



Project Cost Management (Manajemen Biaya Proyek) Proyek Perangkat Lunak

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Why Cost Management ?

The Importance of Project Cost Management

- IT projects have a poor track record for meeting cost goals
- Average cost overrun from 1995 CHAOS study was 189% of the original estimates; improved to 145% in the 2001 study
- In 1995, cancelled IT projects cost the U.S. over \$81 billion

Table 1. Cost of Software Defects

When Defect is Detected	Typical Cost of Correction
User Requirements	\$100-\$1,000
Coding/Unit Testing	\$1,000 or more
System Testing	\$7,000 - \$8,000
Acceptance Testing	\$1,000 - \$100,000
After Implementation	Up to millions of dollars

It is important to spend money up-front on IT projects to avoid spending a lot more later.

Overview:

- Biaya dan lingkup proses manajemen biaya proyek.
- Mengestimasi biaya (Cost Estimating)
- Penganggaran Biaya (Cost Budgeting)
- Menyusun Anggaran Biaya
- Pengawasan Biaya (Cost Controlling)

Pengertian Biaya:

- Biaya atau cost adalah semua sumber daya yang harus dikorbankan untuk mencapai tujuan spesifik.
- Biaya umumnya diukur dalam satuan keuangan seperti dollar, rupiah, dll.
- Sumber daya biaya meliputi : orang, peralatan dan material
- Biaya proyek → terbatas

LINGKUP PROSES MANAJEMEN BIAYA PROYEK

- Perencanaan Sumber Daya → apa dan berapa banyak Sumber Daya yang harus digunakan.
- Estimasi Biaya (Cost Estimating) → Perkiraan biaya dari Sumber Daya yang diperlukan.
- Anggaran Biaya (Cost Budgeting) → Alokasi estimasi biaya ke masing-masing item pekerjaan (garis dasar pengukuran performasi)
- Pengendalian Biaya / Pengawasan Biaya (Cost Controlling) → pengendalian perubahan terhadap budget proyek

LINGKUP PROSES MANAJEMEN BIAYA PROYEK



ESTIMASI BIAYA (COST ESTIMATING)

- Membuat sebuah estimasi dari biaya dan sumber daya yang dibutuhkan untuk menyelesaikan sebuah proyek
- Tools & Techniques :
 - Analogous Estimates (Top Down Estimates)
Estimasi berdasarkan biaya aktual dari proyek sebelumnya yang dianggap “mirip” dengan proyek yang akan dikerjakan
 - Bottom Up Estimates
Estimasi berdasarkan setiap paket kerja terkecil dan menjumlahkan seluruhnya hingga diperoleh biaya total dari sebuah proyek
 - Parametric Modeling
Estimasi biaya proyek dilakukan dengan memanfaatkan karakteristik proyek sebagai parameter dalam model matematika.

Types of Cost Estimates

Type of Estimate	When Done	Why Done	How Accurate
Rough Order of Magnitude (ROM)	Very early in the project life cycle, often 3–5 years before project completion	Provides estimate of cost for selection decisions	–50% to +100%
Budgetary	Early, 1–2 years out	Puts dollars in the budget plans	–10% to +25%
Definitive	Later in the project, less than 1 year out	Provides details for purchases, estimates actual costs	–5% to +10%

- It is important to provide supporting details (assumptions, project scope, WBS, etc) used in computing estimates so that it will be easier to prepare updates as needed or similar estimates on other projects.

CONTOH COST ESTIMATE

	Units/Hrs	Cost/Unit/Hr	Subtotals	WBS Level1 Totals	% of Total
WBS Item					
1. Project Management				\$306,300	20%
Project Manager	960	\$100	\$96,000		
Project Team Member	1920	\$75	\$144,000		
Contractors (10% of software development & testing)			\$66,300		
2. Hardware				\$76,000	5%
2.1 Handheld devices	100	\$600	\$60,000		
2.2 Servers	4	\$4,000	\$16,000		
3. Software				\$614,000	40%
3.1 Licensed Software	100	\$200	\$20,000		
3.2 Software development *			\$594,000		
4. Testing(10% of total hardware & softwares costs)				\$69,600	5%
5. Training and Support				\$202,400	13%
Trainee costs	100	\$500	\$50,000		
Travel Costs	12	\$700	\$8,400		
Project Team Members	1920	\$75	\$144,000		
6. Reserves (20% of total estimate)			\$253,540	\$253,400	17%
Total Project Cost Estimate				\$1,521,400	

ANGGARAN BIAYA (COST BUDGETING)

