

Connor Voelk (voelkc@uw.edu)
Garrett Olerud (olerudg@uw.edu)

Conscious Consumer:

A Value Sensitive Design Study of Sustainable/Ethical Practices in Supply Chains

Keywords:

Sustainability, Supply-Chain, Value-Sensitive-Design, Pandemic, Ethical-Consumerism

Abstract:

With COVID-19 prompting us to examine the values held by customers, workers and, businesses, consumers have difficulty navigating the limited shopping options available especially with local businesses struggling. This paper seeks to understand the values that consumers, businesses and workers hold towards sustainability and safety in a pandemic economy. By utilizing stakeholder value analyses, value scenarios, and a value oriented coding manual, we identified values towards operating business in a sustainable manner during a pandemic. The results suggest that there is a balance that can be struck between efficient operations and the sustainability and safety of a workplace. If our society and its closely tied economy (global and local) are to exit this crisis smoothly and quickly, consumers need to understand what they are supporting in their shopping decisions and advocate for safe and healthy practices among all aspects of a supply chain.

Introduction:

A key challenge for firms is managing sustainability and profitability during normal operation however in times of crises such as the COVID-19 pandemic, existing difficulties are amplified while new challenges emerge. Local business faces challenges in employee retention and safety while international business must be concerned with the impact their supply chain has not only on the local community but also the different communities affected by their supply chain. Artsiomchy & Zhivitskay give insight into what a sustainable supply chain for information technology looks like through their definition “[a] complex system that includes four components of different types hardware, software, human factor and organization factor”. Through this it was found that “improved knowledge and information flows arising from supply network accessibility influences a firm’s innovation output” (Artsiomchy & Zhivitskay). When consumers and companies understand the values associated with them, there is accountability which places pressure on companies to innovate towards better solutions. When designing any supply chain, the relationship of each part is integral to measuring its effects and compliance to standards. For both the public buyers and the internal organizations involved in the chain, advocating for and creating ethical supply chain components depend on “**visibility, the ease of information flows, and the resulting relationship structure.**” (Sroufe & Melnyk, 2013). When designing a system to inform consumers about the operations of specific components in the supply chain of a product, the value of transparency is heavily prioritized. Small and local businesses that are essential to communities are finding it difficult to be involved in the community during the COVID-19 pandemic, but face the even greater issue of staying in business due to the pandemic. The foundations that support our communities are already being threatened, and to

ensure the essential act of buying goods (for individual and economic wellness) from multiple complex supply chains will have minimal damage on this stress is difficult but “If we do not have an economy capable of valuing in particular terms the durable good of localities and communities, then we are not going to be able to preserve anything” (Berry). It is essential for consumers’ actions to represent the future they would like to see for the businesses in their community. The lack of transparency in online shopping has created a disconnect between the values of consumers and the practices of the companies they may be unknowingly choosing to support.

Design Process:

In our attempt to better understand the effects of consumers shopping during the COVID-19 pandemic we began with conceptual investigation to try and better understand the web of values and how the behaviors from shoppers, business owners, and workers affect those values. We then shifted our focus towards empirical investigation, where we discovered criteria that would lead our technical investigation such as “employee safety vs business efficiency” and “product cost vs sustainability/ethical practices”. Unfortunately, due to the constraints of the quarter we were not able to pursue technical investigation to the extent that we originally hoped. However our work in conceptual and empirical investigation lays a strong foundation upon which technical investigation can occur.

Conceptual Investigation:

Our conceptual investigation began by identifying the different stakeholders affected by the limited shopping options brought on by COVID-19.

<p>DIRECT STAKEHOLDERS</p> <ul style="list-style-type: none"> ● Delivery Workers ● Factory Workers ● Manufacturers ● Online Shoppers ● Shipping companies ● Vendors 	<p>INDIRECT STAKEHOLDERS</p> <ul style="list-style-type: none"> ● Charitable Organizations ● Families of Workers ● Physical Stores ● The Community Supporting the Factory
--	--

Fig. 1.0

After identifying our stakeholders we decided that implementing the value scenarios method would help us gain a more complete vision of the values held by several of the direct stakeholders (Fig. A1 in appendix). Additionally, the conceptual investigation led us to the idea that the majority of direct stakeholders could be broken down into; Consumers, Workers, and Business Administrators. We developed six key safety issues during the COVID-19 pandemic and conducted a value oriented coding manual exercise to understand the values that our identified groups hold.

