EFFECTIVE PROJECT MANAGEMENT

RISK MANAGEMENT

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Everyprojectissubjecttorisks.Somecanbeidentifiedandplanscanbeputinplaceiftheyoccur;otherscannotandmustbedealtwithastheyoccur.

Theeventsthatthissectionfocusesonarethosethatcouldcompromisethesuccessfulcompletionoftheproject.Nooneknowswhentheywilloccur,buttheywilloccurwithsomelikelihoodandcausesomedamagetotheproject.Forexample,thelossofateammemberwhohasacriticalorscarceskillisonesuchevent.

Thelongertheproject lasts,themore likelythiswillhappen.Thehistory ofsome organizationsmight suggest thatthisis acertainty. Knowingthis,whatwouldyoudo?Thatisthequestionanswered thissection.Theanswerliesinunderstandingwhattherisk managementlifecycleisandhowtoconstructariskmanagement plan.

Theriskmanagementlifecyclewasintroducedandbrieflyexplaindinthefollowingfourphases:

- RiskidentificationR
- iskassessmentRisk
- mitigation
- Riskmonitoringandcontrol

Thesearediscussedindetailinthesectionsthatfollow:

RiskIdentification

Inordertoestablishariskmanagementprogramfortheproject,thereareseveralprocessesthroughwhichtheprojectmanagerandprojectteammustgo.Thefirstisriskidentification,anditgenerallyoccursaspartofprojectplanningactivities.Inthispartoftheprocess,theentireplanningteamisbroughttogethertodiscussandidentifytherisksthatarespecifictothecurrentproject.

Developingariskmanagementplanisasignificantpartoftheprojectplanningprocess.Themorecomplexanduncertaintheproject,themoreimportantitistohaveadynamicandmaintainedriskmanagementplan.Somehave saidthattheprojectmanagerdoesnothingmorethanmangeriskontheproject.Thatistoorestrictive,butitdoesspeaktotheimportanceofagoodriskmanagementplanforeveryproject.Althoughtheexperiencedprojectmanagerwillcertainlyknowwhatgeneraltypeofrisksthereareoneachproject,theprofessionalprojectmanagertakesnothingforgrantedandalwaysengagestheprojectplanningteaminidentifyingrisksfortheproject.Thelistofriskscanbecumulativelydevelopedinparallelwithotherprojectplanningactivities.Afterthatlistisbuilt,theteamcanmovetothesecondstepintheriskmanagementprocess.

Risk Categories

Therearefourriskcategories.Eachcategoryislistedherewithitspotentialrisks.Usetheseassuggestionsonly.Yourspecificprojectwillprobablysuggesttheseorotherriskswithineachofthesecategories.Theplanningteamshouldrevieweachlistandmodifyitasneeded.

Technical Risks

Thesemayincludethefollowing:

- Qualityandperformancegoalsgenerallyrelatingtothetechnology oftheproject
- Thesuitability,reliability,andqualityorperformancestandards sur-roundingthetechnology
- Technologyavailabilityandcomplexityissues

ProjectManagementRisks

Thesemayincludethefollowing:

- Poorallocationoftheproject'sresources
- Inadequateprojectmanagementstructure—properplanningprocessestodefine critical deliverablesforeachprojectphase
- Inadequateplanning,resourceinexperience,orpooruse ofmanagementdisciplines
- Costandscheduleriskduetotheaforementionedprojectmanagementrisks

Organizational Risks

Thesemayincludethefollowing:

- Supportabilityrisksor inadequateprioritization
- ofprojectsInadequacyoforinterrupted
- fundingand/orresourceassignmentsConflictswithothercompetingprojects
- Policiesthatdonotsupportefficientmanagementandcouldpotentiallyintroduce supportabilityrisks
- Politicsandagendasthatimpedethedevelopmentoftheproject'sexecutingobjectives

External Risks

Thesemayincludethefollowing:

- Shiftinglegalorregulatoryrequirements
- Supplierandcontractorrisksand/orcontractissues
- Economiccollapseorworkstoppages(strikes)
- Programmaticorsupportabilityriskscausedbyexternalparties
- Deliverablesfromteamsthatareexternaltoyourown(ITorclient)

Risk Assessment Template

Figure
bellowshowsatemplatethatyoucanusefordefiningrisksine achofthesecategoriesandmakingapreliminaryassessmento fhowtheymightimpactthescopematrix.

