



# A System By People, For People

What happens when we mix Design & Logistics







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SCADpro × Future Logistics Process Book

# A System By People, For People

What happens when we mix Design & Logistics

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**Thank you to everyone who helped us on this journey.**

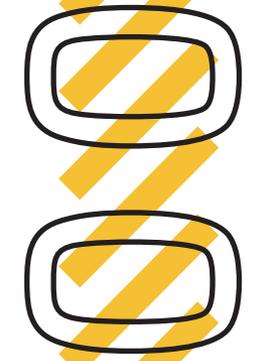
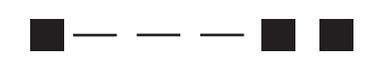
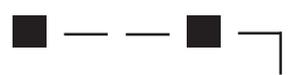
We would like to thank our partners and professors for supporting us along this journey. Nine weeks ago, our knowledge of the logistics industry was extremely limited. With your help, however, we gained insight into the industry and were empowered to tackle a challenge within a new field in a new time frame. You gave us the confidence and freedom to apply our unique abilities to write the story of the future. We couldn't have done it without you. Thank you.

**Dan Bentz  
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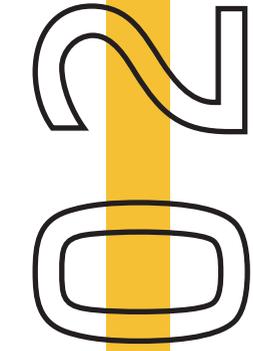
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In this section, we define our scope to the last mile of logistics. We conduct additional secondary research and interviews to better understand how to cater to users.

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## The Partners

Subject matter experts from various companies within the logistics industry and mentors from multiple SCAD departments.



*Great Dane*



SAVANNAH  
Economic Development Authority



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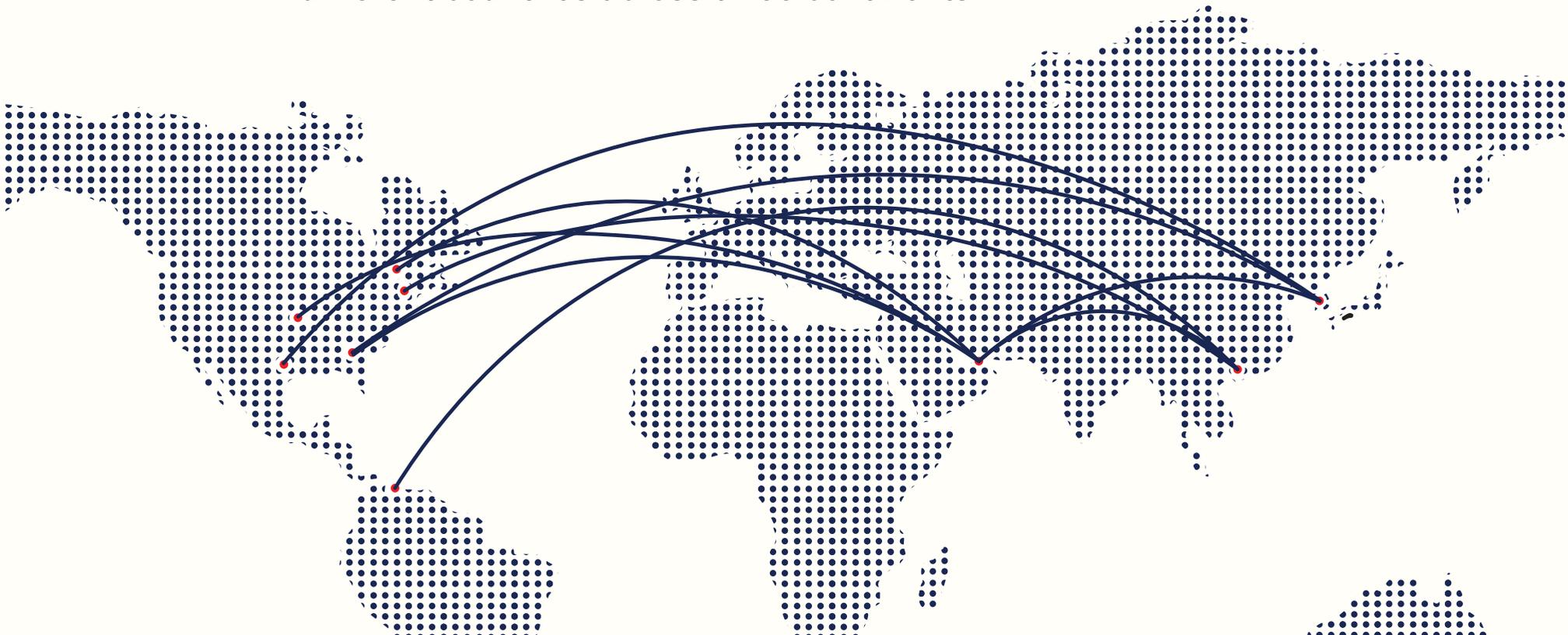
ELAINE GALLAGHER



PAUL RUNKO

## The Crew

A diverse team, made up of people from five different countries across three continents.



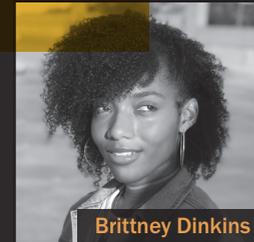
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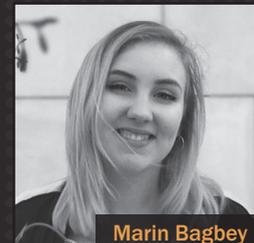
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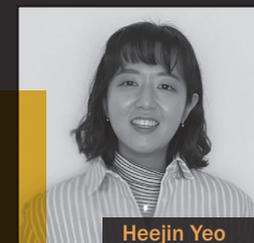
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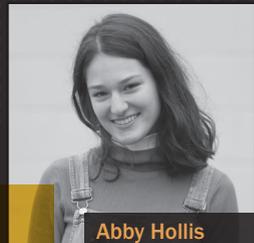
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## INTRODUCTION

Over the course of nine weeks of sleepless nights, digital meetings, and Uber Eats during the COVID-19 pandemic, our team of ten Savannah College of Art and Design (SCAD) students envisioned the future of logistics, a system by people for people. In this section, we introduce the SCADpro studio, we discuss our experience working online through quarantine, and we introduce our project brief and the people who helped us arrive at our solutions. Welcome to our journey.

