Project Management Professional (PMP®) Exam PMBOK® Guide – Fifth Edition Aligned

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Process Group	Initiating	Planning	Executing	Monitor	ing & Controlling	Closing	
Knowledge Area							
Integration			Сору	rights			
Scope	• PM	P®: "PM	⊃" and the	PMP I	ogo are		
Time	cer Ins [.]	tification i titute whic	marks of th ch are regi	ne Proj stered	ect Manager in the United	nent 1	
Cost	Sta	States and other nations					
Quality	• PM Pro	 PMBOK®: "PMBOK" is a trademark of the Project Management Institute. Inc. which is 					
HR	reg	istered in	the United	d State	s and other		
Communications	nat	IONS				~ #	
Risk	• NOI this	 Note: The PMBOK is the primary source for this slide deck. When other sources are 					
Procurement	IER			e hiov			
Stakeholder	Student C	Copy – Not for F Distributio	Reproduction or	Chuc © 2014, 1	c Millhollan, MBA, MPM, PMP, nnovative Management Solutions	PgMP 2 s, LLC	

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing			
Knowledge Area			Introduc	ctions &				
Integration		Course Expectations						
Scope	• Pe	ersonal l	Backgrou	und				
Time	—	Name						
Cost	-	Organiza	ation, Title					
Quality	- • Pr	Formal E oject Ma	Education anageme	ent Experience				
HR	• Ex	pectatio	ons for th	nis course				
Communications								
Risk								
Procurement								
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Course Syllabus



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Process Group	Initiating	Planning	Executing	Monitoring	g & Controlling	Closing	
Knowledge Area							
Integration		Wo	orkshop	Appro	ach		
Scope	• Inst	tructor pro	esentation	& guide	d discussio	n	
Time	• Stu Mu	dent pres Icahv PM	sentation (P® Exam	based or Prep Te	n the Rita xtbook chai	oter	
Cost	tes	tests)					
Quality	Pre	 Presentations should include: 					
HR	 ,	 The questions with the correct answers highlighted A justification for the correct answers 					
Communications	— , ;	 An explanation for why the distracters were not the appropriate choice 					
Risk	_ :	Sources for	each quest	on			
Dreaurement	• In-c	class exa	m review a	nd discu	ussion		
Procurement	- 1	Random sele	ection ©				
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing		
Knowledge Area							
Integration		Stu	dent Pre	esentations			
Scope	• Let	's go the	syllabus (I	ast page…)			
Time	 Stu fror 	 Student presentations are based on learning from the following: 					
Cost		 The PMBOK® required reading for the knowledge area 					
Quality	 Rita Mulcahy PMP® Exam Prep textbook required reading & practice exams 						
HR	-	Hot Topics	flashcards				
Communications	— /	 Additional research as appropriate 					
Risk	 Candidates are encouraged to provide copies 						
		of their presentations to all members of the					
Procurement	cias	ss atter tr	ieir preser	itations (either hard			
	COP	by or elec	tronic copy	/ is acceptable)			
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Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Student Presentations: Assignments

- Integration Management
 - Instructor assigned
 - Chapter 4
- Scope Management
 - Instructor assigned
 - Chapter 5
- Time Management
 - Instructor assigned
 - Chapter 6
- Cost Management
 - Instructor assigned
 - Chapter 7
- Quality Management
 - Instructor assigned
 - Chapter 8

- Human Resource Management
 - Instructor assigned
 - Chapter 9
- Communications Management
 - Instructor assigned
 - Chapter 10
- Risk Management
 - Instructor assigned
 - Chapter 11
- Procurement Management
 - Instructor assigned
 - Chapter 12
- Stakeholder Management
 - Instructor assigned
 - Chapter 13
- Ethics & Prof Responsibility
 - Instructor assigned
 - Chapter 14

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Process Group	Initiating	Planning	Executing	Monitoring & C	ontrolling	Closing	
Knowledge Area							
Integration			The	Test			
Scope	• 200	questions					
Time	- 2 I	 25 are "pretest" questions that do not effect score – randomly placed throughout the exam 					
Cost	- I • 4 hc	Passing rate	is 106 of 175	scored questio	ns (~ 61%)		
Quality	 Preceded by a 15 minute tutorial (not part of your time) 						
5	 Pas 	s/Fail indica	ation immed	iately after sub	omission		
HR	- [Diagnostic re	eport will show	v breakdown of	performance	Э	
Communications	/ 1	within each or responsibility	domain (5 pro /)	cess + professio	onal		
Risk	• Cos	t:	* • • = • • • = =				
KIOK	- 1	PMI Membei	rs: \$405/\$275				
Procurement	- 1	Non-Membe	rs: \$555/\$375)			
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Process Group	Initiating	Planning	Executing	Mon	itoring & Controlling	Closing
Knowledge Area						
Integration			True Court			
Scope	The	following table ident	EXAM CONTE	NT OUT	From each domain that will appear when of questions related to each d	on the
Time	and task	that should appear of	n the multiple-choice for	mat exam	ination.	oman
Cost			Domain		Percentage of Items on Test	
Quality		I. Initiating the	Project		13 %	
,		II. Planning the	Project		24 %	
HR		III. Executing the	e Project		30 %	
		IV. Monitoring a	nd Controlling the Pr	oject	25 %	
Communications		V. Closing the F	Project		8 %	
Risk		Total			100%	
T TOT						
Procurement						
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Process Group	Initiating	Planning	Executing	N	Ionitoring &	Controlling	Closing
Knowledge Area							
Integration	Stu	dy Time	Source: Dr. Robert A	nit Amas	ment	(PMPat	h™)
Scope				Tota	l Course Time (Calculation (Hours	;)
	Study Eleme	ent	Most Like	ly	Optimistic	Pessimistic	PERT
Time	Integration		17	7.75	13.31	35.5	20.0
Coot	Scope		13	3.40	10.05	26.8	15.1
Cost	Quality		15	5.10	11.33	30.2	17.0
Quality	Time		16	6.70	12.53	33.4	18.8
Quanty	Cost		16	6.30	12.23	32.6	18.3
HR	HR		25	5.00	18.75	50	28.1
	Communica	tions	13	3.30	9.98	26.6	15.0
Communications	Risk		14	1.70	11.03	29.4	16.5
	Procuremen	t	13	3.20	9.9	26.4	14.9
Risk	Stakeholder		13	8.30	9.97	26.6	15.0
Procurement	Professiona	I Responsibility	11	.70	8.77	23.4	13.2
	TOTALS		169	9.45	127.84	340.9	191.8
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Study Groups



Process Group

Executing

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Application Process

MP Application	
tep 1: Application	Step 1: Application Review Mailing Address
Contact Address	
Contact E-mail, Phone	Please enter your address information below. You can change your preferred mailing or billing address by clicking "Set as Mailing" or "Set as Billing". If your addresses are not listed below
Attained Education	please add them by using the "Add Home" or "Add Work" buttons.
Requirements	
Optional Information	When you are done, click "Next".
Certificate	
Agreement	My Default Address Edit
Review & Submit	(Work) Humana 501 West Main
ep 2: Schedule Exam	Louisville, KY, USA, 40202 (Preferred Mailing Address)
ep 3: Exam Results	(Preferred Billing Address)
	Add Home Address « Back Next »

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Process Group

Executing

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Knowledge Area Application Process Integration **P**', ', | PROJECT MANAGEMENT INSTITUTE Making project management indispensable for business results.* Log Out | Certification Homepage | PMI.org Scope **PMP Application** Step 1: Application | Review Attained Education Support/FAQs Step 1: Application Your education attained Time Contact Address will determine which Please indicate your highest level of education attained at the time of application below using the Contact E-mail, Phone category you are applying drop down menu and complete all applicable contact information for your school, college or for. Attained Education university. Requirements Cost * Highest level of -- select --🚩 or global equivalency **Optional Information** education attained: eriSign ecured Certificate * Year degree awarded: 1960 ¥ VERIEVE Agreement * School/University: Review & Submit Quality * Address: Step 2: Schedule Exam Step 3: Exam Results HR * City: State/Province/Territory: Zip/Postal Code: Communications * Country: Select a Country ¥ * Field of Study: -- select --* indicates a required field. Risk « Back Next » "PMI", the PMI logo, "PMBOK", "PgMP", "PMP", the PMP logo, and "CAPM" are marks or registered marks of the Project Management Institute, Inc. in the United States and/or other nations. For a comprehensive list of PMI marks contact the PMI Legal Department. Procurement Stakeholder Student Copy – Not for Reproduction or Chuck Millhollan, MBA, MPM, PMP, PgMP 13 Distribution

Process Group

Executing

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Application Process



PROJECT MANAGEMENT INSTITUTE

Making project management indispensable for business results.*

Log Out | Certificat

PMP Application

Step 1: Application | Eligibility Worksheet

<u>Step 1: Application</u> Contact Address Contact E-mail, Phone Attained Education

Requirements

Overview

Worksheet PM Experience PM Education

Optional Information Certificate Agreement

Review & Submit

Step 2: Schedule Exam

Step 3: Exam Results

You can use the following worksheet to track your progress. Qualified requirements must equal or exceed the required totals before the application may be submitted to PMI for review and approval.

	Required	Qualified	Still Need
PM Experience Months:	36	0	36
PM Experience Hours:	4500.00	0.00	4500.00
PM Education Hours:	35.00	0.00	35.00

Meeting the requirements:

- You can update your Project Management Work Experience.
- Or update your Project Management Education.

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling Closin	ng
Knowledge Area					
Integration		Louisv	ille Test	ing Locations	
Scope					
Time					
Cost	Thoms 7400 New	son Prometric La Grange R	Test Center Road, Suite #110	U of L Belknap Campus 106 East Brandeis	
Quality	Lo Pł	ouisville, KY 10ne: (502) 42	40222 23-0478	Louisville, KY 40208 Phone: (502) 852-6607	
HR		Site Code:	1101	Site Code: 1102	
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration			Our ro	oles	
Scope	• I a	m here a	as a facili	itator	
Time	• Yo	u are th	e PMP®	exam	
Cost	cai	ndidates	<u>;</u> !		
Quality					The second second
HR					
Communications					
Risk					J J
Procurement					
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Process Group	Initiating	Planning
Knowledge Area		
Integration	Wa	nt the A
Scope	• Be	st practic
Time	fro	m experi
Cost		en more i
Quality	figl	nt Exam
HR		
Communications		
Risk		
Procurement		
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Want the Answers Before the Test?

Executing

Monitoring & Controlling

Closina

17

- Best practices and lessons learned from experienced faculty members, and even more important...
- PMP Exam candidates fresh from the fight

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Process Group	Initiating	Planning	Executing	Mor	nitoring & Controlling	Closing	
Knowledge Area							
Integration			Note T	aki	ing		
Scope	• Pu	rposeful	ly no "sli	de d	deck" once we	e	
Time	mc	ve into t	the know	led	ge areas		
Cost	 9	 The PMBOK® is your note taking guideget into the source! 					
Quality				-			
HR			20				
Communications				Ĺ			
Risk	_	Note the s	slide head	ers;	they guide you	to	
Procurement	1	the applic	able section	ons	of the PMBOK®		
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PMI-ism Break

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An Introduction to Project Management

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Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling	Closing
Knowledge Area						
Integration		1.2	What is	a	Project?	
Scope	• Defi	ned in term	ns of distincti	ve c	haracteristics – a pro	oject
Time	is a <mark>unic</mark>	temporary que produc	endeavor u t or service	nder	taken to create a	
Cost	–	A product (ei A capability t	nd item or cor	npon ervic	ent) e	
Quality	— <i>F</i>	A result (out	come or docu	ment)
	• <u>Pro</u>	gressive e	laboration		v	
HR	- [Developed ir	n steps and co	ontinu	ing by increments	
	 Ope 	rations and	l project sim	ilariti	es	
Communications	— F	Performed by	y people			
Dick	- (Constrained	by limited res	ource	es	
I VISIC	— F	Planned, exe	ecuted, and co	ontrol	led	
Procurement	Prog	gram – A gi	roup of interr	elate	ed projects in which	
	man	agement is	s coordinated	d		
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	losing
Knowledge Area					
Integration		1.3	Managir	ng a Project	
Scope	• Ide	ntify requ	irements		
Time	• Ass	sess & ad	ldress stal	keholder needs, ns throughout the	
Cost	dur	ation of th	ne project		
Quality	• Co	nstrained			
HR		Scope Quality			
Communications	_ :	Schedule			
Risk	_	Resources			
Procurement	_	Risks			
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing
Knowledge Area						
Integration			Defini	itic	ons	
Scope	• Pro	oject Man	agement	Tł	ne application of	
Time	ma too	nagemen ls. technio	t methods ques) to pr	(k roi€	nowledge, skills, ect activities	
Cost	(pla	anning, sc	heduling a	and	d controlling) to	
Quality	den			ne		
HR	• Pro tasl	b ject Man k focus; it	agement provides	pro spe	ovides process or ecifics of who, wha	ıt,
Communications	VV LIE	en, and n	OW			
Risk						
Procurement		Kel	V			
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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Closing
Knowledge Area						
Integration	1.4	4 Proje	cts & Pr	rog	grams Defined	2
Scope	Pro	oject				
Time	 _	Temporary Undertaker	to create a	unic	nue product or service	د
Cost	—	Defined sta	rting point	unic		,
Quality	-	Defined obj	ectives (dete	ermi	nes end point)	
HR	• Pro	ogram Group of re	lated project	ts		
Communications	((Coordinate Obtain ben	d manageme efits and/or o	ent cont	rol not possible if	
Risk	I	managed ir	ndividually			
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration		Pro	ject Ma	nagement	
Scope					
Time		Project Closure		Project Initiation (Proposal, CE,	
Cost			-	Approval, etc)	
Quality			Monitoring & Control	g	
			Control		
Communications				Project Planning	
Risk		Project Executio	n n	(Charter,	
Procurement				WBS , etc)	
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Executing

Closing

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder



Program vs Project: Important Differentiators

Program	Project
Deliver long term business benefit	Deliver: T, C, Q, and Scope
Focus on ongoing support and full transition	Ends when deliverables are provided
Focus on benefit realization	Goal is to satisfy users
Produce results	Produce product or service

Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing
Knowledge Area	Р	rogram	vs Multi-	Pr	oject: Importan	t
Integration		C	Differe	ntia	ators	
Scope		Progra	m		Multi-project	
Time	Manag interrel	ement of a g ated projects	roup of	Ma ind	anage several projects lependently	
Cost	Progra	m level resp	onsibility	Fu	lly accountable for each	n
Quality	and ma manag	anages proje ers for comp	ct onent	ind	lividual project	
HR	Optimiz	ze resources	across	Ma	nage resources assign	ed to
Communications	program	m		tas	sks for projects	
Risk	Manag comple	e multiple sta ex communic	akeholders; ations	Fo diff	cused on meeting need erent project stakehold	ls for lers
Procurement	Balanc related	ed time acro activities	ss program	Ba pro	lance between concurr bjects competing for tim	ent ie
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling C	losing
Knowledge Area					
Integration					
Scope					
Time	Proj	ects foc	us on de serv	livering a product o ice	r
Cost					
Quality	Pro	ograms	focus on	benefit realization	
HR					
Communications	Portfo	olios de	monstrat	e investment strate	gy
Risk					
Procurement					
Stakeholder	Student Co	opy – Not for R Distributio	eproduction or	Chuck Millhollan, MBA, MPM, PMP, PgMP © 2014, Innovative Management Solutions, LLC	30

Process Group	Initiating	Planning	Executing	N	Ionitoring & Controlling C	losing
Knowledge Area						
Integration		1	.4.4 Th	e'	'PMO"	
Scope	• Ma	inageme	ent struct	ur	e that	
Time	sta	Indardiz	es projec	ct g	governance	
Cost	pro					
Quality	_ (_	Coordinat Prioritizat	e planninę ion	g		
HR	_	Coordinat	ion comm	un	ication	
Communications	_	Resource	sharing			
	_	Methodol	ogies, too	ls &	& techniques	
Risk	—	Responsi	bilities ran	gir	ng from support to	
Procurement	(direct ma	nagement			
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing
Knowledge Area						
Integration		F	PMO St	ru	ctures	
Scope	• Su	pportive	– Consi	ulta	ative, provide	
Time	ten	nplates,	share be	est	practices,	
Cost	coo les	ordinate sons lea	training, arned	C	ollect/manage	
Quality	• Co	ntrolling	– Comp	lia	nce with	
HR	me	ethodolo	gies, gov	/er	nance (moderat	e
Communications	COI	ntrol)				
Risk	• Dir (hi	ective – gh contr	Directly ol)	m	anage projects	
Procurement						
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing
Knowledge Area		1.5 P	roject v	s (Operations	
Integration			Manag	er	nent	
Scope	• Ope	erations				
Time	— (— [On-going act Business pro	tivities ocess or opera	atior	ns management	
Cost	- 1	Product life c	cycle vs proje	ct lif	e cycle	
Quality	- (ntersection development	points (product t, product clos	ct ei Se-O	ut or disposal, etc)	JCt
HR	• Sim – I	ilarities Performed by imited by co	y people			
Communications	- I	Planned, exe	ecuted, monito	orec	& controlled	
Risk	— / F	Achieve orga plans	anizational go	als	& contributes to strategic	;
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration	1.6 Business Value				
Scope	 Sum of all tangible & intangible assets 				
Time	 Created through effective ongoing 				
Cost	ор	erations			
Quality	 Created through effective use of portfolio, program and project 				
HR	management				
Communications	 Strategic planning 				
Risk	—	Portfolios			
		 Program 	ns		
Procurement		– Proj	ects		
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Organizational Influences and Project Life Cycle

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Organizational Structure

Let's Deep Dive PMBOK Table 2-1


Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Clos	sing
Knowledge Area							
Integration	2.1.	4 Orga	nization	al	Process Ass	sets	•
Scope	• Any	y and all p	process re	late	ed assets		
Time	- -	Plans, polic Historical ir	ies, procedu	ures	, guidelines		
Cost	-	Lessons lea	arned				
Quality	 For 	mal or inf	formal				
	• Upo	dated thro	oughout th	ne p	oroject		
HR	• Res	sponsibili	ty primarily	y re	ests with project t	eam	1
Communications	me	mbers					
Diala	Cat	tegories					
RISK	-	Processes	& procedure	es			
Procurement	_	Corporate I	knowledge b	ase			
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Knowledge Area

Closing

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

2.1.5 Enterprise Environmental Factors

- Internal & external factors that influence a project's success
- Not under the project team's control
- Negative or positive
- Inputs to most processes
- Such as
 - Organizational culture, structure, processes
 - Industry standards
 - Existing human resources (capabilities)
 - Personnel administration (staffing, performance reviews)
 - Work authorization systems
 - The PMIS



Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing		
Knowledge Area								
Integration		2.2 P	roject S	Sta	keholders			
Scope	• An	 An individual, group, or organization who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of 						
Time	affe							
Cost	a p	roject						
Quality	• Gro	ouping an	d naming	sta	keholders is the			
HR	prin the	primary aid to identifying who views						
Communications)		
Risk								
Procurement								
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or		Chuck Millhollan, MBA, MPM, PMP, P © 2014, Innovative Management Solutions,	gMP 39 LLC		

Process Group

Initiating

Executing

Knowledge Area

Integration

Scope

Time

Cost



Quality

HR

Communications

Risk

Procurement

Stakeholder

Project Stakeholders

- Project Manager: The person responsible for managing the project
- **Customer**: The individual or organization who will use the product
- Sponsor: The individual or group who creates and approves the project charter and (typically) provides the financial resources for the project
- Expeditor: Simply a communications coordinator w/o decision making or enforcing authority

Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area		2.4 Dr	aiaat Lif	
Integration		2.4 61		ecycle
Scope	• Ger	nerally de	fines	
Time	- \ - \	Nhat Nhen		
Cost	- \	Nho		
Quality	- I • Cor	⊣ow mmon Ch	aracteristi	CS
HR	- (Cost & staf	fing requiren	nents start low and peak
Communications	— I	_evel of un	certainty is h	highest at the beginning
Risk	– / ł	Ability to int highest at t	fluence "proo he beginning	duct" characteristics is
Procurement				
Stakeholder	Student C	opy – Not for I Distributio	Reproduction or	Chuck Millhollan, MBA, MPM, PMP, Pg

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Closing

Let's Dig Into PMBOK Figure 2-8



Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Closing	
Knowledge Area							
Integration		Project "Phases"					
Scope	• Co	mpletior	n of one	(or	possibly more	e)	
Time	de	liverable	es charac	cter	rizes a phase		
Cost	—	Logical se managem	egmentationent, planr	on f ning	or ease of , and control		
Quality	— ,	Aids gove	ernance				
HR	—	Sequentia	al or overla	app	ing phases		
Communications	 De pro 	liverable oduct or	e = meas service	sura	able, verifiable		
Risk	• On	e-size-c	loes-not-	-fit-	all		
Procurement							
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or		Chuck Millhollan, MBA, MPM, PMP, © 2014, Innovative Management Solutions	PgMP 43 , LLC	

Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling	Closing
Knowledge Area						
Integration		L	ife Cycl	еT	Types	
Scope	• Pre	dictive				
Time	_ \	Waterfall				
Cost	— 	Most planni ifecycle	ng (plan-driv	/en)	is completed early i	in the
Quality	 Iter 	ative (inc	remental)			
Quality	— I	Phases "rep	peat" as proc	duct	understanding incre	eases
HR	• Ada	aptive				
Communications	- /	Agile, or ch	ange-driven			
Communications	- 3	Similar to it	erative; howe	ever	, rapid "sprints" with	1
Risk	f	ixed time a	nd cost			
	- 3	Scope and	requirement	s dif	ficult to determine ir	٦
Procurement	ć	advance				
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Project Management Processes

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing		
Knowledge Area							
Integration		3.8	Project	nformation			
Scope	• Wo	ork perfor	mance da	ata – observations			
Time	and me	d measur asureme	rements c ents input	luring work (execut into controlling	ing		
Cost	pro	cesses)		inte controlling			
Quality	• Wo	ork perfor	mance in	formation – data			
HR	ana on	analyzed in context and integrated based on relationships across areas (status.					
Communications	fore	ecasts)		· ·			
Risk	• Wo	ork perfor	mance re	ports –			
Procurement	Re info	presenta prmation	tion of wo	ork performance			
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Page 60 (Close your PMBOK®)



PMI-ism Break

Rita Mulcahy, PMP® Exam Prep, 8th Edition

Practice Test Time!

