Week 13:

MIS 3537: Internet and Supply Chains

Global Supply Chain Simulation

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End of Class Schedule

- Today: Global Supply Chain Simulation
- April 21:
  - *Extra Credit Assignment Due*
  - Global SC Simulation Debrief
  - Summary Lecture – What did you learn?
  - Some Personal Insights (Free? Advice)
- April 28: Exam 2
  - Similar in format to Exam 1
  - Focus on content since Exam 1

Global SC Sim: Learning Objectives

- Real World *(uncertain)* like simulation of Supply Chain Decisions
- Evaluate forecasting methods and interpret dynamics of a forecasting team
- Learn trade-offs of Supply Chain flexibility, cost, benefits and profitability
- Evaluate and learn from process performance measures

Grading

- Thoughtful Decision Making
- Integration of Lessons Learned from the Course
- Continual learning, Improvement over 4 year span of the simulation
- Long Term Results (Profitability)

Other

- Two (2) Person teams – One (1) grade
- Submission: *Deadline: Thursday April 21 5:30 pm*
  - Global SC Sim Student Record Sheet
  - Global SC Sim Table
- Goal: complete year One (1) in class today
- Complete following years today / before Next Thursday
- Help:
  - e-Mail me anytime
  - Office Hours Monday 2 – 4 (e-Mail me for location)


START

Information goods are different

Year

1 Introduction

2 Design Room

3 Forecasting Room

4 Production Room

5 Board Room

Scorecard

Year One
Profit: $0K
Votes:

Year Two
Profit: $0K
Votes:

Year Three
Profit: $0K
Votes:

Year Four
Profit: $0K
Votes:

Design Room

Each year, you will produce two new models of cell phones, Model A and Model B. Before you begin production, you will need to finalize a design for the two cell phone models.

Click on the link below to meet your design and forecasting team and hear what they have to say about the models and options.

Meet the Team

To summarize, you will be given four options that you can include in your design. To assist you, each member of your forecasting team will give you an individual opinion about each option and an estimate of its impact on demand. Then the team will develop a consensus forecast for each option.

Enter Design Room

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Enter Design Room

Back

Tim

Good morning, boss.

Next

Good morning, boss. We are ready for our annual design and forecasting meeting, and all the numbers are ready for you. Allow us to introduce ourselves, I am 'slim' Tim Soyaman.

No Audio

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Select Option

To select an option, click on the white fields to the left of the text

- [x] WiFi — View Discussion
- [ ] Color — View Discussion
- [ ] Stylish — View Discussion
- [ ] Infrared — View Discussion

Submit Options →

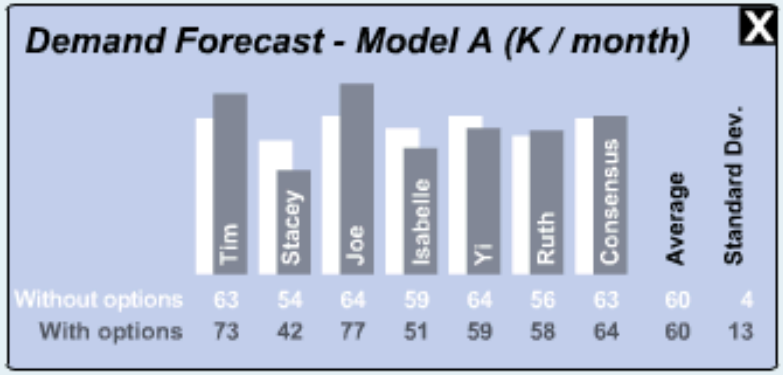
Estimated Model Demand Without Options, Monthly Units (K)

Forecaster	Tim	Stacey	Joe	Isabelle	Yi	Ruth	Consensus
Model A	63	54	64	59	64	56	**63**
Model B	36	18	38	28	38	22	**33**

Estimated Impact Of Selected Options on Demand (K)*

* Impact of option is same for both models

Monthly Impact Est.	
Tim:	10 K
Stacey:	-12 K
Joe:	13 K
Isabelle:	-8 K
Yi:	-5 K
Ruth:	2 K
Consensus:	**1 K**



Estimated Impact of Selected Options on Per-unit Profit ($)

