Welcome HR Professionals and Learning Managers!

Educational Portfolio in SCM at CTL
Access to learning in SCM

We believe learning can be available to everyone everywhere
Agenda

Introductions
MIT CTL educational portfolio
The need for global supply chain education
MITx MicroMasters in SCM
Impact on organizations
Customized programs
Q&A
Who are we?

Why MIT chose Supply Chain Management as their first MicroMasters
MIT Center for Transportation & Logistics (CTL)

We create supply chain innovation and drive it into practice
40 year history leading supply chain research and education

- $15M Research Budget
- 15 Full-Time Researchers
- 20+ Active Research Projects
- 60+ Faculty & Researchers Across MIT SCALE Network

- 50+ Member Companies
- Industry-Driven Workshops & Symposia

- #1 Supply Chain Management Master’s (since 1997)
- PhD in Logistics
- Founder of MIT SCALE Network (Since 2007)
- Executive Education
- MicroMasters in Supply Chain Management (Since 2015)
Supply Chain Executive Education

We host a range of educational offerings to ensure that each company and individual who partners with us finds the right fit.

Supply Chain Management: Driving Strategic Advantage
Every January and June we offer a 4-day, intensive course featuring simulations, case studies, interactive lectures, and discussions by distinguished MIT lecturers and faculty.

MIT SCx MicroMasters Program
The MITx MicroMasters credential consists of 5 intensive online courses covering all aspects of logistics and supply chain management along with a proctored final exam.

Custom In-Person Programs
A flexible, in-person learning experience developed closely with your organization, and focused on specific issues crucial to your company goals.

CCx Custom Online Programs
We work alongside you to create an online learning space comprised of content from the SCx series, tailored to your organization’s needs.
Helping solve your talent shortage

A global problem that needs new solutions
World Bank study in logistics competencies

Shortages range from a lack of truck divers to problems filling senior positions.

Why do staff lack the necessary competencies to perform tasks as assigned?

A lack of executives with the necessary capabilities could negatively affect international growth.

Kai Hoberg, and Christina Busch
Leveraging our capability to reach learners everywhere

MITx MicroMasters in SCM
Guiding Principles

1. Educate the world for free

2. Credential qualified students at minimum cost

3. Customize for organizations at sustainable margin
Five courses and Comprehensive Final Exam

- Analytics SC0x
- Fundamentals SC1x
- Design SC2x
- Dynamics SC3x
- Technology SC4x
- Proctored Final Exam CFx

Anyone Anywhere

Stand Alone Credential or Pathway to MIT M. Eng.
Formulate and interpret both deterministic and stochastic analytical models commonly used in practice.

Make basic trade-offs for demand forecasting, inventory management, and transportation planning.

Design of physical, information, and financial flows within a supply chain.

Introduce complexity and exogenous forces that impact supply chains.

Manage supply chains at scale – databases, systems, processes, and technologies

The Big Picture

SC0x Supply Chain Analytics

SC1x Supply Chain Fundamentals

SC2x Supply Chain Design

SC3x Supply Chain Dynamics

SC4x Supply Chain Systems & Technology

Final Comprehensive Exam
Cost and duration

Total of **65 weeks (roughly 18 months)**

**520 to 650 hours** of study and examination

Total of **US$ 1200** to earn the MicroMasters credential in SCM.
How do we know it works?

We now know this works as individual courses or the entire credential.
MITx MicroMasters in SCM Learners

233,575 Learners Enrolled
15,053 Learners Verified
22,135 Certificates Issued
196 Countries Represented
1,000* Credentials
SCx learners are from... +190 countries
But, what is in a MOOC?

How content is delivered in a massive open online course
Welcome to Week 1

MOOCs – Asynchronous Content Delivery

that we'll do for the rest of the course. Now I'm going to show everything.
And in the lectures, I use spreadsheet.
But you can also use other tools.
I just do that because it's easier to explain.
So after we do these simple problems, we'll move to facility location.

And so what we have there is we'll let's say three locations.
And each one of these has a demand.
Think there are cities.
And there's a units expected or it's a board and these are weights.
But there's a location and a demand that I need to satisfy each one of these locations.
We're going to talk about three methods of determining where
I should place my facility.
4.1

Which segment of a global transportation shipment typically has the smallest variability in terms of coefficient of variation?

- A. Origin Landside
- B. Origin Port Dwell
- C. Ocean Transit (port to port)
- D. Destination Port Dwell
- E. Destination Landside
- F. None of the above.

EXPLANATION
Interestingly, the time on the water is the least variable segment in most cases. The majority of the disruptions and delays in shipping a container globally occur at the origin landside transit or at either the origin or destination ports. The sailing duration is comparatively stable.

2: C
3: A

The physical network is the actual path on the ground (or water or air) that the specific transportation conveyance follows. The operational network is comprised of nodes and arcs that entail the decision points and costs for each option. The strategic network is a path view where each option is consolidated into a single arc from initial origin to final destination.

4.1

Suppose you are managing the inbound lane from one of your major suppliers. You want to set your inventory policies but first need to determine the expected and standard deviation of demand over lead time. The details are as follows:

- Demand, $\mu_t = 594$ units/day
- Standard Deviation of Demand, $\sigma_t = 89.1$
- Expected transit time, $\mu_d = 30$ days
- Standard deviation of transit time, $\sigma_d = 9.0$

What is the expected demand (in items) over lead time?

Answer: 17820

What is the standard deviation of demand (in items) over lead time?