Chapters 1 - 3

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Project Integration Management

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Process	Group
---------	-------

Knowledge Area

Integration

Scope

Time

Cost

Quality

Communications

Procurement

Stakeholder

HR

Risk

Project Interfaces

- Interface Management is critical during execution
- Interfaces: •
 - Product
 - Infrastructure
 - Resources
 - People interfaces (cross organization)
 - System interfaces (organization, information)
- Goal of project integration: coordinate people, product, infrastructure, system (organization, information) together toward accomplishing the project goals.

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Process Group	Initiating
Knowledge Area	
Integration	
Scope	Doc
Time	pr al
Cost	
Quality	4.1.
HR	-
Communications	. 2
Risk	
Procurement	
Stakeholder	Student

4.1 Develop Project Charter

Monitoring & Controlling

Document that formally authorizes the project & provides PM authority to allocate resources

Executing

- 4.1.1 Inputs
 - .1 Project SOW

Planning

- .2 Business case
- .3 Agreements
- .4 Enterprise environmental factors
- .5 Organizational process assets



Closina

Process	Group
---------	-------

uting Monito

Closing

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Constraints & Assumptions

- Constraint a restriction that well affect the performance of the project
- Assumptions factors, that for planning purposes, are considered to be true, real, or certain
- Assumptions affect all aspects of the project planning, and are part of the progressive elaboration of the project



Process Group	Initiating	Planning	Executing	Monitoring & Controlling C
Knowledge Area				
Integration		4.1 De	velop P	roject Charter
Scope	4.1.2	Tools 8	Technic	ques
Time	.1	Expert Ju	Idgment	
Cost				
Quality				
HR				
Communications	Two b	broad cate	gories of pi	roject selection methods:
Risk	1. Be 2. M	athematic	al models	
Procurement				
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Closing

Process Group	Initiating
Knowledge Area	
Integration	
Scope	• M
Time	• B
Cost	• C
Quality	• T
HR	• Le
Communications	• S
Risk	
Procurement	
Stakeholder	Studen

Reasons to Authorize a Project

Executing

Market Demand

Planning

- Business Need
- Customer Request
- Technological Advance
- Legal Requirement
- Social Need



Monitoring & Controlling

Closing

Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Closing
Knowledge Area						
Integration			Moo	del	S	
Scope	• Nor	n-numeric Sacred Cov		•	Numeric – Payback Period	
Time	_ (Operating N	Vecessity		 – Layback Fellou – Average Rate of 	
Cost) _ 1	Competitive Necessity	9		What about TVM?	
Quality	F — F	Product Lin Extension	е		 DCF or IRR (NP 	V)
Communications	- (Comparativ	e Benefit			
Communications						. /
Risk	NPV	= -(Initia	l Investr	nen	t) + Σ of CF/(1 +	- r) ^t
Procurement						
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Process Group	Initiating	Planning	Executin	g M	lonitoring 8	Controlling	Closing
Knowledge Area			Ν.4		I		
Integration			IVI	ode	S		
Scope	0			1			2
Time	L					_	
Cost	initial oi (\$1,10	лау Ю)	Revenues Expenses	\$1,000 500		Revenues Expenses	\$2,000
Quality	Ļ		Cash flow	\$500 		Cash flow	\$1,000
HR	- \$1,10	0.00	\$500 x <u>1</u>	-			
Communications	+45	4.54 🔸	1.1	0	\$1,00	0 × 1	
Risk	+82	6.45 🔸				1.10 ²	
Procurement	+\$18	0.99 NPV					
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NPV Exercise



NPV Exercise

- Initial cost = \$12,500
- ERR = 15%
- Annual project cash flow
 - Year 1: Revenue \$4,500, Expenses \$750
 - Year 2: Revenue \$7,300, Expenses \$1,400
 - Year 3: Revenue \$11,000, Expenses \$3,200

NPV _(project X) = (-\$12,500) +
$$\frac{4500 - 750}{(1 + 0.15)^1}$$
 + $\frac{7300 - 1400}{(1 + 0.15)^2}$ + $\frac{11000 - 3200}{(1 + 0.15)^3}$
NPV _(project X) = (-\$12,500) + $\frac{3750}{1.15}$ + $\frac{5900}{1.3225}$ + $\frac{7800}{1.5209}$
NPV _(project X) = (-\$12,500) + 3260.87 + 4461.26 + 5128.63
NPV _(project X) = (-\$12,500) + 12850.75 = 350.75

Process Group	Initiating	Planning	Executing	Μ	onitoring & Controlling C	losing
Knowledge Area			_			
Integration		4.1 De	velop P	ro	ject Charter	
Scope	4.1.3	Outputs	s (Figure	4-	3)	
Time	.1	Project C	harter	. •		
Cost		 Project purpose of justification Objectives (SMART) 				
Quality		 High lev – Req 	el uirements			
HR		 Project description Risks 				
Communications		 Summary milestone schedule Summary budget 				
Risk	Approval requirements					
Procurement		Assign ICharter	PM (respons approval (sp	sibili Don:	ty and authority) sor)	
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Knowledge Area

Integration

S	С	0	р	е

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

4.2 Develop Project Management Plan

The PM Plan documents the collection of outputs from each of the processes in the "Planning" process group

4.2.1 Inputs

- .1 Project Charter
- .2 Outputs from planning processes
- .3 Enterprise Environmental Factors
- .4 Organizational Process Assets



Process Group	Initiating
Knowledge Area	4
Integration	
Scope	4.2.
Time	
Cost	
Quality	
HR	
Communications	
Risk	
Procurement	
Stakeholder	Stude

4.2 Develop Project Management Plan

Monitoring & Controlling

Closing

Executing

- 1.2.2 Tools & Techniques
 - .1 Expert Judgment

Planning

.2 Facilitation Techniques

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing		
Knowledge Area	4.2	2 Devel	op Proje	ect Manageme	nt		
Integration		Plan					
Scope	4.2.3	4.2.3 Outputs (Figure 4-5)					
Time	.1	.1 PM Plan					
Cost	 Integrates and consolidates all of the subsidiary management plans and baselines from planning 						
Quality		process	es				
HR							
Communications							
Risk							
Procurement							
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Process Group	Initiating	Planning
Knowledge Area		4.3 Di
Integration		
Scope	4.3.1	Inputs
Time	.1	PM Plar
Cost	.2	Approve
Quality	.3 .4	Organiz
HR		

.1 PM Plan .2 Approved Change Requests .3 Enterprise Environmental Factors .4 Organizational Process Assets



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Stakeholder

Communications

Risk

Procurement

Planning

Executing

4.3 Direct & Manage Project

Execution

Monitoring & Controlling

Closing

Process Group	Initiating	Planning
Knowledge Area		
Integration		Types c
Scope	• Co	orrective
Time	<u> </u>	Brings exp
Cost	• Dr	wan are pr
Quality	• PR	Reduces t
HR		consequer
Communications	• De	fect repa
Risk	—	Document recommer
Procurement		
Stakeholder	Student (Copy – Not for Re Distribution

es of Approved Changes

Executing

Monitoring & Controlling

Closina

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- ve
 - expected future performance in line e plan
- ative
 - es the probability of negative quences associated with risk
- epair
 - nented identification and mendation to repair or replace

for Reproduction or

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	С
Knowledge Area		4.3 Dire	ect & M	anage Project	
Integration			Exec	ution	
Scope	4.3.2	Tools &	Technic	ques	
Time	.1	Expert Ju	dgment		
Cost	.2	PMIS			
Quality	.3	Meetings			
HR					
Communications					
Risk					
Procurement					
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Closing

Process Group	Initiating	Planning	Executing	Monitoring & Controlling Clos
Knowledge Area			A (1 1	
Integration		VVork /	Authoriz	zation System
Scope	 Aut 	horizes v	vork to beg	gin
Time	(\$	Commits re Starts the c	esources (pe clock on that	ople, funds, etc.) to the work portion of the plan and
Cost	Ş	schedule		
Quality	• Lar _ _	ge projec Formal writ Frequently,	ts ten system organizatio	nal form to prepare
Communications	• Sm _ `	all projec Verbal, em	ts ail, etc.	
Risk	- 3	Still a 'form retain contr	al system' a ol of the wor	nd emphasis is needed to rk
Procurement				
Stakeholder	Student C	opy – Not for I Distributio	Reproduction or	Chuck Millhollan, MBA, MPM, PMP, PgMP © 2014, Innovative Management Solutions, LLC

Closing

Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling	Closing	
Knowledge Area		4.3 Dire	ect & M	ana	age Project		
Integration		Execution					
Scope	4.3.3	4.3.3 Outputs (Figure 4-7)					
Time	.1	Deliverabl	es			•	
Cost	Uniqueverifiable product, result, capability						
Quality	.2 Work Performance Data						
HR	.3 Change Requests						
Communications	.4 Project Management Plan Updates						
Communications	.5 Project Document Updates						
Risk							
Procurement							
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Process Group	О
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Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

PM Plan Updates

- Requirements Management Plan
- Schedule Management Plan
- Cost Management Plan
- Quality Management Plan
- Human Resource Plan
- Communications Management Plan
- Risk Management Plan
- Procurement Management Plan
- Project Baselines

Communications

Risk

Procurement

Stakeholder

Process (Group
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Initiating

Knowledge Area

Integration

- Scope
- Time
- Cost
- Quality
- HR
- Communications
- Risk
- Procurement

Stakeholder

Product Document Updates

- Requirements Documents
- Project Logs
 - Issues log
 - Assumptions
- Risk Register (log)
- Stakeholder Register
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Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

4.4 Monitor & Control Project Work

Track, review, regulate...



4.4.1 Inputs

- .1 PM Plan
- .2 Schedule Forecasts
- .3 Cost Forecasts
- .4 Validated Changes (see 4.4.1.4)
- .5 Work Performance Information
- .6 Enterprise Environmental Factors
- .7 Organizational Process Assets

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Process	Group
---------	-------

Knowledge Area

1 - 1 - 1 1	1
Inteo	ration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

4.4 Monitor & Control Project Work

4.4.2 Tools & Techniques

- .1 Expert Judgment
- .2 Analytical Techniques
- .3 PMIS
- .4 Meetings

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration		-	Track Ke	ey Data	
Scope	• Cos	st Perforn	nance		
Time	Sch	nedule Pe	erformance		
Cost		Conforman (product qu	ce to require	ments and specification	S
Quality	_ (Quality of p	roject reporti	ng and tracking, too (pr	oject
HR	 Pla 	n perform	nance ma	aintain the project p	lan
Communications	 Restance 	source ut d costs	ilization c	compare to schedul	е
Risk	• Tea	am perfor	mance (gro	oup and individual)	
Procurement	• Ris	k triggers			
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Process Group	Initiating	Planning
Knowledge Area		
Integration	4.4	Moni
Scope	4.4.3	Outpu
Time	.1	Change
Cost	.2	Work P
	.3	Project
Quality	.4	Project
HR		
Communications		

Risk

Procurement

Stakeholder

4.4 Monitor & Control Project Work

Monitoring & Controlling

4.3 Outputs (Figure 4-9) .1 Change Requests .2 Work Performance Reports .3 Project Management Plan Updates .4 Project Document Updates

Executing



Closina

Process Group	Initiating	Planning	Executing	Monitoring 8	& Controlling	Closing		
Knowledge Area		(Change	Control				
Integration		Outcomes						
Scope	• <u>Ide</u>	ntify and	<u>influence</u> f	actors tha	t create			
Time	cna – e	inge e a ladd-or	n requiremen	t durina exe	ecution phas	e of		
Cost	ł	oroject						
Quality		 Drives so Cost Schedule 	cope change					
HR	• Po		, hon a cha	ngo hac c	ocurrod			
Communications	• <u>Ke</u>	Taking action	on to reflect t	he change i	in the plan			
Risk	-	dentifying	changes in p	erformance	baselines			
Procurement	• <u>Ma</u>	nage actu	ual change	s when th	ey occur			
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Clo
Knowledge Area		. .			
Integration		Integra	ated Cha	ange Control	
Scope	• Key	v activity i	n Executio	n Phase	
Time	 Ret 	ain contro	ol of revisio	ons	
Cost	— S — F	Scope: Sch Requireme	edule, Cost, nts and spec	Staffing ifications: Quality	
Quality	• Imp	ortant to	keep perfo	ormance baselines	
HR	inta ((baseline	s = the pla	n)	
Communications	 Not 	necessa	ry to 'ban'	changesjust identif	ÿ,
Risk	con	trol (and	manage) t	hem	
Procurement	- 1	dentify & Ir	nfluence, Rec	cognize, Manage	
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Clo
Knowledge Area					
Integration	4.5	Perform	n Integrate	ed Change Cont	rol
Scope	4.5.1	Inputs			
Time	.1	PM Plan			
Cost	.2 .3	Work Per Change I	rformance Requests	Reports	
Quality	.4	Enterpris	e Environn	nental Factors	
HR	.5	Organiza	tional Proc	ess Assets	
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		Config	uration
Scope	• Th	ree mair	n objectiv
Time	_	Establish	processe
Cost	i	and asses	ss value o
Quality		considerir	ng impact
HR	— -	Processe to stakeh	s used to
Communications			
Risk			
Procurement			
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or

n Management

Monitoring & Controlling

tives:

- es to identify, request, of changes
- date and improve through ct of changes
- o communicate changes

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Cl
Knowledge Area			_		_
Integration	4.5	Perform	n Integrate	ed Change Conti	rol
Scope	4.5.2	Tools 8	Techniq	ues	
Time	.1	Expert Ju	ıdgment		
Cost	.2	Meetings			
Quality	.2	Change	Jontrol Toc	DIS	
HR					
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration	4.5	Perform	ו Integra
Scope	4.5.3	Output	s (Figure
Time	.1	Approved	d Change
Cost	.2	Change I	_og
Quality	.3 .4	Project M Project D	lanageme locument
HR			
Communications	If a c	hange r	equest is
Risk	rec	<u>a outsia</u> iuires a	<u>e</u> or scop baseline
Procurement			
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or

rated Change Control

- re 4-11) je Requests nent Plan Updates
 - nt Updates
- is feasible, approved, ope, the approval ne change

Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area			_	
Integration		4.6 CI	ose Pro	ject or Phase
Scope	4.6.1	Inputs		
Time	.1	PM Plan		
Cost	.2	Accepted Organiza	l Deliverat	oles Coss Assets
Quality	.0	Organiza		JE33 A33E13
HR				
Communications				
Risk				
Procurement				
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area			, <u> </u>		
Integration		Imp	act of I	ermination	
Scope	• Pro	oject tra	nsfer		
Time	• On	igoing o	perations	5	
Cost	• Pro	oject per	rsonnel		
Quality	• Eq	uipment	/materia	assets	
HR	• Fu	ture pro <u>.</u> 1	jects		
Communications		1			
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	M	Ionitoring & Controlling	Closing
Knowledge Area						
Integration		Т	ermina	tio	n by	
Scope	• Exti	nction	orpot			
Time	— (—)	Deliverable	is external t	to o	r not a fundamental	
Cost	f	iunction of	the parent o	rgaı	nization	
Quality	• Add _	ition Institutional	lized			
HR	–	New Divisio	n			
Communications	-	Most Comn	non			
Risk	– I • Star	Project ass vation	ets redistrib	utec	ł	
Procurement	— I	Budget dec	rement			
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area			-	
Integration		4.6 CI	ose Pro	ject or Phase
Scope	4.6.2	Tools 8	k Technic	ques
Time	.1	Expert Ju	udgment	
Cost	.2	Analytica Mootings	l Techniqu	les
Quality	.0	Meetings		
HR				
Communications				
Risk				
Procurement				
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Process Group	Initiating	Planning	Executing
Knowledge Area			_
Integration		4.6 Cl	ose Pro
Scope	4.6.3	Outputs	s (Figure
Time	.1	Final Pro	duct, Serv
Cost	.2	Organiza	tional Pro
Quality			
HR			
Communications			
Risk			
Procurement			
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or

lose Project or Phase

Monitoring & Controlling

its (Figure 4-13) oduct, Service, or Result Transition ational Process Asset Updates



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PMI-ism Break

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Practice Test Time!

Chapter 4 Project Integration Management

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Project Scope Management

Chuck Millhollan, MBA, MPM, PMP, PgMP IIBA Certified Business Analysis Professional (CBAP) ASQ Certified Six Sigma Black Belt ASQ Certified Software Quality Engineer ASQ Certified Manager of Quality / Organizational Excellence <u>chuck.millhollan@gmail.com</u> Innovative Management Solutions, LLC

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Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		Sc	ope Ma
Scope	"Sco	pe" Det	fined:
Time	The s	sum of t	he produ
Cost	be pr	ovided I	oy a proj
Quality		\M/hat th	o nroioc
HR		wha	t the projec
Communications			
Risk			
Procurement			
Stakeholder	Student C	opy – Not for F	Reproduction or

Scope Management

Monitoring & Controlling

Closina

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Defined:

ibution

of the products and services to ed by a project.



