Simulation: Time Phasing

Launch the Time Phasing Simulation.

Simulation Introduction

In this simulation you will play the part of Barbara Dominguez. Civilian worker Barbara has recently been transferred to the Hilland Point military base. Barbara will be responsible for time phasing the life cycle cost estimate (LCCE).

She will be working closely with Kirk Betterton the Senior Cost Analyst who will assist her throughout the entire mission and will provide useful advice to help her complete it successfully.

Story:

Civilian worker Barbara Domingez has recently been transferred to the Hilland Point military base.

She is the cost analyst who is tasked with arming and deploying a fleet of the new RX Drones to the USS Schwarzz, using the latest time phasing techniques.

She will be working closely with Kirk Betterton the Senior Cost Analyst who will assist her throughout the entire mission and will provide useful advice to help her complete it successfully.

Program Management

We will require 3 people per year at $100k each per year. These contractor rates are fixed for the next 5 years at a total cost of $300k per year.

Which time-phasing technique do you think would best suit this situation?

- [ ] Learning Curve
- [ ] Schedule Based
- [ ] Probability Distribution-Based
- [x] Level-Loaded
- [ ] Trapezoid
- [ ] Throughput

Check Answer

Level-Loaded best suits this situation. Remember: 3 people/year @$100K each, fixed for 5 years.

Program Management LCCE

Select the correct cost for each Fiscal Year. All costs are in base year (FY 1) thousands of dollars ($K).

1.1 Program Management

FY 1	300
FY 2	300
FY 3	300
FY 4	300
FY 5	300

Check Answer

FY 1 is 300, FY 2 is 300, FY 3 is 300, FY 4 is 300, and FY 5 is 300.

System Engineering

We will have one engineer in years 1 and 5, and two engineers in years 2-4. The fully loaded cost of each engineer is $100K.

Which time-phasing technique do you think would best suit this situation?

- [ ] Learning Curve
- [ ] Schedule Based
- [ ] Probability Distribution-Based
- [ ] Level-Loaded
- [x] Trapezoid
- [ ] Throughput

Check Answer

Trapezoid best suits this situation. Remember that we will need to ramp up and ramp down the systems engineering effort.

System Engineering LCCE

Select the correct cost for each Fiscal Year. All costs are in base year (FY 1) thousands of dollars ($K).

1.2 Systems Engineering

FY 1	100
FY 2	200
FY 3	200
FY 4	200
FY 5	100

Check Answer

FY 1 is 100, FY 2 is 200, FY 3 is 200, FY 4 is 200, and FY 5 is 100.

Software Development

We will be starting the Software development in FY 1 and ending in FY 5, with FY 2 being the year of peak expenditure.

Which time-phasing technique do you think would best suit this situation?

- [ ] Learning Curve
- [ ] Schedule Based
- [x] Probability Distribution-Based
- [ ] Level-Loaded
- [ ] Trapezoid
- [ ] Throughput

Check Answer

Probability Distribution-Based best suits this situation. Remember: Beta (2,4) curve, five year timeframe, peak cost in year 2, with 66.3% of costs incurred in the first 40% of time.

Software Development LCCE

Select the correct cost for each Fiscal Year. All costs are in base year (FY 1) thousands of dollars ($K).

1.3 Software Development

FY 1	2628
FY 2	4003
FY 3	2499
FY 4	803
FY 5	67

Check Answer

FY 1 is 2628, FY 2 is 4003, FY 3 is 2499, FY 4 is 803, and FY 5 is 67.

Air Vehicle Production

We expect that due to the dispersion of costs over multiple units and improved production methods, future UAVs will be developed at a lower cost than the initial one.

Which time-phasing technique do you think would best suit this situation?

- [x] Learning Curve
- [ ] Schedule Based
- [ ] Probability Distribution-Based
- [ ] Level-Loaded
- [ ] Trapezoid
- [ ] Throughput

Check Answer

Learning Curve best suits this situation. Remember, $1M first unit cost, unit cost reduced by 10% each time quantity doubles, quantity of 1 per year.

Air Vehicle Production LCCE

Select the correct cost for each Fiscal Year. All costs are in base year (FY 1) thousands of dollars ($K).

1.4.1 Air Vehicle

FY 1	1000
FY 2	900
FY 3	846
FY 4	810
FY 5	783

Check Answer

FY 1 is 1000, FY 2 is 900, FY 3 is 846, FY 4 is 810, and FY 5 is 783.

Payload

Based on contractor-generated reports, the cost element showed an actual cost of $100K in the first year (in Base Year 1 dollars), with 5% (compounding) annual increases in each of the next four years. The trend appears to be stable.

Which time-phasing technique do you think would best suit this situation?

- [ ] Learning Curve
- [ ] Schedule Based
- [ ] Probability Distribution-Based
- [ ] Level-Loaded
- [ ] Trapezoid
- [x] Throughput

Check Answer

Throughput best suits this situation. Remember: The cost element in the contractor's report showed an actual cost of $100K in the first year (in Base Year 1 dollars), with 5% (compounding) annual increases in each of the next four years. The trend appears to be stable.

Payload LCCE

Select the correct cost for each Fiscal Year. All costs are in base year (FY 1) thousands of dollars ($K).

1.4.2 Payload

FY 1	100
FY 2	105
FY 3	110.25
FY 4	115.76
FY 5	121.55

Check Answer

FY 1 is 100, FY 2 is 105, FY 3 is 110.25, FY 4 is 115.76, and FY 5 is 121.55.

Software Procurement

The required software costs $1000/license, we need the following license quantities by year (100, 90, 90, 80, 80).

Which time-phasing technique do you think would best suit this situation?

- [ ] Learning Curve
- [x] Schedule Based
- [ ] Probability Distribution-Based
- [ ] Level-Loaded
- [ ] Trapezoid
- [ ] Throughput

Check Answer

Schedule Based best suits this situation. Remember, $1,000/license. License quantities by year (100, 90, 90, 80, 80).

Software Procurement LCCE

Select the correct cost for each Fiscal Year. All costs are in base year (FY 1) thousands of dollars ($K).

1.5 Software Procurement

FY 1	100
FY 2	90
FY 3	90
FY 4	80
FY 5	80

Check Answer

FY 1 is 100, FY 2 is 90, FY 3 is 90, FY 4 is 80, and FY 5 is 80.

Simulation Completion

Congratulations! You have assisted Barbara in successfully completing the mission. The completed LCCE is displayed below.

	CES Name	FY1	FY 2	FY 3	FY 4	FY 5	Total
1.0	RX Drones Total Cost	4428	5598	4045.25	2308.76	1451.55	17631.56
1.1	Program Management	300	300	300	300	300	1500
1.2	Systems Engineering	100	200	200	200	100	800
1.3	Software Development	2628	4003	2499	803	67	10000
1.4	Prime Mission Equipment	1100	1005	956.25	925.76	904.55	4891.56
1.4.1	Air Vehicle	1000	900	846	810	783	4339
1.4.2	Payload	100	105	110.25	115.76	121.55	552.56
1.5	Software Procurement	100	90	90	80	80	440

Module Completion

You have completed the content for this lesson.

At this point you should have completed all of the lessons in this module.

Please take the Module Exam and complete the Module Survey so you may receive credit for this course.

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