

Capstone Workshop Program

Memorandum of Understanding and Confidentiality Agreement (“Agreement”)

Between

Sponsor (“DHL Supply Chain” or “Sponsor”) (represented by Project Director – Adrian Kumar)

And

School of Professional Studies / Columbia University (“CU-SPS” or “Columbia”)

(for its Capstone Workshop, represented by Faculty Advisor – TBD)

WHEREAS, DHL Supply Chain has identified an opportunity to work with Columbia students to research and create a robust network design model with logical assumptions, parameters and trade-offs.

WHEREAS, in support of the Capstone Workshop, DHL Supply Chain desires to provide its confidential data to Columbia so that Columbia students may work the problem with the aim, but no requirement, to create operationally useful **algorithms and related solutions**: and

WHEREAS, in the event Columbia produces algorithms and/or related solutions with operational utility, Sponsor desires to receive access thereto;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is mutually acknowledged, Sponsor and Columbia agree as follows:

**Project Title:** Planning a supply chain for a new customer

**Organization:** DHL Supply Chain

**Organization Project Director & Contact Information:** Adrian Kumar, Global Head, Operations Science & Analytics, adrian.kumar@dhl.com

**Background:** As the world’s largest contract logistics specialist, we create competitive advantage for customers through customized logistics solutions based on globally standardized warehousing, transportation and integrated services components. We bring sector expertise, global scale and local knowledge to design and manage supply chains from raw materials and manufacturing to finished goods delivery and return services.

**Objective:** Supply Chain/Network Design Problem  
In this project, students will plan a supply chain for a new customer, “Juice 2U Direct”.

Juice 2U Direct manufactures and sells their product direct to customers in the USA. The project deliverable will be a report to the Juice 2U Direct management team describing the recommendations under various scenarios.

Part 1 (Initial Analysis)

Perform the network study, where should the company set up points of manufacturing and distribution (among the candidate facilities) minimizing

fixed, variable, inbound and outbound costs. (Note: manufacturing sites can service multiple warehouses facilities.)

The company desires to make a 20% margin, what should their average per order charge be (include all costs)?

Part 2 Sensitivity Analysis (each to be analyzed separately unless noted)

How is the model vulnerable to cost changes? What if fixed manufacturing, fixed distribution, inbound and outbound costs all separately increased and decreased by 50%?

The company estimates sales will grow by 25% a year, what does the optimal network looks like in year 5?

Growth in Texas (all cities) is expected to be double that of other markets (ie 50%), does this impact the network 5 years from now?

The company is considering charging for shipping. If they forecast losing 50% of customers, what is the impact to overall profits (note lost revenue but with less expenses)?

A new option is available, where a customer can receive shipments with twice the standard number of bottles. Under this option customers will receive  $\frac{1}{2}$  the number of overall shipments versus before, but both shipping and order processing will increase by 50%. How will this influence the network if implemented across all shipments?

Project Summary

Research and create a robust network design model with logical assumptions, parameters and trade-offs. Using sensitivity analysis and what if scenarios to present your recommendations. Articulate the following in your report: Introduction/Overview of Problem, Assumptions, Modelling / Methodology, Results (including Sensitivity Analysis), Discussion, References.

**Tasks:**

“Capstone Workshop” herein refers to the Capstone Workshop described as follows and conducted under the supervision of the Faculty Advisor identified above:

- Develop detailed work plan identifying key issues/questions to be addressed and how to approach them; identify any challenges/obstacles/costs and determine how to address these.
- Conduct research, validating assumptions and interim results with sponsor as appropriate.
- Analyze results of research and prepare supporting materials and recommendations, validating with sponsor as appropriate.

**Deliverables and timetable:**

- Detailed work plan (early in semester)
- Draft report outline (prior to mid-term checkpoint)
- Mid-term check point (midpoint of semester). This should be a short presentation offering some highlights of progress-to-date
- Draft report (Course weeks 9-11)
- Presentation of key findings and recommendations (PowerPoint is the standard for this) to small group of stakeholders

- Final report documenting research and findings (this can take whatever form the team finds appropriate...Word, PowerPoint, etc.). This should be material sufficient to address the key questions and support the insights in the final presentation. Length can be as needed, but clarity and brevity where possible are helpful.

**Requirements:**

Python (suggest PuLP library), Excel Solver or other network design software

**Logistics:**

- Students, faculty and SPONSOR may use a variety of comprehensive means to communicate and collect feedback throughout the capstone. Among the channels we will use are weekly conference calls or web meetings, direct mail and Canvas email, review through Google documents, as well as face-to-face meetings.