Process Group	Initiating
Knowledge Area	
Integration	
Scope	5.1.
Time	.1
Cost	.2
Quality	.:
HR	
Communications	Doc
Risk	Ve
Procurement	Guio SC
Stakeholder	Student

5.1 Plan Scope Management

Monitoring & Controlling

5.1.1 Inputs

- .1 Project Management Plan
- .2 Project Charter

Planning

- .3 Enterprise Environmental Factors
- 4 Organizational Process Assets

Executing



Closina

Documents how scope will be defined, validated, and controlled Guidance and direction for managing scope

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Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		5.1 Plai	n Scope
Scope	5.1.2	Tools 8	Technic
Time	.1	Expert Ju	idgment
Cost	.2	Meetings	
Quality			
HR			
Communications			
Risk			
Procurement			
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or

an Scope Management

Monitoring & Controlling

Closing

& Techniques Judgment gs

Process Group	Initiating	Planning
Knowledge Area		
Integration		5.1 Pla
Scope	5.1.3	Outpu
Time	.1	Scope N
Cost	.2	Require
Quality		
HR		
Communications		
Risk		
Procurement		
Stakeholder	Student C	opy – Not for Distribut

5.1 Plan Scope Management

Monitoring & Controlling

Closing

5.1.3 Outputs (Figure 5-3) .1 Scope Management Plan

Executing

.2 Requirements Management Plan

Process Group	Initiating	Planning	Executing	Mo	onitoring & Controlling	Closing
Knowledge Area						
Integration		5.2 C	ollect R	eq	uirements	
Scope	• Acti	ve stakel	nolder invo	olve	ement during	
Time	disc	cover and	l decompo	siti	on	
	• Fou	Indation f	or the WB	S		
Cost	— E	Business: h	igh-level nee	eds	(issues/opportunities	6)
Quality	- 3	Stakeholde	r: needs of a	gro	oup	
	a – S	Solution: fe	atures, funct	ions	s and characteristics	
HR 🐛		Function	al = behavior		1.4	
Communications	-	Nonfunct	ional = condit	ions	or qualities	
	—	ransition:	emporary (e	e.g. 1	training)	
Risk	– F r	Project: act needs to m	ions, proces: eet	ses,	, or conditions the pro	oject
Procurement	— ((Quality: cor deliverable	ndition or crit	eria	required to validate	
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or		Chuck Millhollan, MBA, MPM, PMP, Pg © 2014, Innovative Management Solutions, L	MP 95 LC

Process Group	Initiating	Planning
Knowledge Area		
Integration		5.2 (
Scope	5.2.1	Inputs
Time	.1	Scope N
Cost	.2	Require
Quality	.3	Stakeho
	.4	Project (
HR	.5	Stakeho
Communications		
Risk		
Procurement		
Stakeholder	Student C	<mark>opy – Not for</mark> Distribut

2 Collect Requirements

Monitoring & Controlling

Closing

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Jts

- e Management Plan
- uirements Management Plan
- eholder Management Plan

Executing

- ect Charter
- eholder Register

Process Group	Initiating	Planning
Knowledge Area		
Integration		5.2 (
Scope	5.2.2	Tools &
Time	.1	nterviews
	.2 F	Focus Gr
Cost	.3 F	acilitated
Quality	.4 (Group Cr
Quality	.5 (Group De
HR	.6 (Question
	.7 (Observati
Communications	.8 F	Prototype
Risk	.9 E	Benchma
	.10	Context
Procurement	.11	Docume
Stakeholder	Student C	opy – Not fo Distribu

Collect Requirements

Monitoring & Controlling

Closing

Techniques

- S
- oups
- d Workshops
 - eativity Techniques
- ecision Making Techniques

Executing

- naires and Surveys
- ions
- S
- rking
- **Diagram: visual representation**
- ent Analysis

or Reproduction or ition

Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		5.2 C	ollect R
Scope	5.2.3	Outputs	s (Figure
Time	.1	Requirem	nents Doc
Cost	.2	Requirem	nents Man
Quality	.ა	Requiren	
HR			
Communications			
Risk			
Procurement			
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or

lect Requirements

Monitoring & Controlling

Closing

- Figure 5-4) nts Documentation nts Management Plan
 - nts Traceability Matrix

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling Clos	sing			
Knowledge Area								
Integration		Scope Management						
Scope	The p	The processes required to insure that:						
Time	— r	the proje equired	ect include	s all of the work				
Cost	_	only the	work requ	ired				
Quality	_	the proj	ect comp	letes successfully				
HR	- i	controll n the pro	ing what i bject	is and is not included				
Communications								
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		Tw	o Types
Scope	• <u>Pro</u>	<u>oduct</u> So	cope
Time	— I	eatures	
Cost	— I	- unctions	5
	_ (Completi	on measu
Quality	<u> </u>	requireme	<u>ents</u>
HR	• <u>Pro</u>	<u>oject</u> Sco	ope
Communications	<u> </u>	<u>Nork</u> that	must be
	_ (Completi	on measu
Risk	1	<u>olan</u>	
Procurement			
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or

ypes of Scope



Closing

Monitoring & Controlling

- neasured against product
- st be done to deliver product
- measured against the project

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling				
Knowledge Area								
Integration	Scope Definition							
Scope	• De	velops a	a detailed	description of the				
Time	pro	ject and	l product	or service (result)				
Cost								
Quality								
HR								
Communications								
Risk								
Procurement								
Stakeholder	Student C	opy – Not for R Distributio	eproduction or n	Chuck Millhollan, MBA, MPM, PMP, PgMP © 2014, Innovative Management Solutions, LLC				

Process Group	Initiating
Knowledge Area	
Integration	
Scope	5.3.1
Time	.1
Cost	.2
Quality	.3
HR	
Communications	
Risk	
Procurement	
Stakeholder	Student (

5.3 Define Scope



Closing

Monitoring & Controlling

.3.1 Inputs

Planning

- .1 Scope Management Plan
- .2 Project Charter
 - **3 Requirements Documentation**

Executing

4 Organizational Process Assets

Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration		5	.3 Defin	e Scope
Scope	5.3.2	Tools 8	Technic	ques
Time	.1	Expert Ju	Idgment	
Cost	.2	Product A system ar	Analysis: F nalysis, va	Product breakdown, lue stream mapping,
Quality	(etc.	•	
HR	.3 4	Alternativ Facilitate	es Identifi d Worksho	cation
Communications				595
Risk				
Procurement				
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Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		5	.3 Defir
Scope	5.3.3	Outputs	s (Figure
Time	.1	Project S	cope Stat
Cost	 a	Provides (and descr	common ι ibes majo
Quality	ł	Enables c	letailed pl
HR	(and provid change re	des baseli equests
Communications	/	Acceptan	ce criteria
Risk	.2	Project D	ocumenta
Procurement			
Stakeholder	Student C	opy – Not for R Distributio	eproduction or n

In the store

3 Define Scope

s (Figure 5-8) cope Statement

Executing



Closing

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Monitoring & Controlling

common understanding of scope ibes major objectives

letailed planning, guides work, des baseline for evaluating quests

ocumentation Updates

Process Group	Initiating PI	anning	Executing	Ν	Ionitoring & Controlling	С
Knowledge Area						
Integration	PN Table 5		5 th Ed	iti	on Table 5-1	
Scope		Proje	ct Charter		roject Scope Statement	
Time		Project purpos	se or justification	P ()	roject scope description progressively elaborated)	
Cost		and related su	uirements	P	cceptance criteria roject deliverables	
		High-level pro	ject description	P	roject exclusions	
Quality		Summary mile	estone schedule	P	roject assumptions	
HR		Summary bud Stakeholder li	lget st			
Communications		Project approv (what constitu decides it, wh	val requirements tes success, who o signs off)			
Risk		Assigned proj responsibility, level	ect manager, and authority			
Procurement		Name and aut sponsor or oth authorizing th	thority of the her person(s) e project charter			
Stakeholder	Student Copy	– Not for R Distribution	eproduction or າ		Chuck Millhollan, MBA, MPM, PMP, F © 2014, Innovative Management Solutions,	PgMP , LLC

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling Cl
Knowledge Area				
Integration			The V	VBS!
Scope	• De	liverable	e oriented	d hierarchal
Time	deo	composi	tion	
Cost	• Org the	ganizes proiect	and defi	nes "total" scope of
Quality	• \//E	Pleife S subd	ividae int	a manaqaabla 🕋
HR	COL	nponen	ts	
Communications	• Re	present	s current	work specified in
Risk	the sta	current tement	approve	ed project scope
Procurement				
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or	Chuck Millhollan, MBA, MPM, PMP, PgMP © 2014, Innovative Management Solutions, LLC

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Process Group	Initiating	
Knowledge Area		
Integration		
Scope	• Del	iv
Time	1 —	Ne
Cost	1 — 1 —	Ne Ne
Quality	i 1 —	⊃ן \
HR	- 3	Sc
Communications	— ſ	Ne
Risk		
Procurement		
Stakeholder	Student C	op

WBS Type Examples

Executing

Deliverable-oriented

Planning

- New Bank
- New Laboratory
- New Manufacturing Plant
- New Software
- Software Upgrade
- New facility design

Process-oriented

Monitoring & Controlling

 Conducting annual close out at bank

- Converting chemicals to plastics
- Monitoring productivity at outlying site
- Issuing monthly payroll checks
| Process Group | Initiating | Planning |
|----------------|---------------------------------|--------------------------|
| Knowledge Area | | |
| Integration | F | our S |
| Scope | • Sp | ecify th |
| Time | • Ide | ntify sp |
| Cost | res | ults (de |
| Quality | Ide | ntify 10 |
| HR | Sul
act | bdivide
nieved |
| Communications | and | d contr |
| Risk | | |
| Procurement | | |
| Stakeholder | Student C | opy – Not fo
Distribu |

Four Steps to Creating a WBS

Monitoring & Controlling

Closina

- Specify the project objectives (scope)
- Identify specific products, services or results (deliverables)
- Identify 100 percent of the work

Executing

 Subdivide the elements until a level is achieved that is suitable for planning and control

Process Group	Initiating	Planning
Knowledge Area		
Integration		5
Scope	5.4.1	Inputs
Time	.1	Scope M
Cost	.2	Project S
Quality	.3	Requiren
	.4	Enterpris
HR	C.	Organiza
Communications	Know	the DN
Risk	KIIOW	
Procurement		
Stakeholder	Student C	opy – Not for F Distributic

5.4 Create WBS

Monitoring & Controlling

- .1 Scope Management Plan
- .2 Project Scope Statement
- **3 Requirements Documentation**

Executing

- 4 Enterprise Environmental Factors
- .5 Organizational Process Assets

Know the PMBOK®'s WBS!



Closing

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Process Group	Initiating	Plannin
Knowledge Area		
Integration		
Scope	• De	liverat
Time	ele	ments
Cost	• Org	ganize ope of
Quality	• Ea	ch dos
HR	inc	reasin
Communications		
Risk		
Procurement		Source: Pra
Stakeholder	Student C	opy – Not fo Distribi

What is a WBS?

Executing

Monitoring & Controlling

Closing

- Deliverable-oriented grouping of project elements
- Organizes and *defines the total work* scope of the project
- Each descending level represents increasing detail

Source: Practice Standards for Work Breakdown Structures. (2001). PMI.

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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling C	losing	
Knowledge Area							
Integration		Activ	vity vs.	De	eliverable		
Scope	 Act 	tivity = v	vork to b	e c	lone		
Time	- 9	Steps or "	how"				
Cost	 Defined discrete elements of work on a project 						
Quality	_ (Consume	s time & r	esc	ources		
HR	 Deliverable = output of work done 						
Communications		Fangible i	tem or pro	odu	ict		
Risk							
Procurement							
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Process Group	Initiating	Planning	Executing	Mo	onitoring & Controlling	Closi	
Knowledge Area							
Integration		V	Why use	e V	VBS?		
Scope	• As	sists in c	developir	ng	schedule and	cost	
Time	• Pri	mary inp	out to:	U			
Cost	— / —	 Activity Definition Resource planning 					
Quality	_ (Cost estir	nation and	d bu	Idgeting		
HR	-	Risk Man	agement F	Plar	nning		
Communications	 Communicates to stakeholders Assists in reporting progress 						
Risk				•	•		
Procurement	ŝ	Source: Practice Star	ndards for Work Break	down S	Structures. (2001). PMI.		
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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling			
Knowledge Area								
Integration		5	.4 Crea	ate	WBS			
Scope	5.4.2	Tools &	Technic	que	es e			
Time	<u>a</u> 1	Decompo	sition					
Cost	r r	Subdividing the work into smaller, more manageable "work packages." Work						
Quality	Ŗ	backages	are the lo	we	st level of detail.			
HR	Often referred to as "rolling wave" or "iterative" planning							
Communications	.2	Expert Ju	dgment					
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	Mo	onitoring & Controlling	Closing	
Knowledge Area							
Integration		5	.4 Crea	te	WBS		
Scope	5.4.3	Outputs	s (Figure	5-	10)		
Time	.1	Scope Ba	aseline				
Cost	Project Scope Statement						
Quality		WBS Dictionary					
HR	.2	.2 Project Documents Updates					
Communications							
Risk							
Procurement							
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Clos
Knowledge Area					
Integration		5.	5 Valida	te Scope	
Scope	5.5.1	Inputs			
Time	.1 .2	Project Mai Requireme	nagement Pla nts Documen	an tation	
Cost	.3 Requirements Traceability Matrix				
Quality	.4 Verified Deliverables 5 Work Performance Data (e.g. degree of compliance				
HR	with requirements, number & severity of nonconformance, etc.)				
Communications					
Risk	Proces If termi	s of obtaini nated early	ing formal <u>acc</u> , establishes	<u>ceptance</u> from stakehol and documents level o	ders f
Procurement	corr Not cor	ipletion	correctness	of work – that's quality	
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Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Validate Scope vs Control Quality

- Validate Scope: Primarily concerned with acceptance of project deliverables
- Control Quality: Primarily concerned with correctness of the deliverables (requirements)



Process Group	Initiating	Planning	Executing	Monitoring & Controll
Knowledge Area				
Integration		5.	5 Valida	te Scope
Scope	5.5.2	Tools 8	Technic	lues
Time	.1	Inspectio	n	
Cost	.2	Group De	ecision Ma	king Techniques
Quality				
HR				
Communications				
Risk				
Procurement				
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& Controlling

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration		5.	5 Valida	te Scope	
Scope	5.5.3	Outputs	s (Figure	5-15)	
Time	.1	Accepted	l Deliverab	les	
Cost		Documen reasons	t "non-acc	epted" deliverables	with
Quality	.2	Change I	Requests		
HR	.3 Work Performance Information				
Communications	.4	Project D	ocumenta	tion Updates	I A A A A A A A A A A A A A A A A A A A
Risk	Note	this is ir	n the "Mo	nitoring and Con	trol"
Procurement	Pro	ocess G	roup	U	
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or	Chuck Millhollan, MBA, MPM, PMP, F © 2014, Innovative Management Solutions,	'gMP 119 LLC

Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration			Scope	Creep
Scope	• Sm	nall "enh	ancemer	nts" can screw up
Time	ma	jor func	tionality!	
Cost	• Wh	nat caus	es "Scop	e Creep?"
Quality	• Ho iob	w has s ?proi	cope cree iects in ve	ep impacted your organization?
HR	jen		, , , , ,	<u> </u>
Communications			6	
Risk			3	🏂 🛛 🕵 🏂
Procurement				
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Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		Sco	ope Re
Scope	• Sco	ope transl	ates into
Time	— ,	Requireme wants	nts: the sta
Cost	• Qua	ality is "co	onforman
Quality			
HR			
Communications			
Risk			
Procurement	:	Source: Lewis, J. (20	001). Project Planni
Stakeholder	Student C	opy – Not for F	Reproduction o

Relationships

Monitoring & Controlling

- nto requirements
 - stakeholders' specific needs or
- nance to requirements"

Planning, Scheduling, and Control. 3rd ed.

ion or

Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling			
Knowledge Area			_					
Integration	5.6 Control Scope							
Scope	5.6.1	Inputs						
Time	.1 2	Project M	lanageme	nt F	lan Intation			
Cost	.3	Requiren	nents Trac	ceat	oility Matrix			
Quality	.4	.4 Work Performance Data						
HR	.5	Organiza	tional Pro	ces	s Assets			
Communications								
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling				
Knowledge Area								
Integration		5.6 Control Scope						
Scope	5.6.2	Tools 8	Technia	ues				
Time	.1	Variance	Analysis					
Cost								
Quality								
HR								
Communications								
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling			
Knowledge Area							
Integration		5.	6 Contr	ol Scope			
Scope	5.6.3	Output	s (Figure	5-17)			
Time	.1	Work Pe	rformance	Information			
Cost	.2	Change I	Requests	ot Dlan Lindataa			
Quality	.3 Project Management Plan Updates						
HR	.5	Organiza	tional Proc	cess Asset Updates			
Communications							
Risk							
Procurement							
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Integration

Scope	

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Scope Change Control



- Concerned with three things:
 - "...influencing factors that create scope changes to ensure changes are agreed upon,
 - determining that a scope change has occurred
 - managing actual changes when and if they occur."

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Project Time Management

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Process Group	Initiating
Knowledge Area	
Integration	6.
Scope	6.1.1
Time	.1
Cost	.2
Quality	.0
HR	
Communications	
Risk	
Procurement	
Stakeholder	Student C

6.1 Plan Schedule Management

Monitoring & Controlling

Closing

6.1.1 Inputs

- .1 Project Management Plan
- .2 Project Charter

Planning

- **.3 Enterprise Environmental Factors**
- 4 Organizational Process Assets

Executing

Process Group	Initiating
Knowledge Area	
Integration	6.1
Scope	6.1.2 T
Time	.1 E
Cost	.2 A .3 N
Quality	
HR	
Communications	
Risk	
Procurement	
Stakeholder	Student Co

6.1 Plan Schedule Management

Monitoring & Controlling

Closing

Executing

6.1.2 Tools & Techniques

.1 Expert Judgment

Planning

- .2 Analytical Techniques
- .3 Meetings

Process Group	Initiating	Planning
Knowledge Area		
Integration	6.	1 Plar
Scope	6.1.3	Outpu
Time	.1	Schedul
Cost		
Quality		
HR		
Communications		
Risk		
Procurement		
Stakeholder	Student C	opy – Not for Distribut

6.1 Plan Schedule Management

Monitoring & Controlling

Closing

6.1.3 Outputs (Figure 6-4) .1 Schedule Management Plan

Executing

Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		6.2	Define
Scope	6.2.1	Inputs	
Time	.1	Schedule	Managem
Cost	.2	Scope Ba	seline
Quality	.3 .4	Enterprise Organizat	Environn tional Proc
HR			
Communications			
Risk			
Procurement			
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Activities

Monitoring & Controlling

- nent Plan
- ment Factors
- cess Assets

Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling	Closing	
Knowledge Area							
Integration		6.2	2 Define	A	ctivities		
Scope	6.2.2	Tools & T	echniques	5			
Time	.1 [Decomposit	tion – in the	cont	ext of activity defin	ition,	
Cost	<u>i</u> <u>1</u>	<u>nto smaller</u> for estimatii	r <u>, more mana</u> ng, schedulii	<u>agea</u> ng, e	able components (b executing, monitorii	ages asis ng and	
Quality	<u>(</u>	controlling work)					
HR	.2 F N r	Rolling Way Near-term v Nanned at k	ve Planning vork planned pigh level	d in c	detail and future wo	ork	
Communications	.3 E	Expert Judg	ment				
Risk			,				
Procurement							
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration		6.2	2 Define	Activities
Scope	6.2.3	Outputs	s (Figure	6-6)
Time	.1	Activity L	ist: <u><i>Must</i> i</u> r	nclude all activities
Cost	\ 2	will be pe Activity A	rformed or ttributes: I	n the project Distinct from miles
Quality	i i	n that the	y have du	rations and may h
HR	.3	Milestone	e List	requiremente
Communications				
Risk				
Procurement				
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Activities

-6)

- lude all activities that he project
- stinct from milestones tions and may have quirements



Process Group	Initiating	Planning	Executing	M	onitoring & Controll	
Knowledge Area						
Integration		6.3 \$	Sequend	ce	Activities	
Scope	6.3.1	Inputs				
Time	.1 Schedule Management Plan					
Cost	.2	Activity L	ist			
	.3	Activity A	ttributes			
Quality	.4 Milestone List					
HR	.5 Project Scope Statement					
Communications	.6 Enterprise Environmental Factors					
	.7	Organiza	ational Pro	ces	ss Assets	
Risk						
Procurement						
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ring & Controlling

Process Group	Initiating	Planning	Executing	Monitoring & Controlling		
Knowledge Area						
Integration		6.3 5	Sequence	ce Activities		
Scope	6.3.2 T	ools & Tecł	nniques			
Time	.1 F .2 D	Precedence I Dependency	Diagramming Determinatior	Method าร		
Cost	N	Mandatory – Discretionary	Hard logic – Soft logic,	preferred, etc		
Quality	External – Relationship with non-project activities Internal – Relationship between project activities .3 Leads & Lags					
HR						
Communications	L	_ead allows a	acceleration c	of the successor activity		
Risk	In PDM relat	I, F-S is the tionship	e most comm	only used logical		
Procurement						
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Process Group	Initiating	Planning	Executing	Mor	itoring & Controlling	Closin			
Knowledge Area									
Integration		6.3 Sequence Activities							
Scope	6.3.3	Outputs	s (Figure	6-8	,)				
Time	.1	.1 Project Schedule Network Diagrams							
Cost	.2	Project D	ocument l	Upda	ates				
Quality									
HR									
Communications									
Risk									
Procurement									
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing			
Knowledge Area	Network Diagram							
Integration		"Facts"						
Scope	• All I	 All have beginning point and an end point 						
Time	 Rep 	present "p	oredecesso	r" relationships				
Cost	- (Complex re • F-S, S-S	lationships ca , S-F, F-F	an be represented in A	ON			
Quality	 All activities have predecessors 							
	 Exception: first task of network has no predecessor No "bongoro" 							
ΠK	• INO	• INU Hangers						
Communications	 Every task has a "successor" Exception: last task has no "successor" 							
Risk	• No	"loops"						
Procurement								
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Process Group	Initiating	Planning	Executing	Monitoring & Controllin	g Closing		
Knowledge Area	•						
Integration	Network Flow Diagram						
Scope		Activity	, TE	Predecessor			
Time		Α	20				
		В	20				
Cost		С	10				
Quality		D	15	A			
Quality		E	10	B, C			
HR		F	14	B, C			
		G	4	B, C			
Communications		Н	11	С			
Risk			18	G, H			
I NISIX		J	8	D, E			
Procurement	Kerzner, H. (2001). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. 7th ed.						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	С
Knowledge Area					
Integration			Slack (c	or Float)	
Scope	• Fre	e slack	– task de	elay w/o delaying	
Time	SUC	ccessor'	s early s	tart	
Cost	• Tot	tal slack	– task d	elay w/o delaying	
Quality					
HR	• Pro	ecting re	equired d	ue date (desired -	_
Communications	act	ual)			
Risk					
Procurement					
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Network Flow Diagram Exercise



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Process Group	Initiating	Planning	Executing	Monitoring & Controlling C
Knowledge Area				
Integration		Re	esource	Planning
Scope	• Wh	nat		
Time	• Ho	w much		
Cost	• Ou	tput: list	of resou	rce requirements
Quality				
HR				
Communications				
Risk				
Procurement				
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Process Group	Initiating	Planning
Knowledge Area		
Integration	Res	source
Scope	• Dif	ficulty of
Time	• Un	iquene
Cost	Or	ganizat
Quality	tas	KS
ЦD	• Re	source
ПК	• Ou	tsourci
Communications	• Or	anizat
Risk		J
Procurement		
Stakeholder	Student C	opy – Not fo Distribut

urce Planning Considerations

Monitoring & Controlling

Closina

- ulty of the work
- ueness of project scope

Executing

- nization's history of doing similar
- ource availability
- ourcing requirements
- nizational policies

Process Group	Initiating	
Knowledge Area		
Integration	6.	4
Scope	Close	ely
Time	6.4.1	Ir
Cost	.1	S
Quality	.2	A
Quality	.3	A
HR	.4	R
Communications	.5	Ri
Diale	.6	A
RISK	.7	Eı
Procurement	.8	0
Stakeholder	Student C	op