RISKCATEGORIES ANDRISKS	SCOPETRIANGLEELEMENTS				
	Scope	Time	Cost	Quality	Resources
Technical					
ProjectManagement					
Organizational					
External					

Riskidentificationandassessmenttemplate

Candidate Risk Drivers

ThefirststepintheRiskManagementProcessistoidentifyther iskdriversthatmaybeoperativeonagivenproject.Theseareth econditionsorsituationsthatmayunfavorablyaffectprojects uccess.Asanexample,Figure٤-٢٤showsacandidatelistfromwhichthelistofriskdriversthata reappropriateforagivenprojectcanbechosen.

Risk Assessment

Asmentionedpreviously,therearetwomajorfactorsinassess ingrisk.Thefirstoftheseistheprobabilitythattheriskeventwil loccur.Forinstance,ifaprojectinvolvesmigratinglegacysyst emstonewsystems,theinterfacepointsbetweenthetwoareof tenwhereproblemsoccur.Theprofessionalprojectmanager willhaveagoodsenseofthesetypesofrisksandhowmuchofac hancethereisthattheywilloccur.(Bytheway,ifyouarecertain thataneventwilloccur,it'snotarisk,it'sacertainty.Thistypeof eventisn'thandledbyriskmanagement,becauseyouaresuret hatitwilloccur.Thismeansnoprobabilityisinvolved.Noprob ability,norisk.)

Prioritizesome of riskdriversforyourproject as following

- Scheduleistooaggressive
- Overambitiousperformance
- Tooconservativeabudget
- Unrealisticexpectations
- Misunderstoodcontractterms
- New/unfamiliartechnology
- Inadequatesoftwaresizing
- Unsuitabledevelopmentmodel
- Unfamiliarnewhardware

Whentheteamputstogethertheriskidentificationlist,nothings houldberuledoutatfirst.Lettheteambrainstormriskwithoutbe ingjudgmental.Somerisksaresosmallthatyouwilleventuallyi gnorethem.Forinstance,theriskthatameteorwilldestroythebu ildinginwhichyouworkisminiscule.Ifyou'reworryingaboutt hingslikethis,youwon'tbemuchofaprojectmanager.Youneedt omanagetherisksthatactuallymightoccur.

Thesecondpartofriskassessmentistheexpectedlosstherisk willhaveontheproject.Iftheprobabilityishighandtheimpact islow,youmaybeabletoignoretherisk.Iftheprobabilityislo wbuttheimpactishigh,youmightalsobeabletoignoretherisk .Thedecisionisbasedontheproductoftheprobabilityoftheev enthappeningandtheimpactitwillhave.Forexample,ifthep robabilityoflosingacriticalskillis٠.٨(probabilityisanumber between٠and١.٠)andtheimpactis$٥٠,٠٠٠,theexpectedlossi s$٢٠,٠٠٠(٠.٨×$٥٠,٠٠٠).Asafurtherexample,supposethepro babilityoftheBullonWallStreetbeingstolenis١×١٠⁻١٠andth eimpactis$٧٥,٠٠٠,٠٠٠;thentheexpectedlossis$٧٥٠.

Youshouldignoretheriskifthecostofavoidingtheriskisgreater thantheexpectedloss.Inotherwords,don'tsolvea$١٠٠problem witha$١,٠٠٠solution.Inthetwoexamples,youwouldmostlikel ynotignoretheriskoflosingthecriticalskill,butyouwouldignor etheriskoftheBullonWallStreetbeingstolen.

Static Risk Assessment

Ifyoudon'twanttogethunguponnumericriskassessments,y oumightwanttotryusingtheriskmatrixshowninFigure٤-٢٥.Thereisnothingmagicaboutusinga٣×٣matrix.A ٥×٥mat rixworksjustaswell.