## WHY I JOINED SCADPRO

BY HEEJIN YEO

To be a great future leader, having a high-quality education is important since it provides us a firm base that we can build our life on. However, many times we see different things going on in the real industry than what we experience in a class. In the real world, we are collaborating with many different people for the same goal. It means knowledge is important but knowing how to communicate is more important.

SCADPro is a great opportunity where we can learn how to work with different people. Each person has a special talent and it is our job to pull out the full potential to achieve one same goal. Plus it is a great experience to collaborate with people in real industries that we can't have from normal classes.

## DREAMING IN THE TIME OF COVID-19

BY JESENIA DUQUE

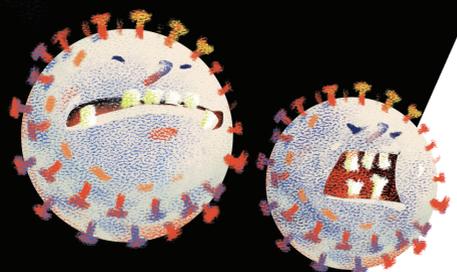
A week before our online spring quarter began, I received an email from Paul Runko, who I had the chance to meet a year ago when I was a part of my first SCADPro. But this was more than just a regular email, it was an invitation to join the Future Logistics team for the Spring quarter collaboration. I had originally been chosen to be a part of another project but due to the COVID-19 pandemic, the client decided to cancel, so the idea of being back in the game was very exciting to me. Yet my first question was: A SCADPro collaboration during an online quarter? How is that supposed to work? Nevertheless, my curiosity led me to accept the challenge.

I jumped into the first class session which took place on ZOOM, which is a platform that provides video, telephone, and online chat services. The meeting was composed of 10 members and two mentors whom I've never met in person, but soon became a strong team of collaborators. We talked about the project, our clients, what skills we all had, and how we could put those into play to get the ball

rolling. We discussed how our project was not just about logistics, but what the future of this industry would look like.

Robots? Automation? Flying drones?

Yeah most likely. But we wanted to dig deeper. We knew there was more to this invisible industry and that they could offer much more. So we began with some secondary research. We were able to find and share insightful articles, studies, and reports through the Slack platform, a business communication platform that allowed us to stay connected on the subject. We gave everyone the chance to explore several areas such as technology, transportation, delivery drivers, last-mile, etc. But then came the exciting part: meeting. Gathering in ZOOM to share our best insights, starting conversations and adding on to other's points. By the time we stepped into primary research there was a layer of information that we had set, but the more we knew the better, so we kept going. We conducted interviews with





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Screenshot of our Zoom room after our final rehearsal.

industry experts and recorded everything through the app Otter and shared it with the rest of the class to listen to. We posted every insight into our Miro boards and recorded every step of the process. The feeling of collaboration was so strong that even though we weren't having in-person conversations, the energy could be felt in every work session.

By the time we presented our midpoint presentation, we were able to find the gem that would serve as a base to our final project:

Logistics lacks empathy.

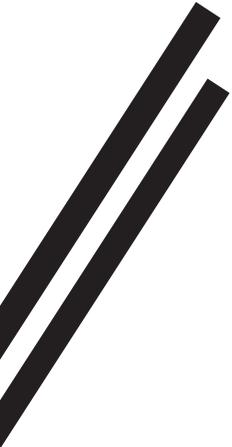
At that moment, we felt the excitement from our partners. They realized how in-depth we'd gone and were eager to help us expand this idea to the fullest. Our partners' feedback was always valuable and the online platform allowed us to even schedule work sessions with some of them, to pick their brains and expand on their knowledge of the subject. Being able to email them with questions at any time and

the idea that they were only a zoom call away, was always comforting to the team.

But yes, online work can be overwhelming.

I would usually find myself spending a lot more hours in front of my computer screen and at times it was hard to find a balance. But in our team, we would try and find spaces in our schedule where we could use technology to relax and also have some fun. It's true, we never got the chance to make dinner plans, but we were able to fit in some game nights, meditation sessions, and even listen to music as we worked together during the long nights.

As our final presentation approached, the final deliverables of video animation, prototyping, and final user interface designs were finally putting the whole story together. That's when I realized the power of collaboration because even though we were all in different locations around the world, our presentation was coming to life. We followed



our story in-depth and allowed the rest to surround our main characters and their needs. It was for sure one of our biggest challenges, but one that we were able to fulfill successfully.

I now look back to the moment when I opened Paul’s email and question to myself how different everything would have been if this collaboration had taken place at Ruskin Hall instead. The truth is, I will never know. But as of now, I’m happy to say that I got to hear Heejin sing through her karaoke microphone and meet Huiquan’s cat, things that probably wouldn’t have happened in a “normal” class environment. So even though having ZOOM open on my computer could be frustrating at times, especially while having Adobe programs running at the same time, I can say that it brought me closer to this group of talented creatives. Even though I haven’t met any of my peers in person (yet), I feel very close to them and hopefully, we stay in touch with the same technology that brought us together in the first place.

## FUTURE X LOGISTICS

The ecosystem of logistics is prone to constant structural changes as technology improves, adoption of AI increases, and automation becomes much more widely commercialized. Additionally, the effects of COVID-19 presented flaws in our current supply chain that allowed the team to dive deeper into the system to discover potential opportunities.