	Base Model A	Base Model B	Impact Per Unit * (* Same for both models)	Model A with option	Model B with option
Price	$ 200	$ 240	$ 30	$ 230	$ 270
Cost	$ 130	$ 150	$ 30	$ 160	$ 180
Profit	**$ 70**	**$ 90**	**$ 0**	**$ 70**	**$ 90**

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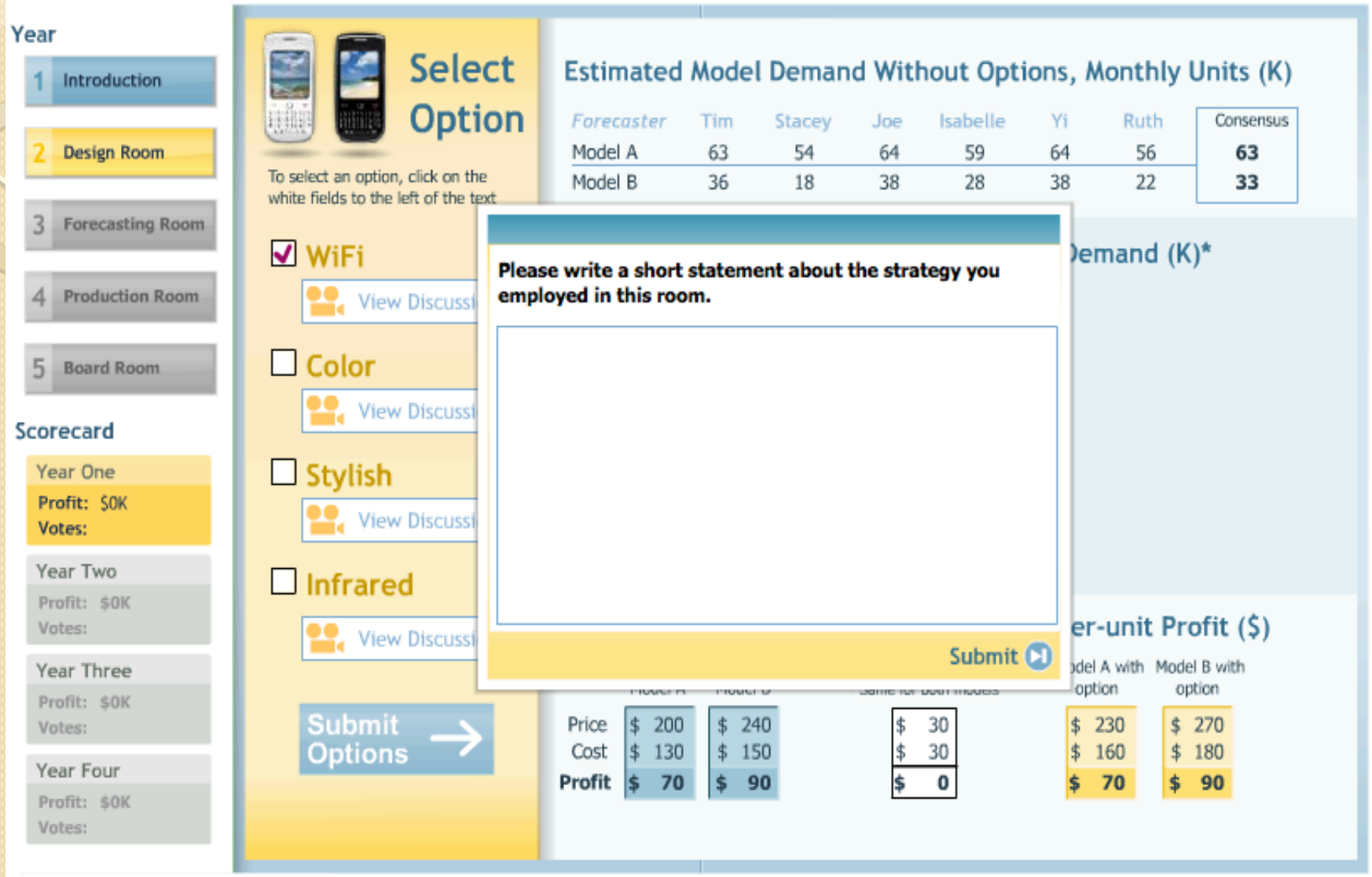

