

# Global Supply Chain Simulation Introduction

Login at <http://cb.hbsp.harvard.edu>

The screenshot displays the Harvard Business Publishing website for educators. At the top, there is a navigation bar with links for Harvard Business School, Corporate Learning, Harvard Business Review, and Careers @ HBP. Below this is a red header with the Harvard Business Publishing logo and 'FOR EDUCATORS'. A search bar is present, and there are links for 'All Disciplines', 'All Collections', and 'HBS Only'. A user is logged in as 'Jarrod Student'. The main navigation includes 'My Library', 'Coursepacks 1', 'Disciplines', 'Content', and 'Case Method'. A notification banner at the top states that the website will be unavailable on Friday, March 25, from 11:00 pm to 1:00 am ET. The breadcrumb trail shows 'Home > My Library > Coursepacks > 2016 March'. The 'My Library' section is expanded to show 'Coursepacks', with a sub-item 'YYYY CourseName' selected. A 'Show Notes' checkbox is visible. The main content area displays a 'SIMULATION' titled 'Global Supply Chain Management Simulation' by 'Enspire Learning', added on Mar 11, 2016, and purchased on Feb 29, 2016. A 'Details' link and a 'RUN SIMULATION' button are present. Three blue callout boxes with arrows point to the 'Coursepacks' menu, the selected course name, and the 'RUN SIMULATION' button.

Click "Coursepacks"

Click your course name

Scroll down and click "Run Simulation"

## When the instructor opens the game you can play

Click "Being Simulation"  
Make sure Adobe Flash is enabled

**Begin Simulation**

**Introduction**

**How to Play Guide**  
Download the How to Play Guide (PDF)

When companies provide extensive product options, it makes predicting and fulfilling customer demand highly complex. This simulation illustrates how a few key decisions can improve the ability of a company to accurately predict and fulfill demand.

**Problems Facing Supply Chain Managers**

In recent years, the number of new products being introduced has increased dramatically. At the same time, the average life cycle of products continues to shrink. Many new products become obsolete soon after they hit shelves.

**Next >**

You will be the Supply Chain Manager responsible for production of two new lines of mobile phones. You will be able to make key decisions and see the impact of your decisions on the performance of your company. Learn more about the products and your required decisions by reading through *Your First Day As Supply Chain Manager*.

In the Design Room, you first meet your team. After introductions, click "Choose Options".

**Choose Options**

**Design Room**

**Meet with the Team**

Good morning. 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 Andrei. I've been with the company for five years and have good insight on what goes on around here.

**Andrei** **Next >**

**Andrei**

**Aya**

**Lorenzo**

**Claire**

**Byron**

**Ruth**

**HARVARD BUSINESS PUBLISHING** Global Supply

Introduction  
YEAR 1  
**Design Room**  
Team  
Product Options  
Forecasting Room  
Production Room  
Boardroom  
Scorecard  
Year 1  
Profit: \$0  
Votes:  
Decision History

### Design Room

Estimated Model Demand  
*Without Options, Monthly Units in thousands*

	Andrei	Aya	Lorenzo	Claire	Byron	Ruth	Consensus
Model A	63	54	64	59	64	56	63
Model B	36	18	38	28	38	22	33

Estimated Monthly Impact of Selected options on Demand  
*in thousands, impact the same for both models*

Estimated Impact of Selected Options on Per-Unit Profit  
*in US dollars*

	Price	Cost	Profit
Base Model A	\$200	\$130	\$70
Model A w/ options	\$200	\$130	\$70

Product Options

- Upgraded Communication  
View Discussion
- Exterior Material  
View Discussion
- Stylish  
View Discussion
- Storage Capacity  
View Discussion

Submit

**The Design Room initially shows forecasts and unit profits for Model A and Model B with no additional options. The base options that differentiate the two models are built in and you cannot change them.**

**HARVARD BUSINESS PUBLISHING** Global Supply

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YEAR 1  
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### Design Room

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Estimated Monthly Impact of Selected options on Demand  
*in thousands, impact the same for both models*

