

Process		Inputs	Tools and Techniques	Outputs	Remarks
I N T E G R A T I O N	Develop Project Charter (I)	Business Documents(business case, benefit management plan) Agreements EEF & OPA	Expert judgment Data gathering (brain storming, focus groups, interviews) Interpersonal and team skills (conflict management, facilitation, meeting management) Meetings	Project charter Assumption log	Sponsor authorised PM, Senior Management assign PM. NPV, IRR, ROI, ROC, EVA, BCR, Payback, OC Charter - high level, business need, formal authorised
	Develop Project Mgt. Plan (P)	Project charter Output from other processes EEF & OPA	Expert judgment Data gathering(brain storming, checklists, focus groups, interviews) Interpersonal and team skills(conflict management, facilitation, meeting management) Meetings	Project management plan	(scope/schedule/cost performance measurement baseline, stakeholder engagement plan, project life cycle description, development approach, other management plans)
	Direct and Manage Project Work (E)	Project mgt. plan Project documents Approved change request EEF & OPA	Expert judgment Project management information system (PMIS) Meetings	Deliverables Work performance data Issue log, CR, OPA updates Project mgt. plan updates Project document updates (Assumption log, lesson learned register)	
	Manage Project Knowledge (E)*	Project mgt. plan Project documents Deliverables EEF & OPA	Expert judgment Knowledge management Information management Interpersonal and team skills (active listening, facilitation, leadership, networking, political awareness)	Lesson learned register Project management plan updates OPA updates	
	Monitor and Control Project Work (M&C)	Project management plan Project documents Work performance info. Agreements EEF & OPA	Expert judgment Data analysis Decision making Meetings	Change requests Work performance reports Project mgt. plan updates Project document updates (cost/schedule forecasts, lesson learned register, risk register, issue log)	Alternative analysis, cost benefit analysis, earned value analysis, trend analysis, variance analysis
	Perform Integrated Change Control (M&C)	Project management plan Project documents Work performance reports CR., EEF & OPA	Expert judgment Change control tools Data analysis Decision making Meetings	Approved change requests Project mgt. plan updates Project document updates (Change log)	Change management plan, Configuration management plan CR -> CCB Scope creep
	Close Project or Phase(C)	Project charter Project management plan Project documents Accepted deliverables Agreements Procurement documentation OPA	Expert judgment Data analysis (Regression analysis, trend analysis. variance analysis, document analysis) Meetings	Final product, service, or result transition Final report Project document updates (lesson learned register) OPA updates	Project files / archive Procurement File/ build archive / LL Sign off Handover/ transmission plan

Process		Inputs	Tools and Techniques	Outputs	Remarks
S C O P E	Plan Scope Mgt. (P)	Project mgt. plan (Project life cycle description, development approach) Project charter EEF & OPA	Expert Judgment Data analysis Meeting	Scope mgt. plan Requirements mgt. plan	
	Collect Require-ments (P)	Project mgt. plan (scope mgt. plan requirements mgt. plan, stakeholder engagement plan) Project charter Project documents (stakeholder register, assumption log, lessons learned register) Business documents Agreements EEF & OPA	Expert judgement Data gathering Data analysis (document analysis) Decision making Data representation interpersonal and team skills Prototypes (user story / agile) Context Diagrams (level 0 data flow)	Requirements documentation Requirements traceability matrix	Data gathering- BrainStorming , interview, focus group , benchmarking , Questionnaires and surveys Data representation - Affinity Diagram(best answer) , Idea / Mind Mapping Decision making - Multi criteria decision analysis, voting Interpersonal & team skills - Nominal Group Technique , observation / conversation, Facilitation (Facilitated workshop: JAD , QFD) Delphi Technique : questionnaire / expert / consensus
	Define Scope (P)	Project charter Project mfg. plan (scope mgt. plan) EEF & OPA Project documents (Assumption log, risk register, requirements documentation)	Expert judgement Data analysis (alternative analysis) Decision making interpersonal and team skills Product analysis	Project scope statement (Exclusion, acceptance criteria, deliverables, scope description) Project documents updates (assumption log, stakeholder register, requirements documentation, req. traceability matrix)	Product analysis - Functional analysis, FAST, VE, VA Alternative Identification - Brainstorming, Lateral thinking(e.g. SCAMPER),
