

## **Final Report CSU “Campus as a Living Lab” (CALL)**

**Date:** October 14, 2014

**Reporting Period:** 9/1/2013 to 8/31/2014

**Project Title:** Analyzing the Embedded GHG Emissions Associated with the Transportation of Goods and Services for San Francisco State

**Principal Investigator:** Dr. Susan Cholette

Professor, Decision Sciences

College of Business

San Francisco State

[cholette@sfsu.edu](mailto:cholette@sfsu.edu)

### **Partners:**

- **Rob Strong**, General Manager of the SF State Bookstore
- **Caitlin Steele**, Sustainability Programs Manager for Physical Planning and Development.
- **Allam Elqadah**, owner of Café Rosso, Station Café, HSS Café, Village Market and Taza Smoothies / Wraps

**Project Justification:** The project took addressed the pressing problem of anthropomorphic Climate Change, which may be one of the more serious threats that humanity faces and will likely require a palette of solutions. Reducing our dependency on fossil fuels is one such measure to combat global warming. The DoE estimates that US transportation-related GHG (Greenhouse Gas) emissions in 2007 surpassed 2.0 billion metric tons, one-third of total national emissions. Unfortunately, the delivery of goods and services can be very transportation-intensive, and most current vehicles are powered by fossil fuels. San Francisco State requires a vast array of such deliveries in order to meet the needs of its students, faculty and staff. However, logistics can often be improved through such measures as selecting more appropriate transport modes, better routing, and increasing utilization and backhaul rates. Additionally, such supply chain redesigns may be cost-neutral or may even result in savings.

**General Methodology Recap:** The project was to be divided into two parts, improving a spreadsheet tool, CarbonCalc, that had been previously developed, both through benchmarking it against other free GHG calculators and also adding additional functionality that might be required by partners. The second part involved working with campus partners to devise a series of actual campus supply-chain processes that could be measured and perhaps improved, then have students work on these in the Spring 2014 offering of Sustainable Supply Chain Management (DS655), an undergraduate course that I developed and taught in the Spring of 2012, repeating again in Spring 2013. Funding for this project was entirely budgeted for student assistance, both in undertaking CarbonCalc improvements and also in grading to provide some relief to offset the additional work that meetings and other aspects of this project entailed.

## **Process Report:**

### *Fall 2013 Activities*

We got a late start, due to delays in judging and in transferring the funds, so we officially started in mid October (10/17/14). My attempts to secure additional partners for the Spring 2014 projects were unsuccessful, but I was able to make arrangements with each of the 3 partners listed to provide 3 projects, 9 projects in all as shown in **Appendix A**, along with the designated client contact and their requisite information. I met several times with each of the partners, going over the project aims, what the CarbonCalc tool and the students would be able to do, and the end deliverables, including an opportunity for them to participate in the final presentation as judges. Meetings with these partners also suggested the current functionality of the CarbonCalc tool would be sufficient, and that was no pressing need for improvements. Given some difficulties securing sufficient student help to make the planned improvements, I focused instead on working with the partners and making the appropriate course revisions, which were in place by the start of the Spring term. At the end of the term I believed I had everything set for a successful launch of the newly revised DS655, incorporating my CALL project.

### *Spring 2014 Activities*

I allowed the 32 students enrolled in the class to self-select their own teams of 4 to 5, resulting in 7 teams being formed. Rather than assign them projects arbitrarily, I let them rank which of the projects they preferred to work on. In retrospect, this was not the best decision, as most of the students gravitated towards what they perceived were easier projects. In particular, the Sustainability Program's 3 projects seemed the most complex, so only one team expressed interest in working with this partner, an ironic choice as will be seen below.

Alas, the Bookstore was the most challenging client to work with. Our primary contact was one of Rob Strong's employees who had seemed enthusiastic during our meetings in Fall 2013. Yet, after an initial meeting with a couple of the groups there was no response from him. Even I was unable to garner any response, and in the end I allowed one group to find their own project off campus and encouraged the other groups to make due with secondary sources, such as looking up similar businesses online. I later found out that said contact had just become a new dad, but unfortunately about 40% of my class were thus left orphans from a project standpoint.

Mr. Elquadah's contact, Maira McDermott, was quite busy, but she did respond to all of the groups' questions, although she could not make it to the presentation evaluation nor did she provide any feedback on their deliverables. The most responsive partner, Nick Kordesch on behalf of Caitlin Steele, provided the one team that signed on with them all the information that was needed and attended the final presentation. Their project experience was no doubt the best, and, incidentally, they were also one of the top performing teams.

**Outcome Assessment:** The student project that were based on the CALL activities were assessed by up to three metrics: professor evaluation, partner evaluation, and student (peer) evaluation, the latter which focused more on presentation skills. Although all partners with student projects were invited, only one, Nick Kordesch (Sustainability Coordinator @ SF State), came to the project presentations and, he filled out both a client and peer evaluation per **Appendix B**. Professorial evaluation of all 7 projects compared with those done in Spring 2013 term would suggest a slight improvement in both content and delivery in aggregate. There were

no observable differences in peer evaluations from Spring 2013 to Spring 2014. Aside from these class project evaluations, no other metrics to assess learning outcomes from CALL were used.