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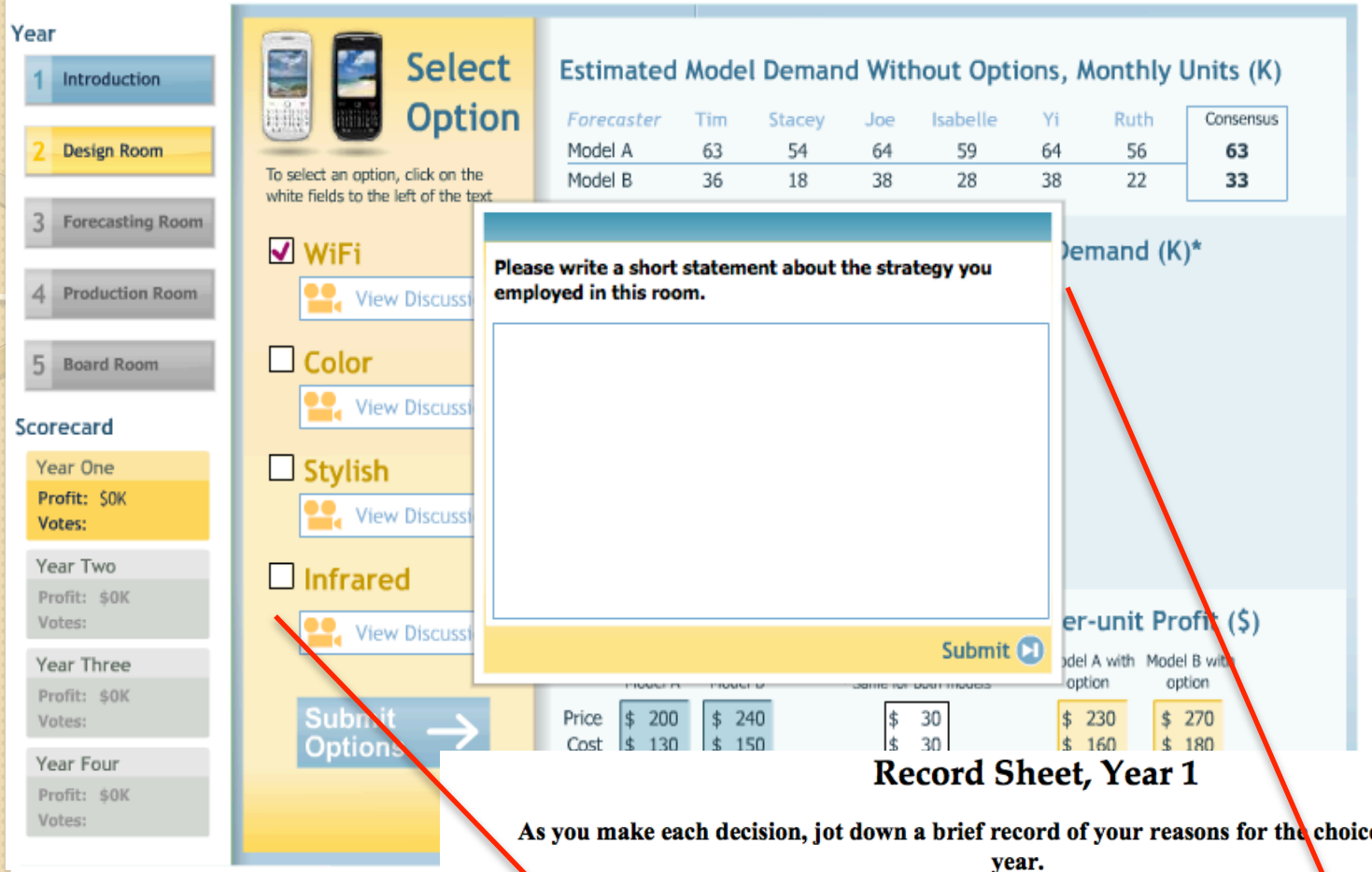

Record Sheet, Year 1

As you make each decision, jot down a brief record of your reasons for the choices you made each year.

Please submit this record sheet to your instructor after completing the simulation. Thanks!