	Create WBS (P)	Project mgt. plan (Scope mgt. plan) Project documents (Requirements documentation, project scope statement) EEF & OPA	Expert judgment Decomposition / Deconstruction	Scope baseline Project documents updates (assumption log, requirements documentation)	Scope baseline: WBS, WBS dictionary, Prj. scope statement updates CA : code of account Work packages Planning packages
	Validate Scope (M&C)	Project management plan Project documents (req. documentation, req. traceability matrix, lessons learned register, quality reports) Verified deliverables Work performance data	Inspection Decision making (voting)	Accepted deliverables Change requests Work performance info. Project documents updates (req. documentation, req. traceability matrix, lessons learned register)	Work performance xxx: Data: raw material Info.: arranged / sorted data Report: meaningful result Purpose: Formal / customer acceptance
	Control Scope (M&C)	Project management plan (scope/ req./change/config. mgt. plan, scope/performance measurement baseline) Work performance data Project documents (req. documentation, req. traceability matrix, lessons learned register) OPA	Data analysis (variance analysis, trend analysis)	Work performance information Change requests Project mgt. plan updates (as left) Project documents updates (as left)	Control: always plan (baseline) vs actual (status) E.g. Project plan vs work performance data Control Always Outputs: CR, project mgt. plan and project documents updates

Process		Inputs	Tools and Techniques	Outputs	Remarks
S C H E D U L E	Plan Schedule mgt. (P)	Project mgt. plan (scope, development approach) Project charter, EEF & OPA	Expert judgment Data analysis Meetings	Schedule mgt. plan	% of completion, CA, etc
	Define Activities (P)	Project mgt. plan (schedule mfg. plan, scope baseline) - EEF, OPA	Decomposition Rolling wave planning Expert judgment Meetings	Activity list Activity attributes Milestone list CR, Project mgt. plan update	Planning package & work package Hammock, Lead & lag Types: DE, LOE, AE Combine with create WBS
	Sequence Activities (P)	Project documents (Activity list, activity attributes, milestone list, assumption log) Project mgt. plan (schedule mgt. plan, scope baseline) EEF & OPA	Precedence diagraming method (PDM, AON) Dependency determination Leads and lags PMIS	Project schedule network diagram (PERT chart) Project documents updates (as left)	AOA, GERT internal/external dependency, mandatory/ discretionary dependency FS,FF,SS,SF
	Estimate Activity Durations (P)	Project documents (Activity list, activities attributes, resource req., resource calendars, RBS, lessons learned register, milestone list, project team assignment, risk register, assumption log) Project mgt. plan (schedule mgt. plan, scope baseline) EEF & OPA	Expert judgment Analogous estimating Parametric estimating Three-point estimating(PERT) Bottom-up estimating Data analysis (Reserve analysis, alternative analysis) Decision making Meetings	Duration estimates Basis of estimates Project documents updates (activities attributes, assumption log, lessons learned register)	Parametric Estimating Scatter diagram (2 variables), Learning curve, Heuristics (80/20) (P+4M+O)/6, (P-O)/6 Contingency reserve (known risk) Management reserve (unknown risk) Fist of five
	Develop Schedule (P)	Project documents (Activity list, activities attributes, resource req., resource calendars, RBS, lessons learned register, milestone list, risk register, project team assignment, duration estimates, PERT chart, basis of estimates, assumption log) Project mgt. plan (schedule mgt. plan, scope baseline) Agreement, EEF & OPA	Schedule network analysis Critical path method(CPM) Resource optimization Data analysis (what-if scenario analysis, simulation) Leads and lags Schedule compression PMIS Agile release planning	Project schedule Schedule baseline Schedule data Project calendar Change request Project mgt. plan updates (schedule mgt. plan, cost baseline) Project documents updates(activities attributes, assumption log, lessons learned register, duration estimates, resource req., risk register)	What-if scenario analysis (Monte Carlo simulation) Resource leveling/smoothing, Crashing, Fast Tracking CPM -> Float/Slack meaning CCM -> Project & feeding Buffer Duration : LF-LS = EF-ES Float/Slack: LF-EF = LS-ES