Estimate Activity Resources

y coordinated with Cost Estimating nputs

- chedule Management Plan
- ctivity Lists
- ctivity Attributes
- esource Calendars
- isk Register
- ctivity Cost Estimates
- nterprise Environmental Factors
- rganizational Process Assets

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Planning

Executing

Monitoring & Controlling

Closina
Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration	6.	4 Estin	nate Ac
Scope	6.4.2	Tools &	Technic
Time	.1	Expert Ju	dgment
Cost	.2	Alternativ	es Analys
	.3	Published	d Estimati
Quality	.4	Bottom-u	p Estimati
HR	.5	PM Softw	vare
Communications			
Risk			
Procurement			
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ctivity Resources

iques

- /sis
- ting Data
- iting



Monitoring & Controlling

Process Group	Initiating	Planning
Knowledge Area	_	
Integration	6.	4 Esti
Scope	6.4.3	Outpu
Time	.1	Activity
Cost	-	Types a
Quality	1 2	Note: "W Schedul
HR	.2	Resourd
Communications	.3	Project
Risk		
Procurement		
Stakeholder	Student C	opy – Not fo Distribut

stimate Activity Resources

Monitoring & Controlling

tputs (Figure 6-13) vity Resource Requirements es and quantities of resources required : "When" is determined during edule Development

ource Breakdown Structure

Executing

ect Document Updates



Closina

Process Group	Initiating	Planning
Knowledge Area		
Integration	6	.5 Est
Scope	Note:	Overall
Time	dur	ing Sche
	6.5.1	nputs
Cost	.1 S	Schedule
	.2 A	Activity Lis
Quality	.3 A	Activity At
	.4 /	Activity Re
HR	.5 F	Resource
Communications	.6 F	Project Sc
	.7 F	Risk Regis
Risk	.8 F	Resource
	.9 E	Enterprise
Procurement	.10	Organiza
Stakeholder	Student C	opy – Not fo Distribut

imate Activity Durations

Monitoring & Controlling

project duration is determined edule Development

Executing

- Management Plan
- st
- tributes
- esource Requirements
- Calendar
- cope Statement
- ster
- **Breakdown Structure**
- e Environmental Factors
- ational Process Assets

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Process Group	Initiating	Planning
Knowledge Area		
Integration	6	.5 Est
Scope	6.5.2 ⁻	Tools &
Time	.1 E	Expert Juc
	.2 /	Analogous
Cost	ι	Jsing actu
Quality	l	Accurate i
Quality	t	eam men
HR	.3 F	Parametrie
	(Quantitativ
Communications	.4 -	Three-poir
Dick	.5 (Group Dec
RI5K	.6 F	Reserve A
Procurement		
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Estimate Activity Durations

Monitoring & Controlling

Executing

s & Techniques

- t Judgment
- gous Estimating
 - actual durations from "experience" ate if previous activities are similar in fact & members have needed expertise
- netric Estimating titatively determined
 - -point Estimates
- Decision Making Techniques
- ve Analysis

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Process Group	Initiating
Knowledge Area	
Integration	6.
Scope	6.5.3
Time	.1 A
Cost	.2 F
Quality	Activit
HR	incl
Communications	pos
Risk	pioi
Procurement	
Stakeholder	Student Co

6.5 Estimate Activity Durations

Monitoring & Controlling

Closina

6.5.3 Outputs (Figure 6-15) .1 Activity Duration Estimates .2 Project Document Updates

Executing

Planning

Activity duration estimates should always include some indication of range of possible results (e.g.: +/- time, or % probability)



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Process Group	Initiating	Planning	Executing	Monitor	ing & Controlling	С
Knowledge Area						
Integration	Cc	oncepts	for Du	ration	Estimati	ng
Scope	• Bet	a Distribu	ition: tE	= <u>tO</u>	+4tM + tP	
Time					6	
Cost	• SD	$=\frac{P-O}{6}$	2			
Quality	 Var 	iance = ($\left(\frac{P-O}{6}\right)^2$			
HR	• Tria	ingular di	stribution:	tE = -	$\frac{tO + tM + tP}{3}$	_
Communications						
Risk						
Procurement						
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Pert Exercise

- If P = 24, ML = 12, O = 6
- What is the probability that activity will be completed within 10 16 days?

$$\frac{6+4(12)+24}{6} = 13$$

• SD: $\frac{24-6}{6} = 3$

Ð

13 – 3 (1SD) = 10, 13 + 3 (1SD) = 16; Roughly 68% chance!

• Variance: $3^2 = 9$

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Path Standard Deviation and Variances

	Optimistic	Most Likely	Pessimistic	Triangulation	PERT Weighted Average	Standard Deviation (P - O)/6	Variance SD Squared
Activity A	12	15	24	17	16	2	4
Activity B	6	8	12	8.67	8.33	1	1
Activity C	15	22	33	23.33	22.67	3	9
Activity D	8	11	20	13	12	2	4
		56		62	59		18

Duration if estimates are taken at face value

Path SD 4.24

Duration if optimistic, pessimistic & most likely are averaged

Duration, considering optimistic & pessimistic, and weighting the most likely estimates



One Standard Deviation	54.76	63.24
Two Standard Deviations	50.51	67.49
Three Standard Deviations	46.27	71.73

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling		
Knowledge Area						
Integration		6.6	Develop	Schedule		
	Determ	ine planne	d start and fir	hish dates		
Scope	6.6.1 In	puts				
Time	.1 S	Schedule Ma	nagement Plar	า		
	.2 A	Activity List				
Cost	.3 A	Activity Attrib	utes			
	.4 F	Project Sche	dule Network D	Diagrams		
Quality	.5 A	Activity Reso	urce Requirem	ients		
	.6 F	Resource Ca	lendars			
HR	.7 Activity Duration Estimates					
Communications	.8 F	Project Scop	e Statement			
Communications	.9 F	Risk Register	-			
Risk	.10	Project Staf	f Assignments			
	.11	Resource B	reakdown Stru	cture		
Procurement	.12	Enterprise E	Environmental	Factors		
	.13	<u>Organizatio</u>	nal Process As	sets		
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Closing

Process Group	Initiating	Planning	Executing	Monitoring & Controlling Cl	OS
Knowledge Area					
Integration		6.6	Develop	o Schedule	
Scope	6.6.2	Tools & T	echniques		
Time	.1 S	Schedule N	etwork Anal	ysis	
	.2 (CPM			
Cost	.3 (Critical Cha	in Method: L	everages buffers to manag	je
Quality	f	or limited r	esources an	d uncertainties	
Quality	.4 F	Resource L	eveling	-	
HR	.5 N	Modeling te	chniques		
	.6 L	_eads/Lags)		
Communications	.7 S	Schedule C	ompression		
Diak	.8 S	Scheduling	Tool		
RISK					
Procurement					
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling C	losing
Knowledge Area					
Integration		6.6	Develop	o Schedule	
Scope	• Toc	ols & Tech	nniques Ke	ey Concepts	
Time	— (CPM: ES, E imitations	EF, LS, LF ca	alculated w/o resource	
Cost) – a	Crashing: C activities (C	Compressing BA)	(reducing) the duration of	
Quality	— F	Fast Tracki	ng: Completi v sequential	ng tasks concurrently that	
HR	- (Critical Cha	in Method: N	Adifies schedule to accou	Int
Communications	t C	or limited re durations ai	esources by nd resource	managing buffer activity assignments	
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling C	Closing
Knowledge Area						
Integration			Gantt	Cł	nart	
Scope	• Ho	rizontal	time sca	le		
Time	• Eas	sy to rea	ad			
Cost	• Too	ol for ex	pediting,	SE	equencing and	
Quality	rea	liocatior	1			
HR	 Do dep 	es NOT pendenc	show teo cies	ch	nical	
Communications						
Risk						
Procurement						
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Gantt Chart Diagram Exercise



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Process Group	Initiating	Planning	Executing	Monitoring 8	& Controlling	Closing	
Knowledge Area							
Integration		Goldratt's Critical Chain					
Scope	• Us	 Use Expected Times vs Estimated 					
Time	IIN	nes					
Cost	• Re – I	 Replace slack with buffers Feeding buffer 					
Quality	— F	⊃roject bu	uffer				
HR	• The	Theory of Constraints					
Communications	— / k	 Any barrier to successful, on-time, on- budget completion 					
Risk	- \	– What resources are in heavy demand?					
	_ \	What reso	ources hav	e schedu	ling conflic ⁻	ts?	
Procurement	Source: C	Goldratt, E.M. (2004)). The Goal: A Process	of Ongoing Improve	ment. 3rd revised ed.		
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Process Group	Initiating	Planning	Executing	Μ	onitoring & Controlling	Closing	
Knowledge Area							
Integration		6.6	Develop	\mathbf{S}	Schedule		
Scope	6.6.3	6.6.3 Outputs (Figure 6-17)					
Time	.1	Project S	chedule				
Cost	.2	.2 Schedule Baseline					
Quality	Defines baseline start dates and finish dates						
HR	.3	Schedule	Data				
Communications	.4	Project C	alendars				
Communications	.5 Project Management Plan Updates						
Risk	.6 Project Document Updates						
Procurement							
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Process Group	Initiating	Planning	Executing	\mathbb{N}	onitoring & Controlling	Clos
Knowledge Area						
Integration		Sch	edule C	al	culations	
Scope	• O	verall w	indow of	pr	oject time defin	ned
Time	by	/:				
Cost	_	Estimate Required	ed Start Tir d Complet	me ion	Time	
Quality						
HR						
Communications						
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Clos	
Knowledge Area						
Integration		6.7	Control	Schedule		
Scope	Influe	encing	, determi	ning, managin	g	
Time						
Cost	6.7.1	Inputs				
Quality	.1 Project Management Plan					
	.2 Project Schedule					
HR	.3	Work Pei	formance l	Data		
Communications	.4 Project Calendars					
Risk	.5	Schedule	Data			
T (OI)	.6	Organiza	tional Proc	ess Assets		
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing	
Knowledge Area						
Integration		6.7	Control	Schedule		
Scope	6.7.2	Tools &	Techniq	ues		
Time	.1	Performa	nce Reviev	ws 🎒		
Cost	.2	PM Softw	vare			
	.3	Resource	e Optimizat	ion Techniques		
Quality	.4	Modeling	Technique	es		
HR	.6	Leads & I	_ags			
Communications	.7 Schedule Compression					
	.8	Schedulir	ng Tool			
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing			
Knowledge Area								
Integration		6.7	Control	Schedule				
Scope	6.7.3	Outputs	s (Figure	6-23)	N N			
Time	.1 `	.1 Work Performance Information						
Cost	.2	.2 Schedule Forecasts						
	.3	.3 Change Requests						
Quality	.4	.4 Project Management Plan Updates						
HR	.5	.5 Project Document Updates						
Communications	.6	Organiza	tional Proc	ess Assets Updates	3			
Risk								
Procurement								
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Practice Test Time!

Chapter 6 Project Time Management

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Project Cost Management

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration	(Cost Ma	anagem	ent Processes	
Scope	• Est	imate Co	sts		
Time	- / • Det	Approximat termine B	ion of the co Judget	st for the resources need	led
Cost	– ,	Allocating t	he cost estir	nate to individual work ite	ms
Quality	_ (Output: cos	t baseline		
	• Coi	ntrol Cost	S		
HR	_ (Controlling	changes to	the budget	
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	Ν	Ionitoring & Controlling	С
Knowledge Area		_	_			
Integration		Assum	nption of	f F	Finance 101	
Scope	• Pro	ofits		•	Tangible Costs	
Time	• Pro	ofit margir		•	(Benefits)	
Cost	• Ca	sh Flow A	nalvsis		(Benefits)	
Quality	Interview	ernal Rate	e of	•	Direct Costs	
HR	Ret	turn (IRR)		•	Sunk Costs	
Communications						
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration		7.1 Pla	an Cost	Management
Scope	7.2.1	Inputs		
Time	.1 F .2 F	Project Mar Project Cha	nagement Pl Irter	an
Cost	.3 [Enterprise E	Environment	Factors
Quality	.4 (Organizatio	nal Process	Assets
HR				
Communications				
Risk				
Procurement				
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lanagement

- actors
- ssets

Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		7.1 Pla	an Cost
Scope	7.2.2	Tools & T	echniques
Time	.1 E .2 A	Expert Judo Analytical T	gment echniques
Cost	.3 N	Veetings	
Quality			
HR			
Communications			
Risk			
Procurement			
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an Cost Management

Monitoring & Controlling

Closing

Executing

Techniques

- lgment
- Techniques

Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area			_	
Integration		7.1 Pla	an Cost	Management
Scope	7.2.3	Outputs	s (Figure	7-2)
Time	.1	Cost Mar	agement	Plan
Cost				
Quality				
HR				
Communications				
Risk				
Procurement				
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Process Group	Initiating
Knowledge Area	
Integration	
Scope	Deve
Time	Inclu
Cost	721
Quality	.1
HR	.2
Communications	.4
Risk	.5
Procurement	.7
Stakeholder	Student

Inputs Cost Management Plan 2 HR Management Plan 3 Scope Baseline Project Schedule 5 Risk Register Copy – Not for Reproduction or **Distribution**

Planning

- 6 Enterprise Environmental Factors
- **Organizational Process Assets**

7.2 Estimate Costs

eloping "approximation" of cost of resources des evaluation of different alternatives

Executing Monitoring & Controlling

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	С		
Knowledge Area							
Integration	7.2 Estimate Costs						
Scope	7.2.2 Tools & Techniques						
Time	.1 Expert Judgment						
	.2 Analogous estimating						
Cost	.3 Parametric Estimating						
Quality	.4 Bottom-up Estimating						
Quanty	.5 Three-point Analysis						
HR	.6 Reserve Analysis						
	.7 Cost of Quality						
Communications	.8 PM Estimating Software						
Risk	.9 Vendor Bid Analysis						
	.10 Group Decision Making Techniques						
Procurement							
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing	
Knowledge Area	Cost Estimation					
Integration	Techniques					
Scope	• Ana	 Analogous (Top Down) 				
Time	— / — L	 Actual cost of similar project Less costly, less accurate 				
Cost	Bottom Up estimating					
Quality	 Estimating individual work items and summing More Accurate, time consuming 					
HR	 General approach used by software tools 					
Communications	• Par – l	ametric Jsing know	n rates and o	quantities		
Risk	— <i>F</i>	Accurate				
Procurement						
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & C	Controlling	Closing
Knowledge Area							
Integration	Types of Cost Estimates						
Scope							
Time	Type Estin Rough Orc Magnitude	mate der of V	When ery Early	Es	Why stimate of	Accurac -25% to +7	y 5%
Cost	Magintado			S	election		
Quality	Definitive		Later	Prov e: ac	rides detail, stimates stual cost	-5% to + 1()%
HR							
Communications							
Risk							
Procurement	Source: Sc	chwalbe, K. (2001)	. Information Tech	nology P	roject Managemen	t. 2nd ed.	
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration	(Concep	ots for Co	ost Estimating	
Scope	• Bet	a Distribu	ution: cE	$=\frac{cO+4cM+cP}{6}$	
Time		P_0		0	
Cost	• SD	$=\frac{1}{6}$			
Quality	• Variance = $\left(\frac{P-O}{6}\right)^2$				
HR	• Tria	ingular di	stribution: c	$E = \frac{cO + cM + cP}{3}$	
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing		
Knowledge Area							
Integration	7.2 Estimate Costs						
Scope	7.2.3	Outputs	s (Figure	7-5)			
Time	.1	.1 Activity Cost Estimates					
Cost	.2 Basis of Estimates						
Quality	.3	Project D	ocument l	Jpdates			
HR							
Communications							
Risk							
Procurement							
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Process Group	Initiating	Planning
Knowledge Area		
Integration		7.3
Scope	Establis	shes a co
Time	perf	ormance
Cost	7.3.1 In	puts
	.1 C	Cost Manag
Quality	.2 S	Scope Base
	.3 A	ctivity Cos
HR	.4 E	Basis of Est
Communications	.5 F	Project Sch
Communications	.6 F	Resource C
Risk	.7 F	Risk Regist
	.8 A	greements
Procurement	.0 C	Organizatio
Stakeholder	Student C	opy – Not for Distribut

Initiating

3 Determine Budget

cost baseline for measuring project е

Executing

- agement Plan
- aseline
- ost Estimates
- Estimates
- chedule
- Calendars
- ister
- nts
- tional Process Assets

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Monitoring & Controlling
Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling	Closing
Knowledge Area						
Integration		7.3	Determ	ine	Budget	
Scope	7.3.2	Tools &	Technic	que	S	
Time	.1	Cost Agg	regation)
Cost	(Schedule Compone	Activity – nts – Enti	Wo re P	rk Package – Hi Project	gher
Quality	.2	Reserve	Analysis			
HR	.3	Expert Ju	Idgment			
Communications	.4	Historical	Relations	ships	S	
Communications	.5	Funding l	_imit Reco	oncil	iation	
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling Closing				
Knowledge Area								
Integration			Rese	rves				
Scope	Cor	ntingency	Reserves					
Time	— (— k	 Can be partially planned for Known-unknowns 						
Cost	- e	e.g., known	rate of pers	onnel turnover				
Quality	 Mar 	nagemen	t Reserves	6				
	– l	Jnpredictat	ble					
HR	– l	Jnknown-u	nknowns					
Communications	 Not proj 	 Not a part of the baseline, but included in the project budget (which means not a part of 						
Risk	EVA	4)	,	•				
Procurement								
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closi
Knowledge Area						
Integration		7.3	Determ	in	e Budget	
Scope	7.3.3	Outputs	s (Figure	7-	-7)	
Time	.1	Cost Perf	ormance I	Ba	seline	
Cost	E	Baseline, neasure.	or time-ph monitor, a	nas anc	ed budget used t control cost	:0
Quality	Ŗ	performar	nce; exclu	din	g management	
HR	r a	eserves (and contin	(including ngency res	wc ser	ork package estim ves)	ates
Communications	.2	Project F	unding Re	qu	irements	
Risk	.3	Project D	ocument l	Jp	dates	
Procurement						
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Process Group	Initiating	Planning	Executin	g N	lonitoring/	& Controlling	С
Knowledge Area		_					
Integration		Bu	dget C	Com	pone	ents	
Scope	• Ch	eck out	figure	7-8	(PMBC	OK, 2013	, r
Time	213	3)					
Cost		Period	Harrison				
Quality		Budget	Cost Baseline	Control Accounts	Contingency Reserve Work Package	Activity	
HR		E E			Cost Estimates	Activity Cost Estimates	
Communications		Total Amou					
Risk			Project I	Budget Compo	nent		
Procurement			Figure 7-8. Proj	ect Budge	t Components		
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р.

Budget Estimate Question

- Projected cost = \$2,200,000
- Estimate SD = \$110,000
- Budget (including reserve) = \$2,420,000
- Assuming cost estimates are normally distributed, what is the probability of completing the project over budget?

+/- 1 SD = \$2,310,000 ~ \$2,090,000 +/- 2 SD = \$**2,420,000** ~ \$1,980,000

Here's the logic...

