**Application 2**

# Fish Supply Chain

## Introduction

The assignment for this project is to develop a vision for how higher quality information and more reliable information flow could improve the resiliency of a complex system.

The particular system you will study is the the supply chain that brings fish from the docks to market. This system is in trouble worldwide. Here is a capsule summary of the problem:

The threat of overfishing and extinction of marine life is as complex a problem as one could imagine in our modern, hyper-connected world. It is a story whose span touches fishing villages in Sri Lanka, corporate executives at Wal-Mart,and diners at both four-star restaurants and McDonald’s. At every link in this chain, as roles change, the incentives and motivations shift for the human beings involved. At many junctures, the links are not really links at all, but diffuse cascades of related, dependent events that seem impossible to trace to a single moment with the potential for change.

Ideally, sparking change or redirecting the flow of events in a system would be like pushing over the first domino in a string: each action would tumble forward to effect a successive action of change. But the myriad behaviors colliding in this picture—how people choose what to eat from a menu, how fishermen maximize profit, how governments police illegal fishing, how fish are caught, packaged, labeled (or often, mislabeled) and shipped around the world— do not connect very neatly. Critical dominoes are missing so that change can’t ripple efficiently along the string. Some dominoes are stacked tightly together, increasing the difficulty of toppling them. These are signs of an immature solution set for a given social or environmental problem.

*[excerpted from ‘Changing the Future of Wild Fish,’ a report from the Future of Fish organization, http://bit.ly/14QWPPc]*

Working with your team, you will

1. use secondary research sources to understand the fish supply chain as a system with five nodes: producer, processor, distributor, buyer, and customer.
2. focus on understanding how this system looks from the perspective of the particular node to which your team has been assigned.
3. identify the specific challenges the current system creates for an individual at your assigned node, and how the incentives he feels contribute to the overall risk of the entire system
4. imagine an hypothetical future in which better information and better access to that information creates an incentive structure for the individual at your assigned node that benefits him and the system at large
5. communicate this vision through a prototype of an information application that provides an individual in your assigned node with an efficient and compelling way to interact with the supply chain.

The primary success criteria for the application your team’s design will be its contribution to supply chain resilience, understood on two levels:

1. *System Resilience:* the flows, internal feedback and outcomes the supply chain as a whole must generate to stay viable
2. *Individual Resilience:* the information the individual participant in the supply chain requires to thrive

In this project we will treat system resilience as a practical matter in terms of traceability, that is, the story of where fish originates, and how it passes through the supply chain. The application your team designs must contain features that permit a user to understand and update the narrative for the fish he touches.

The principle of individual resilience will play out differently at each node in the chain, but in a general sense this is a requirement to provide the individual with information that helps him/her optimize decisions in terms of short term benefits and long term consequences.

## Assignment

This project will be done in teams of 3. You are assigned to a team and each team is assigned to a node in the supply chain; this information is found below in the Team Assignments section. You will work with your team to:

1. **Develop a vision for how to improve the incentive structure for an individual at your assigned node in the supply chain in a way that benefits him and the system overall**
2. **Design and prototype a software application that demonstrates this vision through workflows that permit a participant in the fish supply chain to**

* **visualize and, as appropriate, update product traceability information**
* **understand the relationship between supply, demand and value**
* **create or evaluate a buy or sell offer in terms of qualities and price.**

1. **Define success metrics for your application in terms of individual and system resiliency and demonstrate how use of the application can be expected to improve these measures.**

This is a project about a hypothetical future, 10 years from now, in which the data required to address these information needs can be taken for granted, as can the means to store, transmit and display it. In other words, your challenge is not only to design the application but also to specify the information ecosystem in which it exists.

While the deliverables for this project will follow the theory and practice we have developed in the system class, getting them done will require that you integrate the learnings and tools from your design research and story courses.

## Learning Objectives

The strategic learning objective for this project is to gain experience with two of the most difficult and most common systems design challenges:

1. Dealing with a wicked problem, that is, a problem with so much complexity that it cannot be solved, only mitigated
2. Working as part of a team.

On a more tactical level, the purpose of the assignment is to practice these tools and techniques:

* processing secondary research sources
* building “persona>scenario>user story>workflow” narratives
* constructing and expressing digital machine models
* designing and building interactive prototypes

## Resources

Four secondary sources that will be of considerable use to you are

1. Changing the Future of Wild Fish, <http://bit.ly/14QWPPc>
2. Future of Fish Executive Summary, <http://bit.ly/12yJxXj>
3. Without a Trace, <http://bit.ly/Y9rCE1>
4. Buyers Context, unpublished, available in Lore class library

You are, of course, free to find additional sources for your research.

