performing evaluation activities have the experience or receive training on how to perform those activities ?		
	Modify-ability, Flexibility, other word?								
	Safety	x	x				Have you adequately budgeted, planned, and executed requirements for safety?		
		x					What is the residual safety risk of the system?		
	Security	x	x				Have you adequately budgeted, planned, and executed requirements for security?		
Process Performance	**Process Compliance**		x	x			Are program or enterprise acquisition office policies and procedures followed?	**Reference Maturity Rating**	
		x	x	x			Do acquisition office policies, processes, and procedures exist for creating all work products in the acquisition lifecycle?		
		x					Does the acquisition office have procedures for the oversight of supplier policies, processes, and procedures? Are they being followed?	**Process Audit Findings**	
		x	x				Are outstanding actions against policies, processes, and procedures being addressed?		
	Process Efficiency		x	x			How much time and effort is spent on various acquisition office activities?	**Productivity**	
							How long and how much effort does it take to incorporate changes to acquisition work products (full ripple)? How often does that occur? How long and how much effort does it take to incorporate change to acquisition policies, processes, and procedures (full institutionalization)? How often does that occur?		
				x			What is the acquisition process cycle time? How long does it take to: • prepare an RFP • review proposals • review other developer deliverables • address corrective actions?	**Cycle Time**	
	Process Effectiveness		x	x			Are program or enterprise acquisition office policies and procedures effective? • Are they repeatable? • Are they sufficient? • Are they followed? • Are they improved? • Are they effective?	**Rework Effort**	
			x	x			How much time and effort is being spent by acquisition offices in rework activities?		
			x	x			How many acquisition office products must be updated (and how often)?		
			x	x			Have stakeholders been sufficiently involved in the program?		
			x	x			Is there an effective process for: - identifying and managing risks? - configuration and data management? - RFP development and coordination?	**Rework Components**	
		x	x	x			Is performance against the plan monitored and, if necessary, corrective actiions taken or replanning performed?		
			x				Am I getting bang for the buck? Do I get the expected ROI for enhancements to the process? (Note: need to have govt non-financial examples of ROI)		
Technology	**Technology Suitability**	x	x	x			Do we have sufficient technology insertion plans?	**Requirements Coverage**	

Effectiveness		x	x	x			Are funds and resources being appropriately directed to R&D requirements? Have the appropriate R&D stakeholders been involved (e.g. DARPA)?		
		x	x	x			Are alternative technologies/technology "off ramps" planned/being used?		
		x	x	x			Are we prototyping appropriately?		
		x	x	x			Will the selected technology be supported in the long term?		
		x	x	x			Does selected (required) technology meet defined requirements?		
	Technology Volatility	x	x	x			How often does included technology change? How do changes impact cost and schedule?	**Baseline Changes**	
			x	x			Am I managing changes to the technology effectively? (including obsolescence)		
Customer Satisfaction	**Customer Feedback**		x	x			Do acquisition office personnel perform their job adequately?	**Satisfaction Ratings**	Rate acquisition office personnel (from either supplier or end-user perspectives)
		x	x				How do the stakeholders perceive the project/organizational performance?		
		x	x	x			Is the acquisition office managing / meeting user expectations?		
							Have the program office defined the appropriate stakeholders for customer involvement and feedback?		
							Has the acquisition office involved customers in review and planning in a disciplined and proactive manner?		
							Do all stakeholders believe that their views are being factored into decisions?		
							Are the products being delivered to the customer community satisfactorily and defect free?		
							Has a transition to operations plan been defined and implemented?		
							Are products delivered by the PMO under version and distribution control?		
							Have award fee criteria been defined and approved by stakeholders?	**Award Fee**	How many contractors have to get award fees and how much do they get?
	Customer Support	x	x	x			Are we providing adequate customer satisfaction?	**Requests for Support**	
							Have requests for support been kept to a minimum and acted upon with due diligence?		
							Has adequate support been budgeted and provided?	**Support Time**	