Estimated Impact of Selected Options on Per-Unit Profit  
*in US dollars*

	Price	Cost	Profit
Base Model A	\$200	\$130	\$70
Model A w/ options	\$240	\$165	\$75

Product Options

- Upgraded Communication  
View Discussion
- Exterior Material  
View Discussion
- Stylish  
View Discussion
- Storage Capacity  
View Discussion

Submit

Are you sure you want to submit?  
*You will not be able to alter these decisions after you submit.*

Submit Cancel

**You can add any, all, or no options, which apply to BOTH phones.**

**Don't try to be a phone design expert – trust your team and the data.**

**When finished, click "Submit"**

**Scroll down for more data on profits and forecasts, with and without the checked options.**

**HARVARD BUSINESS PUBLISHING** Global Supply Chain Management

Introduction | Design Room | **Forecasting Room** | Production Room | Boardroom | Scorecard | Decision History

YEAR 1  
Profit: \$0  
Votes:

### 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 determine where and how to source your products.

**The Forecasting Room has useful information, but all you need to do is provide two numbers**

Unit Data with Options as Chosen costs are an estimate from the lowest-cost contract manufacturer

	Model A	Model B
Unit Price	\$240.00	\$280.00
Unit Cost	\$165.00	\$185.00
<b>Unit Profit</b>	<b>\$75.00</b>	<b>\$95.00</b>
Markdown Price*	\$148.50	\$55.50
Monthly Holding Cost	\$4.80	\$5.60

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

**Enter Your Demand Estimates**

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

Model A  k/month  
Model B  k/month

**Submit**

Model A: Monthly Estimated Demand May-December in thousands per month

Average: 59 Standard Dev: 11

**HARVARD BUSINESS PUBLISHING** Global Supply Chain Management

Introduction | Design Room | Forecasting Room | **Production Room** | Boardroom | Scorecard | Decision History

YEAR 1  
Profit: \$0  
Votes:

### 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 four contract manufacturers have been identified. Casey will provide you with some additional information on the four manufacturers and their policies.

**Procurement**

Suppliers

**Talk to Procurement**

Welcome to the Procurement Office, I'm Casey. We've received price quotes from four 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.

**Casey** **Next**

You can place orders with one or more of the four suppliers. As you consider which suppliers to choose

**Marketing Opportunity**

**Jessica**  
Marketing

Good morning. I am Jessica from the Marketing Department. We have an exciting opportunity coming up, and I need your decision.

We are thinking of creating an annual conference called CELLEX. This conference would allow us to showcase our new models and collect valuable customer feedback.

Hosting CELLEX would allow us to obtain some new demand estimates for both of our mobile phone lines. These estimates would be much more accurate than the numbers that we have today.

The upside is that if we get your approval now, we can set up the event for the end of March and automatically insert new and better demand estimates directly into your production schedule at the beginning of April.

The downside to creating this event is that it will be very expensive to set up, as we would need to create a global

**Choose Suppliers**



**HARVARD BUSINESS PUBLISHING** Global Supply Chain Management Simulation

Introduction | **Production Room** | Confirm & Advance →

YEAR 1

Design Room

Forecasting Room

**Production Room**

Procurement

Suppliers

Boardroom

★ Scorecard

Year 1  
Profit: \$0  
Votes:

Decision History

### Production Room

*Yearly Planning*

Actual Demand | Projections  
*in thousands per month*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Model A</b>												
Product Receipt	0	0	0	0	0	0	0	0	0	0	0	0
Actual / Est. Demand	0	0	0	0	60	60	60	60	60	60	60	60
Actual / Est. Inventory	0	0	0	0	-60	-60	-60	-60	-60	-60	-60	-60
<b>Model B</b>												
Product Receipt	0	0	0	0	0	0	0	0	0	0	0	0
Actual / Est. Demand	0	0	0	0	30	30	30	30	30	30	30	30
Actual / Est. Inventory	0	0	0	0	-30							