Issues	Consumer	Worker	Business Admins
Sick days	Forcing someone to come into work even when they feel sick is wrong.	Sick days are important and allow me to keep myself and others safe.	I need my employees to work, the pandemic does not change that, sick days should be taken sparingly.
Healthcare	Workers should be given health care always, but especially when work is a health danger.	Receiving healthcare may be essential to my survival and finances.	Providing healthcare for our employees is a burden but we are happy to be able to provide it.
Work From Home	Some workers are not able too, but I would like as few people to interact with my purchase as possible.	Parts of my job that are able to be accomplished virtually should be, the less time I spend at work the less I am at risk.	I know my employees and they are very efficient in the office, I worry about their efficiency while working at home.
Hazard pay	Workers should probably be getting paid more during this time.	Going to work is hazardous, and everything is more expensive than it used to be too. I should be getting paid more.	We all live in a world where hazards are all around us, expecting more for the same job is ridiculous.
Mask Wearing	If I am to interact with anyone, I would like them to be wearing a mask.	Wearing a mask will make working more difficult, and could create some hostile situations.	I am happy to provide masks to my employees, it is government mandated and helps stop the spread of the virus.
Testing (anti-body)	Knowing that people interacting with my purchase do not have the virus would be a big plus.	Being able to get tested would make my life easier and I would feel much safer at work.	Employee safety is important to us but constantly testing would be an expensive and timely process.

Fig. 1.1

Thinking about the effects of Conscious Consumer now and in the future was something that we felt was important to consider, we spent time envisioning what could be done after its implementation (Fig. A2 in appendix).

Empirical Investigation:

Building on our conceptual investigation we studied several papers focused on the impact of consumers on supply chain management [our gauge for companies changing towards more sustainable practices] (Artsiomchy, Zhivitskay, 2015), (Sroufe & Melnyk, 2013), (Gimenez, Sierra, 2013), as well as a paper by Wendel Berry about the disconnect between the modern consumer and the environment. The critical design concepts uncovered; “Employers produce for consumers”, “Employers need their Employees to produce goods”, “Employee safety vs business efficiency” and “product cost vs sustainability/ethical practices” served as the roadmap for our technical investigation.

Technical Investigation:

Utilizing the criterias uncovered in previous investigations, and leveraging the relational power of consumers and how that can affect workers, were key to the development of prototypes for our proposed intervention. This is why we prototyped several iterations of an internet browser extension that would overlay information about aspects of the supply chain over the product’s page, literally putting the supply chain before the product in the shopper’s view (Fig. B3). Our design reveals geographic information, size, conditions and recent events, all important information to the values of consumers. We found these through accessing the values of different consumers. Using this feature changes the interaction an internet shopper has with their purchases, they are not just considering the product, but every aspect of the supply chain that produces and delivers it.

Discussion:

Understanding the values of consumers and workers in a pandemic setting is surprisingly easy as there are numerous shared values. When held accountable, companies do have a history of innovating towards more ethical practices within their supply chain (Artsiomchy, Zhivitskay, 2015).

The power the consumer holds over a company is clear and it only requires the visibility of workplace standards and conditions for components hidden in a supply chain to advocate for the values important to them. Through informed purchasing decisions and contact, consumers will dictate employer practices. Current supply chain systems keep components hidden and out of the mind of customers of end products, but by elevating these elements to the same level as the end product, consumers are empowered to fight for their values and those of the workforce.

The current priorities for consumers is to exit the COVID-19 pandemic with minimal damage on their health and finances, and the insights we found by examining values of customers, workers, and businesses will aid with that. These findings will also support the standards of workers rights and environmental sustainability once those are more in the forefront of consumers’ minds.