	Control Schedule (M&C)	Project management plan (schedule mgt. plan, schedule/scope/ performance measurement baseline) Project documents (lessons learned register, schedule data, project schedule, project calendars, resource calendars) Work performance data OPA	Data analysis (Earn value analysis, iteration burndown chart, trend analysis, performance reviews, variance analysis, what-if scenario analysis) Critical path method PMIS Resource optimization Leads and lags Schedule compression	Work performance info Schedule forecast CR, Project mgt. plan updates (schedule mgt. plan, schedule/cost/performance measurement baseline) Project documents updates (assumption log, lessons learned register, basis of estimates, project schedule, resource calendars, risk register, schedule data)	

Process		Inputs	Tools and Techniques	Outputs	Remarks
C O S T	Plan Cost Mgt. (P)	Project mgt. plan(Schedule/risk mgt. plan) Project charter EEF & OPA	Expert judgment Data analysis Meetings	Cost mgt. plan	
	Estimate Costs (P)	Project mgt. plan (Cost / quality mgt. plan, scope baseline) Project documents (Project schedule, resource req., Risk register, lessons learned register) EEF, OPA	Expert judgment, PMIS Analogous estimating Parametric estimating Bottom-up estimating 3-point estimating Data analysis (Reserve analysis, alternative analysis, COQ) Decision making (voting)	Cost estimates Basis of estimates Project documents updates (Assumption log, lessons learned register, risk register)	Junk cost , variable cost, fix cost, direct cost, indirect cost, life cycle costing Triangular distribution: (P+M+O)/3 Estimate stage: ROM : -25% to +75% Definitive: -5% to +10%
	Determine Budget (P)	Project mgt. plan (Cost / resource mgt. plan, scope baseline) Project documents (Project schedule, basis of estimates, cost estimates, Risk register) Business document (business case, benefit mg.t plan) Agreements EEF & OPA	Cost aggregation Data analysis (Reserve analysis) Expert judgment Historical info. review Funding limit reconciliation Financing	Cost baseline Project funding requirements Project documents updates (cost estimates, project schedule, risk register)	Project budget = BAC(cost baseline) + MR BAC=ΣCA= Contingency reserve + work packages cost estimates
	Control Costs (M&C)	Project mgt. plan (Cost mgt. plan, cost baseline, PMB) Project documents (Lessons learned register) Project funding requirements Work performance data OPA	Expert judgement Data analysis (Earned value analysis, variance/ trend/ reserve analysis) To-complete performance index (TCPI) PMIS	Work performance info. Cost forecasts, CR Project mgt. plan updates (Cost mgt. plan, cost baseline, PMB) Project documents updates (Cost estimates, basis of estimates, assumption log, lessons learned register, risk register)	PMB = performance measurement baseline 13 Earn Value Formulas (CV, SV, CPI, SPI, CVP, SVP, CR, EAC, ETC, TCPI)

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Process		Inputs	Tools and Techniques	Outputs	Remarks
Q U A L I T Y	Plan Quality Mgt. (P)	Project charter Project mgt. plan (Stakeholder engagement plan , scope baseline, risk/req. mgt. plan) Project documents (Risk register, Req. documentation, assumption log, req. traceability matrix, stakeholders register) EEF & OPA	Data analysis (Cost-benefit analysis, Cost of quality) Data gathering (Benchmarking , brainstorming, interviews) Decision making (multi-criteria decision analysis) Data representation (Flowcharts, logical data model, matrix diagram, mind mapping) Expert judgement Meetings	Quality management plan Quality metrics Project mgt. plan (Scope baseline, risk mgt. plan) Project documents updates (Risk register, req. traceability matrix, stakeholders register, lessons learned register)	Grade & Quality Precision & Accuracy COQ: prevention, appraisal(test/inspection), internal/external failure costs Quality Tools: Cause & Effect (fishbone, Ishikawa) diagram , Control chart (7 run rule) , Checklist (Tally sheet) , Pareto diagram (80/20) , Histogram, Flowcharting (SIPOC), Scatter diagram
	Manage Quality (E)*	Project mgt. plan (Quality mgt. plan) Project documents (Quality metrics, risk report, lesson learned register, quality control measurement) OPA	Data analysis (Alternative/ process / document/ root cause analysis) Data gathering (checklists) Decision making (multi-criteria decision analysis) Data representation (Flowcharts, affinity diagrams, cause & effect diagrams , matrix diagrams, histograms, scatter diagrams) Design for X , Audits Quality improvement methods Problem solving	Quality reports Test & evaluation documents CR Project mgt. plan updates (quality mgt. plan, scope/ schedule/ cost baseline) Project documents updates (issue log, lessons learned register, risk register)	FMEA / Root cause analysis (fault tree) Quality audit - comply standard Process analysis - improvement