Design Room: Which options did you choose this year?

Option	Chosen?	Rationale for Selection
1. WAP	**Y** / N	Blah, Blah
2. Color	Y / **N**	Yucky Blah, Blah
3. Stylish	Y / **N**	
4. Infrared	Y / **N**	Answer

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Forecasting Room

Congratulations, the design options for the two mobile phone lines have been specified. You will now have to predict the total demand for each product line.

Your forecasting team members have come up with a consensus for what they believe demand will be for the mobile phone lines.

However, the board of your company is interested in your personal estimates as well.

The numbers you will forecast after entering the forecasting room will not affect your production schedule, but they will help you later as you determine where and how to source your products.

Enter Forecasting Room

Back

Forecasting Room

Unit Data with Options as Chosen*

** costs are an estimate from our lowest-cost contract manufacturer*

	Model A	Model B
Unit Price	$ 230	$ 270
Unit Cost	$ 160	$ 180
Unit Profit	**$ 70**	**$ 90**
Markdown Price*	$ 144	$ 54
Monthly holding cost	$ 3.2	$ 3.6

** At the end of the year, all models left in stock will be sold to a consolidator at this price.*

Monthly Estimated Demand May-Dec.

	Model A	Model B
Tim	73 K	46 K
Stacey	42 K	6 K
Joe	77 K	51 K
Isabelle	51 K	20 K
Yi	59 K	33 K
Ruth	58 K	24 K
Consensus	**64 K**	**34 K**

Model A:
Average: **60 K**
Std.Dev.: **13 K**

Model B:
Average: **30 K**
Std.Dev.: **17 K**

Enter Your Demand Estimates*

Model A: 60 K

Model B: 30 K

Submit

** This is your forecast for what monthly demand will be each month from May through December. There is no demand expected prior to May.*

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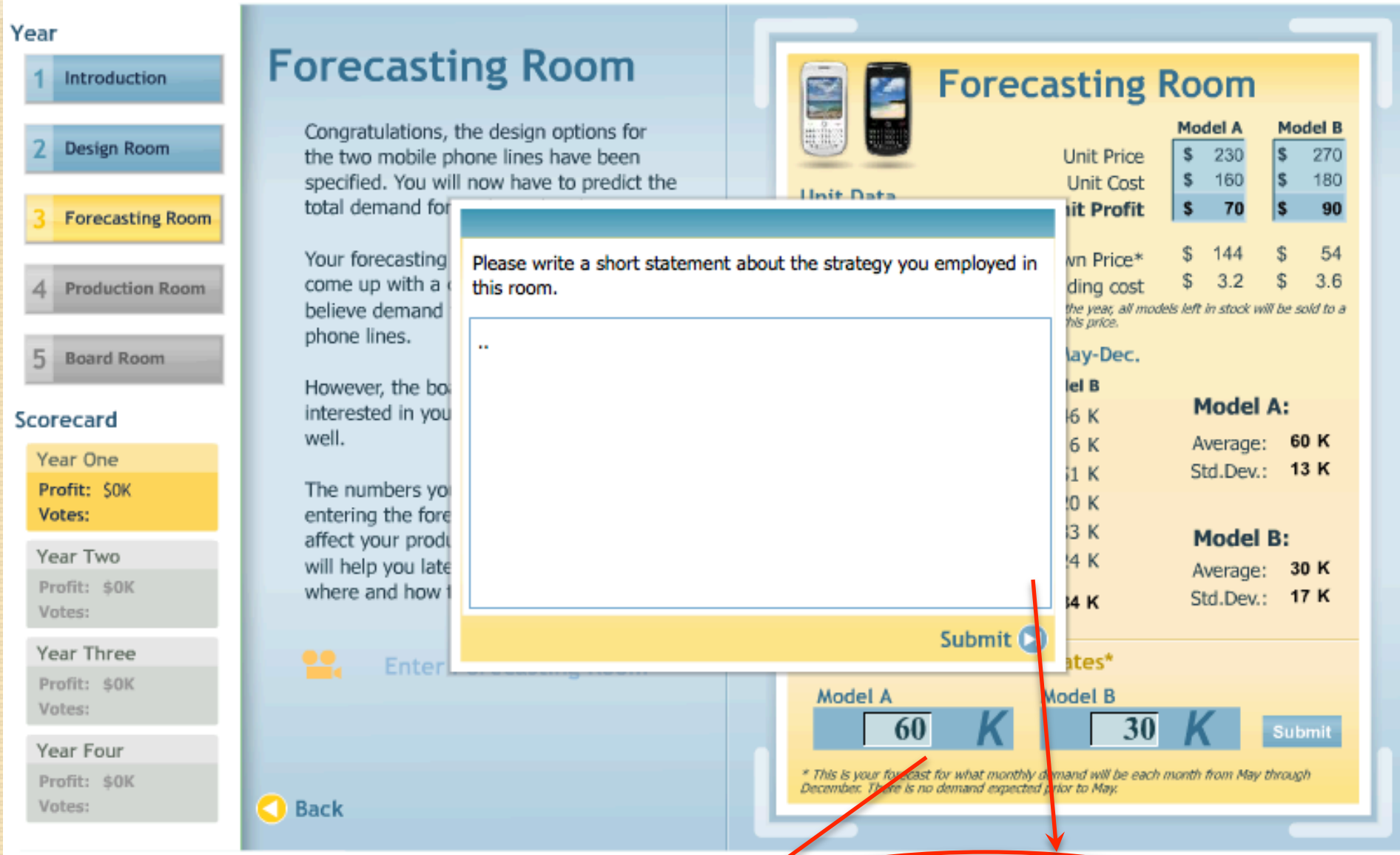