Conclusion:

By utilizing stakeholder value analyses, value scenarios and a value oriented coding manual we identified shared values between consumers, workers. We then used these shared

values to direct and shape our empirical and technical investigations. Using the vsd design framework allowed us greater insight into the shared values and tensions at play and let us to the conclusion that, because informed customers will make shopping decisions that reflect their values, and businesses will respond to these shopping decisions, presenting information to consumers holds great power for sustainability and the ethical treatment of workers..

References:

Artsiomchy Y., Zhivitskay H. (2015). Designing Sustainable Supply Chain under Innovation Influence. Elsevier.

Berry, W. (1987). Preserving wildness. Home Economics (pp. 137-151). New York: North Point Press.

Gimenez, C., & Sierra, V. (2013). Sustainable Supply Chains: Governance Mechanisms to Greening Suppliers. Journal of Business Ethics, 116(1), 189-203.

Sroufe, R., Melnyk, S. (2013). Developing Sustainable Supply Chains to Drive Value: Management Issues, Insights, Concepts, and Tools. Business Expert Press.

Appendix:

Reflection:

Garrett:

The strong initial vision for the project allowed us to ask specific questions and quickly develop our stakeholder lists. Connor and I worked on other projects like the inclusive hackathon together and that helped us to be efficient on this final assignment because we knew the strengths of each other and how we could best work together to accomplish the tasks that we had set. The project struggled just because we had planned such ambitious goals and things that we wanted to achieve with this study. We also wrestled between focusing on supply chain management and ethical consumption during COVID-19. We were only able to create two prototypes for the technical investigation so it was harder for us to gain as much insight from the technical investigation as we were able to from our empirical and conceptual investigations. I think that this study lays a great foundation upon which someone could actually create a browser pop up that scores the sustainability and ethics of different consumer goods.

Connor:

The undertaking of this project seemed, at the start, difficult because we were attempting to connect two very complex and different things: Supply chains of internet shopping and sustainability and ethics during a pandemic. Our value analysis of stakeholders and research were sources of incredible motivation and proved that our idea could be worth pursuing because we found the shared values of shoppers and workers, and how businesses innovate in

response to consumer demands. It was the use of VSD methods that proved to be especially helpful during our conceptual and empirical investigations. In the future I would like to have expanded our technical investigation into testing prototypes and getting a better understanding of how users could have the information communicated to them. If we were to continue working on this project, then there needs to be many more iterations of the UI in order to start coding.

Value Scenarios:

Online Shoppers (users)

Laura is a working mom that was fortunate enough to keep her job as a software engineer during the pandemic through working remotely. She has found it difficult to keep her children entertained and educated throughout the quarantine, and this has resulted in her buying many new toys and activities online. Laura regularly keeps up with the news, and has noticed the differences of practices in companies. When shopping, Laura wants to promote organizations that are having the most positive effect on our current situation, in order to support companies that agree with her values, aid local businesses, and help the pandemic relief. By using Conscious Consumer, Laura is able to instantly see what every organization involved in the supply chain has done in response to the COVID-19 pandemic, whether it be not giving workers additional sick days or hazard pay, donating to hospitals and food banks or promoting safe social distancing practices throughout the workforce. For instance, if one factory of a toy has not been giving sick days to its workers, Laura will decide to purchase a similar toy made in a factory giving sick days to its workers. She was disappointed that she could not buy the exact toy she was looking for, and sent the first factory a message on why she chose the other. Laura can now feel better about her purchasing decisions because she can make an informed decision on where to spend her money and is able to respond to an injustice she found.

Delivery Worker

James just started working for Amazon in the last few months in response to losing his job as an athletic trainer at a gym. Throughout the training for his job, he was surprised that there was such little change of practices in response to the pandemic. Spending his days driving and delivering packages, James is not eligible for hazard pay or paid sick days because he is a new worker. As a result, he is not able to go out to dinner three times a week and explore smaller new restaurants like he used to. There has been talk of social organizations and powerful employees at Amazon demanding change for warehouse and delivery workers' work practices, but James and his colleagues believe that customers would need to make difficult financial decisions for positive change to occur in the work environment.

