Introduction to Global Supply Chains: A Mapping Exercise

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**Abstract**

Understanding where and how things are made is often an eye-opening experience for undergraduate students. In a freshman course entitled Business and Society, students participate in an experiential learning activity to better understand global supply chains and their potential challenges. This exercise introduces the idea of global supply chains in a visual way by plotting the supply chain of a simple product on a world map. Though a seemingly simple exercise, it slows down learning and allows for a more fundamental understanding of the topic. The learning activity provides a basis for a broader discussion about ethics and social responsibility in supply chains. It also integrates basic ideas of globalization and its challenges. The exercise was adapted from a National Geographic teaching and learning project. Pedagogically, this is a low stakes, in-class exercise that supports a more complex graded assessment and sets the stage for a deeper discussion of suppliers as stakeholders.

Keywords: Supply chain mapping, supply chain risk, supply chain learning activity

**Introduction to Global Supply Chains: A Mapping Exercise**

Suppliers are a key business stakeholder and global supply chains have become quite complex creating both business risk and opportunity. Understanding global supply chains and their potential ethical and environmental impacts is an important skill for all managers. The learning activity presented is part of a Business and Society course that is largely structured around the stakeholder theory of the firm (Freeman & Reed, 1983). In this 100 level, introductory course mainly for freshman majoring in one of the business disciplines, the stakeholder theory of the firm is used to examine the relationship between business and its major stakeholders. The focus of the course is on ethical issues, morals, and values (Mitroff, 1983) faced by business managers in their stakeholder relationships.

Suppliers are introduced in the course as an increasingly important stakeholder with extraordinarily complex relationships to business. The global supply chain learning activity acts as a foundational introduction to the overall topic of supplier relationships. Since many students at the 100 level are unaware of the complexity of “how things are made,” this activity provides a fun and hopefully educational basis on which to build a later global supply chain discussion. The activity provides a jumping off point for discussions of responsibility in supply chains, ethical issues in supply chains including employee relationships, health and safety, environmental concerns in supply chains, and the impact of supply chains on local communities. Students, especially those studying management, need to develop an understanding of the potential damage, or potential benefits, of successful supply chain monitoring. The activity also introduces ideas of governance and power in supply chains. Students are often surprised by the lack of transparency in supply chains highlighted by this exercise.

The original exercise can be found here:

<http://www.nationalgeographic.org/activity/a-supply-chain/>

**Instructions**

1. The learning goals for the topic of global supply chains and for this activity are:

* Determine the scope of global supply chains by an in-depth analysis of a single, relatively simple supply chain
* Examine the ethical and environmental issues inherent in global supply chains
* Analyze the benefits of active engagement with suppliers
* Describe trends in supply chain transparency and monitoring
* Connect supply chain management to business reputation and bottom line.

1. The basic exercise is easily conducted in a 75 minute class. Presentations of group maps can be carried over as the start of the following class. In this course, two 75 minute class periods are dedicated to suppliers as stakeholders. Timing for the first class and the exercise includes the following steps:

* Introduction to supply chains as a business stakeholder building on stakeholder theory already well established in the course (15 minutes)
* Overview of a sample supply chain map (5 minutes)
* Break into groups and actually do the work (40 minutes)
* Presentation of results (each group presents briefly to class (15 minutes)

1. My class averages 30 students and group sizes of 4-5 students seem to work well though smaller groups would also work.
2. Materials - I provide each group with a large blank map of the world, colored pens and markers, tape and a few other basic supplies. All students are asked to bring a laptop or other device to class so they can search the Internet. Internet access is required for this project.
3. Level – I teach this in a 100 level, mostly freshmen course. However, the exercise could be useful at any level.
4. Students will have read the text chapter on suppliers as stakeholders and have taken an online quiz on the chapter so they have some familiarity with the concepts. The text currently in use is:

Business and Society: Stakeholders, Ethics, Public Policy (15th edition)

Anne T. Lawrence, James Weber, and James E. Post, 2016

Publisher: McGraw-Hill

ISBN: 9781259315411

For the instructor, it is useful to review some supply chain maps and the original National Geographic exercise in advance of the class. Other preparation includes the introduction

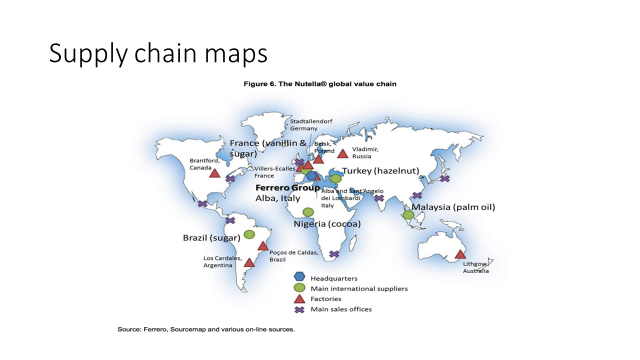
section and assembling the needed materials.