Forecast Room: What was your forecast for each model, and how did you derive that forecast?

Model	Fcst	Rationale for Forecast
Model A		Guess Blah, Blah
Model B		Guess B, Blah, Blah

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Production Room

Congratulations. You have successfully given the board your demand estimates. You now need to make some key decisions on how to fulfill this demand.

To increase production flexibility, management has decided to outsource all manufacturing, and you have identified four contract manufacturers.

Talk to Procurement

You can place orders with one or more of the four suppliers. As you consider which suppliers to choose, consider lead times, set-up costs, and capacities.

Keep a watchful eye on inventory levels, as it will cost you to carry units that are not sold in the same month, and excess inventory at the end of the year is liquidated below cost.

Enter Production Room

Back

Carey Holder
Procurement

Pause Next

Welcome to the Procurement Office. I'm Carey and I run procurement for you, Boss. We have received price quotes from four potential contractors that can manufacture our mobile phones, and they all look pretty good. Let's quickly walk through them and go over their strengths and weaknesses.

No Audio

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Production Room

Choose the suppliers that you want to engage below

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Lead Time	Capacity	Set-up Cost	Unit Cost
FarFar Away ☐													4 mth	60 K	$ 1000 K	$ 160 $ 180
Far Away ☐													3 mth	60 K	$ 2000 K	$ 160 $ 180
Pretty Close ☐													0 mth	35 K	$ 1000 K	$ 170 $ 190
Ve-Ri-Fas ☐													0 mth	40 K	$ 2000 K	$ 170 $ 190

Projections

Model A	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Receipt (K)	0	0	0	0	0	0	0	0	0	0	0	0
Est. / Actual Demand (K)*	0	0	0	0	60	60	60	60	60	60	60	60
Est. / Actual Inventory (K)*	0	0	0	0	-60	-60	-60	-60	-60	-60	-60	-60

Model B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Receipt (K)	0	0	0	0	0	0	0	0	0	0	0	0
Est. / Actual Demand (K)*	0	0	0	0	30	30	30	30	30	30	30	30
Est. / Actual Inventory (K)*	0	0	0	0	-30	-30	-30	-30	-30	-30	-30	-30

**Numbers are estimates for months preceding the current month*

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Votes:

FarFar Away ☐

Far Away ☐

Pretty Close ☐

Ve-Ri-Fas ☐

Carey Holder

Procurement

Please tell me how much you would like to order from this supplier:

Model A ☐ K / month

Model B ☐ K / month

Next

	Lead Time	Capa-city	Set-up Cost	Unit Cost
	4 mth	60 K	$ 1000 K	$ 160 $ 180
	3 mth	60 K	$ 2000 K	$ 160 $ 180
	0 mth	35 K	$ 1000 K	$ 170 $ 190
	0 mth	40 K	$ 2000 K	$ 170 $ 190