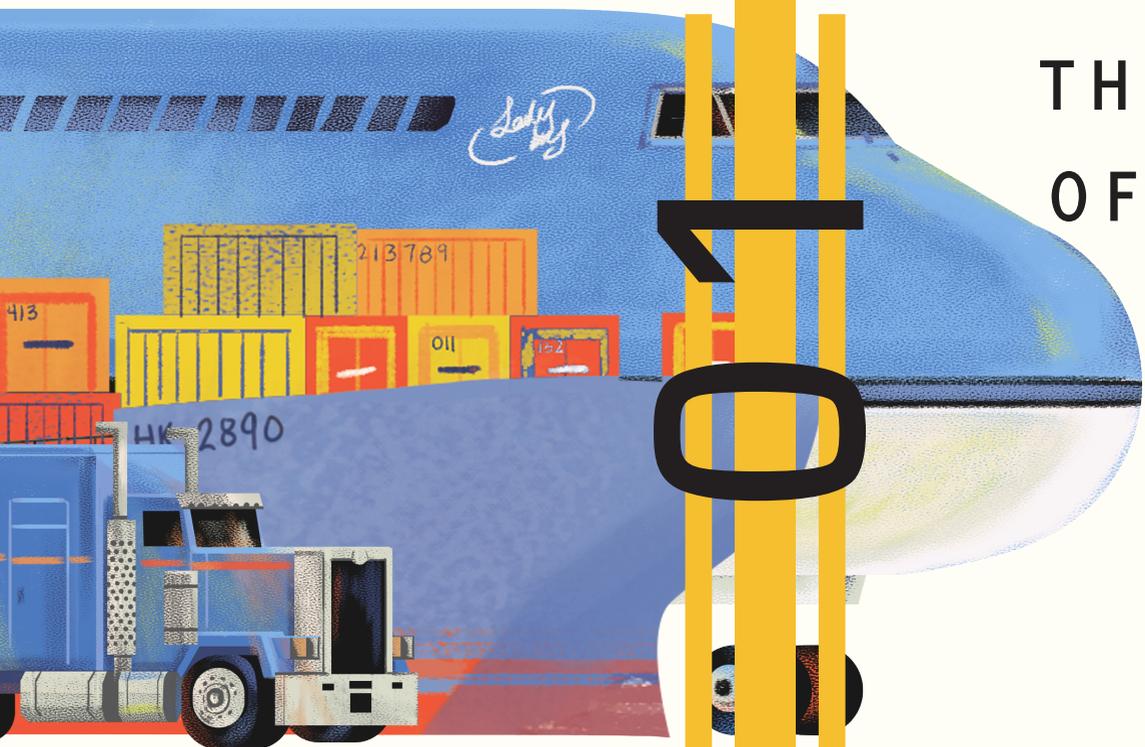
In the spring of 2020 during the COVID-19 pandemic, SCADPro assembled a diverse team of students, industry professionals, and logistics experts to collaborate and envision innovative possibilities for the future of logistics. and discover the different possibilities regarding the future of logistics. COVID-19 pushed the new normal

online where front porches, bedrooms, living rooms and video calls were the new workspaces. Despite having to adapt to our new landscape, the team continued to diligently work together.

The SCADPro Alliance tasked professionals from Savannah Economic Development Authority, IBM, Great Dane, and the Georgia Ports Authority to collaborate and assist in guiding our SCADPro team to develop and deliver core experiences that illustrate our future with logistics.

This is our story.

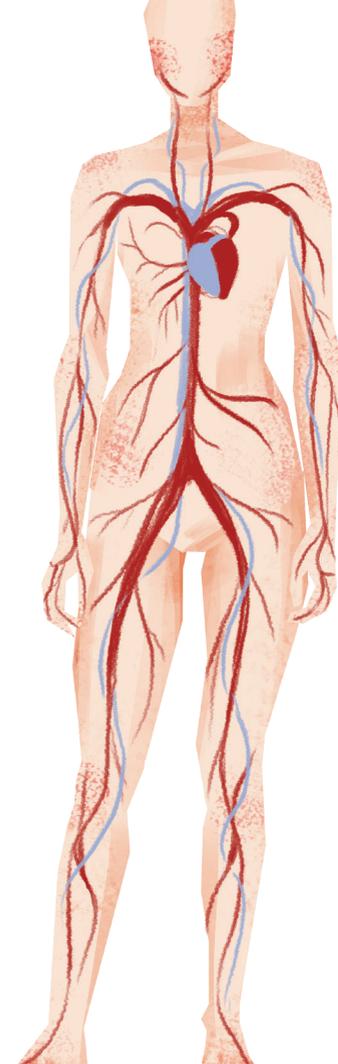




## THE BUSINESS OF LOGISTICS

Toward the beginning of the project, we focused on wrapping our heads around the business of logistics. With so many moving parts, the logistics industry is an extremely complex ecosystem. In this section, we explore secondary research to get a greater grasp on this ecosystem. We also conduct interviews with people within the system to better understand daily operations. Through a process of affinitization, we identify key insights from our research. We use these key insights to form design questions and execute our first round of ideation.

IF THE WORLD  
IS A BODY,  
LOGISTICS IS  
THE BLOOD VESSELS.



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The Business of Logistics

We sat down with our partners from IBM, Great Dane, the Savannah Economic Development Authority, and Georgia Ports Authority to discuss their understanding of the current logistics ecosystem and to chat about their dreams for the future. We left this meeting with a greater understanding of all that we didn't know previously about the industry.

Our questions after this meeting fell into five categories: transportation, communication, risk management, technology, and the existence of global and local systems within logistics. We recognized that the logistics industry is incredibly expansive, so we split into teams of two to dive deeper into each topic. After researching in these teams, we converged to share our findings.

1

TRANSPORTATION

### Planes, ships & trains

Transportation is a crucial and complex element of logistics. Throughout our research, our team found that plane, ship, train, and trailer are the most common modes of transportation in logistics. Switching between modes of transportation is often a pain point due to lack of communication. Since transportation accounts for the majority of cost within logistics, the improvement of transportation efficiency has the potential to transform the overall performance and revenue of the system. Ultimately, transportation affects the results of logistics activities and it influences production and sales.