**Suppliers**

SUPPLIER	UNITS / MONTH	BEGIN PRODUCTION
----------	---------------	------------------

*Your forecast is plugged in to Projections.*

*Scroll down to place orders with suppliers.*

Decision History

### Suppliers

SUPPLIER	UNITS / MONTH	BEGIN PRODUCTION	UNIT COST	LEAD TIME	CAPACITY	SETUP COSTS
<input checked="" type="checkbox"/> <b>FarFarAway</b>	A <input type="text"/> k B <input type="text"/> k	Select A Month	A \$165 B \$185	4 mo	60k	\$1m
<input type="checkbox"/> <b>FarAway</b>	A <input type="text"/> k B <input type="text"/> k	Select A Month	A \$165 B \$185	3 mo	60k	\$2m
<input type="checkbox"/> <b>PrettyClose</b>	A <input type="text"/> k B <input type="text"/> k	Select A Month	A \$175 B \$195	0 mo	35k	\$1m
<input type="checkbox"/> <b>VeryClose</b>	A <input type="text"/> k B <input type="text"/> k	Select A Month				

*Toggle to select a supplier*

*Enter order quantities (thousands per month) and the month to begin production, considering capacities and lead times.*

*You need new tooling and must pay the setup cost each year.*

Design Room

Forecasting Room

Production Room

Procurement

Suppliers

Boardroom

Scorecard

Year 1

Profit: \$0

Votes:

Decision History

Actual Demand | Projections  
in thousands per month

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

**Suppliers**

SUPPLIER:  FarFarAway

UNITS / MONTH: A  k B  k

BEGIN PRODUCTION:

PRODUCTION HISTORY in thousands per month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A	0	40	40	40	40	40	40	40	0	0	0	0
B	0	20	20	20	20	20	20	20	0	0	0	0

UNIT COST: A \$165, B \$185

LEAD TIME: 4 mo

CAPACITY: 60k

SETUP COSTS: \$1m

Change quantities and starting month until you are happy with your plan. Making changes later will cost you.

Design Room

Forecasting Room

Production Room

Procurement

Suppliers

Boardroom

Scorecard

Year 1

Profit: \$0

Votes:

Decision History

Actual Demand | Projections  
in thousands per month

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

**Suppliers**

SUPPLIER:  FarFarAway

UNITS / MONTH: A  k B  k

BEGIN PRODUCTION:

PRODUCTION HISTORY in thousands per month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A	40	40	40	40	40	40	40	40	0	0	0	0
B	20	20	20	20	20	20	20	20	0	0	0	0

UNIT COST: A \$165, B \$185

LEAD TIME: 4 mo

CAPACITY: 60k

SETUP COSTS: \$1m

means you receive it earlier

Starting production earlier...

**Production Room** Confirm & Advance →

*Yearly Planning*

Actual Demand | Projections  
in thousands per month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Model A</b>												
Product Receipt	0	0	0	0	60	60	60	60	60	60	60	60
Actual / Est. Demand	0	0	0	0	60	60	60	60	60	60	60	60
Actual / Est. Inventory	0	0	0	0	0	0	0	0	0	0	0	0
<b>Model B</b>												
Product Receipt	0	0	0	0	30	30	30	30	30	30	30	30
Actual / Est. Demand	0	0	0	0	30	30	30	30	30	30	30	30
Actual / Est. Inventory	0	0	0	0	0	0	0	0	0	0	0	0

When you are ready, click "Confirm & Advance"

Are you sure you want to submit? ✕  
You will not be able to alter these decisions after you submit.