Dynamic Risk Assessment

Theprecedingriskassessmentisbasicallystatic.BythatImean ananalysisisdoneduringplanning,andariskmanagementpl anisputinplacefortheentireproject.Itdoesnotchangeasthepr ojectprogresses.Thatisthesimplestapproachandprobablyle sseffectivethanthedynamicriskassessmentdiscussedinthiss ection.Ihaveusedthefollowingdynamicriskassess-mentapproachwithgreatsuccess.Inthisapproach,riskisconti nuouslyreassessedateachphaseoftheproject.Anexamplewi llhelpexplainhowthisapproachisused.

Afterthe riskdrivershave beenidentified,theymust beranked frommost likelytohaveanimpactontheprojecttoleastlikelytohaveani mpactonthe project.LabelthemA(mostlikely)throughJ(leastlikely)anda rraythedataas showninFigure٤-٢٦.Thecolumnentriesare١=lowrisk,٢=mediumrisk,and ٣=highrisk.Actually,anymetriccanbeusedaslongasthelo wernumbers areatthelow-riskendandthehighernumbersareatthehigh-riskend. Thedatagiveninthework sheetisfromahypotheticalproject.Theco lumns arethetopriskdriversthatwereidentifiedfromthecandidatel ist,andthe rowsarestepsinaprocess.Forthesakeofanexample,Ichosest epsfroma

Hypotheticalsystems-developmentlifecycle.Anycollectionofprocessstepsmaybeus ed,sothetoolhasbroadapplicationforavarietyofcontexts.Asco reof١isgiventoriskdriversthatwillnotimpacttheprocessstepift heyshouldoccur,٢isforamediumimpact,and٣isforastrongim pact.Actually,anynumericscalemaybeused.Therowandcolu

mntotalsareevaluatedrelativetooneanotherandtoscoresfrom similarprojects.Thesetotalstellthestory.Highcolumntotalssu ggestariskdriver thatisoperativeacrossanumberofstepsintheprocess.Highrow totalssuggestaprocessstepthatisaffectedbyseveral riskdrivers.Finally,thetotalforthewholeworksheetgivesyoua percentagethatcanbeusedtocomparethisprojectagainstsimila rcompletedprojects.Thepercentageisrelative,butitmaysugge starulethatprovidesanearlywarningofprojectsthatarehighris koverall.

ProjectActivity	A	B	C	D	E	F	G	H	I	J	Score
	٢	٣	٣	٢	٣	٣	٢	٢	١	١	٢٢
Specifications	٢	١	٣	٢	٢	٢	١	٢	٢	٣	٢٠
PreliminaryDes	١	١	٢	٢	٢	٢	١	٢	٢	٢	١٧
Design	٢	١	٢	٢	٢	٣	١	٢	٢	١	١٨
Implement	١	٢	٢	٣	٣	٢	١	٢	٢	١	١٩
Test	٢	٢	٢	٢	٢	٣	٢	٢	٢	٢	٢١
Integration	٣	٢	٣	٣	٣	٣	٢	٣	٣	٢	٢٧
Checkout	١	٢	٢	٣	٣	٣	٢	٣	٢	٢	٢٣
Operation	٢	٢	٣	٣	٣	٣	٣	٣	١	١	٢٤
Score	١٦	١٦	٢٢	٢٢	٢٣	٢٤	١٥	٢١	١٧	١٥	١٩١

Riskassessmentworksheet

Toanalyzetheresultingscores,firstexaminecolumntotalsth

atarelargerelativetoothercolumntotals.Intheexample,yous houldfocusontheriskdriversassociatedwithcolumnsC,D,E, andF.Becausetheircolumntotalsarehigh,theycanpotentiall yaffectseveralprocesssteps.Theprojectteamshouldidentify strategiesforeitherreducingtheprobabilityoftheriskoccurri ngormitigatingitsimpact,orboth,shouldtheeventassociate dwiththatriskoccur.Therowtotalscanbeanalyzedinthesam efashion.Intheexample,integrationhasthehighestrowtotal(٢٧).Thisindicatesthatseveralriskdriverscanimpactintegrati on.Theprojectteamshouldpayattentiontotheworkassociate dwithintegrationandlookforwaystoimproveorbettermana geit.Forexample,theteammightchoosetohavemoreskilledp ersonnelworkonintegrationthantheymightotherwisechoos e.