I would also consider students' end-of-term teaching evaluations (SETE) another metric for evaluating success. Overall, my SETE scores increased (worsened) by about a half a point in Spring 2014 (1.91) as compared to the prior 2 terms I had taught the class, in Spring 2012 (1.38) and Spring 2013 (1.45). While some of this worsening could be attributable to the campus switch to online evaluations, I have always experienced near full participation in evaluations prior to the migration to online, so I suspect this is not the factor. (And no such significant upward drift occurred my other classes' evaluations.) As the major difference with the Spring 2014 class was the inclusion of the CALL project, I must conclude that students were less than thrilled about its implementation. A sampling of the fill-in comments provided in SETE indicates that students were frustrated by the lack of responsiveness on behalf of some of the partners:

- *Professor could improve by making sure that those who signed on as 'clients' with the final project would actually be able to provide real data; otherwise, the project has lost its purpose.*
- *The final project went a little more rough than I anticipated because of a lack of reliability on the sources that were given.*
- *The final project could be improved by actually having students work with real world data provided by 'clients' who signed on to participate. It is almost like paying to advertise in a phone book, and not answering the telephone.*

### **Conclusion and Lessons Learned:**

This project provided a useful learning experience for me and my students, especially as the grant was one of the smaller ones (less than \$3,000 awarded). Scheduling realities prevent my continuing with the pedagogy portion of this particular project, as another professor has requested teaching DS655 in Spring 2015, and it is important for her career development that she do so.

I will continue to make improvements to CarbonCalc, even without the CALL funding, and I will use this tool again when I next teach supply chain management at either the graduate or undergraduate level. I would still consider involving campus partners in such a project as CALL the next time I'm scheduled to teach such a class. However, before making any such binding commitment, I would first actively work to guarantee more complete participation from partners and perhaps provide some backup projects so as to provide a less frustrating experience for myself and my students.

## Appendix A: Project List

### DS655- "Campus as Living Lab" Projects

Spring 2014, S. Cholette

Organization	Project	Primary contact	email	Best time for meetings or communicating in general	Any vacation/blackout dates to be aware of?
SFSU Bookstore	1-Electronics/Computer product 2-Logo clothing sourced from Asia 3- Textbook sourced from Europe	Husamettin (Husam) Erciyas	<a href="#">removed</a>	???	???
SFSU Physical Planning and Development	4- Virgin paper vs. 100% recycled content paper 5-Organic food item vs. non-organic version 6-Hand dryer vs. paper towels in restrooms	Nick Kordesch	<a href="#">removed</a>	M-Th afternoons , Friday	N/A
SFSU café	7. Juicing Oranges 8. Bananas 9. Melons	Maira McDermott	<a href="#">removed</a>	email availability high, Late afternoons (except Thursdays) are good for meetings	will be gone for a bit during Spring Break

**Appendix B Evaluation Rubrics (filled out for 1 team)**

Peer Evaluation of Presentation:

**Student and Panelist Evaluation of Project Presentation**

Team 1 Hand Dryers vs - Paper Towels Brett Lillegard, Sean  
+ Alexia Venwaes

Evaluator Nick Kordeich (Client)

Evaluator's Team \_\_\_\_\_

<b>Content and Structure</b>	<b>Ranking (5 = best, 1 = worst)</b>
Was the <b>supply chain</b> clearly presented?	4
Do the <b>data and underlying assumptions</b> appear to be solid and reasonable?	Yes, 5
Do the <b>recommendations</b> seem appropriate?	5

**Style and Clarity**

<b>Introduction:</b> Was your attention engaged quickly and effectively? (no time wasted loading files or futzing with navigation)	5
Was the presentation aimed at the <b>right level of detail</b> - neither too detailed or overly simplistic?	4
Was the PowerPoint Presentation clear and <b>informative</b> ?	5
Was the PowerPoint Presentation <b>professional</b> and polished?	5

**Communication and Questions**

Were speakers able to <b>speak effectively</b> to the points made in the presentation? Or do they seem confused?	5
Were speakers able to effectively <b>communicate</b> ideas (such as vocabulary, eye contact, good speed & volume of speakers(s) )?	5
Were team members able to answer to audience <b>questions</b> ?	5

**Overall Effectiveness**

Rank (from 1 to 5) how inclined you would be to hire the team for further work on the basis of their <b>analytic skills</b> ?	5
Rank (from 1 to 5) how inclined you would be to hire the team for further work on the basis of their <b>presentation skills</b> ?	5

Other comments or constructive criticism? (Will be relayed anonymously)

## Client Evaluation of Deliverables:

**Evaluation for Clients** I will incorporate this feedback when considering the team's grade. Please don't worry about being too harsh, as I will compensate/adjust accordingly. After all, everyone has strengths and weaknesses, so honest and frank feedback will help students to improve the latter and perhaps prepare them for a lucrative and influential career in consulting.)

Rank the team according to the following scale:

(5 = excellent, 4 = good 3 = acceptable 2 = some improvement needed 1 = strong improvement needed)

Feel free to compare them to other teams in this class or other courses.

- Does their analysis seem to fit your business problem accurately? (5) 4 3 2 1
- Are their recommendations feasible and realistic? 5 (4) 3 2 1
- Were the results professionally documented and presented? (5) 4 3 2 1
- Did the team behave in a professional manner in all your interactions? (5) 4 3 2 1

What are the strengths of the team and/or analysis? This project required the team to make assumptions and estimates. They did a great job of giving

What are the weaknesses / areas for improvement?

a good analysis with limited data. They could have framed the issue better in the presentation. I would be interested to hear their take on how to incorporate the carbon footprint data with operational concerns. The analysis was excellent - but they could make a stronger argument. (I was impressed.)

### Other Strengths

- Excellent verbal delivery + powerpoint usage.
- Nice outline of the supply chain steps. I'd like to see the efficiencies of each transport type.