	Control Quality (M&C)	Project mgt. plan (Quality mgt. plan) Project documents (Quality metrics, lesson learned register, test & evaluation documents) Approved CR Deliverables Work performance data EEF & OPA	Data analysis (Performance reviews/ root cause analysis) Data gathering (Checklists, check sheets, statistical sampling , questionnaires and surveys) Testing/ product evaluation Data representation (Cause & effect diagrams, control charts, histograms, scatter diagrams) Inspection, Meetings	Quality control measurements Verified deliverables Work performance Info. CR Project mgt. plan updates (quality mgt. plan) Project documents updates (issue log, lessons learned register, risk register, test & evaluation documents)	Deliverables is the only way to distinguish QA (manage quality) & QC Gold Plating Deming(PDCA,Continuous improvement – KaiZen) Crosby(Conformance to req.) Juran (Fitness for use) --- customer satisfaction

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Process	Inputs	Tools and Techniques	Outputs	Remarks
Plan Resource Mgt. (P)*	Project charter Project mgt. plan (Quality mgt. plan, scope baseline) Project documents (Stakeholder register, risk register, project schedule, req. documentation) EEF & OPA	Data representation (Hierarchical charts, responsibility assignment matrix , text-oriented formats) Meetings Expert Judgment Organizational theory	Resource mgt. plan Team charter Project documents (Assumption log, risk register)	RAM->RACI Project organizational chart (RBS)
Estimate Activity Resources (P)	Project mgt. plan (Resource mgt. plan, scope baseline) Project documents (Activity list, activity attributes, resource calendars , risk register, cost estimates, assumption log) EEF &OPA	Expert judgment Data analysis (Alternative analysis) Analogous estimating Bottom-up estimating Parametric estimating Meetings PMIS	Resource requirements Basis of estimates Resource breakdown structure (RBS, project org chart) Project documents updates (activity attributes, assumption log, lessons learned register)	
Acquire Resources (E)*	Project mgt. plan (Procurement/ resource mgt. plan, cost baseline) Project documents (resource calendars, resource req., project schedule, stakeholder register) EEF &OPA	Pre-assignment Interpersonal and team skills (Negotiation) Virtual Teams Decision making (Multi-criteria decision analysis)	Physical resource assignments Project team assignments Resource calendars , CR Project mgt. plan updates (Resource mgt. plan, cost baseline) Project documents updates (Lessons learned register, RBS, risk register, resource req., project schedule, stakeholder register)	Alternative analysis- make-or-buy Combine with estimates cost Negotiation Tactics needed
Develop Team (E)*	Project mgt. plan (Resource mgt. plan) Project documents (Lessons learned register, project schedule, project team assignments, Team charter, resource calendars) EEF & OPA	Individual & team assessments Training , Meetings Co-location(Tight matrix, war room), Virtual teams Communication technology Recognition and rewards Interpersonal & team skills (Team-building, negotiation, motivation, influencing, conflict management)	Team performance assessments CR, EEF & OPA updates Project mgt. plan updates (Resource mgt. plan) Project documents updates (Lessons learned register, resource calendars, project schedule, team charter, project team assignment) EEF & OPA	Forming->Storming->Norming->Performing-> Adjourning stages Consider organization influence and PM power Conflict : Confront/problem solve/collaborate, Compromise /reconcile, Force/direct, Smoothing/accommodate, Withdraw/avoid Motivation theory: X, Y, Maslow, Herzberg
Manage Team (E)*	Prj. mgt. plan (Resource mgt. plan) Project documents (Lessons learned register, issue log, project team assignments, Team charter) Work performance reports Team performance assignments EEF & OPA	Interpersonal & team skills (Conflict management, influencing, Leadership , emotional intelligence, decision making) PMIS	EEF updates CR Project mgt. plan updates (Resource mgt. plan, schedule/cost baseline) Project documents updates (Issue log, lessons learned register , project team assignments)	Ground rules Leadership styles Powers (Formal, reward, penalty, expert, reference power)