Model A

Product Re												
Est. / Actual De... (K)												
Est. / Actual Inventory (K)*	0	0	0	0	-60	-60	-60	-60	-60	-60	-60	-60

Model B

Product Receipt (K)	0	0	0	0	0	0	0	0	0	0	0	0
Est. / Actual Demand (K)*	0	0	0	0	30	30	30	30	30	30	30	30
Est. / Actual Inventory (K)*	0	0	0	0	-30	-30	-30	-30	-30	-30	-30	-30

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Year Four
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Votes:

FarFar Away ☐

Far Away ☐

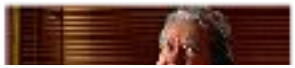
Pretty Close ☐

Ve-Ri-Fas ☐

Model A
Product Re
Est. / Actual De
Est. / Actual Inventory

Model B
Product Receipt
Est. / Actual Demand (K)
Est. / Actual Inventory (K)*

*Numbers are estimates for months preceding the current month



Carey Holder

Carey Holder
Procurement

Please tell me when you would like to start production for this supplier:

Starting Month
January
February
March
April
May
June

Back

Next

Lead Time	Capacity	Set-up Cost	Unit Cost
4 mth	60 K	$ 1000 K	$ 160 $ 180
3 mth	60 K	$ 2000 K	$ 160 $ 180
0 mth	35 K	$ 1000 K	$ 170 $ 190
0 mth	40 K	$ 2000 K	$ 170 $ 190

0	0	0	0	30	30	30	30	30	30	30	30
0	0	0	0	-30	-30	-30	-30	-30	-30	-30	-30

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Year Four
Profit: $0K
Votes:

Production Room

Choose the suppliers that you want to engage below

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Lead Time	Capacity	Set-up Cost	Unit Cost
FarFar Away ☑ Change	Model A	40	40	40	40	40	40	40	40					4 mth	60 K	$ 1000 K	$ 160
	Model B	20	20	20	20	20	20	20	20								$ 180
Far Away ☐														3 mth	60 K	$ 2000 K	$ 160
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Ve-Ri-Fas ☐														0 mth	40 K	$ 2000 K	$ 170
																	$ 190

Projections

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Model A												
Product Receipt (K)	0	0	0	0	40	40	40	40	40	40	40	40
Est. / Actual Demand (K)*	0	0	0	0	60	60	60	60	60	60	60	60
Est. / Actual Inventory (K)*	0	0	0	0	-20	-20	-20	-20	-20	-20	-20	-20
Model B												
Product Receipt (K)	0	0	0	0	20	20	20	20	20	20	20	20
Est. / Actual Demand (K)*	0	0	0	0	30	30	30	30	30	30	30	30
Est. / Actual Inventory (K)*	0	0	0	0	-10	-10	-10	-10	-10	-10	-10	-10

**Numbers are estimates for months preceding the current month*

ADVANCE ONE MONTH →

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Gwyneth

Marketing Department

Good morning. I am Gwenyth from the Marketing department. We have an exciting opportunity coming up that I need your decision on.

Carey Holder

Procurement

Each month, I will update the demand estimate and projected inventory numbers for the rest of the year with new numbers based on the average of the actual data that we have observed.

Next

Carey Holder

Procurement

I will put some exclamation points below the inventory numbers whenever demand exceeds supply. I'll put anywhere from one to three exclamation points below the numbers, depending on the severity of the stockout that we are experiencing.

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Next

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Production Room

Choose the suppliers that you want to engage below

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Lead Time	Capa-city	Set-up Cost	Unit Cost
FarFar Away ☑ Change	Model A	40	40	40	40	40	40	40	40					4 mth	60 K	$ 1000 K	$ 160
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Projections

Model A	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Receipt (K)	0	0	0	0	40	40	40	40	40	40	40	40
Est. / Actual Demand (K)*	0	0	0	0	50	50	50	50	50	50	50	50
Est. / Actual Inventory (K)*	0	0	0	0	out !!	-10	-10	-10	-10	-10	-10	-10
Model B												
Product Receipt (K)	0	0	0	0	20	20	20	20	20	20	20	20
Est. / Actual Demand (K)*	0	0	0	0	38	38	38	38	38	38	38	38
Est. / Actual Inventory (K)*	0	0	0	0	out !!!	-18	-18	-18	-18	-18	-18	-18