Answer: 5368.23

EXPLANATION
This is simply a plug and chug problem. The expected demand over lead time is:

$$\mu_{ld} = \mu_t \cdot \mu_d = 594 \cdot 30 = 17820$$

The standard deviation of demand over lead time is:

$$\sigma_{ld} = \sqrt{\mu_t \cdot \sigma_t^2 + \left( \mu_d \right)^2 • \sigma_d^2} = \sqrt{594 \cdot (89.1)^2 + (30)^2 \cdot (9.0)^2} = 5368.23$$

We would now use this distribution to set our safety stock.
MOOCs - Interactive Sand Box Apps

Sandbox
Optimization

Constraints
4 ≤ 2x + 1y
4.5 ≤ 1x + 0.5y

Maximization function
5.72 = 1x + 1y

Optimal is when maximization function = 9.7

Sandbox
Normal Distribution

Mean: 0
St Dev: 1

Mode: Normal
Left tail  Right tail  Two tail  Two tail inv

Recalculate  Recalc & Auto-window

X value: -1.5
cdf: 0.86

X: 1.5
cdf: 0.666
X: -1.498513
X: -1.4985130
Calc cdf
Calc X
SHOW
MOOCs – Discussion Forums

This post is visible to everyone.

**Pipeline Inventory**

Discussion posted 3 months ago by taffanzas

In the Video 2 of lesson 2, I am not able to understand how they calculated the pipeline inventory. It is \( L*D*\frac{R}{100} \), which equals 488.150 * 160385 = 916.85 Million but in the video it is 2.62 Million. What I have figured out is that you need to divide by 350.

This post is about Week 1: Topic Level Support: Visible Labels

1 response

Add A Response

[gwymmarcelo](mailto:gwymmarcelo) 3 months ago

Hi! I have the same problem. I recreated the whole thing in a spreadsheet and keep getting 916.85 Million. Why is it divided by 350? Thank you for posting!

Hi Remember to check your units. Pipeline inventory is calculated as Taffanzas states as: \( L*D \), \( \frac{R}{100} \)

When you multiply by \( L \), that is in days, and you need to convert the units by dividing by 350 (days/year).

That is (for path 1): \( 12,000 \text{ dollars}/\text{day} * 1,350 \text{ crusts}/\text{yr} * 30 \text{ DAYS} / 350 \text{ days/yr} \)

See that in the equation on days get cancelled.

Then the answer is \( 2,019,557 \text{ dollars/yr} \) posted 6 months ago by [keshavpadia](mailto:keshavpadia)

Hi, this is Keshav from India. I am doing this course but I have a start-up in mind based on core supply chain management.

[gwendolyn](mailto:gwendolyn) 3 months ago

Hi, My name is Gwendolyn and I work in the logistics and supply chain industry. I am looking forward to the course and hope to gain some knowledge and insight into the intricate workings of Supply Chain Management.

[remmassano](mailto:remmassano) 3 months ago

Hi, I am from South Africa.

[yeletjenwa](mailto:yeletjenwa) 3 months ago

HI, I am from South Africa and I hope to learn a lot on this course. I am an industrial engineer, but I do not deal with supply chain. Nevertheless, my flatmates are working on that and I got very curious about it. Thanks!}

[mranikutax](mailto:mranikutax) 3 months ago

Hi guys, this is fian from Germany. I am doing this class to get a better understanding of supply chains to use in my own company, looking forward to this!

[helene](mailto:helene) 6 months ago

Hi, I am Lucile, from France. I am a telecommunication engineer and I would like to learn more about Supply Chain Management. Thank you very much!
Impact on Individuals

Who are the MicroMasters learners?
I often watch a class at night and then right away the next morning, I use some idea or some example in a meeting or in an analysis at my current work.

~ Michel, Civil Engineer | Brazil

The MicroMasters is not only enjoyable, but it brought many professionals from around the world together in a community of learners to share valuable discussions, and motivate each other to complete the program.

~ Mohamed, Assistant Logistics Manager Manufacturing | Morocco

The instructors of this course series taught complex concepts in a clear way. I can easily apply what I learned from these courses to my work and career.

~ Su, Analyst | Taiwan

I can definitely say the MicroMasters courses have strengthened my confidence. They have also armed me with the analytical frameworks that set me apart from my colleagues.

~ Srideepthi, Senior Manager Online Retail | United States
Impact on Business

How you can use the MicroMasters in your training and development
MIT adopts "in program"

School uses free online

By DC Velocity Staff

October 3, 2017 | 10:12 AM

GE enrolls 35 employees in MIT supply chain course

Students in GE’s management leadership students will attend mix of online and in-person courses.
Value Proposition

• Retain quality talent

• Promote career development

• Train and upskill your staff in specific learning areas
  - Accessible, scalable and affordable learning model
  - Collaborative, engaging and effective

• Open a pathway to the MIT Master’s of Engineering
Pathway to a Master’s at MIT & Elsewhere

Application to MIT Blended Master’s in SCM

Five month residential program
Culminating in MEng degree

MITx Micromasters in Supply Chain Management

MicroMasters Certificate

This is to certify that
Matthew Tracker

Has successfully completed all courses and received passing grades for a MicroMasters in
Supply Chain Management

a program offered by MITx, an online learning partnership between MIT and edX.

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Benefit for the organization

• Any employee can join and learn specific techniques
• Flexible, but w/ fixed enrollment & course deadlines
• Modest price for official certification and credential
• Batch enrollment for companies
• Online learning and immediate feedback
• A growing global community of learners
Linking back to MIT CTL

How MicroMasters online learners also apply themselves on campus
Supply Chain Executive Education

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Custom Courses

The numbers...
• 12 courses created
• Over 500 students educated

Key Learnings...
• Community is important
• Organizational culture matters
• Power of blended learning
MITx MicroMasters in SCM

Thank you!