2

COMMUNICATION

### Working together in a single system

The process of communication requires extensive human interaction, from raw material production and extraction to producing a product to getting it all the way to the front door of the consumer. The product might go through many hands along its journey. Oftentimes, there is miscommunication along the way. Companies have internal communication channels but there are discrepancies in information inter-entity and intra-entity. Information gets lost when products change hands, leaving employees and consumers uninformed. Effective communication from start to finish is critical to maintain organization, collaboration, and efficiency.

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3

TECH & AI

### Amplify performance of individuals

Technology and AI have a huge impact on logistics. When it comes to AI and logistics we found that researchers at IBM estimated only 10% of current systems, data, and interactions include elements of AI analysis and results. It is estimated in a McKinsey and Co. study that 49% of all activities that people are paid to do today could be automated by adapting currently demonstrated technology. Additionally, AI will also greatly amplify the performance of individuals in their workplace and help the logistics industry shift its operating model from reactive actions and forecasting to proactive operations with predictive intelligence.

The Business of Logistics

4

RISK MANAGEMENT

### Evaluation of financial risks

The COVID-19 crisis showed companies around the world about the stark reality of a global economy. While a global economy allows specialization, it is highly dependent on the efficiency of international logistics. While some industries like restaurants are suffering from a loss of business, others like grocery stores have been struggling to keep up with the increased demand. This pandemic reminds companies to work on their crisis management plans, so that they are not left dumbstruck in situations, like international regulations causing issues with supply chain and forcing companies to look for local alternatives.

5

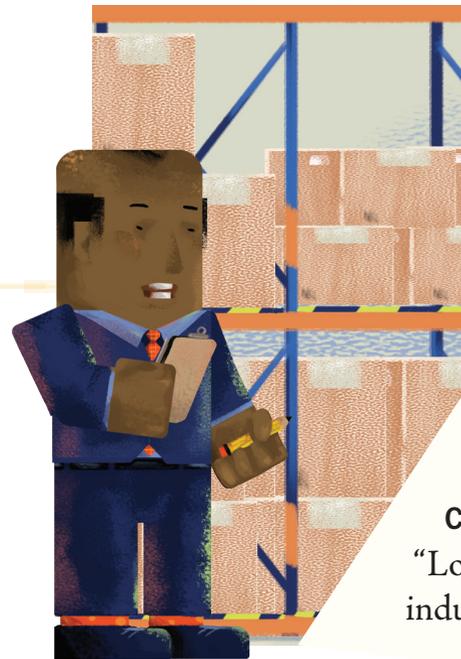
LOCAL VS. GLOBAL

### Specialization and reduced prices

Due to the rise of globalization, existing logistics infrastructure is largely focused on global commerce. However, we identified a trend toward localization for cultural preservation, environmental health, and economic stability. We found that this trend is heightened in the wake of COVID-19.

# THE INTERVIEWS

We began primary research by interviewing logistics employees and experts. We asked experts to share their understanding and analysis of information gathered in secondary research. We asked employees to share their experiences within the industry in order to put a face with the numbers we gathered in secondary research.



**Kyle Johnson**  
CEO & Founder Hamlock Partners  
“Logistics is a 20TH century industry in a 21ST century world.”

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**Cara Jones**  
Demand Planner Nestle  
“Logistics is always gonna be a shit-show just with a prettier dashboard.”