**Numbers are estimates for months preceding the current month*

YtD Profit / Loss ($K)

A	Revenue	9,200
	Markdn Rev	0
	Cost	6,400
	Invntry Cost	0
B	Revenue	5,400
	Markdn Rev	0
	Cost	3,600
	Invntry Cost	0
Set-up Cost		1,000
Celldex Cost		0
Change Order		0
Gross Margin		3,600

YtD | Curr. | Calc

ISSUE CHANGE ORDER △
Cost: $2 million

ADVANCE ONE MONTH →

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YtD Profit / Loss ($K)

A	Revenue	70,150
	Markdn Rev	0
	Cost	48,800
	Invntry Cost	0
B	Revenue	47,250
	Markdn Rev	0
	Cost	31,500
	Invntry Cost	0
	Set-up Cost	1,000
	Celldex Cost	0
	Change Order	2,000
	Gross Margin	**34,100**

YtD | Curr. | Calc

Curr Month P & L ($K)

A	Revenue	8,050
	Markdn Rev	0
	Cost	5,600
	Invntry Cost	0
B	Revenue	6,750
	Markdn Rev	0
	Cost	4,500
	Invntry Cost	0
	Set-up Cost	0
	Celldex Cost	0
	Change Order	0
	Gross Margin	**4,700**

YtD | Curr. | Calc

Helpful Calculations

(Costs of stockouts and excess inventory per unit)

Model A	
Stockout Cost	$ 70
Markdown Rev.	$ 144
Markdown Loss	$ 16
Mthly Inv Cost	$ 3
Expect Dec Inv	out
Model B	
Stockout Cost	$ 90
Markdown Rev.	$ 54
Markdown Loss	$ 126
Mthly Inv Cost	$ 4
Expect Dec Inv	out

YtD | Curr. | Calc

Production Room

Choose the suppliers that you want to engage below

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Lead Time	Capa-city	Set-up Cost	Unit Cost
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																	$ 190

How did you allocate production for the two models between your suppliers, and why?

Supplier	Model A Production	Model B Production	Month Production Started	Changes/Other decisions
1. FarFarAway	40	20	January	Blah, Blah
2. FarAway				
3. PrettyClose	20	10	May	Blah, Blah
4 Ve-Ri-Fas				

Did you issue a production change order this year? If so, why? If not, why not?

	Sep	Oct	Nov	Dec
	40	40	40	40
	50	50	50	50
	-10	-10	-10	-10
	20	20	20	20
Est. / Actual Demand (K)*	38	38	38	38
Est. / Actual Inventory (K)*	-18	-18	-18	-18

	Jan	Feb	Mar	Apr	May
Est. / Actual Demand (K)*	0	0	0	0	38
Est. / Actual Inventory (K)*	0	0	0	0	out !!!

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ISSUE CHANGE ORDER
Cost: $2 million

