

# Discussion Around a Masters Program in Supply Chain Management

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## Introduction

A University is "...considering expanding its graduate course offerings top include a specialization in Supply Chain Management."

The purpose of this discussion paper is to put forward my views on the purpose of and approach to creating this program.

## Purpose

The purpose of this program should be to produce graduates with knowledge of and skills in resolving the central issues of supply chain management (SCM) and who are attractive candidates for employment by those organizations and companies to whom SCM is a key business meta-process.

## Knowledge and Skills

A University has indicated an "...interest in such a program as expressed by our current graduate students, and by several members of the area business community." A University should move to formalize this specification of need by the students and the business community in order to gain a clear picture of supply chain management knowledge, skills and attitudes they would find of value. Surveys and focus groups, and a review of the career opportunities information available from the CLM would all help in this regard.

My view is that the knowledge and skills lie along two dimensions.

The first of these is SCM. This dimension comprises knowledge and skills that are essential simply because the subject is SCM and not, say, Ornamental Horticulture. Calculating inventory carrying costs is an example of SCM knowledge and skill.

The second dimension comprises knowledge and skills that apply across multiple specialties and are important to the application of SCM knowledge and skills. Project management is an example of such knowledge and skill.

These knowledge and skill sets can be conceptualized in the following diagram.

		Sourced from the SCM Graduate Program								
		Essential SCM Knowledge and Skills								
Sourced from Other than the SCM Graduate Program	Essential non-SCM Knowledge and Skills		1	2	3	4	5	.	n	
		1								
		2								
		3								
		4								
		5								
		.								
		n								

Figure 1 Knowledge and Skills

The SCM Graduate Program should teach the knowledge and skills that are not otherwise provided by A University. This means that some or all of the Essential non-SCM Knowledge and Skills may need to be taught in the SCM Graduate Program.

The students should be granted an opportunity to “test out” of a particular course if they already possess the necessary knowledge and skills.

This last matter raises the question of proficiency. Some way of understanding the level of proficiency desired by the customers of A University is important in understanding the level of teaching that must be done. The following table<sup>1</sup> could be helpful in establishing this.

Level	Proficiency Definition	Experience
1	Can describe, but not perform	None
2	Can assist others on a limited basis. Has general, conceptual knowledge.	No direct
3	Can execute or perform with assistance. Has general to extensive knowledge.	Has performed at least once.
4	Can execute or perform without assistance. Has extensive applied knowledge.	Practical, repeated.
5	Can give expert advice and lead others. Has comprehensive knowledge with an ability to make sound judgments related to skill area.	Extensive, comprehensive.

Table 1 Judging Proficiency

Normally, one would not associate a university with the teaching of experience. However, perhaps it is possible to establish an internship program associated with the SCM Graduate Program that addresses this matter.

So, for each of the essential skills defined in Figure 1 Knowledge and Skills one would use customer input to establish a desired proficiency and skills target, then gauge the source to produce this desired outcome. This same definition can also be used in deciding whether to “test out”.

We must not be casual about selecting the Essential non-SCM Knowledge and Skills. One ought to be able clearly describe in simple, declarative sentence why a knowledge or skill is important to the program.

## Approach

The following steps are suggested.

1. Understand the nature of the demand for knowledge, skills and experience. A general recommendation for addressing this has been made earlier.
2. Understand the current supply of knowledge, skills and experience. This is perhaps best obtained from appropriate recruiters and hiring managers. A scan of JobsInLogistics.com and similar sites could be useful in understanding supply (as well as demand). The SCH Graduate Program should not address a demand area for which there is an oversupply of talent.
3. Understand the relevant knowledge and skills currently taught by A University. My experience is that this discussion needs to be at the next level below that of course objectives and syllabus. The SCM Graduate Program ought to take advantage of what is already in the curriculum and clearly understand what needs to be added. While this is obvious, the most meaningful discovery is likely to be at a level lower than where one generally deals.
4. Synthesize the details of the knowledge and skills to be taught in the SCM Graduate Program. My view is that this should be done at the module (i.e., a course comprises multiple modules) level.
5. Examine these details from two points of view. The first logically sequences the modules so that one builds upon a prior module. Logically group the modules according to their affinity. For

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<sup>1</sup> Adapted from IBM

example, all finance course together. It is also helpful here to review existing college textbooks on this subject. See, for example, Coyle, J. J., E. J. Bardi, et al. (1992). *The Management of Business Logistics (5th Edition)*, West Publishing Company, and Stock, J. R. and D. M. Lambert (2001). *Strategic Logistics Management (4th Edition)*, McGraw-Hill.