**Robert Smith**  
Postal Carrier UPS  
“I guess they (managers) just don't care.”

<p>dated</p> <p>on manufa</p> <p>company,</p> <p>cking.</p>	<p>asymmetric information received in different entities</p> <p>Executive</p>	<p>the main way companies like mine make money is by selling advertising when the show airs.</p> <p>SPV Operations Radio and...</p>	<p>We do not have the capability to track truck drivers</p> <p>Logistics Analyst</p>	<p>smaller companies take larger companies through the use of technology</p> <p>Tom Gioia</p>	<p>tracking and tracing is a big part of logistics,(TG)</p> <p>Tom Gioia</p>	<p>"how do you get it (freight) into the driver's hands and transport it cheaply"</p> <p>Executive</p>	<p>Just like predictive text on your phone and you're texting your best friend. And you say, some slang word, your phone will say no u meant this. But everyone you correct it and type in the slang word it's learning that it was good to use that as a substitute for keystroke that you typed in.</p> <p>SPV Operations Radio and...</p>	<p>Aggregators are involved when dealing with international suppliers, which is another connection in this long chain of actors.</p> <p>Executive</p>	<p>political push toward localization</p> <p>Economist</p>	<p>big businesses weather crises better</p> <p>Economist</p>	<p>important to log every detail because as the machine (AI) continues to learn, these small details/habits are whats going to make the machine learn whats right and wrong -John Fant</p> <p>SPV Operations Radio and...</p>	<p>In the digital market, logistics is about time -John Fant</p> <p>SPV Operations Radio and...</p>	<p>It is important to have inventory in the right places to avoid additional delivery costs.</p> <p>Executive</p>	<p>entities are only able to communicate with the company before and after them in the supply chain</p> <p>Executive</p>	<p>globalization allows lower costs (economy of scale)</p> <p>Economist</p>	<p>overseas production becoming more expensive in some places as they develop --&gt; need for ever-changing production locations</p> <p>Economist</p>	<p>So as these machines get smarter and smarter the logistics of how we communicate with each other is going to rely on artificial intelligence. (2/2) -John Fant</p> <p>SPV Operations Radio and...</p>	<p>make sure we have a back up plan since every second is money and that people such as engineers who are capable to fix things at a moments notices -John Fant</p> <p>SPV Operations Radio and...</p>	<p>Domestic suppliers are more expensive, how can we improve that?</p> <p>Executive</p>	<p>During this crisis, companies are shifting to local suppliers and looking for alternatives to supplies they buy</p> <p>Executive</p>	<p>free market dem</p> <p>efficiency</p> <p>Economist</p>
<p>y worked</p> <p>L which</p> <p>aking care</p> <p>rt of the</p> <p>ment (A-DF)</p>	<p>manufacturers tend to back to domestic suppliers after the corona virus pandemic</p> <p>Executive</p>	<p>more technological equipments, like drones are employed into last mile delivery</p> <p>Executive</p>	<p>Brick and mortar have to lean into profits from long tail items (small, standard, high volume items) (CR)</p> <p>Demand Planner</p>	<p>Since we're unable to track the shipments we have to wait and communicate via email or phone to get ETAs</p> <p>Logistics Analyst</p>	<p>a logistics business you're not just necessarily delivering goods, you're delivering information as well.</p> <p>Tom Gioia</p>	<p>expects return to status quo post-pandemic</p> <p>Economist</p>	<p>Delivery on promise can allow companies to account for any personnel that are required to transport shipments, offloading etc.</p> <p>Executive</p>	<p>vending machines are points of distribution too</p> <p>Economist</p>	<p>there's a bunch of different groups in what I'll call our supply chain to get a piece of content out to a consumer,</p> <p>SPV Operations Radio and...</p>	<p>efficiency often means fragility</p> <p>Economist</p>	<p>While last mile delivery is normally handles by shipping companies, sometimes distributors themselves make these deliveries if they have available resources.</p> <p>Executive</p>	<p>There is no real time updates to freight movement B2B</p> <p>Executive</p>	<p>The challenge with international logistics is that there are too many moving parts.</p> <p>Executive</p>	<p>how to make money in tv show? - advertisement -John Fant</p> <p>SPV Operations Radio and...</p>	<p>need for globalization is technological issue (currently difficult to produce everything locally)</p> <p>Economist</p>	<p>Drone delivery would be very efficient since instead of one driver going to multiple locations, it would be multiple drones going to one location each.</p> <p>Executive</p>	<p>managers don't care about how carriers think/feel (BS)</p> <p>Postal Carrier @UPS</p>	<p>Dickies only has one drop ship (D2C) warehouse in US (LP)</p> <p>eCommerce Manager</p>	<p>using scanner and text message to communicate with customers after dropping a package (BS)</p> <p>Postal Carrier @UPS</p>	<p>needs smoother transition between carrier and managers (BS)</p> <p>Postal Carrier @UPS</p>	<p>companies</p> <p>logistics that</p> <p>each other</p> <p>competition</p> <p>cooperation</p> <p>Tom Gioia</p>
<p>initiative m...</p>	<p>The interesting things about technology and logistics are technology that empowers humans to be more efficient, not the transformational driverless truck.</p> <p>Tom Gioia</p>	<p>the fact that Amazon broke up with USPS to do delivery on their own may indicate smaller companies may have advantages on the last mile delivery over the larger companies (BS)</p> <p>Postal Carrier @UPS</p>	<p>job is built around personal connections with customers (JR)</p> <p>postal carrier @ FedEx</p>	<p>On-time delivery is a challenge of trial and error (A-DF)</p> <p>port strategic initiative m...</p>	<p>rolls royce has lots of domestic content shipping and not as much global collaboration (PL)</p> <p>past marine VP of busine...</p>	<p>purpose-driven buying dependent on socio-economic factors (OPINION - stats via Edelman Earned Brand say otherwise)</p> <p>Economist</p>	<p>integrating local retailers as distributors allows try-on</p> <p>Economist</p>	<p>delivery routes can be dynamic (NP)</p> <p>FedEX Contractor</p>	<p>Shipping databases are often incorrect and things aren't documented well (PL)</p> <p>past marine VP of busine...</p>	<p>I suggest having a mailbox which can save time but the manager didn't care (BS)</p> <p>Postal Carrier @UPS</p>	<p>Problems with contractors occur when they operate as if working for bigger corporation (as some competitors would do) (P&amp;DM)</p> <p>P&amp;DM</p>	<p>time commitments and technology changes make more issues in getting packages to peoples homes safe and in good condition (JR)</p> <p>postal carrier @ FedEx</p>	<p>industry change affects the way people ship (ex. 5 &gt;1 boxes). (JM)</p> <p>Financial Planning</p>	<p>One of the issues that Buyers(business people) ran into was the lack of understanding things of people within logistics. With a come up with some really nice ideas and models but the execution on such is a lot more difficult than people think. (PL)</p> <p>past marine VP of busine...</p>	<p>data integrity issues in supply chain --&gt; inconsistencies (AH)</p> <p>Demand Planner</p>	<p>most supply chain frustrations come from people not knowing why something isn't as they expected (AH)</p> <p>Demand Planner</p>	<p>port ship schedules keeps changing and creating problems. Port schedules become basically meaningless (MF)</p> <p>marine superintendent</p>	<p>ecommerce has been accelerated by covid19</p> <p>Demand Planner</p>	<p>Amazon - how interact with customers - vertical structure.</p> <p>Financial Planning</p>	<p>demand planning often tainted by financial planning/goals (AH)</p> <p>Demand Planner</p>	<p>marine tracking almost n</p> <p>works (P</p> <p>past marine VP of bu</p>