Control Resource (M&C)*	Prj. mgt. plan (Resource mgt. plan) Project documents (Lessons learned register, issue log, physical resource assignments, project schedule, RBS, resource req., risk register) Work performance data Agreements , OPA	Data analysis (Performance reviews/ trend/ alternative/ cost benefit analysis) Problem solving Interpersonal & team skills (Influencing, negotiation) PMIS	Work performance info. , CR Project mgt. plan updates (Resource mgt. plan, schedule/ cost baseline) Project documents updates (Issue log, assumption log , lessons learned register, risk register, physical resource assignment, RBS)	

Process		Inputs	Tools and Techniques	Outputs	Remarks
C O M M	Plan Comm. Mgt. (P)	Project charter Project mgt. plan (Resource mgt. plan, stakeholders engagement plan) Project documents (Stakeholders register , req. documentation) EEF & OPA	Expert judgement, Meetings Comm. requirements analysis Comm. technology Data representation (stakeholders engagement assessment matrix) Comm. models & comm. methods Interpersonal & team skills (Comm. styles assessment, political/ cultural awareness)	Communications mgt. plan Project mgt. plan updates (Stakeholder engagement plan) Project documents updates (Project schedule, stakeholder register)	Comm. methods: Interactive, Push, Pull Comm. Channel: $N * (N-1) / 2$ Sender/receiver model
	Manage Comm. (E)	Comm. Mgt. plan (Resource /comm. mgt. plan, stakeholders engagement plan) Project documents (Stakeholders register, change log, issue log, lessons learned register, quality report, risk report) Work performance reports EEF & OPA	Comm. technologies Comm. methods Comm. skills (Comm. competence, feedback, nonverbal, presentation) Project reporting Interpersonal & team skills (Active listening , conflict mgt. political/ cultural awareness , meeting mgt., networking) PMIS & Meetings	Project communications Project mgt. plan updates (Comm. mgt. plan, stakeholder engagement plan) Project document updates(Issue log, lessons learned register, stakeholder & risk register, project schedule) OPA updates	PM 90% tasks are communication Choice of media Formal / informal written Formal / informal verbal Effective & efficient communications Non-verbal issue
	Monitor Comm. (M&C)	Project Mgt. plan (Resource /comm. mgt. plan , stakeholders engagement plan) Project documents (lessons learned register, issue log, project comm.) Work performance data EEF & OPA	PMIS Expert judgment Meetings Data analysis (stakeholders engagement assessment matrix) Interpersonal & team skills (Observation & conversation)	Work performance Info. Project mgt. plan updates (Comm. mgt. plan, stakeholders engagement plan) Project document updates (Lessons learned register, issue log, stakeholder register) CR	Communication blocker...

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Process	Inputs	Tools and Techniques	Outputs	Remarks
Plan Risk Mgt. (P)	Project mgt. plan (All component) Project documents (Stakeholder register) Project charter, EEF & OPA	Expert judgment Data analysis (Stakeholder analysis) Meetings	Risk management plan (Risk categories, PI matrix, impact scale)	Risk tolerance Risk utility/appetite Risk threshold
Identify Risks (P)	Project mgt. plan (Risk/ req./ cost/ schedule/ quality mgt. plan, scope/ cost/ schedule baseline, stakeholder engagement plan) Project documents (Issue/ assumption log, cost/ duration estimates, lessons learned/ stakeholder register, resource req., req. documentation) Procurement documentation Agreement , EEF & OPA	Data gathering (Checklist, interviews, brainstorming) Data analysis (Assumptions & constraint analysis , document analysis, root cause analysis, SWOT analysis) Interpersonal & team skills (Facilitation) Prompt lists Expert judgment	Risk register Risk report Project documents (Assumption log, issue log, lessons learned register)	Techniques Delphi Technique current reality tree (CRT) Ishikawa diagram Influence diagram SWOT—> O positive risk, T negative risk Prompt list eg. PESTER (political, economic, social, technological, legal, environmental)
Perform Qualitative Risk Analysis (P)	Project documents (Risk register, assumption log, stakeholder register) Project mgt. plan (Risk mgt. plan) EEF & OPA	Data gathering (Interviews) Data analysis (Risk data quality assessment, risk PI assessment & other parameter) Interpersonal & team skills (Facilitation) Risk categorization, Expert judgment Data representation (PI matrix, hierarchical charts)	Project documents updates (Assumption log, issue log, risk report, risk register)	List of prioritized Risks (ranking / score) Watchlist Risk in near term (Risk urgency assessment)