- 95% of the results fall within +/- 2 SDs of an "in control" process
- So...5% of the results fall outside of +/- 2 SDs
- We're only concerned about half of those...over budget...so, we have a 2.5% chance of going over budget ③



Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration		7	.4 Contr	ol Costs
Scope	Influe	encing, r	recording	, informing
Time	7 4 4			
Cost	7.4.1	Inputs		
Quality	.1	Pivi Pian Project F	unding Re	quirements
HR	.3	Work Pe	rformance	Data
Communications	.4	Organiza	itional Proc	ess Assets
Risk				
Procurement				
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration		7	.4 Contr	ol Costs	
Scope	7.4.2	Tools 8	. Technic	lues	
Time	.1	EVM			
Cost	.2	Forecasti	ng		
	.3	TCPI			
Quality	.4	Performa	nce Revie	WS	
HR	.5	PM Softw	vare		
Communications	.6	Reserve	Analysis		
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area			Earned	Value
Integration		Ma	anageme	nt (EVM)
Scope	• Bu	dgeted (Cost of Wo	rk Performed (EV
Time	— — /	Earned Val	ue dgeted for the	work "as of" a date
Cost	• A	ctual Cos	st of Work	Performed (AC):
Quality	— /	Actual Cos	ts for the work	('as of' a date
HR	• Bu _	I dgeted (Planned Va	Cost of Wo alue	rk Scheduled (P∖
Communications	_ \$	Sometimes	called Perfor	mance Baseline or
Risk		Performanc	ce Measurem	ent Baseline
Procurement				
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Planning

- med (EV):
 - " a date
- **d** (AC):
 - te

Executing

uled (PV):



Closing

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area			Varia	nce	
Integration			(Earned	Value)	
Scope	• Cos	st Variand	ce(CV) = E	V - AC	
Time	— _ (Negative in CPI: Repre	dicates over l sent as a <mark>% t</mark>	budget	
Cost	 Sch 	nedule Va	ariance <mark>(S</mark> V) = EV - PV	
Quality	— — ;	Negative in SPI: Repre	dicates behin sent as a % b	d schedule y EV/PV	
HR	• Buc	dget at Co	ompletion (BAC = Baseline or	
Communications	rev	ised budg	get)		
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area	(Cost/Sch	edule Pe	rformance Index
Integration			(CPI/S	SPI)
Scope	• Inc	dicates C	Cost or Sc	hedule Efficiency
Time	for	accomp	olished wo	ork.
Cost	>	1.0 - Ahea	ad of Scheo	dule
	= '	1.0 - On S	Schedule	
Quality	<	1.0 - Behi	nd Schedu	le
HR				
Communications				
Risk				
Procurement				
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration			Earned	Value	
Scope	• Esti	mate at Co	mpletion (EA	C)	
Time	F — F 1	For ETC wor EAC = AC + Note: BAC –	k at budgeted (BAC – EV) EV = Remain	rate (optimistic): ing PV	
Cost	— F	For ETC wor	k at present C	PI (pessimistic):	
Quality	E	$\equiv AC = AC +$	[(BAC - EV) /	CPI]	
HR	E – F E	EAC = BAC / For ETC con EAC = AC +	/ CPI sidering both { [(BAC - EV) /	SPI & CPI (CPI x SPI)]	
Communications	— F	- undamenta	lly flawed estir	nates:	
Risk	E	EAC = AC +	ETC		
Procurement	• Esti E	mate to Co ETC = EAC ·	mplete (ETC · AC)	
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Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

To-Complete Performance Index

 Performance that must be achieved on remaining work to meet a specified goal (i.e. BAC or EAC)



Process Group	Initiating	Planning	Executing	Mor	nitoring & Controlling	Closing
Knowledge Area		_				
Integration		Earne	ed Value	e (I	Exercise)	
Scope		IF :				
Time		E	EV = \$6000			
Cost			0)/ – ¢7000			
Quality		Г	v – \$7000	•		
		А	C = \$8000)		
HR						
Communications		F	ind CV, SV	/, CF	PI, SPI	
Risk						
Procurement						
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Budget Variance



Total Budget:

Activity A is 50% complete & AC are 12,000; EV (A) =

Activity B is 100% complete & AC were \$8,000; **EV** (**B**) =

PV(A) = PV(B) = PV(P) =

CV(A)? CV(B)? CV = - =

SV(A)? SV(B)? SV = - =

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration		7	.4 Contr	ol Costs	
Scope	7.4.3	Outputs	s (Figure	7-11)	
Time	.1	Work Per	formance l	Measurements	
Cost	.2	Cost Fore	ecasts		
	.3	Change F	Requests		
Quality	.4	PM Plan	Updates		
HR	.5	Project D	ocumentat	ion Updates	
Communications	.6	Organiza	tional Proc	ess Asset Updates	
Risk					
Procurement					
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EVM Exercise



PMI-ism Break

Rita Mulcahy, PMP® Exam Prep, 8th Edition

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Practice Test Time!

Chapter 7 Project Cost Management

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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling CI	losing
Knowledge Area						
Integration			Remen	nb	er	
Scope	• Co	st Mana	gement	sh	ould consider	
Time	eff	ect of de	ecisions of	on	the following	
Cost		oduct/co			project	
Quality	_ (Using				
HR	— I	Maintaini	ng			
Communications	— 3	Supportin	ng			
Risk						
Procurement						
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Project Quality Management

Chuck Millhollan, MBA, MPM, PMP, PgMP IIBA Certified Business Analysis Professional (CBAP) ASQ Certified Six Sigma Black Belt ASQ Certified Software Quality Engineer ASQ Certified Manager of Quality / Organizational Excellence <u>chuck.millhollan@gmail.com</u> Innovative Management Solutions, LLC

What is Quality?

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration		C	Quality C	Concepts	
Scope	• Wh	no define	es quality	/?	
Time	• Ho	w have	custome	r expectations	
Cost	eve	olved?			
Quality	• Wł	hat are t	he benef	its of a quality	
HR	pro	ogram?			
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling		
Knowledge Area						
Integration		Elemei	nts of a	Quality Focus		
Scope	 Quality first – not short-term profit 					
Time	 Consumer orientation – not producer 					
Cost	ori	entation				
Quality	 The next process is your customer 					
	• Us	e facts a	and data	to make decisions		
HR	 Respect for knowledge base is a 					
Communications	management philosophy					
Risk	• Cr	oss-func	tional ma	anagement		
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Contro	olling Clo	osing	
Knowledge Area							
Integration		Bottom Line					
Scope	• Ex ⁻	ternal cu	ustomers	define qualit	ty		
Time	 Interview 	ernal cu	stomers	produce qua	lity		
Cost							
Quality	 Albrecht's Theory of Service Relativity 						
ЦD	_ `	- V = R - E					
	—	 Determines net gain or loss 					
Communications							
Risk							
Procurement	Source: Go Managemo	oetsch, D., and Davis ent for Production, P	s, S. (2000). Quality M rocessing, and Service	anagement: Introduction to Tota s. 3rd ed.	l Quality		
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing		
Knowledge Area							
Integration		Resp	onsibilit	y for Quality			
Scope	• The	e primar h the pr	ry respor	sibility for quality is	5		
Time							
Cost	• Qu mu	 Quality is not an assignable task. It must be rooted and institutionalized in 					
Quality	eve	ery proc	ess				
HR	• It is _ \$	 It is everyone's responsibility: Self inspection 					
Communications	-	t's the sv	stem that	causes the problems	-		
Risk	ć	and that is	s manage	nent's responsibility			
Procurement							
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Process Group	Initiating
Knowledge Area	
Integration	
Scope	Proje th
Time	
Cost	Invol ^a pr
Quality	811
Quality HR	8.1.1
Quality HR Communications	8.1.1
Quality HR Communications Risk	8.1.1
Quality HR Communications Risk Procurement	8.1.1

8.1 Plan Quality Management

Monitoring & Controlling

Executing

Project quality management must address management of the project and the product of the project

nvolves identifying which quality standards are relevant to project and determining how to satisfy them

3.1.1 Inputs

- .1 Project Management Plan
- .2 Stakeholder Register
- .3 Risk Register

Planning

- .4 Requirements Documentation
- .5 Enterprise Environmental Factors
- .6 Organizational Process Assets

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Process Group	Initiating	Planning	Executing	Mo	onitoring & Controlling	Closing
Knowledge Area						
Integration		Q	uality S	tar	ndards	
Scope	• Six	Sigma				
Time	• TC	۱L				
Cost	• IS(D (e.g. 1	4000)			
Quality	• ME	BNQA				
HR	• Sy	stems P	erspectiv	ve.		
Communications						
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Closing
Knowledge Area						
Integration		Si	x Sigma	a F	Phases	
Scope	• DM	AIC proc	esses			
Time		Process	map, VOC, St	take	holder analysis	
Cost	- 1	 Sampling 	g, Data collecti	ion,	Process Capability	
Quality	- /	AnalyzeCause al	nalvsis, Hypotl	hes	is testing, DOE	
HR	 Improve Evaluate, plot, & implement solution Verify and measure gains 					
Communications	_ (Control				
Risk		Control cLessons	harts learned, stand	darc	dization, train	
Procurement						
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Process Group	milialing	Planning	Executing
Knowledge Area			
Integration	8	3.1 Plar	n Qualit
Scope	8.1.2 T	ools & Tec	hniques
	.1 E	Benefit/Cost	Analysis
Time	.2 (Cost of Quali	ty
	(Crosby – Co	st of conform
Cost	.3 5	Seven Basic	Quality Tools
	.4 E	Benchmarkin	g
Quality	.5 [Design of Ex	periments
HR	/ 1 t	A structured, elationship I	organized m between facto that process
Communications	6.5	Statistical Sa	molina
	.e e 7 4	Additional Qu	uality Planning
Risk	.,,,	leetings	
Procurement	.01	lectings	
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Initiation

AAAAA CKALIA

Quality Management

Executing

- iniques
 - Analysis



Monitoring & Controlling

t of conformance vs non-conformance

- Quality Tools
- eriments
 - organized method for determining the etween factors (Xs) affecting a process and hat process (Y)
- npling
- ality Planning Tools

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Executing Planning **Process Group** Initiating Monitoring & Controlling **Knowledge Area** PMBOK 5th Edition Figure 8-5 Integration Scope Cost of Conformance Cost of Nonconformance Time Prevention Costs Internal Failure Costs (Build a quality product) (Failures found by the project) Cost Rework Training Document processes Scrap Equipment External Failure Costs Quality Time to do it right (Failures found by the customer) Appraisal Costs Liabilities (Assess the quality) Warranty work HR Lost business Testing Destructive testing loss Inspections Money spent during and after Communications the project because of failures Money spent during the project to avoid failures Risk Figure 8-5. Cost of Quality Procurement Student Copy – Not for Reproduction or Stakeholder Chuck Millhollan, MBA, MPM, PMP, PgMP Distribution © 2014, Innovative Management Solutions, LLC

Closing

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	
Knowledge Area					
Integration		Dem	ning's P	DCA Cycle	
Scope	• Plar	n what to do).		
Time	— ([Could be design features or an improvement in the process itself. Use Pareto analysis to identify the most important aspects. 			
Cost	 Do t 	 Do the experimentation. 			
Quality	 Explore the problem by experimentation, identify and investigate causes. 				
HR	Che	ck the solut	tions.		
		To see if the	assumptions	and ideas were correct.	
Communications	• Act	on the resu	lts.		
Risk	– 1	mplement or	n a scale appi	ropriate to the problem	
Procurement	Source: Go Managemo	Detsch, D., and Davis ent for Production, Pr	, S. (2000). Quality M cocessing, and Service	anagement: Introduction to Total Quality s. 3rd ed.	
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The Seven Basic Quality Tools

Know what they're used for...

Process Group	Initiating	Planning	Executing
Knowledge Area		1. Cau	use-n-E
Integration		(Fis	shbone
Scope	 Visu 	al tool use	d to logical
Time	incre	easing deta	il graphica
Cost	 Help unde 	erstanding	y root caus of the caus
Quality		People	Policie
HR	Cr	rowded Hallways	\ \
Communications	,	lo Directions Provided —	
Risk		Training -	Sign Location
Procurement			Procedures
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n-Effect Analysis ne, Ishikawa)

Monitoring & Controlling

Closing

- ically organize possible causes nically displaying them in
- auses and ensures common auses



Process Group	Initiating	Planning	Executing	Monitoring & Controlling C
Knowledge Area				
Integration			2. Flow	Charts
Scope	Sho	ow the or	der or	(Preparation of appointment book)
Time	seq	uence of	activities	Opening of appointment book
Cost	 Indi dec 	cates act ision poir	tion items hts	Appoint- mert shore or leet? Shore Appointment
Quality	• Use	ed to map	a process	issued (PT reminded to confirm 24 hours prior to appointment)
HR				Patient given confirmation number confirmation number di bio rei confirmation number confirmation number confirmation number new pa
Communications				pace patient show № for appoint- metr?
Risk				Appointment book marked "patient showed"
Procurement				commands
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Process Group	Initiating	Planning	Executing	Mo	onitoring & Controlling	Clos	sing			
Knowledge Area										
Integration		3. Checksheets								
Scope	• Ta	lly sheet	t							
Time	• Us	e for								
Cost	_ (Gathering	g data							
Quality	_	Organizin		مامد		0.000				
HR		Collecting	j attribute	data	a during inspecti	ons				
Communications										
Risk										
Procurement										
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Process Group	Initiating	Planning	Executing	N	Ionitorin	g & Cont	rolling	Clo
Knowledge Area								
Integration		4. Pare	eto Cha	rt,	80/	20 R	ule	
Scope	• Dist	tribution a	arranged i	n f	reque	ncy		
Time	• Gra	phical pio	cture of th	e n	nost f	requei	nt cau	lses
Cost	• Use	ed to dete	ermine gre t	ate	est po	tential	for	
Quality			-	R	educed Payı – After Sta	ment Freight I ndardization –	Bills	
HR			120 - 110 - 100 - 90 - 80 -		January bills	(329) June I	bills (56)	
Communications			"≣ 70 - "5 60 - * 50 - 40 - 30 -		□ _	_		
Risk			20 - 10 - 0 -				Ţ	
Procurement			Contract rat disp ute	Clas	Canad Origins destinatio	Mis Weigh	Reconcile Det	Byn
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or		Chuck M © 2014 Inn	fillhollan, MBA	, MPM, PMP,	, PgMP

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration			5. Histo	ograms
Scope	• Dist	tribution o	of variable	S
Time	 Sur time 	nmarize (e	data collec	cted over a period of
Cost	• Hel	ps identif	y the caus	se from the shape &
Quality	WIG	th of the o	distribution	٦.
HR	E 60 - 50 -	Exam score	es	
Communications	40 - 30 -			
Risk	20 - 10 -	-		
Procurement	0 -	HOTrep data	May 22 to August 4	L,
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Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		6	. Contro
Coore	 Run 	chart with	control limits
Scope	 Math 	nematically	constructing
Time	UCL devi	. & LCL at 3 ations abov	3 standard ve and below
Cost	the a	average	
Quality	 Comever 	nmon cause	es - random
HR	 Specerit everit 	cial causes nts	- unique
Communications	• Goa	l is to deter	mine variatio
Risk	sour	rce, then eli ses & reduc	iminate spec ce common
Procurement	caus	ses to impro	ove quality
	Rule	e of "7s"	
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Monitoring & Controlling

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- 1

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Process Group	Initiating	Planning	Executing	Monit
Knowledge Area				
Integration		7.	Scatter	⁻ Dia
Scope	Sho	ows relation	onship be [.]	tween
Time		Joint failure	s and tempe	erature
Cost	 The vari 	e closer th ables are	ne points related	.the m
Quality	(s	2.1 -		
HR	oicofarad	2.0 - 1.9 - •		
Communications	tance (r	1.8-		•
Risk	Capaci	1.7-	•	
Procurement		40 45 ⁷⁰ Lin	50 55 e Width/Spacing	60 65 (in micron
Stakeholder	Student C	opy – Not for R Distributio	Reproduction or n	Ch © 201

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55 50 65 60 Width/Spacing (in microns) eproduction or

- e points...the more closely the related
- onship between two variables

Scatter Diagram

Monitoring & Controlling

Process Group	Initiating	Plannin
Knowledge Area		
Integration	V	/hat S
Scope	• Sys	stems
Time	wh	ich
Cost	• In	ncur the
Ouglitz	• N	lajor in
Quality	• N	lajor in
HR	• N	lajor in
Communications	• H	ligh imp
	• P	resent t
Risk	• H	lave hig
Procurement	S	elected
Stakeholder	Student C	opy – Not f Distrib

What Should You Benchmark?

Monitoring & Controlling

• Systems, Processes, or Practices which...

Executing

• Incur the highest costs

g

- Major impact on customer satisfaction
- Major impact on cycle time
- Major impact on quality
- High impact on competitive position
- Present the most significant area for improvement
- Have high probability of support and resources if selected

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Process Group	Initiating	Planning	Executing	Monitorin	g & Controlling
Knowledge Area					
Integration	8	8.1 Plar	n Qualit	y Man	agement
Scope	8.1.3	Outputs	s (Figure	8-4)	
Time	.1 (Quality M	anageme	nt Plan	
Cost		Must addr mprovem	ress QC, (ient	QA, and	Continuous
Quality	.2	Process I	mprovem	ent Plan	
HR	.3	Quality M	etrics		
Communications	١	Nhat is m	easured,	how it is	measured
Communications	_4	Quality C	hecklists		
Risk	.5	Project D	ocument l	Jpdates	
Procurement					
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area		-		
Integration		Qı	uality A	ssurance
Scope	• The	e proces	s of aud	liting quality
Time	rec	quiremen	its and r	esults from quality
Cost	cor det	ntrol to e	nsure st are usec	andards and
Quality	o Dri		rnogo io	r to focilitato tha
HR	• Pil	proveme	nt of qua	ality processes
Communications				
Risk				
Procurement				
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Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

8.2 Perform Quality Assurance

Ensure project will employ all processes to meet defined requirements

8.2.1 Inputs to Quality Assurance

- .1 Quality Management Plan
- .2 Process Improvement Plan
- .3 Quality Metrics
- .4 Quality Control Measurements
- .5 Project Documents



Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

8.2 Perform Quality Assurance

8.2.2 Tools & Techniques

- .1 Quality Management and Control Tools
- .2 Quality Audits the objective of a quality audit is to identify inefficient and ineffective polices, processes, and procedures
 - Audits also confirm implementation of approved change requests, corrective actions, defect repairs, and preventive actions
- .3 Process Analysis

Process Group	Initiating	Planning	Executing	Monitoring & Controlling					
Knowledge Area									
Integration	8	.2 Perfo	orm Qu	ality Assurance					
Scope	8.2.3	Outputs	(Figure	8-9)					
Time	.1	Change R	Requests						
Cost	.2	.2 PM Plan Updates							
Quality	.0 .0	A Organizational Process Accets Undates							
HR		Organizat							
Communications									
Risk									
Procurement									
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Clos			
Knowledge Area								
Integration		Quality Control						
Scope	The p	rocess of	monitoring	g and recording resu	ılts			
Time	to a cha	assess pe inges	erformance	and recommend				
Cost		0						
Quality	Key b	enefits						
HR	 Ide qua 	ntify the a ality and r	causes of p ecommenc	oor process or prod led and/or taking ac	luct tion			
Communications	to e	to eliminate the causes						
Risk	 Val req 	idating th uirement	at deliveral s for final a	bles and work meet cceptance				
Procurement								
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Closing

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

8.3 Perform Quality Control

Involves <u>monitoring</u> specific project results to determine if they comply w/ relevant standards & identifying ways to <u>eliminate causes</u> of unsatisfactory results

8.3.1 Inputs to Quality Control

- .1 PM Plan
- .2 Quality Metrics
- .3 Quality Checklists
- .4 Work Performance Data
- .5 Approved Change Requests
- .6 Deliverables
- .7 Project Documents
- .8 Organization Process Assets

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration		8.3 Pe	erform C	Quality Control
Scope	8.3.2	Tools & T	echnique	S
Time	.1 S .2 S	Seven Basi Statistical S	ic Quality To Sampling	ools
Cost	.3 I .4 /	Inspection Approved C	Change Reg	uest Review
Quality				
HR				
Communications				
Risk				
Procurement				
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Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

8.3 Perform Quality Control

Gold Plating is adding "scope" that does not add value or quality to the deliverables

8.3.3 Outputs (Figure 8-11)

- .1 Quality Control Measurements
- .2 Validated Changes: Accepted or rejected
- .3 Verified Deliverables: Correctness of deliverables; Input to Validate Scope
- .4 Work Performance Information
- .5 Change Requests
- .6 PM Plan Updates
- .7 Project Document Updates
- .8 Organizational Process Assets Updates

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PMI-ism Break

Rita Mulcahy, PMP® Exam Prep, 8th Edition

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Practice Test Time!