<p>airs we can get a measurement of how watching, and if side of that show, we int of dollars whether we hit the we sold to that</p>	<p>picks up shipments from plane --&gt;semi truck --&gt; delivery driver scans and delivers (JR)</p> <p>postal carrier @ FedEx</p>	<p>These guys(people who work in logistics) are using systems and programs that were built in the 80s. And recently, meaning within the past five to 10 years, there's just been a big explosion of cloud</p> <p>Tom Gioia</p>	<p>Challenge includes have communication be officially passed to employees by the independent businesses</p> <p>P&amp;DM</p>	<p>one of the challenges of any earpiece system is to be able to scale it up and down to meet the needs (PL)</p> <p>past marine VP of busine...</p>	<p>The pandemic has definitely forced people to start sourcing domestically</p> <p>Logistics Analyst</p>	<p>competition vs. cooperation</p> <p>Tom Gioia</p>	<p>Rolls Royce, followed the model that a lot of companies do where they outsource logistics (PL)</p> <p>past marine VP of busine...</p>	<p>There are a lot of opportunity in using Cloud: There's a lot of a lot of logistics businesses that are still using on premise. II RP software</p> <p>Tom Gioia</p>	<p>Logistics is like a 20th century industry.all these 21st century technologies are really just now starting to be exploited within logistics businesses.</p> <p>Tom Gioia</p>	<p>The business model for operating contractors (np)</p> <p>FedEX Contractor</p>	<p>3PL is helpful for a small company distribution since it is not the most sophisticated (A-DF)</p> <p>port strategic initiative m...</p>	<p>Product availability and fast transit times are two of the biggest issues we face daily</p> <p>Logistics Analyst</p>	<p>the new devices create routes, notification system with customer, gps location determining the correct location of package (np)</p> <p>FedEX Contractor</p>	<p>arms regulations and security and things like that just cloud the picture even more so in a supply chain (PL)</p> <p>past marine VP of busine...</p>	<p>understanding truckers' lives helps reduce interpersonal frustrations</p> <p>Demand Planner</p>	<p>The tracking program creates the routes thanks to the destinations of the package, now it is done automatically (np)</p> <p>FedEX Contractor</p>	<p>last mile logistics is probably the fastest growing part of logistics</p> <p>Tom Gioia</p>	<p>technology can mostly be seen in the tracking devices last mile delivery (NP)</p> <p>FedEX Contractor</p>	<p>It is important to connect all the technology programs being used to make sure that the shipments are shipped out on time, and fulfilled by the respective entity.</p> <p>Brandon</p>	<p>If the driver doesn't do loading of truck = there is less work to do which is helpful to reduce accidents and errors in the actual delivery (np)</p> <p>FedEX Contractor</p>	<p>Tech also u</p> <p>surveillance</p> <p>employee's</p> <p>(drivers) (np)</p> <p>FedEX Contractor</p>
<p>ing has been slow to ange, but have realized a limit to what your business just to minimize expenses (MF)</p>	<p>There's a lot of talk and a lot of hype right now about ideas around logistics that you're gonna eliminate people (driverless trucks, warehouses run by robots) You know that might be the case 100 years from now, but that is a very far away away.</p> <p>Tom Gioia</p>	<p>There's a lot of smartphone based technology that in tracking. For example, a truck driver that has shipment and he's got a smartphone app. He can basically have his cell phone pinged constantly as he's driving from LA to New York. (TG)</p> <p>Tom Gioia</p>	<p>constant problem solving</p> <p>Brandon</p>	<p>routes need to be balanced depending on the volume of deliveries per day (NP)</p> <p>FedEX Contractor</p>	<p>a centralized economy would work influenced by the local dependency (A-DF)</p> <p>port strategic initiative m...</p>	<p>multiple orders for parts that are lost creates crazy amounts of expenses (PL)</p> <p>past marine VP of busine...</p>	<p>lots of communication issues and lack of understanding of how everything works within the supply chain in terms of technology and software (PL)</p> <p>past marine VP of busine...</p>	<p>Delivery truck can't get in to a certain area - needs to walk with a package - waste of time and energy (BS)</p> <p>Postal Carrier @UPS</p>	<p>truckers are the backbone of logistics (AH)</p> <p>Demand Planner</p>	<p>thanks to tech changes in material of product can help in transportation efficiency ( weight for transportation) (np)</p> <p>FedEX Contractor</p>	<p>Face to face communication updates between contractor and P&amp;DM (P&amp;DM)</p> <p>P&amp;DM</p>	<p>Information and customer shipping patterns and things like that - a lot of businesses consider that to be proprietary so they don't want to share that.</p> <p>Tom Gioia</p>	<p>by trying not to spend money in organization/tracking costs, it creates more costs in other places such as lost parts (PL)</p> <p>past marine VP of busine...</p>	<p>Walmart and Dickies stock not integrated --&gt; not always most efficient delivery (LP)</p> <p>eCommerce Manager</p>	<p>Profit margins in logistics are historically very very lean, very thin.</p> <p>Tom Gioia</p>	<p>e-commerce is last mile logistics</p> <p>Tom Gioia</p>	<p>large companies can determine how much supplier produces (CR)</p> <p>Demand Planner</p>	<p>P&amp;DM is meant to supervise the contractors</p> <p>P&amp;DM</p>	<p>Suggests implementing a system like how airlines work (passenger and luggage loading/unloading) into cargo ships (MF)</p> <p>marine superintendent</p>	<p>automation makes the shipping industry more driven by companies that compete based on intelligence and technology instead of low labor costs (positive effect) (MF)</p> <p>marine superintendent</p>	<p>Challenges delivering technology still arise (e drones) (np)</p> <p>FedEX Contractor</p>