6. Reconcile the two views described above to identify the final lesson plan.
7. Assign the courses for development.

## The Definition of a Supply Chain Management

There are a number of contexts that need to be considered in the development of the SCM Graduate Program. One of these is the definition of SCM.

The definition of SCM promulgated by the Council of Logistics Management is a sufficient first step.

“Supply Chain Management is the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.”<sup>2</sup>

However, this is not sufficient detail. Supply chains comprise physical, information and financial flows between involved parties having roles and responsibilities in the supply chain.

One of the best ways of understanding the supply chain is by examining it on a process level. I would turn to the Supply Chain Operations Reference Model under development by the Supply Chain Council, Inc.<sup>3</sup> as an appropriate context within which to develop this understanding.

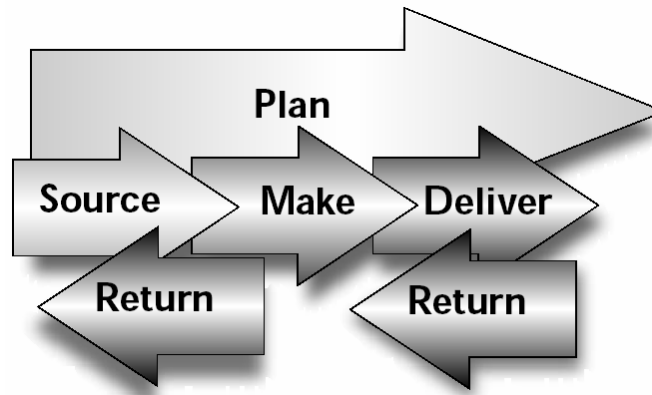


Figure 2 Supply Chain Operations Reference Model

This well articulated model seems to be gaining increasing acceptance in the industry. The boundaries of the SCOR are well defined.

SCOR spans:

- All customer interactions, from order entry through paid invoice
- All product (physical material and service) transactions, from your supplier's supplier to your customer's customer, including equipment, supplies, spare parts, bulk product, software, etc.
- All market interactions, from the understanding of aggregate demand to the fulfillment of each order

SCOR does not attempt to describe every business process or activity, including:

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<sup>2</sup> <http://www.clm1.org/about/purpose.asp#definitions>

<sup>3</sup> SCOR 5.0 Overview Booklet, Supply-Chain Council, Inc., [www.supply-chain.org](http://www.supply-chain.org)

- Sales and marketing (demand generation)
- Research and technology development
- Product development
- Some elements of post-delivery customer support
- Links can be made to processes not included within the model's scope, such as product development, and some are noted in SCOR.

SCOR assumes but does not explicitly address:

- Training
- Quality
- Information Technology (IT)
- Administration (non SCM)

To the extent that the analysis of the knowledge and skills targets for the SCM Graduate Program reveals areas not covered by SCOR, then an additional effort will need to be made to correct for these deficiencies.

## **Post-Graduation Follow-Up**

To some extent the SCM Graduate Program is a working hypothesis that requires continuing confirmation as to its relevance. Hence, the program should have an objective of soliciting this confirmation from graduates and, consequently, a process in place to assure this happens.

## **The Competition**

Universities such as Georgia Tech, MIT, Northwestern, Ohio State, Penn State, and Stanford, to name a few with which I am familiar, conduct programs in this area. They compete for same raw material as does A University. The SCM Graduate Program should understand the manner in which its offering compares and contrasts the that of the competition.

It may also be worthwhile to investigate relationships of mutual value with one or more of these universities.

# Pro Forma Statement of Knowledge and Skills

The core of the SCM Graduate Program uses the SCOR Model as a base and examines it from four points of view.