Submit
Cancel

SUPPLIER	UNITS / MONTH	BEGIN PRODUCTION	UNIT COST	LEAD TIME	CAPACITY	SETUP COSTS
<input checked="" type="checkbox"/> FarFarAway	A 40k B 20k	January	A \$165 B \$185	4 mo	60k	\$1m
<input type="checkbox"/> FarAway	A k B k	Select A Month	A \$165 B \$185	3 mo	60k	\$2m
<input checked="" type="checkbox"/> PrettyClose	A 12k B 5k	May	A \$175 B \$195	0 mo	35k	\$1m
<input checked="" type="checkbox"/> VeryClose	A 8k B 5k	May	A \$175 B \$195	0 mo	40k	\$2m

The timeline advances, but nothing much happens before demand kicks in. Click "Advance One Month"

Introduction

YEAR 1

Design Room

Forecasting Room

**Production Room**

Procurement

Suppliers

Boardroom

Scorecard

Year 1  
Profit: -\$14,300,000  
Votes:

Decision History

**Production Room**

*Yearly Planning*

Actual Demand | Projections  
in thousands per month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Model A</b>												
Product Receipt	0	0	0	0	60	60	60	60	60	60	60	60
Actual / Est. Demand	0	0	0	0	60	60	60	60	60	60	60	60
Actual / Est. Inventory	0	0	0	0	0	0	0	0	0	0	0	0
<b>Model B</b>												
Product Receipt	0	0	0	0	30	30	30	30	30	30	30	30
Actual / Est. Demand	0	0	0	0	30	30	30	30	30	30	30	30
Actual / Est. Inventory	0	0	0	0	0	0	0	0	0	0	0	0

Advance One Month →

Issue Change Order

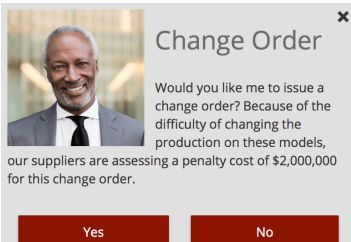
**Suppliers** ▲

SUPPLIER	UNITS / MONTH	BEGIN PRODUCTION
<input checked="" type="checkbox"/> FarFarAway	A 40k B 20k	January
<input type="checkbox"/> FarAway	A k B k	Select A Month
<input checked="" type="checkbox"/> PrettyClose	A 12k B 5k	May
<input checked="" type="checkbox"/> VeryClose	A 8k B 5k	May

Do take note of the information available with a click at the bottom of the page.

### Profit & Loss

Year To Date ▲	Current Month ▲	Stockouts & Inventory ▲			
<b>Model A</b>					
Revenue	\$ 0	Revenue	\$ 0	Profit	\$ 75
Markdown Revenue	\$ 0	Cost	\$ 6,600,000	Markdown Profit	\$ -16
Cost	\$ 6,600,000	Inventory Cost	\$ 0	Monthly Inventory Cost	\$ 4.80
Inventory Cost	\$ 0	<b>Model B</b>			
<b>Model B</b>					
Revenue	\$ 0	Revenue	\$ 0	Profit	\$ 95
Markdown Revenue	\$ 0	Cost	\$ 3,700,000	Markdown Profit	\$ -129
Cost	\$ 3,700,000	Inventory Cost	\$ 0	Monthly Inventory Cost	\$ 5.60
Inventory Cost	\$ 0	Change Order	\$ 0	Projected Excess	0
Setup Cost	\$ 4,000,000	<b>Gross Margin</b>			
Celldex Cost	\$ 0	Gross Margin	\$ 0		
Change Order	\$ 0				
Gross Margin	\$ -14,300,000				



Would you like me to issue a change order? Because of the difficulty of changing the production on these models, our suppliers are assessing a penalty cost of \$2,000,000 for this change order.

For a fee, you can "Issue Change Order"


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Model A</b>												
Product Receipt	0	0	0	0	60	60	60	60	60	60	60	60
Actual / Est. Demand	0	0	0	0	52	52	52	52	52	52	52	52
Actual / Est. Inventory	0	0	0	0	8	16	24	32	40	48	56	64
<b>Model B</b>												
Product Receipt	0	0	0	0	30	30	30	30	30	30	30	30
Actual / Est. Demand	0	0	0	0	33	33	33	33	33	33	33	33
Actual / Est. Inventory	0	0	0	0	Out	-3	-3	-3	-3	-3	-3	-3

**Suppliers**

SUPPLIER UNITS / MONTH BEGIN PRODUCTION

FarFarAway A  B


PRODUCTION HISTORY in thousands per month UNIT COST LEAD TIME CAPACITY SETUP COSTS



**Change Order**

Would you like me to issue a change order? Because of the difficulty of changing the production on these models, our suppliers are assessing a penalty cost of \$2,000,000 for this change order.