Intheexample,theriskfactoris٧٠percent.Thisvaluecanbeint erpretedonlyincomparisontotheriskfactorofcompletedpro jects.Therewillbea

Patternofprojectfailuresforprojectswhoseriskfactorisabo veacertainnumber.IfٍV٠percentisabovethatnumber,theex ampleprojectisahighriskforfailure.Thedecisiontodothis projectwillhavetobeoffsetbythebusinessvaluetheproject expectstocontribute.

Risk Mitigation

Thenextstepinriskmanagementistoplan,asmuchaspossible

,theresponsesthat will beusedinthe eventthattheidentifiedrisks occur.For instance,youmay want toinclude aclauseinyourhardware contract with the vendor thatifyoudon'treceivetheserversbyacertaindate,thentheve ndorwillpayapenalty.Thispenaltygivesthevendoranincent ivetoanalyzeandmitigatetherisks involvedinlate deliveryofkey equipment. For alltherisks listedin theriskidentificationthatyou choose to act upon, you shouldhave some type ofmitigation strategy inmind. It'snotenough simplyto list therisks; youneedtoplantodosomethingabouttheriskeventsshouldt heyoccur.
Anotherexampleofriskplanningisplanning forkeypersonnel.What willyoudoifoneofthekeydeveloperslеavesthecompanybef orefinishingthecoding?Thisriskwillimpacttheprojectsever elyifitoccurs.Havingsomeonecapturecodeasitiswrittenand debriefingwiththedevelopereachdayaretwowaysofdealin gwiththeriskofkeypersonnelloss.Howmanyotherscanyouc omeupwith?Comingupwithcontingencyplanssuchasthese isgoodriskresponseplanning.

Inordertobuildaneffectiveriskmitigationplan,youshouldco nsiderthefollowingfiveriskresponses:

- **Accept**—Donothing becausethecost oftheactionismoreexpensivethantheexpectedloss.
- **Avoid**—
  Electnottodothepartoftheprojectassociatedwiththerisk.
- **Contingencyplanning**—
  Frameplanstodealwiththeriskconsequenceandmonitor riskregularly(identifycontingencytriggerpoints).
- **Mitigate**—
  reducetheprobabilityofoccurrence,theimpact,orboth.
- **Transfer**—Outsource.

Risk Monitoring and Control

Afteryou'veidentifiedtherisk,assessedtheprobabilityandi mpactoftherisks,andplannedwhatyouwilldo iftheriskeven occurs,thenyouneedtomonitorandcontroltheprojectrisks. Writingdowntherisksandassessingthemgiveseveryoneont heprojectteamanawarenessoftheirexistence.Thisisastart.T oaccommodatethemonitoringandcontrolphaseoftherisk Managementlifecycle,youshouldmaintainarisklog.Thisdocu mentlistsallrisksthatyouwanttomanageanddescribeswhatth eriskis,whoissupposedtomanagetherisk,andwhathasbeendo netomanagetheriskevent. Arisklogisasimpletemplatethatyoucancreateinmicrosoft Word.

Typicalrisklogwillcontainthefollowingfivefields:

- **IDnumber—** thisalwaysremainsthesame,eveniftheriskeventhasoccu rredandbeenmanaged.Ifyoutaketheriskoffthelistandfil eitelsewhere,don'tassigntheoldnumbertoanewrisk.Kee ptheoriginalnumberwiththediscardedriskandneveruse itagain,ortherewillbeagreatdealofconfusion.
- **Riskdescription—**thisisashortstatement oftheriskevent.
- **Riskowner—** thisisthepersonwhohastheresponsibilityofmonitoringthestat usofthelistedrisk.
- **Action tobe taken—**listswhatthe riskowner is going todo todealwiththeriskevent.
- **Outcome—**describeswhat happenedas aresultofyour mitigationstrategy

Usetherisklogtokeeptrackofrisksintheprojectandmaintainco ntroloverthem.Whenyougotostatusmeetings,youshouldalw aystalkaboutrisksandtheirmanagementbytheteam.Keepther isksinfrontoftheteamsothateachmemberwillbeawareofwhatr isksarecomingupandwhatistobedoneabouttheriskevent.This isjustexercisingcommonsenseandthereforegoodprojectmana gement.