Chapter 8 Project Quality Management

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Project Human Resource Management

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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling Cl	osing		
Knowledge Area		9.1 Plan Human Resource						
Integration		Management						
Scope	9.1.1 I	Inputs						
Time	.1 F	Project Mar	agement Pla	an				
	.2 A	Activity Res	ource Requi	ren	nents			
Cost	.2 E	.2 Enterprise Environmental Factors						
Quality	(f	Organizational – Working arrangements, formal/informal relationships						
HR	ר r	Technical – What disciplines and specialties are required						
Communications	l r	Interpersonal – Formal/informal "reporting" relationships, cultural impacts, language, etc…						
Risk	.3 (Organizatio	nal Process	Ass	sets			
Procurement								
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Process Group	Initiating	Planning	Executing	Mor	nitoring & Controlling	Closing		
Knowledge Area		9.1 Pla	an Hum	an	Resource			
Integration		Management						
Scope	9.1.2	Tools & T	echniques	5				
Time	.1 ()	Organizatio OBS	nal Charts a	nd P	osition Descriptions			
Cost	F	Resource B	reakdown S	truct	ure (RBS) – breaks			
Quality	C N	down the project by "types" of resources Matrix-based – RAM: e.g. RACI (Responsible,						
HR		Accountable	e, Consult, Ir	nform	n)			
Communications	.2 1	Organizatio	nal Theory		Sec.			
Risk	.4 E .5 N	Expert Judg Meetings	Iment					
Procurement								
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing		
Knowledge Area			Organiza	ational			
Integration			Influer	nces			
Scope	• Pro	ject-base	d organizat	tions have			
Time	mai – N	Matrix (PM	budget autho	rity varieshighest in			
Cost	" — F	strong") Projectized	(PM has alm	ost total authority)			
Quality	Pro	ject mana	agement is	more difficult in no	n-		
HR	proj – f	ject-base ⁻ unctional	d organizat	tions			
Communications	• The	e maturity	of an orga	nization with respe	ct to		
Risk	PM PM	PM systems, culture, style, structure, and PMO can influence project work					
Procurement	1 101						
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Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Functional, Divisional Organizations

- Hierarchies with many levels of management
- People become relatively confined to their own area of specialization
- Driven by a top-down approach in which managers provide considerable direction and have considerable control over others
- Reduces duplication of activities (single division)
- Encourages technical expertise (peer groups)
- Creates narrow perspectives (can foster rivalry)
- Difficult to coordinate across functions

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Clos				
Knowledge Area		_							
Integration		Matrix Structures							
Scope	• Re	inforces	& broad	lens technical					
Time	exc	cellence		_					
Cost	 Fac Bal 	 Facilitates efficient use of resources Balances conflicting objectives of the 							
Quality	org	anizatio	n						
HR	• Inc	 Increases power conflicts 							
Communications	 Inc em 	 Increases confusion & stress for 2-boss employees 							
Risk	• Imp	bedes d	ecision n	naking					
Procurement									
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Process Group	Initiating	Planning	Executing	Monit	oring & Controlling	Clos
Knowledge Area						
Integration		Proj	ectized	Stru	uctures	
Scope	• Pro	oject ma	nager is	the r	esource	
Time	ma	nager		- (l		
Cost	 Pro Ca 	oject ma n lead to	nager na o less eff	is the	e most autho t use of	ority
Quality	res	ources				
HR	• Ca	n limit a	ccess to	tech	nical experti	se
Communications						
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling Close	sing				
Knowledge Area		9.1 Pla	an Huma	In Resource					
Integration		Management							
Scope	9.1.3	9.1.3 Outputs (Figure 9-3)							
Time	.1	Human R	esource Ma	anagement Plan					
Cost		Roles &	responsibili	ties					
		Project c	organization	al chart					
Quality		Staffing	manageme	nt plan 🕋					
HR		Staff release plan							
Communications		Training	needs						
		Recogni	tion and rev	vards					
Risk		Compliance (regulation, unions, etc.)							
Procurement		Safety							
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Process Group	Initiating	Planning	Executing
Knowledge Area		_	
Integration		9.2 Ac	cquire F
Scope	9.2.1	Inputs	
Time	.1	Human R	esource N
Cost	.2	Enterprise	e Environ
Quality	.0	Organizat	
HR			
Communications			
Risk			
Procurement			
Stakeholder	Student C	opy – Not for R	eproduction or

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ire Project Team

Monitoring & Controlling

Closing

Irce Management Plan

- vironmental Factors
- I Process Assets

Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration		9.2 Ac	cquire
Scope	9.2.2	Tools &	Techni
Time	.1	Pre-assig	nment
Cost	.2	Negotiatic managers	ons (with to ensu
Quality		resources	and with
HR	:	scarce/spe	ecialized
	.3	Acquisitio	n
Communications	.4	Virtual Te	ams (Co
Risk	I	more impo	ortant)
Procurement	.5	Multi-Crite Availability	eria Deci /, cost, e
Stakeholder	Student C	opy – Not for R	eproduction o

re Project Team

- hniques



Closina

Monitoring & Controlling

- ith both functional sure competent/available with other PMs to procure zed resources)
- Communications planning
- ecision Analysis: st, experience, ability, etc.

ion or

Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling	Closing			
Knowledge Area									
Integration		Assign the Project Team							
Scope	• "Co	ontinuity'	' is impo	rtar	nt				
Time	_ (Concept T	eam						
Cost	— F	Planning 7	Feam Team						
Quality	— t	Execution	Team						
	• Ke	y skills a	nd playe	ers					
HR		vnood	pontract	(thi	rd party) halp				
Communications	• ivia – F	 way need contract (third-party) help Procurement Planning 							
Risk				5					
Procurement									
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling C					
Knowledge Area									
Integration		9.2 Acquire Project Team							
Scope	9.2.3	Outputs	(Figure	9-8)					
Time	.1	.1 Project Staff Assignments							
Cost	.2 Resource Calendars: Time periods resources are available for work								
Quality	.3	PM Plan l	Jpdates						
HR									
Communications									
Risk									
Procurement									
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Responsibility Assignment Matrix

- Shows level of responsibility for groups and/or individuals
- Graphically links the work to be done to those doing it



Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

9.3 Develop Project Team

Individual development is the foundation necessary to facilitate team development Improve team member skills and feelings to trust and cohesiveness among team members

9.3.1 Inputs



- .1 Human Resource Management Plan
- .2 Project Staff Assignments
- .3 Resource Calendars

Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Clos
Knowledge Area						
Integration		9.3 De	evelop F	⊃r	oject Team	
Scope	9.3.2	Tools &	Technic	que	es	
Time	.1	Interperso	onal Skills)		
Cost	.2	Training				
	.3	Team Bui	Iding Activ	viti	es	
Quality	.4 (Ground R	ules			
HR	.5 (Co-locatio	n			
Communications	.6	Recognition	on & Rew	varo	ds	
	.7	Personne	I Assessn	nei	nt Tools: Attitudina	al
Risk	S	surveys, s	tructured	int	erviews, ability tes	sts,
Procurement	e	etc.				
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Process Group	Initiating	Planning	Executing	Monitoring &	Controlling	Closing			
Knowledge Area									
Integration		Stages	of Tean	ו Develo	opment				
Scope	• Fo	rming: Ir	ndepend	ent, not o	pen				
Time	 Store 	 Storming: Not collaborative 							
Cost	• No	rming: A	Adjusting	work hat	oits and				
Quality	bei	naviors,	learning	to trust					
HR	 Pe org 	 Performing: Functioning as a well- organized unit, working through issues 							
Communications	• Ad	journing	: Releas	ed from tl	ne projec	ct			
Risk									
Procurement									
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Process Grou									

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

SWOTt Analysis

- Strengths Characteristics that allow the business to take advantage of opportunities or reduce the impact of barriers.
- Weaknesses Characteristics that could stand in the way of the business taking advantage of opportunities or reducing the impact of barriers.
- Opportunities Factors outside the business that allow it to take action to grow the business.
- **Threats** Factors outside the business that stands in the way of its efforts to grow the business.
- **Trends** Current factors that contribute to the business success within its industry.

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Process Group	Initiating	Planning	Executing	Mo	onitoring & Controlling	Closing			
Knowledge Area									
Integration		Power "Bases"							
Scope	• Foi	rmal (leg	gitimate)-	– Ir	nvested by the	PM			
Time	role	9							
Cost	• Re	• Reward – Duh 😳 🛛 💭							
Quality	• Pe	nalty (cc	ercive) -	- CC	onsequences				
	• Exp	pert – Pl	M knowle	edç	ge				
HR	• Re	ferent –	team like	es	the PM. or wa	nts			
Communications	tok	be liked	by the P	M	,,				
Risk									
Procurement									
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Process Group Initiating

ting

Planning

Executing Monitor

Monitoring & Controlling

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder



Theory X

- People inherently dislike work
- People must be coerced or controlled to do work to achieve objectives
- People prefer to be directed

Process Group	Initiating	Planning	Executing	Monitoring & Controlling Clos	sing			
Knowledge Area								
Integration		Theory Y						
Scope	• Pe	ople viev	w work a	s being as natural				
Time	as	as play and rest						
Cost	 People will exercise self-direction and - 							
Quality	the	they are committed to						
HR	• Pe	 People learn to accept and seek 						
Communications	res	ponsibili	ity					
Risk								
Procurement								
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Maslow's Hierarchy of Needs



(Abraham Maslow, Motivation and Personality, 1954)

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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing		
Knowledge Area								
Integration	Mo	otivator v	/s Hygie	ne	Factors Theor	У		
Scope	• Mo	tivator fact	ors increas	se jo	ob satisfaction			
Time	- 1 -]	Achievement Recognition		-				
Cost]	 Work itself Responsibility 						
Quality	- 1 - (Advancemen Growth	t					
HR	• Hyg job	giene facto dissatisfac	rs are those tion	e w	hose absence can c	reate		
Communications	— S — (Supervision	licy					
Risk	_ `	Working con	ditions					
	- 2	Salary	1 •					
Procurement	—] — 2	Peer relations Security	ship					
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Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Vroom's Expectancy Theory

- An individual will act in a certain way based on the expectation that the act will be followed by a given outcome and on the attractiveness of that outcome to the individual
- Effort ~ Performance linkage (How hard will I have to work?)
- Performance ~ Reward linkage (What is the reward?)
- Attractiveness (How attractive is the reward?)



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Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder



Ouchi's Theory Z

- Referred to as the "Japanese Management Style"
- Places a large amount of freedom and trust with workers, and assumes that workers have a strong loyalty and interest in team-working and the organization
- Places more reliance on the attitude and responsibilities of the workers vice management perspective (Theories X & Y)

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Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Blanchard & Hershey's Leadership Behavior

- D4 Competent / Commitment
 - Experienced at the job, and comfortable with their own ability to do it well
- D3 Competent / Variable Commitment
 - Experienced and capable, but may lack the confidence/motivation to go it alone



- D2 Some Competence / Low Commitment
 - May have some relevant skills, but won't be able to do the job without help
 - D1 Low Competence / Low Commitment
 - Lacks the specific skills required for the job in hand & and lacks confidence/motivation

Process Group

Initiating

Planning

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder



Situational Leadership

- **Directing** Leaders define the roles and tasks of the 'follower', and supervise them closely
- Coaching Leaders still define roles and tasks, but seeks ideas and suggestions from the follower
- Supporting Leaders pass day-to-day decisions, such as task allocation and processes, to the follower
- Delegating Leaders are still involved in decisions and problem-solving, but control is with the follower

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling C			
Knowledge Area							
Integration			Team E	Building			
Scope	• Ne	ecessary	v to move	e toward project			
Time	goa	als/delive	erables				
Cost	 Symptoms of need for team building: 						
Quality	- Frustration						
НР	_ (Conflict ar	nd unheal	thy competition			
	— l	Jnproduc	tive meeti	ngs			
Communications	– I	_ack of tru	ust or coni	fidence in PM			
Risk	Теа	am building	g is a key in	tegration activity during			
Procurement			project e	xecution			
Stakeholder	Student C	Source Opy – Not for R Distributio	: Verma, V. (1995). M eproduction or n	Lanaging the Project Team. Chuck Millhollan, MBA, MPM, PMP, PgMP © 2014, Innovative Management Solutions, LLC			

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing			
Knowledge Area								
Integration		Team	Building	Ground Rules				
Scope	 Sta 	rt early - i [.]	t takes <i>tin</i>	ne				
Time	• Dor	n't stop - it	t takes eff	ort				
	 Get 	the right	team and	manage toward				
Cost	SUC	Cess						
Quality	- <u>E</u>	<u>Best qualifie</u>	<u>d</u> members					
Quarty	— H	People who	want to be	on the team				
HR	 Get 	team agr	reement o	n all major points				
Communications	 Dor eva 	 Don't manipulate members, but do review and evaluate team success/effectiveness 						
Risk	• Wa ⁻	 Watch for symptoms of team breakdown 						
	 Plai 	n and use	a team b	uilding process				
Procurement								
		Source: Verma	, V. (1995). Managin	g the Project Team.				
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Process Group	Initiating	Planning	Executing	Monite	oring & Controlling	g Clos
Knowledge Area						
Integration		9.3 De	evelop l	⊃roje	ect Team	
Scope	9.3.3	Outputs	(Figure	9-10)	
Time	.1	Team Per	formance	Asse	ssments	
Cost	.2	Enterprise	e Environi	menta	I Factors Up	odates
Quality						
HR						
Communications						
Risk						
Procurement						
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Closing

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

9.4 Manage Project Team

Tracking team member performance, providing feedback, resolving issues, & coordinating changes

9.4.1 Inputs



- .1 HR Management Plan
- .2 Project Staff Assignments
- .3 Team Performance Assessments
- .4 Issue Log
- .5 Work Performance Reports
- .6 Organizational Process Assets

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Process Group	Initiating	Planning
Knowledge Area		
Integration		9.4 N
Scope	9.4.2	Tools
Time	.1	Observ
Cost	.2	Project
		360 deg
Quality	1	from ma
HR	1	team m
	.3	Conflict
Communications	.4	Interpe
Risk		-
Procurement		
Stakeholder	Student C	Copy – Not fo Distribu

9.4 Manage Project Team

0.4.2 Tools & Techniques

.1 Observation and Conversation

Executing

- 2 Project Performance Appraisals 360 degree feedback: feedback provided from many sources, including peers and team members
- **3 Conflict Management**
- .4 Interpersonal Skills

Monitoring & Controlling

Closina

Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration		Sc	ources o	of Conflict
Scope	• Sc	hedules		
Time	• Re	source a	allocatior	ן ר
Cost	• Ch	anging,	conflictir	ng priorities
Quality	• Te	chnical p	perspect	ives
HR	• No	te: perso ludod in	onality co	onflicts are not
Communications			1115 1151	
Risk				
Procurement				
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Process Group	Initiating	Planning	Executing	Μ	Ionitoring & Controlling	Clo
Knowledge Area						
Integration		Co	onflict Ro	es	solution	
Scope	• Wit	thdraw o	r Avoid			
Time	• Sm	nooth or .	Accomm	00	date: Emphasiz	'e
Cost	agreements or conceding to build relationships					
Quality	Compromise or Reconcile: Tends to					
HR	ten	nporarily	or partia	allv	resolve the	
Communications	cor	nflict		~···)		
Risk	• Foi	rce or Di	rect: Win	n-le	ose	
	• Co	llaborate	or Prob	lei	m Solve: Pick t	his
Procurement	one	e! 🙂				
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Process Group	Initiating	Planning	Executing	Μ	onitoring & Controlling	Cl	
Knowledge Area							
Integration		9.4 Ma	anage F	Pro	oject Team		
Scope	9.4.3 Outputs (Figure 9-12)						
Time	.1 (.1 Change Requests					
Cost	Remember, staffing issues/changes can disrupt the project plan and impact both						
Quality	S	schedule a	and budge	et	.Integrated Char	ıge	
HR	Control processes may be used to document impacts						
Communications	.2	.2 PM Plan Updates					
Risk	.3	Enterprise	e Environr	me	ntal Factor Upda	tes	
Procurement	.4	Organizat	ional Prod	ces	s Assets Upda		
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Chapter 9 Project Human Resources Management

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Project Communications Management

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Process Group	Initiating	Planning	Executing	Monitoring & Cor	ntrolling Closing
Knowledge Area		_			
Integration		Comm	unicatio	ns Importa	ance
Scope	• 78-	90% of p	roject mar	ager's job	
Time	• Affe	ects every	y part of a	project	
Cost	• Car	n make o	r break a p	oroject 🤅	
Quality	• Em	ployed by	y everyone	e involved	
HR	• The	ere is a di	rect correl	ation betwee	n the ability
Communications		Junnuni	ale and p	iojeci periori	lance
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	\mathbb{N}	onitoring & Controlling	Closing		
Knowledge Area								
Integration		Comn	nunicati	or	s Realities			
Scope	• Ma	jority of	project c	or	nmunication is			
Time	dor	ne in the	e early sta	ag	es of the project	ct.		
Cost	• Co	 Communications Breakdown (23-27%) 						
Quality	IOS	t in upw	ard comr	mι	inications)			
HR	• Me	etings -	50% of p	orc	oject managers	,		
Communications		0						
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	Moni	toring & Controlling	Clos	sing	
Knowledge Area		10.1 P	lan Con	nmı	unications			
Integration		Management						
Scope	The m	ajority of		catio	ns Planning sh	nould	b	
Time	De (completed	a in the ear	riy p	nases			
Cost	10.1.1	Inputs						
Quality	.1 F	.1 Project Management Plan						
HR	.2 s .3 e	.2 Stakeholder Register .3 Enterprise Environmental Factors						
Communications	.4 (Drganizatio	nal Process /	Asset	S			
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling C	losin			
Knowledge Area		10.1 Plan Communications							
Integration		Management							
Scope	10.1.2	10.1.2 Tools & Techniques							
Time	.1	.1 Communications Requirements Analysis							
Cost	.2	.2 Communications Technology							
Quality	.3	.3 Communications Models 4 Communications Methods							
HR	.5	Meetings							
Communications									
Risk									
Procurement									
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Process Group	Initiating	Planning	Executing	Ν	Ionitoring & Controlling	Clo	
Knowledge Area							
Integration		Comm	nunicatio	on	s Channels		
Scope	• How	w many c re for a te	ommunica	atic	ons channels are		
Time	• For	• For a team of 62					
Cost	• Rer	nember.	about 55%	60	f communication	is	
Quality	non-verbal & a PM spends about 90% of their						
HR			incating				
Communications	# o	of Cha	nnels =	= ($(N^2 - N)/2$		
Risk							
Procurement							
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Closing

Process Group	Initiating	Planning	Executing	Μ	onitoring & Controlling	Clos	
Knowledge Area							
Integration	E	Basic C	ommun	nica	ations Model		
Scope	• Key	v compon	ents:				
Time	— E t	 Encode: translate thoughts/ideas into language tailored for audience 					
Cost	 Message: the output of encoding 						
Quality	— N r	 Medium: "how" the encoder chooses to transmit the message 					
HR	— N t	Noise: barri he messag	ers to either e	[.] tra	nsmission or receipt	of	
Communications	— [t	Decode: tra houghts/ide	nslation fror eas	n la	nguage in to		
Risk		C					
Procurement							
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling C
Knowledge Area				
Integration		Comn	nunicati	ons Methods
Scope	• For	mal		
Time	— F	Presentat	ions	
Cost	— L	_etters	Draaadur	
Quality	- t • Info	olicies &	Procedur	es
HR	- E	Email		
Communications	- 1	Meetings		
Risk	- (Conferen	ce calls	
Procurement				
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling Closing				
Knowledge Area		10.1 Plan Communications						
Integration		Management						
Scope	10.1.	10.1.3 Outputs (Figure 10-3)						
Time	.1	.1 Communications Management Plan						
Cost	Describes how project communications will be planned, structured, monitored and							
Quality	(controlled						
HR	.2	.2 Project Documentation Updates						
Communications								
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration	F	Project	Commu
Scope	• Sta	akeholde	ers
Time	• Info	ormatior	nal Need
Cost	• Me	dium	
Quality	• Tin	ning/Fre	quency
HR	• Re	sponsib	ility
Communications	• Fe	edback	
Risk			
Procurement			
Stakeholder	Student C	opy – Not for F Distributio	eproduction or

nunications Plan

Monitoring & Controlling

- eds
- \checkmark

Closing

Process Group	Initiating
Knowledge Area	
Integration	
Scope	10.2
Time	
Cost	
Quality	•
HR	
Communications	
Risk	
Procurement	
Stakeholder	Studen

10.2 Manage Communications

Monitoring & Controlling

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0.2.1 Inputs

Planning

.1 Communications Management Plan

- .2 Work Performance Reports
- .3 Enterprise Environmental Factors
- .4 Organizational Process Assets

Executing

Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration	1	0.2 Ma	nage C
Scope	10.2.	2 Tools	& Techn
Time	.1	Communi	cation Te
Cost	.2	Communi	cations M
	.3	Communi	cations N
Quality	.4	Informatio	on Manag
HR	.5	Performa	nce Repo
Communications		performar	ice
Risk			
Procurement			
Stakeholder	Student (Copy – Not for R Distribution	eproduction or า

ge Communications

Techniques

- ion Technology
- ons Models
- ons Methods
- Aanagement Systems
- **Reporting:** Project



Monitoring & Controlling

Closing

Process Group	Initiating	Planning	Executing	Monitoring & Controlling C			
Knowledge Area							
Integration	1	0.2 Ma	nage C	ommunications			
Scope	10.2.3 Outputs (Figure 10-6)						
Time	.1 .2	1 Project Communications 2 PM Plan Updates					
Cost	.3	.3 Project Document Updates					
Quality	.4 Organizational Process Assets (Updates) Lessons Learned, Project Records, Reports, Presentations, etc						
Communications	Status	– where the	e project sta	nds related to schedule &			
Risk	budget Progress – what has been accomplished						
Procurement	Forecasting – predict future status and progress						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration		10.3 Cc	ontrol Co	ommunications
Scope	10.3.	1 Inputs		
Time	.1	PM Plan		
Cost	.2	Project C	ommunica	tions
	.3	Issue Log	9	
Quality	.4	Work Per	formance	Data
HR	.5	Organiza	tional Proc	cess Assets
Communications				
Risk				
Procurement				
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing			
Knowledge Area								
Integration	10.3 Control Communications							
Scope	10.3.2 Tools & Techniques							
Time	.1 Information Management Systems							
Cost	.2	Expert Ju	Idgment					
Quality	.3	weetings						
HR								
Communications								
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing			
----------------	------------	--------------------------------	-----------------	--	----------------	--	--	--
Knowledge Area								
Integration	1	0.3 Cc	ontrol Cc	ommunications				
Scope	10.3.	10.3.3 Outputs (Figure 10-8)						
Time	.1	Work Per	formance	Information				
Cost	.2	.2 Change Requests						
Quality	.3	.3 PM Plan Updates						
Quanty	.4	Project D	ocument L	Jpdates				
HR	.5	Organiza	tional Proc	ess Asset Updates				
Communications								
Risk								
Procurement								
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Practice Test Time!

Chapter 10 Project Communications Management

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Project Risk Management

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What is "risk?"

Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Closing	
Knowledge Area							
Integration		R	isk Man	aç	gement		
Scope	• The	e object	ive of Ris	sk	Management i	s to	
Time	inc	rease th	e probal	bilit	ty/impact of		
Cost	po: prc	positive and decrease the probability/impact of the negative					
Quality	•	,			U		
HR							
Communications							
Risk							
Procurement							
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Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Themes that Influence Risk Attitudes

- Risk Appetite: Acceptable degree of uncertainty for anticipated benefit
- Risk Tolerance: Level of risk an organization, or individual, will withstand
- Risk Threshold: Measure of the level of uncertainty or impact; below = accept, above = not tolerate

Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration		11.1 PI	an Risk	Management
Scope	11.1.	1 Inputs		
Time	.1	PM Plan		
Cost	.2	Project C Stakoboli	harter	∩r
Quality	.3	Enterprise	e Environn	nental Factors
HR	.5	Organiza	tional Proc	ess Assets
Communications				
Risk				
Procurement				
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration		11.1 Pl	an Risk	Management	
Scope	11.1.	2 Tools	& Techn	iques	
Time	.1	Analytica	I Techniqu	Ies	
Cost	.2	Expert Ju Meetings	Idgment		
Quality	.0	Meetings			
HR					
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	Mo	onitoring & Controlling	Closing	
Knowledge Area							
Integration		11.1 PI	an Risk	M	anagement		
Scope	11.1.	3 Outpu	ts (Figur	e 1	1-3)		
Time	.1	Risk Man	agement I	Pla	n		
Cost	Includes definitions of risk probability and impact						
Quality	k	* Tailored for each project for use in					
HR	Qualitative Risk Analysis						
Communications							
Risk							
Procurement							
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Process Group	Initiating	Planning	Executing	Μ	onitoring & Controlling	Closing		
Knowledge Area								
Integration		Risk Plan						
Scope	• Risl	 Risk: the uncertainty associated with an event 						
Time	 Ider 	ntify risks	to the pro	jec	t			
Cost	 Both positive and negative Identify threats <i>and</i> opportunities 							
Quality	 Focus on those most likely to occur 							
HR	• Dev	velop pre-	-planned r	esp	onses to most lil	kely		
Communications	with	with big impact						
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	Mor	hitoring & Controlling	Closing
Knowledge Area						
Integration		11	1.2 Iden	tify	Risks	
Scope	11.2.1 li	nputs				
	.1 R	isk Manager	nent Plan			
Time	.2 C	ost Managei	ment Plan			
	.3 S	chedule Mar	nagement Plai	n		
Cost	.4 Q	uality Manag	gement Plan			
Quality	.5 HR Management Plan					
Quality	.6 S	cope Baselir	ne			
HR	.7 A	ctivity Cost E	Estimates			
	.8 A	ctivity Durati	on Estimates			
Communications	.9 S	takeholder F	Register			
	.10	Project Docu	iments			
Risk	.11	Procurement	t Documents			
Droguromont	.12	Enterprise E	nvironmental	Facto	rs	
FIUCUIEIIIEIII	.13 (Organization	al Process As	ssets		
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Process Group	Initiating	Planning	Executing	
Knowledge Area				
Integration		F	Risk Ca	te
Scope	• Tecl	hnical, Qua	ality or Perf	for
Time	relia or in	bility, unpro dustry stan	oven, unreal Idards	ist
Cost	• Proj	ect Manag	ement risk	s: n
Quality	man	agement d	isciplines	• • •
HR	 Orgathat that fund 	anizationa are inconsi ing probler	I risks: cos stent, lack c ns, and resc	st, † of p our
Communications	• Exte	ernal risks:	shifting leg	al
Risk	iabo wea	r Issues, cr ther, Force	manging owr majeure ris	ier ks
Procurement	requ	ire disaste	r recovery	
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Monitoring & Controlling gories r**mance risks:** such as

Closina

- ic, changes to technology
- poor allocation of time and and poor use of project
- time and scope objectives prioritization of projects, rce conflicts
 - or regulatory environment, priorities, country risks, (acts of god) usually

Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling C	losing		
Knowledge Area								
Integration		11	I.2 Iden	tif	y Risks			
Scope	11.2.	11.2.2 Tools & Techniques						
Time	.1	Documer	ntation Rev	vie	WS			
Cost	.2	Information	on Gather	ing	Techniques			
	.3	.3 Checklist Analysis						
Quality	.4	Assumpti	ions Analy	vsis				
HR	.5	Diagramr	ning Tech	nic	ues			
Communications	.6	SWOT A	nalysis					
	.7	Expert Ju	ıdgment					
Risk								
Procurement								
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Source: Wideman, R.M. (1992). Project and Program Risk Management: A Guide to Managing Project Risks and Opportunities.

Knowledge Area

Integration

Scope

Time

Cost

Quality

HR

Communications

Risk

Procurement

Stakeholder

Information Gathering Techniques

- Brainstorming is probably the most frequently used technique
- Delphi technique using a questionnaire to solicit ideas, circulate the responses to anonymous experts on the subject, until reaching consensus
 - Helps reduce bias in the data
 - Keeps any one person from influencing the outcome
- Interviewing the responsible person identifies appropriate individuals, briefs them on the project, provides information (WBS & assumptions) and gathers information based on their experience
- Strengths, weakness, opportunities and threats (SWOT) analysis - ensures examination from each of the SWOT perspectives to increase the breadth of the risk considered

Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration	Info	ormatio	n Gathe
Scope	• Che	cklists - R prical data	isk identificati
Time	- (Quick and si	mple, but may
Cost	– (mportant to closeout for p	update the che possible additic
Quality	 Diag 	gramming	techniques -
HR	- ((Cause-and-E diagrams) ar	Effect Diagrams e useful in ider
Communications	– S i	System or Pr nteracts and	ocess Flow Ch the mechanisr
Risk	— I F	nfluence Dia problem shov	igrams- A grap wing relationsh
	C	outcomes	
Procurement			
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ring Techniques

Monitoring & Controlling

- ion may be gathered from
 - not be comprehensive enough
 - ecklist after each project ons



Closing

- s- (Ishikawa or fishbone ntifying causes of risks
- narts- shows how each element m of causation
- hical representation of a ips among variables and

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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing	
Knowledge Area							
Integration		11.2 Identify Risks					
Scope	11.2.	3 Outpu	ts (Figur	e ´	11-6)		
Time	.1	Risks Re	gister				
Cost] ז	Document that contains outputs from Risk Management processes (identified risks.					
Quality	k	potential r	responses	s, ro	oot causes, etc))	
HR							
Communications							
Risk							
Procurement							
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Process Group	Initiating	Planning
Knowledge Area		
Integration	11.	3 Perfo
Scope	Metho	ds for p
Time	per risk	formanc s
Cost		
Quality	11.3.1	Inputs
HR	.1 5	Scope Ba
Communications	.3 F	Risk Regi
Communications	.4 F	Project Sc
Risk	.5 (Organizati
Procurement		
Stakeholder	Student C	opy – Not for Distribut

Perform Qualitative Risk Analysis

Monitoring & Controlling

Executing

- s for prioritizing risks, improving project rmance, etc...by focusing on high priority
 - nputs
 - k Management Plan
 - ope Baseline
 - k Register (key item for Qualitative Risk Analysis)
 - pject Scope Statement
 - ganizational Process Assets

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Process Group	Initiating	Planning	Executing	Monitoring	& Controlling	Closing		
Knowledge Area								
Integration	11.	3 Perfor	m Qualit	ative Ris	sk Analys	sis		
Scope	11.3.	11.3.2 Tools & Techniques						
Time	.1	Risk Prot	bability & Ii	mpact As	sessment			
Cost	.2	Probabilit	y & Impac	t Matrix				
Quality	.3 .4	.3 Risk Data Quality Assessment .4 Risk Categorization						
HR	.5	.5 Risk Urgency Assessment						
Communications	.6	Expert Ju	Idgment					
Risk	• Pro	bability	Impact	Timina	Frequen	CV		
Procurement			, impuot,	· · · · · · · · · · · · · · · · · · ·	roquon	Су		
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Probability & Impact Matrix (See PMBOK 5th Edition Figure 11-10)

Risk	Impact	Likelihood	Quantification (I X L)	Response
А	High	High	25	Х
В	High	Med	15	Y
С	Med	Med	9	Z
D	Low	Low	1	N/A

High = 5 Med = 3 Low = 1

Process Group	Initiating	Planning	Executing	Monitoring & Controlling C
Knowledge Area				
Integration	11.	3 Perfor	m Qualit	ative Risk Analysis
Scope	11.3.	3 Outpu	ts (Figur	e 11-9)
Time	.1	Project D	ocument l	Jpdates
Cost				
Quality				
HR				
Communications				
Risk				
Procurement				
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Life-Cycle Risk Analysis



Reference: Kerzner, page 880

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Process Group	Initiating
Knowledge Area	
Integration	11.4
Scope	Perform
Time	Ana impa
Cost	
Quality	11.4.1
	.1 R
HR	.2 C
Communications	.3 S
	.4 R
Risk	.5 E
Procurement	.6 C
Stakeholder	Student Co

11.4 Perform Quantitative Risk Analysis

Monitoring & Controlling

Executing

Performed on risks prioritized in Qualitative Risk Analysis as potentially and substantially impactful

11.4.1 Inputs

- .1 Risk Management Plan
- .2 Cost Management Plan
- .3 Schedule Management Plan
- .4 Risk Register

Planning

- 5 Enterprise Environmental Factors
- .6 Organizational Process Assets



Closing

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing		
Knowledge Area							
Integration	11.4	Perforr	m Quantit	ative Risk Analys	sis		
Scope	11.4.2	Tools &	Technique	S			
Time	.1 [Data Gathe	ring and Rep	resentation Techniques			
Cost	.2 C ר	Quantitative Fechniques	e Risk Analys S	is and Monitoring			
Quality	Monte Carlo simulation: numerically analyze the probability of each event and the event's						
HR	consequences Decision Tree Analysis						
Communications	E	Expected M statistically	lonetary Valu calculates av	e (EMV) Analysis: erage outcomes in			
Risk	ι	uncertainty					
Procurement	.3 E	Expert Judg	gment				
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Clos
Knowledge Area					
Integration		Exped	cted Mo	netary Value	
Scope	• Ex	pected	Monetar	y Value - Is the	
Time	sur	nmation	of risk p	probability and ris	k
Cost	cor	nsequen			
Quality	• EXa will	fail the	PMP Ex	am and	hat I
HR	cor	nsequen	ice of do	ing so cost me \$2	275
Communications	to r	etake th	ne test		
Risk	Γ				А
Procurement	⊏x∣ \$2.	рест імс 75	metary	value = \$275 ° .0	
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Closing



Expected Monetary Value

Task	Probability	Impact	Expected
		(Amount at	Value
		Stake)	
A	10%	\$41,000	
В	30%	\$50,000	
С	68%	\$20,000	

Expected Monetary Value

Task	Probability	Impact	Expected
		(Amount at	Value
		Stake)	
A	10%	\$41,000	\$4,100
В	30%	\$50,000	\$15,000
С	68%	\$20,000	<u>\$13,600</u>
			<u>\$32,700</u>

EMV / Decision Tree Exercise



Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closi
Knowledge Area						
Integration	11.4	Perforr	n Quanti	ita	tive Risk Analy	sis
Scope	11.4.	3 Outpu	ts (Figur	e	11-12)	
Time	.1	Project D	ocuments	U	pdates	
Cost	F	Probabilis cost/time	tic analys objectives	is, s, p	probability of mee	eting
Quality	"	quantifie	d" risks, et	tc.		
HR						
Communications						
Risk						
Procurement						
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or n		Chuck Millhollan, MBA, MPM, PMP, F © 2014, Innovative Management Solutions,	gMP 31

Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration		11.5 F	'lan Ris	k Responses
Scope	11.5.	1 Inputs		
Time	.1	Risk Man	agement	plan
Cost	.2	Risk Reg	ister	
Quality				
HR				
Communications				
Risk				
Procurement				
Stakeholder	Student C	opy – Not for R Distributio	eproduction or n	Chuck Millhollan, MBA, MPM, PM © 2014, Innovative Management Soluti

Process Group	Initiating	Planning	Executing	M	onitoring & Controlling C	losing		
Knowledge Area								
Integration		11.5 F	lan Ris	k F	Responses			
Scope	11.5.	2 Tools	& Techni	iqu	Ies			
Time	.1	Strategie:	s for Nega	tive	e Risks or Threats			
Cost		Transferer	, nce					
Quality	.2	Mitigation .2 Strategies for Positive Risks or						
HR	(Opportuni	ties					
Communications		Share						
Risk	0	Enhance						
MISK	.3	Contingei	nt Respon	se	Strategies			
Procurement	.4	Expert Ju	dgment					
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Process Group	Initiating	Planning	Executing	N	Ionitoring & Controlling	Clos
Knowledge Area						
Integration		F	Risk Res	sp	onses	
Scope	Determ	ining HOW	to respond	to	the identified risk	
Time	• Avo the c	idance - El cause	iminate the	spe	ecific threat by elimin	ating
Cost	 Mitig prob 	gation - Re ability or re	educing the i educing the o	imp occ	eact by reducing the surrence of the risk	
Quality	• Trar	nsference -	 Passing th 	ne r	isk on to another	
Quality	• Exp	loit – Ensu	re opportun	ity i	s realized	
HR	 Sha bene 	 Share – Allocate ownership to 3rd party to capture benefit 				
Communications	• Enh	ance – Mo	dify "size" of	f op	portunity	
Pick	• Acc	ept – Acce	pting the ris	k co	onsequence by: 🛛 🔊	
RISK	- C	Developing a	contingency	pla	n	Y
Procurement	— A	Accepting the	e impact			
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing			
Knowledge Area								
Integration	11.5 Plan Risk Responses							
Scope	11.5.	3 Outpu	ts (Figur	e 11-19)				
Time	.1	PM Plan	Updates					
Cost	.2 Project Documents Updates							
Quality								
HR								
Communications								
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	Monitoring & Cor	ntrolling C	losing		
Knowledge Area								
Integration	11.6 Control Risks							
Scope	11.6.	1 Inputs						
Time	.1	PM Plan						
Cost	.2 Risk Register							
Quality	.3 Work Performance Data .4 Work Performance Reports							
HR								
Communications								
Risk								
Procurement								
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or	Chuck Millhollan, MBA © 2014, Innovative Manage	A, MPM, PMP, PgMP ement Solutions, LLC	323		

Process Group	Initiating	Planning	Executing	Mo	nitoring & Controlling	Closing		
Knowledge Area								
Integration	11.6 Control Risks							
Scope	11.6.2 Tools & Techniques							
Time	.1 Risk Reassessment: Rememberliving document)							
Cost	.2 Risk Audits: Document effectiveness of responses and the risk management processes							
	.3 Variance and Trend Analysis							
Quality	4 Technical Performance Measurement							
HR	.5 Reserve Analysis							
Communications	Compare contingency reserves to amount of remaining risks (adequate?)							
Risk	.6 S	Status Meet	tings					
Procurement								
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing			
----------------	--------------------	---------------------------------	---------------------	--	----------------	--	--	--
Knowledge Area								
Integration	11.6 Control Risks							
Scope	11.6.	3 Outpu	its (Figure	e 11-21)				
Time	.1	.1 Work Performance Information						
Cost	.2 3	Change I PM Plan	Requests Undates					
Quality	.0 4	Project D		Indates				
HR	.5	Organiza	tional Proc	ess Assets Updates	S			
Communications								
Risk								
Procurement								
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PMI-ism Break

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Practice Test Time!

Chapter 11 Project Risk Management

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Project Procurement Management

Chuck Millhollan, MBA, MPM, PMP, PgMP IIBA Certified Business Analysis Professional (CBAP) ASQ Certified Six Sigma Black Belt ASQ Certified Software Quality Engineer ASQ Certified Manager of Quality / Organizational Excellence <u>chuck.millhollan@gmail.com</u> Innovative Management Solutions, LLC

Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration	Pr	ocuren	nent Ma	nagement
Scope	• Inc	ludes th	ne proces	sses required to
Time	ace	quire go	ods and	services, to attain
Cost	pro per	oject sco rforming	pe, from organiza	outside the ation
Quality	• Ke	y thoug	ht: make	e or buy
HR	• No	<i>te:</i> Proje	ect procu	irement
Communications	ma	inageme	ent is dis	cussed from the
Risk	pe sel	rspective ler relat	e of the t ionship.	buyer in the buyer-
Procurement			•	

Stakeholder

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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing
Knowledge Area						
Integration		Procu	rement	M	anagement	
Scope	• Co	ntract				
Time	– [Mutually k	binding ag	ree	ement that obligate	S
Cost	؟ – ا	ener and _egallv bi	ndina			
Quality	- I	ncludes t	erms and	со	nditions	
HR						
Communications						
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closi	
Knowledge Area							
Integration	12.1	Plan P	rocurer	ne	ent Manageme	ent	
Scope	12.1.1	Inputs					
Time	.1 P	PM Plan					
	.2 R	Requiremer	nts Documer	ntat	ion		
Cost	.3 R	Risk Registe	er				
Quality	.4 Activity Resource Requirements						
Quanty	.5 P	Project Sch	edule				
HR	.6 A	ctivity Cos	t Estimates				
	.7 S	Stakeholde	r Register				
Communications	.8 E	Interprise E	Environment	al F	actors		
Risk	.9 C	Organizatio	nal Process	As	sets		
Procurement							
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closi			
Knowledge Area									
Integration	12.1	Plan P	rocurer	ne	ent Managem	ient			
Scope	12.1.	2 Tools	& Techn	iqu	Jes				
Time	.1	Make-or-	Buy Analy	sis)				
Cost	.2	.2 Expert Judgment							
Quality	.3	Meetings	esearcn						
HR									
Communications									
Risk									
Procurement									
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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Clos
Knowledge Area						
Integration		Mał	ke or Bu	ען	Analysis	
Scope	• Mal	ke		•	Buy	
Time	— (—	Cost ntegration (of		 Cost Supplier skills 	
Cost	C	operations			 Small volume 	
Quality	– I – [dle existing Direct contr	l capacity ol		requirements Limited capacity 	y
HR	- [Design seci	ecy		 Augment labor 	force
Communications	- (- (Stabilize wo	ork force		- Maintain multipl SOUICES	le
Risk						
Procurement						
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Make or Buy Exercise

You are trying to decide whether to buy or lease an item for your project. The daily lease cost is \$120. To purchase the item the investment cost is \$1000 and the daily cost is \$20. How long will it take for the lease cost to be the same as the purchase cost?

Let D = the number of days when the purchase and lease costs are equal. 120D = 1,000 + 20D 120D - 20D = 1000 100D = 1000D = 10. What does this mean?



Process Group	Initiating	Planning	Executing	Monitoring & Contr
Knowledge Area	E			ve Dont
Integration	C	Suy vs.	Lease	vs. Rem
Scope	• Ler	ngth of ເ	use (futu	re projects?)
Time	• Ca	sh flow;	cost of r	noney; finan
Cost	sta	tement		
Quality	• Te	chnolog	y life spa	In
	• De	preciatio	on and ta	axes
HR	• Ma	intenan	ce; cost	& expertise
Communications	• Ins	urance		
Risk				
Procurement				
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of money; financial

e vs. Rent

Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Closi					
Knowledge Area											
Integration		Contract Type Selection									
Scope	• Go	 Goal : To have reasonable distribution 									
Time	of r	risk betw	veen the	bu	iyer and seller	and					
Cost	the effi	greates	st incenti d econo	ve mio	for the seller's cal performanc	; Ce					
Quality	- [Degree of	f cost and	scł	nedule risk						
HR	— E	Extent of	work defin	nitio	n						
Communications	1 —	Need for f	fast-trackir	ng							
Commanicationic	— E	Extent of	price com	pet	ition						
Risk	— M	Marketpla	ice conditi	ons	6						
Procurement											
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing				
Knowledge Area									
Integration		Contract Types							
Scope	• Fixe	ed Price							
Time	— F — F	Firm fixed p FFP with ec	orice (FFP) conomic pric	e adjustment (FPEPA)					
Cost	— F	Fixed price	incentive fe	e (FPIF) or FPI					
Quality	• Cos	st Reimbu	ırsable						
5	- (Cost plus fix	xed fee (CP	FF)					
HR	- (Cost plus in	centive fee	(CPIF)					
Communications	- (- (Cost plus av	ward fee (Cl ercentage o	PAF) f.cost (illegal in Gov)					
Risk	• Tim	 Time and Materials 							
Procurement	• Pur	chase Or	der (unilat	teral agreement)					
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Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling Closing			
Knowledge Area	Fixed Price Contract Type							
Integration	Comparison							
Scope Time	 Adva - k - F 	antages Know cost up Risk to selle	o front e r	•	Disadvantages May not get consistent quality 			
Cost Quality HR	– (– (v – L r	Competition Compare mu vendors bids Little experie needed - less	Iltiple nce s work for		 Can be costly Seller may under price the work and try to make up profits on change orders 			
Communications Risk	- S i c	Seller has strong ncentive to control costs			 Seller may not complete some of the scope of work if they begin to lose money. 			
Procurement								
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling Closing			
Knowledge Area		Cost	Plus Co	SN	tract Type			
Integration		Comparison						
Scope	• Adv	vantages		•	Disadvantages			
Time	— N f	More influer lexibility	nce &	 Level of involvement auditing of seller 				
Cost	— (e	Could be le	SS		invoices No incentive to finish 			
Quality	- 9	Share risk			quickly or control			
HR	- 9	Scope defi can be moi	nition re		- Harder to evaluate			
Communications	T	lexible			 – Total cost unknown 			
Risk								
Procurement								
Stakeholder	Student C	<mark>opy – Not for R</mark> Distributio	eproduction or		Chuck Millhollan, MBA, MPM, PMP, PgMP 339 © 2014, Innovative Management Solutions, LLC			