Manufacturer (Cheap Corp)

Ever since Conscious Consumer came out during the COVID-19 pandemic we have seen a large drop in sales across all of our products on online platforms like Amazon and Walmart. We heard about Conscious Consumer through a review of one of our products. A previous customer went to buy another product of ours but was alerted by an in browser pop up that

our manufacturing process has ramped up significantly due to the increased online orders and we have chosen to suspend our employees sick days. So instead of buying the product the consumer chose to purchase from a different manufacturer and then went to the trouble to write a negative review of the product! We are going to have to change how we operate our factory and fast if we want to stay competitive in an accountable online marketplace.

Factory Worker

Last week the Factory foreman gave an announcement that shocked everyone on the factory floor, all of the factory workers were going to get health insurance and paid sick days starting immediately, we could not believe it! Something must have gotten out about the factory forcing us to work when we were sick and injured and not providing any medical support. Now I can stay home if I am sick and still feed my family. This will benefit the community immensely as we will now have access to healthcare and not a moment too soon with COVID-19 spreading rapidly.

Fig. A1

Multi-Lifespan Timeline:

Present: Connect online shoppers with businesses that practice safe and equitable operations during the pandemic.

Post-Pandemic: Give similar information, but within the greater scope of human rights, environmental impact, social good and transparency of worker treatment.

2060: Greater emphasis on companies being accountable and proactively investigating the working conditions of their warehouses, factories and other parts of the supply chain, especially internationally.

2080: Conscious Consumer online web shop is launched, all products are verified to have sustainable and equitable supply chains.

Fig. A2

Prototype:

[Figma Link](#)