Yes No



**Change Order**

Remember, you can reduce or increase the production orders for each supplier, but each charges this amount. You can reduce quantities only to 60% of the original order you placed with the supplier.

Change the quantity of units produced each month in their respective input boxes.

Ok, got it!

Room

Projections

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Model A	0	0	0	0	60	60	60	60	60	60	60	60
Model B	0	0	0	0	30	30	30	30	30	30	30	30
Model C	0	0	0	0	33	33	33	33	33	33	33	33
Model D	0	0	0	0	Out	-3	-3	-3	-3	-3	-3	-3

Advance One Month →

Issue Change Order

Minimum production across BOTH models is 60% of the COMBINED original order for both models.

Decision History

SUPPLIER	UNITS / MONTH	BEGIN PRODUCTION
<input checked="" type="checkbox"/> FarFarAway	A: <input type="text" value="0"/> k B: <input type="text" value="0"/> k	Select A Month

PRODUCTION HISTORY in thousands per month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

- Introduction
- YEAR 1
- Design Room
- Forecasting Room
- Production Room
- Boardroom
  - Results
  - Review
- Scorecard
- Year 1
 

Profit: \$47,685,500

Votes:
- Decision History

**Boardroom**

**Financial Result**

Congratulations. You have made it through a year of production. Review your financial performance using the table on the right.

Meet With Board Members

**Year 1 Results**

	Model A	Model B	Total
<b>REVENUES</b>			
Sales			
Markdown			
<b>Total Revenue</b>			
<b>COSTS</b>			
Production			
Inventory			
Total			
	Setups		
	Celldex		
	Change Orders		
	<b>Total Cost</b>		
<b>GROSS MARGIN</b>			
	<b>Gross Margin</b>		
	<b>Gross Margin %</b>		

9

You can use the buttons here to navigate back and review your decisions... but there is no *Undo*.

Only when finished with the Board can you begin Year 2.

The screenshot shows a web interface for a 'Boardroom'. On the left is a navigation sidebar with options: 'Intro', 'YEAR 1' (sub-options: 'Design Room', 'Forecasting Room', 'Production Room', 'Boardroom', 'Results', 'Review', 'Scorecard'), and 'Decision History'. The 'Boardroom' section is active. The main content area is titled 'Boardroom' and contains a 'Board Review' section. It includes a video of Mia, Chair of the Board, with a 'Next >' button. Below the video are five avatars of board members: Mia, Carla, Ankit, Matheo, and Adele. A red 'Begin Year 2' button is located in the top right corner.

Click "Next" to hear their feedback and answer their questions.

## Let's Play

- Do NOT close or "refresh" the browser, otherwise your data for the current year may be lost. Data are saved after completing each year.
- Each year you begin from scratch with new products and new suppliers.
- You can only sell products after the launch on May 1
- You must sell all inventory at a discount on December 31.
- Add specific but not lengthy **strategy comments** as you play.
- You **must complete all four years** in order to qualify for the special prize.

Time budget to finish in TWO hours:

Year 1 (45 min)

Year 2 (30 min)

Year 3 (25 min)

Year 4 (20 min)

## Debrief Questions

### Design & Forecasting

- How did you decide which options to choose?
- How did you arrive at your forecasts?

### Production

- How did you decide which supplier(s) to use?
- How did you determine the order quantities and timing?
- Was it worth the extra \$1 million for 3 month instead of 4 month lead time for the far supplier?
- Was it worth the extra \$1 million for extra capacity (40 vs. 35) for the close supplier?
- How often did you use \$2M change orders? Why?
- Did you buy \$2M market information? Why or why not?