- Menyatukan semua estimasi biaya masing-masing kegiatan atau paket pekerjaan untuk disusun sebagai patokan biaya
- Mengalokasikan semua estimasi biaya tersebut pada tiap paket kerja untuk membuat sebuah baseline, agar dapat diukur kinerjanya.
- Cost baseline merupakan budget pada tiap fase aktivitas yang digunakan oleh manajer untuk mengukur dan memantau kinerja biaya proyek.
- Input utama cost budgeting : WBS

MENYUSUN ANGGARAN BIAYA PROYEK

- 1.Pernyataan cakupan proyek
- 2.WBS dan penjelasannya
- 3.Estimasi biaya kegiatan dan rincian pendukungnya
- 4.Jadwal proyek: digunakan untuk melakukan agregasi biaya pada setiap periode
- 5.Kalender sumber daya
- 6.Kontrak: Berkaitan dengan produk atau hasil apa saja yang telah dibeli. dan berapa biayanya

CONTOH RENCANA BIAYA PROYEK

	1	2	3	4	5	6	7	8	9	10	11	12	Totals
WBS Item													
1. Project Management	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	96,000
Project Manager	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	144,000
Project Team Member		6,027	6,027	6,027	6,027	6,027	6,027	6,027	6,027	6,027	6,027	6,027	66,300
Contractors (10% of software development and testing)													
2. Hardware													
2.1 Handheld devices				30,000	30,000								60,000
2.2 Servers					8,000	8,000							16,000
3. Software													
3.1 Licensed Software				10,000	10,000								20,000
3.2 Software development *		60,000	60,000	80,000	127,000	127,000	90,000	50,000		594,000			594,000
4. Testing(10% of total hardware and softwares costs)			6,000	8,000	12,000	15,000	15,000	13,000		69,000			69,000
5. Training and Support													
Trainee costs									50,000				50,000
Travel Costs										8,400			8,400
Project Team Members							24,000	24,000	24,000	24,000	24,000	24,000	144,000
6. Reserves(20% of total estimate)				10,000	10,000	30,000	30,000	60,000	40,000	40,000	30,000	3,540	253,540
Total Project Cost Estimate	20,000	86,027	92,027	172,027	223,027	198,027	185,027	173,027	148,427	753,027	80,027	53,567	1,521,240

PENGAWASAN BIAYA (COST CONTROLLING)

Mengendalikan perubahan biaya proyek

- Proses dalam pengendalian biaya termasuk
 - monitoring kinerja pembiayaan
 - meyakinkan bahwa hanya perubahan yang tepat yang termasuk dalam baseline biaya yang direvisi
 - memberikan informasi pada stakeholders bahwa perubahan dapat mengakibatkan perubahan biaya pula
- Earned value management merupakan salah satu alat penting dalam pengendalian biaya

Using Software to Assist in Cost Management

- Spreadsheets are a common tool for resource planning, cost estimating, cost budgeting, and cost control
- Many companies use more sophisticated and centralized financial applications software for cost information
- Project management software has many cost-related features

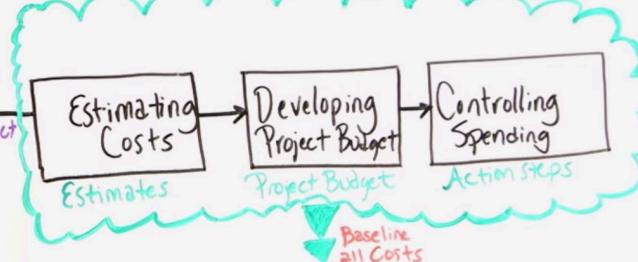
The Basics of Project Cost Management

Why?
Important
to All.

- With
- With OUT
- Sets the Baseline for Project Costs.
- Governs the Actions to Keep Budget on Track.

Prevent Going Over-Budget!

What?
Process of
Managing Project
Costs



- Company Might lose money → Costs exceed profit.
- Customers invoiced incorrectly.

Project Budget	Labor		Materials		Travel	Equip./space	Fixed misc.	\$ Budget	\$ Actual	Balance UNDRAFTED OVER
	HR	\$/HR	Units	\$/Units						
Project								600	1590	(990)
Task	8	\$30	100	\$5			750	200	790	(590)
Task	8	\$15				\$30		100	300	250
Task								100	550	(450)
SubTask										
SubTOTAL										

- Costs Easier to Collect:
- Labor
 - Consulting Fees
 - Raw Materials
 - Software Licenses
 - Travel

- Costs May Change or Share:
- Telephone Charges
 - Office Space
 - Office Equipment
 - General Administration
 - Company Insurance

Tips! How To Improve?

- Plan for Inflation
- Account for Natural Disasters or Potential Events
- Include Unexpected Costs
 - Legal
 - Penalties
 - Labor Costs
- Track Real-Time
- Respond Promptly
- Size Accordingly
 - Small vs Large

PM