**Confidentiality:**

- During the course of the Capstone Workshop entitled "Planning a supply chain for a new customer", Columbia University and/or Columbia University students enrolled in the Capstone Workshop may be given access to Sponsor's confidential information as follows:
- Confidential Information means a proprietary set of mocked up operations data ("Confidential Information"). Columbia will protect the confidentiality of the Sponsor's Confidential Information by exercising reasonable care not to disclose the Confidential Information to any third party except as authorized by sponsor, provided, further, that Columbia may disclose Sponsor's Confidential Information to students during the Capstone Workshop provided such students have executed the Confidentiality Agreement in the form attached hereto as "Exhibit A".
- Notwithstanding the foregoing, the obligations of confidentiality do not apply to any information which: was known to Columbia prior to receipt thereof from sponsor; was or becomes a matter of public information or publicly available through no act or failure to act on the part of Columbia; is acquired by Columbia from a third party entitled to disclose the information to it; or Columbia develops independently.
- Students and instructors participating in the Capstone Workshop Program may publish the results of their work, provided that no such publications shall disclose Sponsor's Confidential Information and further provided, that Sponsor has the right to review proposed publication at least 10 days prior to publication solely for the purpose of confirming that Sponsor's Confidential Information has not been included in the draft publication.

**Miscellaneous:**

- IN NO EVENT SHALL SPONSOR OR COLUMBIA BE LIABLE WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE) OR UNDER ANY OTHER THEORY OF LIABILITY, FOR ANY INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, ARISING OUT OF OR RELATING TO THIS AGREEMENT, BASED ON ANY LEGAL THEORY OR CAUSE OF ACTION WHATSOEVER, AND WHETHER OR NOT FORESEEABLE, EVEN IF A PARTY HAS BEEN ADVISED OR WAS AWARE OF THE POSSIBILITY OF SUCH LOSS OR DAMAGES.

- Sponsor understands and agrees that the Capstone Workshop Program is an educational program, performed at no fee for Sponsor, intended to enable students to apply practical skills and analytical knowledge to real-world issues; and accordingly, the work performed hereunder without warranty of any type, express or implied, including, but not limited to, any implied warranties of merchantability, noninfringement, or fitness for a particular purpose.
- Sponsor will not use the name, insignia, or symbols of Columbia, its faculties or departments, or any variation or combination thereof, or the name of any trustee, faculty member, or other employee of Columbia for any purpose whatsoever without Columbia's prior written consent.
- This Agreement will terminate on 12/31/25, provided that obligations that by their nature survive termination will continue to apply in accordance with their terms. A party may terminate this Memorandum of Understanding immediately if the other party commits any material breach and fails to cure such breach within thirty (30) days after written notice thereof from the non-breaching party
- This Agreement embodies the entire understanding of the parties with respect to the Capstone Workshop entitled Planning a supply chain for a new customer and supersedes any prior understanding or agreement entered into by the parties either written or oral. No variation or modification of this Memorandum of Understanding or waiver of the terms or provisions hereof shall be operative or valid unless in writing and signed by both parties.
- This Agreement will be governed by and construed in accordance with the laws of New York, without giving effect to conflict of law rules. All disputes arising hereunder shall be exclusively submitted for resolution to courts seated in or having jurisdiction over New York County, New York.

*Adrian Kumar*

November 7th, 2024

Sponsor Project Director Signature

Date



11/8/24

Louise A. Rosen  
Senior Associate Dean  
of Administration School of Professional Studies  
Columbia University

Date

**Exhibit “A”**

**CONFIDENTIALITY AGREEMENT**

WHEREAS, as a condition of the undersigned student’s participation in the Columbia University course titled “APAN 5900” (the “Workshop”) the undersigned (or “you”) will be required to maintain the confidentiality of certain information disclosed to you during the Workshop;

NOW THEREFORE, for good and valuable consideration, including your participation in the Workshop, you hereby agree to abide by the obligations of confidentiality applicable to Columbia University as the same are set forth more fully in that certain Memorandum of Understanding and Confidentiality Agreement, a copy of which you acknowledge has been provided to you.

IN WITNESS WHEREOF, the undersigned has executed this Confidentiality Agreement as of the date set forth below.

Mingchen Yuan  
Printed Name

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Signature

September 6 2025  
Date