Fig. B1: Access link to find our work on the draft

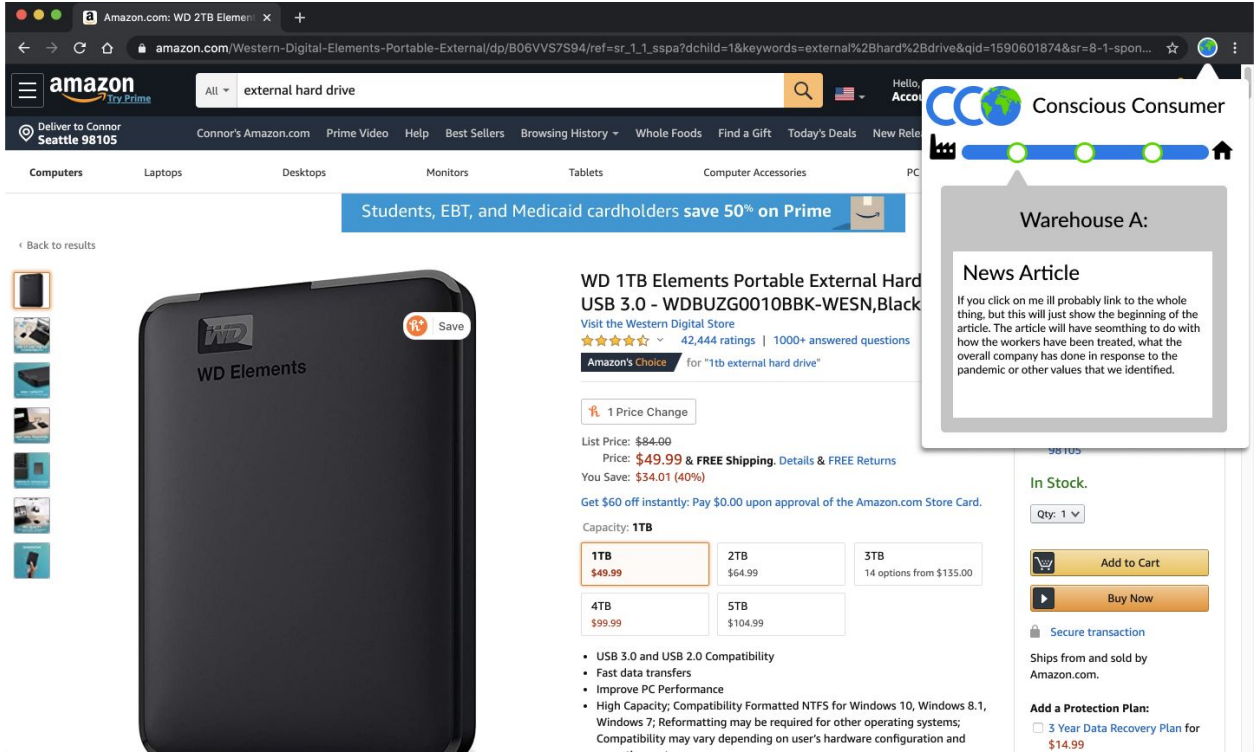


Fig. B2: First-Draft of what this browser feature would like on an amazon page. This iteration was much lower on features and a result it has a smaller footprint on the page.

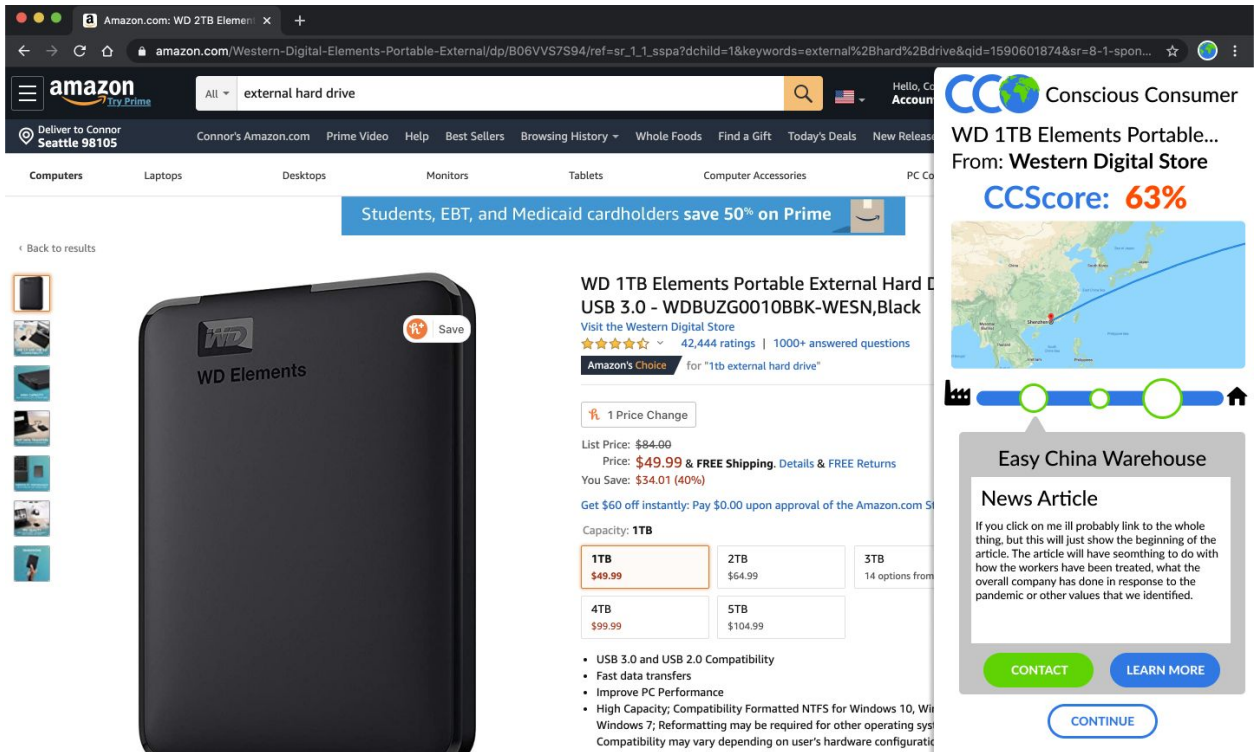


Fig. B3: Final-Draft within our work this quarter. Notable changes are much more informative features such as clearly naming the selected part of the supply chain. Both the map to show where components are located and dots that represent the size of a component show information related to local and small businesses. A score allows shoppers to quickly compare options and action buttons provide more options for advocacy. This version of the add-on is much bigger and this is a result of having more information on screen, but is also a feature, as the user is forced to see the information and click continue in order to buy a product.