Contracts and Procurement Risk



Process Group	Initiating	Planning	Executing
Knowledge Area			
Integration	12.1	Plan F	Procure
Scope	12.1.	3 Outpu	ts (Figu
Time	.1	Procuren	nent Mar
Cost	.2	Procuren describes	the proc
Quality	(detail to a	illow pros e if they a
HR	t	he item	
	.3	Procuren	nent Doc
Communications	_4	Source S	election
Risk	.5	Make or	Buy Dec
Procurament	.6	Change I	Requests
Frocurement	.7	Project D	ocumen
Stakeholder	Student C	opy – Not for F Distributio	Reproduction

rement Management

Monitoring & Controlling

Closing

gure 12-3)

- anagement Plan
- tatements of work ocurement item in sufficient rospective sellers to y are capable of providing
- ocuments
- on Criteria
- ecision
- sts
- ents Updates

ion or



Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	С	
Knowledge Area							
Integration		12.2 Co	onduct	Pr	ocurements		
Scope	12.2.	1 Inputs					
Time	.1	PM Plan					
Cost	.2	Procurem	ent Docu	me	nts		
	.3	.3 Source Selection Criteria					
Quality	.4	Seller Pro	posals				
HR	.5	Project Do	ocuments	•			
Communications	.6	.6 Make-or-Buy Analysis					
	.7	.7 Procurement Statement of Work					
Risk	.8 Organizational Process Assets						
Procurement		-					
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Clos
Knowledge Area					
Integration		12.2 Co	onduct I	Procurements	
Scope	12.2.2	2 Tools &	Technique	es s	
Time	.1 6	Bidder Conf	erences		
Cost	Used to ensure all prospective sellers have a clear understanding of the requirementsall potential sellers are given equal standing during this process				
Quality	.2 Proposal Evaluation Techniques				
HR	.3 I .4 I	ndependen Expert Judg	t Estimates ment		
Communications	.5 /	Advertising			
Risk	l ł	Jsed to exp be a require	and existing ment)	list of potential sellers (r	nay
Procurement	.6 /	Analytical To	echniques		
	.7	Procuremer	nt Negotiatio	ns	
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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Closing		
Knowledge Area								
Integration		12.2 Conduct Procurements						
Scope	12.2.	12.2.3 Outputs (Figure 12-5)						
Time	.1	Selected	Sellers					
Cost	.2	.2 Agreements						
Quality	.3	.3 Resource Calendars						
Quality	.4	Change F	Requests					
HR	.5	PM Plan I	Jpdates					
Communications	.6	.6 Project Documents Updates						
Risk								
Procurement								
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Process Group	Initiating
Knowledge Area	
Integration	
Scope	Cont
Time	(11
Cost	12.3.
Quality	. 4
HR	.2
Communications	
Risk	
Procurement	

Stakeholder

12.3 Control Procurements

Contracts can be amended any time prior to closure (mutual consent & associated change control terms)

Executing

12.3.1 Inputs

- .1 PM Plan
- .2 Procurement Documents
- .3 Agreements

Planning

- .4 Approved Change Requests
- .5 Work Performance Reports
- .6 Work Performance Data



Monitoring & Controlling

Closing

Process Group	Initiating	Planning	Executing	Мс	onitoring & Controlling	Closing	
Knowledge Area							
Integration		12.3 C	Control F	Prc	ocurements		
Scope	12.3.2	Tools & Te	chniques				
Time	.1 C .2 F	.1 Contract Change Control System .2 Procurement Performance Reviews					
Cost	.3 lı .4 F	.3 Inspections & Audits .4 Performance Reporting					
Quality	.5 F	.5 Payment Systems					
	.6 C	Claims Admir	nistration				
HR	.7 F	Records Mar	agement Sys	stem			
Communications	- (Contract Administrator – only person authorized to change 					
Risk	· · · · ·			паут			
Procurement							
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	losiną		
Knowledge Area							
Integration		12.3 C	Control F	Procurements			
Scope	12.3.	3 Outpu	ts (Figure	e 12-7)			
Time	.1	Work Per	formance	Information			
Cost	.2	.2 Change Requests					
Quality	.3	.3 PM Plan Updates .4 Project Documents Updates					
HR	.5	.5 Organizational Process Asset Updates					
Communications							
Risk							
Procurement							
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	losing
Knowledge Area					
Integration		12.4 (Close P	rocurements	
Scope	12.4.	1 Inputs)		
Time	.1	PM Plan			
Cost	.2	Procuren	nent Docu	ments	
Quality					
HR					
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Closing		
Knowledge Area								
Integration		C	ontract	Clo	ose-out			
Scope	• Co	ntract clos	se-out incl	lude	es			
Time	 ;	 Product verification (work completed correctly and satisfactorily) 						
Cost		 Administrative activities (update records to reflect final results) 						
Quality	— ,	 Archiving information for future use 						
HR	• Pro	 Procurement audits identify lessons-learned 						
Communications	• Coi	Contract audits						
Risk		identity bee				5110		
Procurement								
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing		
Knowledge Area								
Integration		12.4	Close P	ro	curements			
Scope	12.4.	12.4.2 Tools & Techniques						
Time	.1	Procuren	nent Audits	5				
Cost	1	Structured review of procurement process from planning through administration						
Quality	.2	Procuren	nent Negot	tiat	tions			
HR	.3	.3 Records Management System						
Communications								
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing		
Knowledge Area								
Integration		12.4 (Close P	ro	curements			
Scope	12.4.	3 Outpu	ıts (Figur	e '	12-9)			
Time	.1	Closed P	rocuremei	nts				
Cost	.2 I	.2 Organizational Process Assets Updates – requirements for formal acceptance and						
Quality	(closure a	re usually	de	fined in a contrac	t		
HR								
Communications								
Risk								
Procurement								
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing		
Knowledge Area							
Integration		Т	erminat	tion by 🌐			
Scope	• Exti	nction					
Time	: :	Successful Deliverable	or not is external t	o or not a fundamental			
Cost	1	function of	the parent o	rganization			
Quality	• Add _	lition Institutional New Divisio	lized				
HR	• Inte	aration					
Communications	_	– Most Common					
Risk	 Star 	rvation		lieu			
Procurement	_	Budget dec	rement				
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Incentive Contract Example

Target Cost	\$100,000
Target Fee	\$10,000
Target Price	\$110,000
Sharing Ratio	80/20
Actual Cost	\$95,000

Fee = \$100,000 - \$95,000 = \$5,000\$5,000 X 20% = \$1,000 \$10,000 + \$1,000 = \$11,000 Final Price = \$95,000 + \$11,000 = \$106,000

Incentive Contract Exercise

Actual Cost	<u>\$105,000</u>
Sharing Ratio	80/20
Target Price	\$110,000
Target Fee	\$10,000
Target Cost	\$100,000

Fee = \$100,000 - \$105,000 = -\$5,000 (reduction in fee) \$5,000 X 20% = \$1,000 \$10,000 - \$1,000 = \$9,000 Final Price = \$105,000 + \$9,000 = \$114,000

Ready for a spin? What if CPPC?

Target Cost	\$120,000
Fee	10% of Cost
Actual Cost	<u>\$130,000</u>

Fee = \$130,000 + (10% of \$130,000) = \$143,000

Remember...most risky contract type for buyer!

Sharing w/ Ceiling Exercise

Target Cost	\$130,000
Target Fee	\$15,000
Target Price	\$145,000
Ceiling Price	\$160,000
Sharing Ratio	80/20
Actual Cost	<u>\$150,000</u>

Fee = \$130,000 - \$150,000 = -\$20,000 (reduction in fee) $$20,000 \times 20\% = $4,000$ \$15,000 - \$4,000 = \$11,000Final Price = \$150,000 + \$10,000 (not \$11,000)= \$160,000

Point of Total Assumption (For FPIC with a Ceiling)





Target Cost	\$130,000
Target Fee	\$15,000
Target Price	\$145,000
Ceiling Price	\$160,000
Sharing Ratio	80/20
Actual Cost	\$150,000

PTA = {(\$160,000 - \$145,000)/.80} + \$130,000 \$15,000/.8 + \$130,000 \$12,000 + \$130,000 = \$142,000

What is this? A risk trigger.

PMI-ism Break

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Practice Test Time!

Chapter 12 Project Procurement Management

Project Stakeholder Management

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Process Group	Initiating	Planning	Executing	Monitoring & Controlling
Knowledge Area				
Integration	Pro	oject S [.]	takeholo	der Managem
Scope	• Pro		d to identi	fy people, groups
Time	org	anization	s that coul	d impact or be imp
Cost	AnaDev	alyze exp velop app	ectations a propriate m	and their impacts nanagement strate
Quality	• Foo	cus		
HR	((Continuous Understanc	communica I needs and	itions expectations
Communications	— ,	Address iss	sues, conflict	ts as they occur
Risk	_	Foster appi	opriate stak	eholder engagement
Procurement				
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nagement

- , groups or or be impacted
- impacts
- ent strategies

- ns
- occur
- gagement



Closing

Process Group	Initiating	Planning	Executing	M	onitoring & Controlling C	losing
Knowledge Area						
Integration		13.1 I	dentify	Sta	akeholders	
Scope	13.1.	1 Inputs				
Time	.1	Project C	harter			
Cost	.2	Procurem Entorpris	nent Docu	me moi	nts atal Factors	
Quality	.4	Organiza	tional Pro	ces	s Assets	
HR						
Communications						
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	Monito	oring & Controlling	Closing
Knowledge Area						
Integration		13.1 l	dentify \$	Stak	eholders	
Scope	13.1.	2 Tools	& Techn	iques	5	
Time	.1	Stakeholo	der Analys	is: pro	ocess of colle	ecting
Cost	i	and evalu	ating quar on to deter	ntitativ mine v	e and qualita	ative sts
Quality	s r	should be project	taken into	o acco	ount during th	le
HR	.2	Expert Ju	Idgment			
Communications	.3	Meetings				
Risk						
Procurement						
Stakeholder	Student C	opy – Not for R Distributio	eproduction or	Chu © 2014	ick Millhollan, MBA, MPM, PM , Innovative Management Solution	IP, PgMP 363 ons, LLC

Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling	Closing
Knowledge Area						
Integration		Cla	ssificati	ion	Models	
Scope	• Pov leve	wer / Intei el of conc	rest Grid: I ern (Figur	leve re 13	l of authority an 3-4)	d
Cost	• Pov leve	wer / Influ el of activ	ence Grid e involven	: lev nent	vel of authority a	and
Quality	• Infl invo	uence / Ir olvement	npact Gric and ability	d: lev / to /	vel of active effect change	
HR	 Sal 	ience Mo	del: descr	ibes	s classes of	
Communications	stal ura	keholders encv. and	s based or d legitimad	n the cv/ar	eir power, situati opropriateness	ional in
Risk	the	ir involvei	ment	, , , , ,		
Procurement						
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or	C	Chuck Millhollan, MBA, MPM, PMP, 2014, Innovative Management Solution	, PgMP 364 is, LLC

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration		13.1 I	dentify	Stakeholders	
Scope	13.1.	3 Outpu	ts (Figur	e 13-3)	
Time	.1	Stakehol	der Regist	er	
Cost					
Quality					
HR					
Communications					
Risk					
Procurement					
Stakeholder	Student C	opy – Not for F Distributio	Reproduction or	Chuck Millhollan, MBA, MPM, PMP, Pg © 2014, Innovative Management Solutions, I	MP 365 LC

Process Group	Initiating	Planning	Executing	Monitorin	g & Controlling	Closing
Knowledge Area						
Integration	13.2	Plan S	Stakeho	lder N	lanagem	ent
Scope	13.2.	1 Inputs)			
Time	.1	PM Plan				
Cost	.2	Stakeholo	der Regist	er Sostal F	- o oto ro	
Quality	.3	Organiza	tional Pro	cess As	sets	
HR						
Communications						
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration	13.2	Plan S	Stakeho	lder Manager	nent
Scope	13.2.2	2 Tools	& Techn	iques	
Time	.1	Expert Ju	Idgment		
Cost	.2	Meetings	IToobaiau		
Quality	.0.	Analytica	riechniqu	IES	
HR					
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	Monitoring & Co
Knowledge Area		En	gagem	ent Levels
Scope Time Cost Quality HR Communications	 Una and Res resis Neu neith resis Sup supp Lead activ 	ware – of p /or potentia istant – awa stant to cha tral – aware her support stant portive – av cortive ding – awar /ely engage	roject l impacts are and nge e and ing nor ware and ware and	 Where an currently? What is the level of engagement
Procurement Stakeholder	Student C	opy – Not for F	eproduction or	r Chuck Millhollan, M

What is the desired level of engagement?

currently? •

Where are they

Monitoring & Controlling

Closing

Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Knowledge Area					
Integration	13.2	Plan S	Stakeho	Ider Managem	ent
Scope	13.2.	3 Outpu	ts (Figur	e 13-6)	
Time	.1	Stakeholo	der Manag	gement Plan	
Cost	.2	Project D	ocument l	Jpdates	
Quality					
HR					
Communications					
Risk					
Procurement					
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Process Group	Initiating	Planning	Executing	Ν	Ionitoring & Controlling Cl	osing
Knowledge Area		13.3 N	/lanage	e S	Stakeholder	
Integration			Engag	er	nent	
Scope	13.3.	1 Inputs				
Time	.1	Stakehold	ler Manag	ger	nent Plan	
Cost	.2	Communi	cations M	1ar	agement Plan	
Quality	.3 .4	Change L Organizat	.og :ional Pro	ces	ss Assets	
HR						
Communications						
Risk						
Procurement						
Stakeholder	Student C	opy – Not for R Distributio	eproduction or า	,	Chuck Millhollan, MBA, MPM, PMP, PgMP © 2014, Innovative Management Solutions, LLC	370

Process Group	Initiating	Planning	Executing	Мо	nitoring & Controlling	Clo	osing	
Knowledge Area		13.3 N	/lanage	St	akeholder			
Integration			Engag	em	ent			
Scope	13.3.	2 Tools	& Techn	iqu	es			
Time	.1	Communi	cations M	etho	ods			
Cost	.2 r	.2 Interpersonal Skills: building trust, conflict resolution, active listening, etc.						
Quality	.3	.3 Management Skills: facilitation, negotiate						
HR	ć	agreemen	ts, etc.					
Communications	No	te the fine	e line betv	veer	n what the PMI			
Risk	(considers	interperso	onal	and manageme	ent		
Procurement	ç	SKIIIS						
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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling Cl	osing
Knowledge Area		13.3 N	/lanage	S	takeholder	
Integration			Engage	en	nent	
Scope	13.3.	3 Output	ts (Figure	e 1	3-9)	
Time	.1	Issue Log				
Cost	.2	Change F	Requests			
Quality	.3 .4	PM Plan I Project De	Jpdates ocuments	Up	odates	
HR	.5	Organizat	ional Proc	ces	s Assets Updates	
Communications						
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controllin	g Closing	
Knowledge Area		13.4 Control Stakeholder				
Integration		Engagement				
Scope	13.4.	13.4.1 Inputs				
Time	.1	.1 PM Plan				
Cost	.2	.2 Issue Log				
Quality	.3 .4	.3 Work Performance Data .4 Project Documents				
HR						
Communications						
Risk						
Procurement						
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Closing		
Knowledge Area		13.4 Control Stakeholder					
Integration		Engagement					
Scope	13.4.	13.4.2 Tools & Techniques					
Time	.1	.1 Information Management Systems					
Cost	.2	.2 Expert Judgment					
Quality	.0	Meetings					
HR							
Communications							
Risk							
Procurement							
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Process Group	Initiating	Planning	Executing	M	onitoring & Controlling	Closing
Knowledge Area		13.4 Control Stakeholder				
Integration		Engagement				
Scope	13.4.3	13.4.3 Outputs (Figure 13-11)				
Time	.1 \	.1 Work Performance Information:				
Cost	Remember, work performance data is transformed into work performance					
Quality	information					
LID	.2 Change Requests					
ΠΚ	.3 PM Plan Updates					
Communications	.4 Project Documents Updates					
Risk	.5 Organizational Process Assets Updates					
Procurement						
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See the PMP® Handbook

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Process Group	Initiating	Planning	Executing	\mathbb{N}	Ionitoring & Controlling	Closing	
Knowledge Area							
Integration		Vision & Applicability					
Scope	• Co	 Committed to doing what is right an 					
Time	ho	honorable					
Cost	• Hig	 High standards for ourselves 					
Quality	 Expect same from fellow practitioners 						
HR	• Ap	 Applies to volunteer roles 					
Communications							
Risk							
Procurement							
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	Clos		
Knowledge Area							
Integration	Per	sons to	Whom	the Code Applie	3S		
Scope	• All	PMI me	embers, r	egardless of			
Time	cer	rtificatio	n status				
Cost	 Non-PMI members that meet any of the following criteria: 						
Quality	_	- PMI certified					
HR	 Applicants for PMI certification 						
Communications	_ ;	Serve PN	1l in a volu	nteer capacity			
Risk							
Procurement							
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Closing

Process Group	Initiating	Planning	Executing	Mo	onitoring & Controlling	Closing	
Knowledge Area							
Integration		Individual Integrity					
Scope	• Co	mmon s	ense ap	pro	ach to		
Time	COr	conflict/issues					
Cost	– I – I	– Be honest – Do what you "should" do					
Quality	_	- Follow the right processes					
HR	- I	 Report violations 					
Communications							
Risk							
Procurement							
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Process Group	Initiating	Planning	Executing	Monitoring & Controlling	ng Cl
Knowledge Area					
Integration	Co	ore Valu	les Sup	porting the C	Code
Scope	• Re	sponsib	ility		
Time	• Re	spect			
Cost	• Fa	irness			
Quality	• Ho	nesty			
HR					
Communications					
Risk					
Procurement					
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Closing

Process Group	Initiating	Planning
Knowledge Area		
Integration	As	piratio
Scope	• Ea	ch sec
Time	sta	Indards
Cost	• As	piratior
Quality	— I	Not eas
Quanty	• Ma	Indator
HR	—	Establis
Communications	_ (Can limi
Risk	-	Failure
Procurement		
Stakeholder	Student C	opy – Not fo

tional & Mandatory Conduct

Monitoring & Controlling

Closina

ection includes aspirational rds & mandatory standards

Executing

- tional
 - easily measured, but not optional either
- tory
 - blished firm requirements
 - limit or prohibit behavior
 - re can result in disciplinary action

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Knowledge Area						
Integration	Responsibility					
	Ownership of decisions we make	or fail to make				
Scope	 Aspirational 					
Time	 Based on the best interests of society, public safety and environment 					
Cost	 Accept assignments consistent w/ our background, experience, skills and qualifications 					
	 Fulfill commitments 					
Quality	 Ownership of errors (early communication) 					
	 Protect proprietary or confidential info 					
HR	 Hold others accountable to Code 					
	Mandatory					
Communications	 Inform ourselves and uphold policies, rules, regulations and laws that govern our work and volunteer activities 					
Risk	 Report unethical or illegal conduct 					
	 Bring violations of the Code to attention 					
Procurement	 Only file complaints when substar 	ntiated by facts				
	 Pursue disciplinary action for retaliation 					
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Process Group	Initiating	Planning	Executing	Ν	Ionitoring & Controlling	Clos
Knowledge Area						
Integration			Res	pe	ect	
Scope	 High us 	 High regard for self, others and resources entrusted to us 				
Time	 Res coop 	 Respect fosters trust, confidence, and mutual cooperation 				
Cost	• Asp	Aspirational				
Quality	 Inform selves of norms and customers of others and avoid disrespectful behavior 					
HR	 List to others' point of view Approach conflict or disagreement directly 					
Communications	– ı ∙ Mar	 Protessional, even when not reciprocated Mandatory 				
Risk	 Negotiate in good faith 					
	 Do not exercise power for personal benefit 					
Procurement	– [Do not act a	busively			
	F	Respect othe	ers' property r	righ [.]	ts	
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Closing

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Knowledge Area		
Integration	Fairne	SS
Scope	Make decisions and act impartiallAspirational	y and objectively
Time	 Transparency in decision making Constantly reexamine ourselves 	and make corrective action
Cost	 Provide equal access to information Make opportunities equally available 	on to those authorized able to qualified candidates
Quality	 Mandatory Proactively disclose conflicts of ir 	nterests
HR	 Refrain from decision making pro there is a potential conflict of inte 	cess or influencing outcomes if rest
Communications	 Do not hire/fire, reward/punish, and personal considerations (favoritis 	ward/deny contracts based on m, nepotism, bribery)
Risk	 Do not discriminate (gender, race Apply the rules of the organizatio without favoritism or prejudice 	e, age, religion, disability, etc) n (employer, PMI or other group)
Procurement		
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Distribution

Process	Group
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Knowledge Area		
Integration	Honesty	
Scope	Duty to understand the truth and act truthfullyAspirational	
Time	 Earnestly seek to understand the truth Truthful in communications and conduct 	
Cost	 Provide accurate info in a timely manner 	
Quality	 Make commitments or promises in good faith (implied or explicit) 	
ЦD	 Create an environment that others feel safe to tell the truth 	
ПК	Mandatory	
Communications	 Do not engage in behavior that is designed to deceive others (false statements, half-truths, provide info out of context, etc) 	
Risk	- Do not engage in disbonest behavior w/ the intent of	
Procurement	personal gain or expense of others	
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