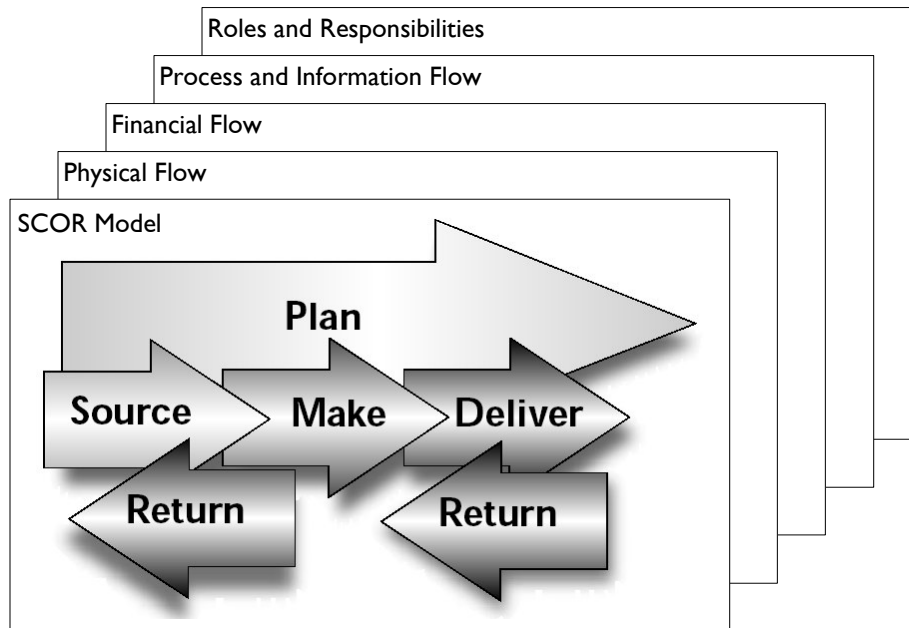


Figure 3 Points of View on SCOR

There are other parties of interest not included in the SCOR model.

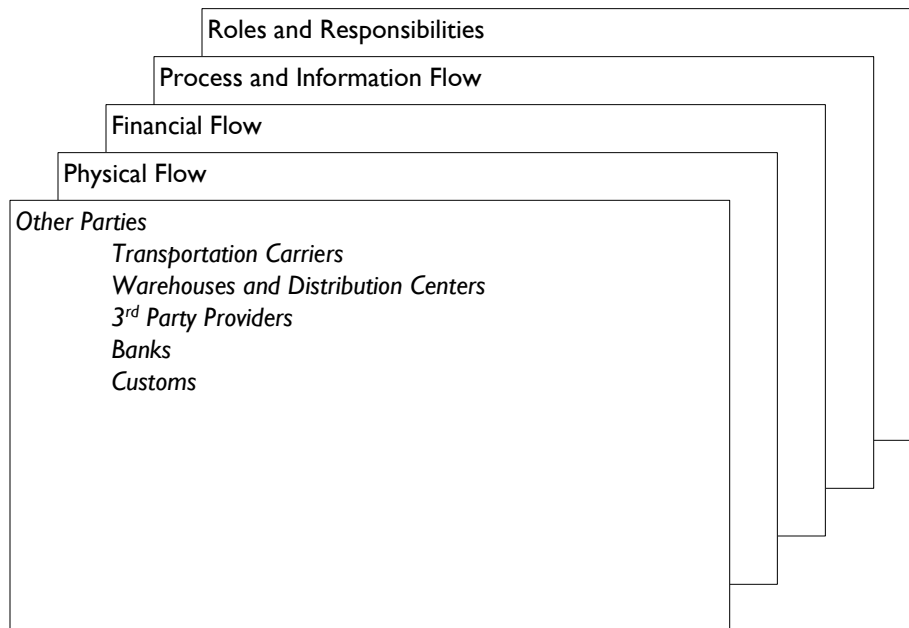


Figure 4 Other Parties

SCM is part of continuum of change.