**Teaching Notes**

**Introduction (15 minutes)**

Students will already be familiar with the stakeholder theory of the firm but it is useful to draw a diagram as a reminder of suppliers as stakeholder and to provide a starting point. I then provide a brief introduction to supply chains including tiers, structure, and the proliferation of them. I provide a brief history of the topic (going back to military logistics) and I remind students of cases we’ve already studied in class (Zara, Apple, McDonald’s, etc.) where companies have had well-publicized problems in their supply chains.

I then provide the following sample supply chain map for Nutella:



At this point I break students into groups and give them the following instructions:

1. Choose a candy bar you like. Each group must chose a unique candy bar. First come, first served.
2. List the ingredients.
3. Determine where in the world these ingredients may be sourced.
4. Draw a supply chain for this candy bar on your world map.
5. Identify suppliers, manufacturers, distributors, and consumers.
6. In red, highlight any areas of potential (or actual) ethical challenges in this supply chain. Explain the challenge briefly in notes below the map.

I provide students with blank maps, tape, and colored pens. I give students 40 minutes or so to complete this exercise. To incent students (this is not necessary but is aligned with other activities in the course), they will briefly present their findings to the class and the class will vote on the “best” map. Students will have to explain why they felt the map was “best.”

**Debriefing**

In the debriefing session (which is usually the next class) I ask students to think about the following questions:

* What did you learn about supply chains?
* Based on your map, what supply chain risks did you identify? Where might you anticipate supply chain problems?
* If you were the candy company, how might you mitigate these risks? What can you do to be a socially responsible lead firm?

An instructor might anticipate some of the following challenges during the exercise:

* Students can’t assemble the map of the world. I let them struggle with this until they figure it out. Geography is important!
* Many student groups will want to do KitKats. I believe that this is because KitKat does a fairly good job of mapping its supply chain online so students just want to look up their map and copy it. Therefore, it might be useful to either ban KitKats from the list completely or to let only the first group to pick KitKats use actually it.
* Students may get hung up trying to figure out the actual supply chain for the company and that’s not entirely necessary for the assignment to work. I let students use their best guess or common sense to develop a supply chain. For example, sugar can come from many places. They do not have to determine exactly where this particular company gets its sugar.
* I try to encourage students to take the supply chain all the way back to the farmers or original sources of the raw materials.
* I’m asking students to identify areas of raw material production not the companies or farms actually supplying the particular raw material.
* I encourage creativity. The more artistic students really get into this activity.

**Student Reactions**

Students enjoy the exercise and are usually enlightened by the difficulty in figuring out how and where things are made. They are surprised that a candy bar is actually quite global and the exercise encourages them to think about what they are putting in their mouths and where it all comes from. While most of them have some idea about issues in electronics supply chains (i.e. many have heard about the Foxconn suicides), they don’t think about potential child labor issues in cacao harvesting or rainforest destruction in palm oil production. Student maps also vary widely from the very colorful and creative to the very basic.

It’s also interesting to see what students focus on. Some groups mapped production sites and distribution networks more so than ingredient origins. Mapping production and distribution also generates some good discussion about market positioning and about shortening supply chains to reduce environmental impact. Another interesting student outcome is to compare some product manufactures, the makers of Toblerone for example, who are very particular about their sourcing, to cheaper products that have many potential sources. This may generate a conversation about product differentiation and product positioning incorporating that idea of using supply chain quality to help build corporate reputation. The easy and accessible nature of the activity makes it memorable for students. It is one of those exercises that is frequently referenced for illustration purposes in future discussions of globalization, ethics, and environmental issues in production. Finally, the students later have a graded homework assessment on a related topic. The fairly simple in-class learning activity sets students up for better outcomes on the graded assessment.

**Presentation at ELA**

The activity is short enough to be easily demonstrated at ELA in an active and engaged way. The introduction could be shortened as most should be familiar with supply chains at least in general. The focus of the introduction need only to emphasize stakeholder theory and challenges in supply chains. To shorten the required time for the activity, world maps could be preassembled and candy bars could be determined in advance (selecting candy bars that work well) with groups drawing a candy bar from a hat. Participants will need laptops though the activity could be done without laptops if ingredient lists were provided for each candy bar and possible source countries were listed for each ingredient. Providing upfront lists of source locations could provide another exercise as the focus could be easily shifted to designing supply chains that minimize environmental damage and which avoid areas with the most supply chain risk.

References

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Mitroff, I. (1983). *Stakeholders of the organizational mind: Toward a new view*. San Francisco: Jossey- Bass