Visuals to capture eyes. The people watching the more we make. ant	Container shipments have an estimated time frame but no exact date. Everyone within the chain adds their own margin to this range when communicating this information downstream.	Raw materials can start to be substituted in order to localize the supply chain (np)	Determining the local and the volume is based in demand (np)	I think the technology that people have been successful with and the technology that people are buying is technology that makes human beings more efficient. Not that replaces human beings. (TG)	since the port schedules are so meaningless, it creates extra costs (MF)	FedEx customer service is everything. Gets reports back every morning based on previous day ratings and delivery times. (JR)	Logisti is like a 20th century business in a 20th century industry: all these 21st century technologies are really just now starting to be exploited within logistics businesses so I think that's what's really interesting	It's a very dynamic environment, it's an industry that moves very fast. (TG)	different position has their own standpoint (BS)	problems with equipment onboard the ship affecting the schedule, or problems getting spare parts on time (MF)	These day, shipments are happening every hour, every minute. It's just it's fast paced.	multilocation of all companies involved in a supply chain creates communication problems and issues getting good from one place to another (PL)	address, order information, size and weight affect the organization of packages in the trucks (np)	truckers get brunt of frustrations	walmart ecommerce and brick and mortar use different systems (CR)	companies often dont spend the time doing things right which ends up creating more expenses via lost parts (PL)	"logistics is a shit show and will continue to be a shit show just with a prettier dashboard" (AH)	The loading process for last mile is efficient specific factors of packages are taken in consideration (np)	ocean tracking isn't accurate, the right technology isn't out there to make it efficient enough.	COVID19- Trouble trying to manage the food supply onboard when you don't know how the situation will change by the time the ship reaches the next port (MF)	adapting to the commonalities of technology and working around solutions (instead of having a super advance platform = use of mobile phones)(A-DF)
Executive	Executive	FedEX Contractor	FedEX Contractor	Tom Gioia	marine superintendent	postal carrier @ FedEx	Tom Gioia	Tom Gioia	Postal Carrier @UPS	marine superintendent	Tom Gioia	FedEX Contractor	Demand Planner	Demand Planner	past marine VP of busine...	Demand Planner	FedEX Contractor	Tom Gioia	marine superintendent	port strategic initiative m...	
Delivery to Dickies from brand than Amazon (L)	globalization allows specialization	consumers demanding faster and faster delivery	B2B means less profit for Dickies than D2C (LP)	risk registers help organize a company better (PL)	a lot of people rely on a PRP system, and rolls royce uses SAP system. Creates difficulty communicating system to system (PL)	communication flows down like chinese whispers	As far as the future of logistics goes with digital media AI will play a huge part in predicting things. And the more it predicts it takes feedback and with that feedback the user will stay and watch	I think the technology that people have been successful with the technology that people are buying using this technology that makes human beings more efficient. Not that replaces human beings. (TG)	When you're a logistics business you're not just necessarily delivering goods, you're delivering information as well.	Challenges with 3PL include: Extra charges (accessory fees), finding the right one, and not being afraid to change of company (A-DF)	That last mile is so key it costs a lot.	Expenses can be reduced by having such dynamic routes, being more efficient with diff circumstances (NP)	issues with leadership visibility in walmart stunt problem resolutions (CR)	Load Smart software matches physical equipment with needed service (AH)	Contractors work as their own business. The owner make logistics strategy in order to do last mile delivery	Human Errors can cause inefficiency in certain areas such as mistaking the delivery address (np)	walmart has "dark stores" stocked as stores but not open; only for ecommerce	Trucks dont come back empty because as they drop off they also pick up products from companies (np)	Capability of warehousing can be narrowed down to centralized economy depending of demand (P&DM)	everyone's always racing to, to get everything out that they can as fast as they can. And yet you have to maintain your accuracy because otherwise, the accuracy is huge in supply chain. That's that's how you build trust.	Contractors can be compared to demonstrate the level of efficiency and amount of cost made (P&DM)
Manager	Economist	Demand Planner	eCommerce Manager	past marine VP of busine...	past marine VP of busine...	Executive	SPV Operations Radio and...	Tom Gioia	Tom Gioia	port strategic initiative m...	Financial Planning	FedEX Contractor	Demand Planner	Demand Planner	P&DM	FedEX Contractor	Demand Planner	FedEX Contractor	P&DM	Brandon	P&DM
is the ideal but challenge is the trials needed to obtain products	SEVA as provider/ handling of parts helps speed rolls royce the shipping system (3PL) (PL)	new distribution centers very expensive (LP)	lower quantity orders --> higher prices (CR)	next direction(?): health care, e-commerce > this is what it's going. (JM)	tracking packages every step of the way is prioritized by FedEx and customers (JR)	Last mile delivery done by distributors themselves is very inefficient and not an effective use of resources	Last mile delivery is very important (BS)	City deliveries are tough, however delivering to rural areas is equally tough since deliveries are far away from each other and requires a lot of time for a deliverer to hit all the destinations.	vertical relationships make them hard to communicate with other workers in the company (BS)	It is hard to prioritize what favorsizes the company and what is better for the customer (A-DF)	several individual units of same product packaged together to reduce "number of touches" from supplier to consumer (CR)	Contractors are contacted in order to see if they can offer extra help in ceratin areas were they are suffering more from crisis (np)	COVID19- troubles with how to get port crews to and from ships when there are literally no flights and borders are closed (MF)	The loading and unloading is very efficient due to the set up in which the route works (np)	Challenges include to have that expectations from business as business	Automation has already reduced the size of ship's crews by about 50% in the past 30-40 years (MF)	When packages come to the last mile terminal, they are scanned (address, order information, size and weight) (np)	sometimes delays to walmart are supplier's fault; sometimes walmart's own fault	We source a lot of raw material internationally	profit/in^2 critical (CR)	on time delivery depends on where the are trying to deliver, influenced by the location of manufacture and warehouse(A-DF)
Contractor	past marine VP of busine...	eCommerce Manager	Demand Planner	Financial Planning	postal carrier @ FedEx	Executive	Postal Carrier @UPS	Executive	Postal Carrier @UPS	port strategic initiative m...	Demand Planner	FedEX Contractor	FedEX Contractor	FedEX Contractor	P&DM	FedEX Contractor	Demand Planner	Demand Planner	Logistics Analyst	Demand Planner	port strategic initiative m...
of HR problems (such as stress) (MF)	The main challenge is the employee preparation for contractor as the drivers need experience and learn rules of interaction (np)	Challenges in a pandemic is that for this crisis there was no preparation compared to the one you see in peack (np)	Local is affordable if there is enough demand for demand (np)	AIMS software used for walmart stores (CR)	There are a lot of people who are still using clipboard and dumb phones, not smartphones to move product around the United States.	there is a gap between the traffic manager to the postal carriers (BS)	a human being involved in the planning of the delivery of goods and services around the world and that's really what logistics it's	So, as long as there are human beings at the pickup point at the warehouse or at the delivery point, or in the truck. There's going to be a human being involved in the planning of the delivery of goods and services around the world and that's really what logistics it's	TMS (transportation management system) is a software we have that we outsource from Manhattan Associates	Sometimes they have to conduct their own last mile delivery which is veyr inefficient	Expect fully automatic warehouse	forecasting is to focused on past; not enough time spent thinking about the future (AH)	"One of the ships I look after has been waiting for 15 days to offload cargo in Brazil - and it is the same situation every time that ship goes to that port" (MF)	boosting trucker morale makes them want to work harder	logistics field are made up of those smaller companies. there's a lot of opportunities consolidate those together.	limited communication across teams in walmart (CR)	3PL are competitors to those bigger known such as fedex (A-DF)	Trouble with trying to protect the ship's crew when medical supplies are completely sold out everywhere during COVID19 (MF)	Different companies have different TMS systems so tailoring them to specific departments could be helpful	Peak season is predetermined, a crisis is not (P&DM)	warehouse management software, both called Wms, so really inventory tracking, tracking inventory in and out of a warehouse, tracking the location within the warehouse, tracking expiration date, and how often it's used and maybe different batches or different co
superintendent	FedEX Contractor	FedEX Contractor	FedEX Contractor	Demand Planner	Tom Gioia	Postal Carrier @UPS	Tom Gioia	Tom Gioia	Logistics Analyst	Executive	Executive	Demand Planner	marine superintendent	Demand Planner	Tom Gioia	Demand Planner	port strategic initiative m...	marine superintendent	Logistics Analyst	P&DM	Brandon
part ecommerce rely dependent from and mortar	buying land where customers need to be located for reach. (JM)	local needs to be relative because it may be beneficial up to certain distance, making local even more local by organizing the distances and proximities (np)	For the crisis the delivery service company was ready in certain level thanks to peak season format (P&DM)	Logistics is moving goods and services and the planning that's associated with it.	International tracking is difficult if you're an ocean shipper	Logistics are everywhere even in the digital world -John Fant	I think hype right now about ideas around logistics that they're gonna eliminate people, they're gonna have driverless trucks they're gonna have warehouses run by robots and they're able to do all this and that's just, from a guy who's in the industry and it sits there. that might be the case 100years from now	the package isn't going to pick up the phone and say hey you're at the wrong driveway,	small companies it's incredibly diversified	Amazon has no need to make money on the delivery. (JM)	3PL brings diversity and also helps finding customer (bringing more demand) (A-DF)	The future of logistic is a rail system that are directly connected to the home and the packaging is delivered directly through this ducts or rails. Investment in new design urbanizing (NP)	integrated network is one thing that's really kept our costs down. (JM)	Region and geography can be challenging for distribution logistic (A-DF)	Technology will be influenced by the goals of the company (ex. invest for a better on time delivery)(A-DF)	Amazon is a big disrupter. (JM)	time commitments and speedy delivery are priority!! (JR)	Hourly work vs salary pay for drivers is important since that differentiates with competitors	Deliver to retail outlets, companies, lockers - can save money and time. (JM)	health care logistics - needs special care especially temperature control.	There's a lot of compliance and with a lot of compliance comes cost. - healthcare. (JM)
planner	Financial Planning	FedEX Contractor	P&DM	Tom Gioia	Tom Gioia	SPV Operations Radio and...	Tom Gioia	Tom Gioia	Financial Planning	port strategic initiative m...	FedEX Contractor	Financial Planning	port strategic initiative m...	port strategic initiative m...	Financial Planning	postal carrier @ FedEx	P&DM	Financial Planning	Financial Planning	Financial Planning	