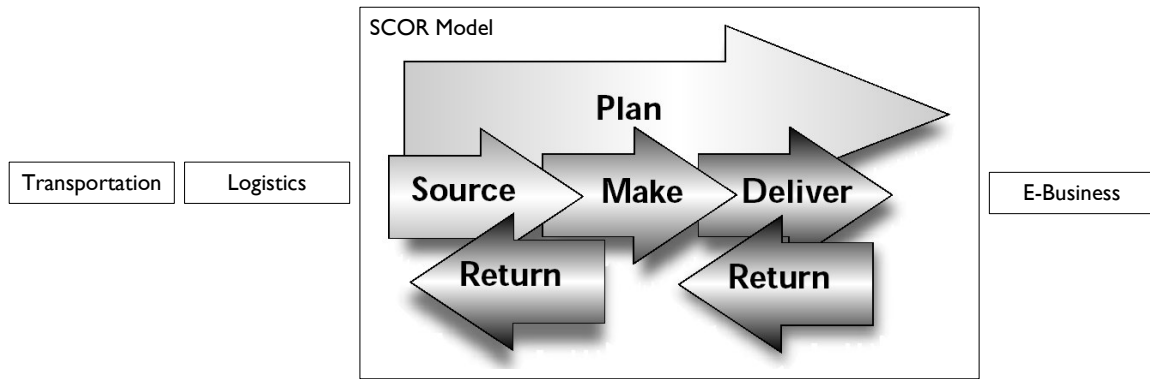


Figure 5 SCM as Part of a Continuum of Change

One cannot excel at SCM without having excellent capabilities and competence in logistics, and in logistics without having excellent capabilities and competence in transportation. E-Business is viewed as an enabler of higher levels of business performance from an already robust business model. It is seen herein as the next logical step from SCM.

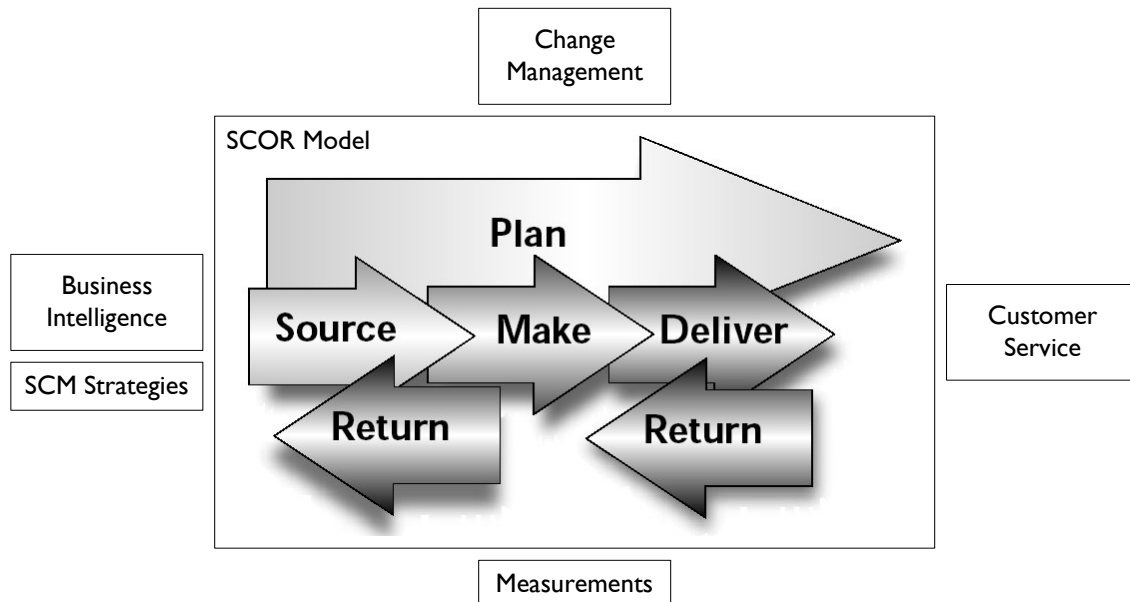


Figure 6 Other Areas of Interest

Finally, there is the need to round out the Essential SCM Knowledge and Skill with 1.) a focus on jobs in logistics and how to get them, and 2.) an instilling of the importance of keeping current on developments in the industry and the ways in which this might be done.

Essential Non-SCM Skills include:

1. Project Management
2. Problem Solving
3. Communications
4. Ethics

## **Knowledge, Skill and Experience Sets**

There are three sets of knowledge, skills and experience that come into play during this course; that represented by the textbook, that represented by the instructor, and that represented by the student. There should not be substantial overlap between these three sets.

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