Perform Quantitative Risk Analysis (P)	Project documents (Risk register, assumption log, risk report , basis of estimate, cost/ duration estimates, cost/ schedule forecasts, milestone list, resource req.) Project mgt. plan (Risk mgt. plan) EEF & OPA	Data gathering (Interviews) Interpersonal & team skills (Facilitation) Data analysis (Sensitivity/ decision tree analysis , simulation, influence diagrams) Representation of uncertainty Expert judgment	Project documents updates (Risk report)	Sensitivity analysis (tornado diagram) Decision Tree - Expected Monetary Value analysis (EMV) Monte-Carlo Technique Prioritized list of quantified risks
Plan Risk Responses (P)	Project documents (Risk/ lessons learned/ stakeholder register , resource calendars, project schedule, risk report, project team assignments) Project mgt. plan (Risk / resource mgt. plan, cost baseline) EEF & OPA	Data gathering (Interviews), Interpersonal & team skills (Facilitation), Expert judgment Strategies for threats, Strategies for opportunities , Strategies for overall project risk, Contingent response strategies Data analysis (Alternative/ cost benefit analysis) Decision making (Multi-criteria decision analysis)	CR Project documents (Risk/ lessons learned register , project schedule, risk report , assumption log, cost forecast, project team assignments) Project mgt. plan (Schedule/ cost/ quality/ resource/ procurement mgt. plan, cost/ schedule/ scope baseline)	Negative: Escalate, Avoid, Transfer, Mitigate Positive: Escalate, Exploit, Share, Enhance Accept: Active (contingency) or passive (Risk owner, secondary risk, residual risk)
Implement Risk Responses (E)*	Project mgt. plan (Risk mgt. plan) Project documents (Risk register, risk report, lessons learned register) OPA	Expert judgment PMIS Interpersonal & team skills (Influencing)	Project documents updates (Issue log, lessons learned register, risk register, risk report, project team assignments) CR	
Monitor Risks (M&C)	Project mgt. plan (Risk mgt. plan) Project documents (Risk register, risk report, issue log, lessons learned register) Work performance data Work performance reports	(Risk) Audits Data analysis (Technical performance analysis, Reserve analysis) Meetings	Work performance information CR & OPA updates Project mgt. plan updates (any components) Project documents updates (Issue log, lessons learned register, risk register, risk report, assumption log)	Work around

Process		Inputs	Tools and Techniques	Outputs	Remarks
P R O C U R E M E N T	Plan Procurements (P)	Project charter Business documents (Business case, benefit mgt. plan) Project mgt. plan (Scope/ quality/ risk mgt. plan, scope baseline) Project documents (Milestone list, req. documentation, risk register, resource req., stakeholders register, project team assignments, req. traceability matrix) EEF & OPA	Data analysis (Make-or-buy analysis) Expert judgment Data gathering (Market research) Meetings Source selection analysis	Procurement mgt. plan Procurement strategy Bid documents Procurement statements of work Make-or-buy decisions Independent cost estimates Source selection criteria, CR & OPA updates Project documents updates (Lessons learned register, risk / stakeholder register, req. documentation, req. traceability matrix, milestone list)	Buyer risk from low to high: FFP-> FPI-> FPEPA -> T&M-> CPIF-> CPAF-> CPFF Final price and PTA formula Normal practice: RFP->CR, IVB->FFP , RFQ->T&M You are buyer!
	Conduct Procurements (E)	Project mgt. plan (Scope/ risk/ comm./ req./ procurement/ configuration mgt. plan, cost baseline) Procurement documents (Lessons learned register, risk / stakeholder register, req. documentation, project schedule) Procurement documentation Seller proposals EEF & OPA	Bidder conference Data analysis (Proposal evaluation) Expert judgment Advertising Interpersonal & team skills (Negotiations)	Selected sellers Agreement, CR & OPA updates Project mgt. plan updates (Quality/ risk/ comm./ req./ procurement mgt. plan, cost/ schedule/ scope baseline) Project document updates (Lessons learned register, risk / stakeholder register, req. documentation, req. traceability matrix, resource calendars)	Agreement terms: Retainer, termination clause, alternative dispute resolution (ADR), force majeure, privity, oligopoly, centralize / decentralize contracting, etc.