## Schedule & Deliverables

### Wed - 4/17 - Project Kickoff

### **Wed - 4/24 -** Design Strategy

A slide presentation explaining

1. The Current Context
   1. what does the system look like now in terms of elements, relationships and currency flows from the perspective of an individual at your assigned node?
   2. what challenges does this create for his individual resiliency?
   3. what challenges does this create for system resiliency?
2. The Optimal Future
   1. what would a sustainable system look like from the perspective of an individual at your assigned node?
   2. how would this improve his individual resiliency?
   3. how would this improve system resiliency?
3. The Delta
   1. the optimal future requires what changes in information & incentives at the node level?
   2. how could you measure the impact of these changes?
   3. how will you divide up the work (team roles, see grading section for explanation)

This deck must be submitted electronically by 7:15pm. By 7:25pm each team must post 3 tabloid sized sheets on the classroom wall for the rest of the class to examine. Beginning at 7:45pm each team will have 10 minutes to present their deck and solicit feedback.

### Wed - 5/1 - Preliminary Design

A slide presentation explaining

1. Context
   1. what is the delta between current and the optimal future that your solution provides?
   2. how can the success of these changes be measured?
2. Concept
   1. conceptual model
   2. data model (specify inputs & outputs)
3. Application Design
   1. object model
   2. interaction model
   3. page layout & navigation

This deck must be submitted electronically by 7:15pm. By 7:25pm each team must post 3 tabloid sized sheets on the classroom wall for the rest of the class to examine. Beginning at 7:45pm each team will have 10 minutes to present their deck and solicit feedback.

### Mon - 5/6 - Final Public Presentation

1. A slide presentation explaining
   1. what is the delta between current and the optimal future that your solution provides?
   2. how can the success of these changes be measured?
   3. the information inputs your application requires and the outputs it provides
   4. the layout and navigation of your application
2. A Bootstrap-based prototype containing workflows for
   1. reviewing/modifying traceability information
   2. understanding market conditions
   3. buying or selling
3. A demonstration of your application
4. A script explaining the workflow states in your prototype and how to navigate through them

Submit the deck, prototype script and the prototype files by 7:15pm. You will have 20 minutes total to present your deck and demo to the reviewers, and you need to leave time for questions.

## Grading

This project will be graded in terms of 3 rubric dimensions: presentation; system design; and prototype. The evaluation details for these dimensions are below. The team score will be calculated by evenly weighting each dimension score:

team score = 1/3(presentation) + 1/3(system design) + 1/3(prototype).

Your individual grade will be a function of your team score and your contribution to this outcome. To measure this you will assign each member of your team to a role that is responsible for one of the dimensions in the grading rubric. Individual grades will then be calculated as:

individual score = 1/3(team score) + 2/3(role dimension score).\*

Being responsible for a dimension means owning the definition and delegation of the tasks required to achieve success along that dimension. It does not necessarily mean executing all those tasks, however. Exactly how the work to be successful along each of the dimensions is distributed is up to each team, as is the assignment of roles.

\*There will be one team of 4. This team will assign the extra person the role of project manager. The project manager’s score will be the same as the team score.

### Grading Rubric

| **Quality** | **Poor (1)** | **Good (2 - 3)** | **Excellent (4)** | **Weight** |
| --- | --- | --- | --- | --- |
| Presentation | Presentation is disorganized, or unrehearsed or fails to provide sufficient context for evaluating the work. | Presentation is well organized, smoothly presented and explains the problem context, the proposed solution and how solution success is measured. Higher scores for better visual design and narrative flow. | Extremely high quality experience in terms of storytelling, visual appearance or communication style. | 1/3 |
| System Design | The proposal has significant logical flaws, or dubious or unsupported assumptions or is not clearly relevant to the problem space. | A sound proposal that transforms research into a simple story about a system where information flows between related elements in support of a well-defined purpose. Higher scores for more clarity regarding inputs, outputs and feedback. | A particularly elegant analysis of the problem space, or an insightful and innovative vision for the solution opportunity. | 1/3 |
| Prototype | The prototype does not meet all of the functional requirements, has poor production quality or is too simple to be believable. | The prototype tells a compelling story about how it addresses the challenge workflows. Higher scores for better production quality and visual design. | The prototype demonstrates particular elegance with respect to layout, navigation, workflow efficiency or other elements of user experience. | 1/3 |

## Team Assignments

### Cod

* Taylor
* Jasmine
* Vivek
* *Assigned Node: Producer*

### Coho

* Colin
* Hiroko
* Naomi
* *Assigned Node: Processor*

### Anchovy

* Elaine
* Levi
* Mallika
* *Assigned Node: Distributor*

### Halibut

* Brian
* Christine
* Dana
* *Assigned Node: Buyer*

### Bluefin

* Dorahan
* Yinan
* Alex
* Aaron
* *Assigned Node: Consumer*