ADVANCE ONE MONTH

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YtD | Curr. | Calc

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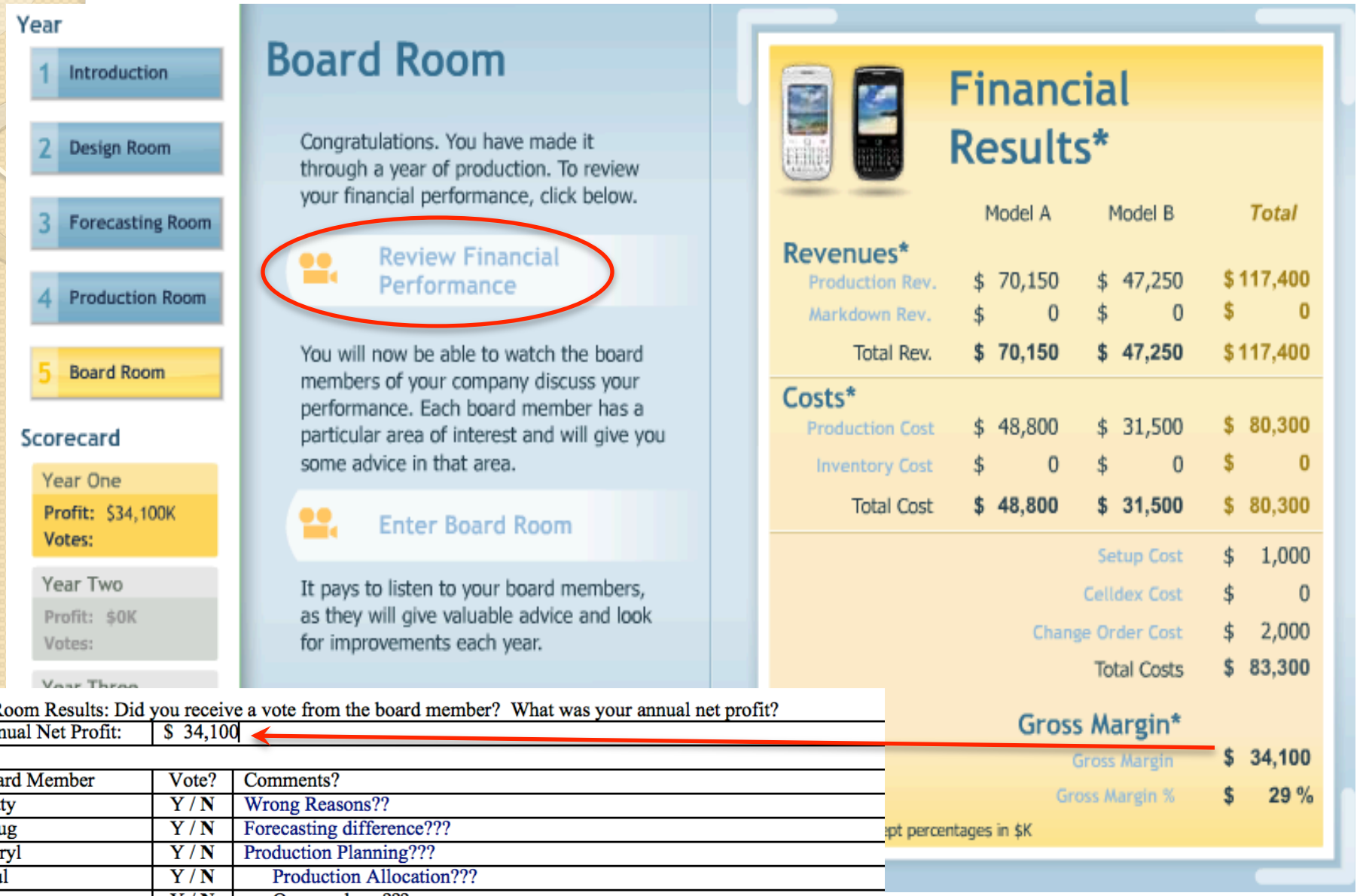

ard Room Results: Did you receive a vote from the board member? What was your annual net profit?

Annual Net Profit:	$ 34,100

Board Member	Vote?	Comments?
Betty	Y / N	Wrong Reasons??
Doug	Y / N	Forecasting difference???
Meryl	Y / N	Production Planning???
Paul	Y / N	Production Allocation???
Yvonne	Y / N	Overproduce ???

Other comments:

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Board Room

Congratulations. You have made it through a year of production. To review your financial performance, click below.

Review Financial Performance

You will now be able to watch the board members of your company discuss your performance. Each board member has a particular area of interest and will give you some advice in that area.

Enter Board Room

It pays to listen to your board members, as they will give valuable advice and look for improvements each year.

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Meryl Simmons

Chair of the Board

Next

Good evening, my name is Meryl Simmons, Chair of the Board. The purpose of this meeting is to review your performance.

No Audio

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Betty

Think more about it.

Back Next

I have already given you my opinion on your performance this year. To repeat, think more about where the consensus number comes from and how believable it is.

ard Room Results: Did you receive a vote from the board member? What was your annual net profit?

Annual Net Profit:	$ 34,100

Board Member	Vote?	Comments?
Betty	Y / N	Wrong Reasons??
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Meryl	Y / N	Production Planning???
Paul	Y / N	Production Allocation???
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Other comments:

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- Questions!