	Control Procurements (M&C)	Project mgt. plan (Risk/ procurement/ change req./ mgt. plan, schedule baseline) Procurement documents (Assumption log, lessons learned register, risk / stakeholder register, milestone list, req. documentation, quality reports, req. traceability, matrix) Agreement, Work performance data Procurement documentation Approved CR, EEF & OPA	Expert judgement Claims administration Data analysis (Performance reviews,Earned value analysis, Trend analysis) Inspections Audits	Closed procurements Work performance info. Procurement documentation updates CR & OPA updates Project mgt. plan updates (Risk/ procurement mgt. plan, schedule/ cost baseline) Project documents updates (Lessons learned register, risk / stakeholder register, resource requirement, req. traceability, matrix)	Negotiation Tactics: Fait Accompli, , good guy bad guy, limited power, missing man, deadline.... ADR Procurement file

Process		Inputs	Tools and Techniques	Outputs	Remarks
S T A K E H O L D E R	Identify Stakeholders (I)	Project charter Business documents (Business case, benefit mgt. plan) Project documents (Change log, issue log, req. documentation) Project mgt. plan (Comm. mgt. plan, stakeholder engagement plan) Agreements EEF & OPA	Data analysis (Stakeholder analysis, document analysis) Data gathering (Questionnaires & surveys, brainstorming) Data representation (Stakeholder mapping/ representation) Expert judgment Meetings	Stakeholder register CR Project documents (Issue log, risk register, assumption log) Project mgt. plan (Comm./ risk/ req. mgt. plan, stakeholder engagement plan)	Stakeholder mapping grid: manage closely, keep inform, keep satisfy, monitor Power/Interest grid, Power/ influence grid, Impact/ influence grid, Salience model
	Plan Stakeholder Management (P)	Project charter Project documents (Change/ issue/ assumption log, project schedule, risk/ stakeholder register) Project mgt. plan (Resource/ comm./ risk mgt. plan) Agreements EEF & OPA	Expert judgment, Meetings Data analysis (Assumption & constraint/ root cause analysis) Data gathering (Benchmarking) Data representation (Stakeholder engagement assessment matrix, mind mapping) Decision making (Prioritization / ranking)	Stakeholders engagement plan	Stakeholder Engagement Assessment Matrix Classification: Unaware, Resistant, Neutral, Supportive, Leading
	Manage Stakeholder Engagement (E)	Project documents (Lessons learned/ stakeholder register, Change/ issue log) Project mgt. plan (Change/ comm./ risk mgt. plan, stakeholder engagement plan) EEF & OPA	Communication skills (Feedback) Interpersonal & team skills (Conflict management, political/ cultural awareness, negotiation, observation/ conversation) Ground rules Meetings, Expert judgement	Project documents (Issue/ change log, stakeholder/ lessons learned register) Project mgt. plan updates (Comm. mgt. plan, stakeholder engagement plan) CR	
	Monitor Stakeholder Engagement (M&C)	Project documents (Issue log, risk/ stakeholder/ lessons learned register, project communications) Project mgt. plan updates (Comm./ resource mgt. plan, stakeholder engagement plan) EEF & OPA Work performance data	Meetings Data analysis (Alternative/ root cause/ stakeholder analysis) Communication skills (Feedback, presentation) Data representation (Stakeholder engagement assessment matrix) Decision making (Multi criteria decision analysis, voting) Interpersonal & team skills (Political/ cultural awareness, leadership, active listening, networking)	Work performance information Project documents (Issue log, risk/ stakeholder/ lessons learned register) Project mgt. plan updates (Comm./ resource mgt. plan, stakeholder engagement plan) CR	

Select method: constrained optimization or benefit measurement. Balance scorecard, OPM (Portfolio, Program, Project), PMO (MBO, configuration, support, control, direct), Project/Functional/(S,B,W)Matrix Organization (PM/PC/PE), Predictive(plan driven)/Iterative/Incremental/Adaptive(change driven, Agile)/Hybrid life cycle