<p>Digital platform for contractor were they can also see any information that comes directly from the corporation (P&amp;DM)</p> <p><b>P&amp;DM</b></p>	<p>tracking package - current data within 1 hour is enough? - I don't know. (JM)</p> <p><b>Financial Planning</b></p>	<p>Unlike Fedex, UPS has integrated network. They always keep the union out. (JM)</p> <p><b>Financial Planning</b></p>	<p>drones for remote area, medical needs, etc. (JM)</p> <p><b>Financial Planning</b></p>	<p>More goods and products are in demand which leads to having to more of the normal deliveries done (P&amp;DM)</p> <p><b>P&amp;DM</b></p>	<p>we have 3d printing in some of our warehouses and distribution and things like that that we will serve for the customer will also put critical parts. (JM)</p> <p><b>Financial Planning</b></p>	<p>efficiency determined by "number of touches" from supplier to consumer (CR)</p> <p><b>Demand Planner</b></p>
<p>Future logistics is actually a trust factor and get to pick who you trust and who you're getting in with. (JM)</p> <p><b>Financial Planning</b></p>	<p>Accessibility - important factor when choosing a hub location - can reach over 85% of the US Air dresses that are within two hours. (JM)</p> <p><b>Financial Planning</b></p>	<p>consumers particular about sourcing only for some products (CR)</p> <p><b>Demand Planner</b></p>	<p>Sharing information is a difficult thing to do in a capitalist society</p> <p><b>Tom Gioia</b></p>	<p>There is no industry standard on how to do logistics, is based on what works best for the company and customer (A-DF)</p> <p><b>port strategic initiative m...</b></p>	<p>contractors that instead of looking for way to be more profitable, they wait for the corporation to help them be more profitable do not work (P&amp;DM)</p> <p><b>P&amp;DM</b></p>	<p>you can have something shipped from a target distribution center to a target store and buy it all online. And on top of that, they have to do their regular store development of dropping off, you know, two pallets of T shirts every day or whenever they do</p> <p><b>Brandon</b></p>
<p>COVID19- lots of shipments from one company's location to another based on needed goods. (JR)</p> <p><b>postal carrier @ FedEx</b></p>	<p>Walmart is taking residential drivers from their jobs to help deliver goods from store to store (commercial shipping) (JR)</p> <p><b>postal carrier @ FedEx</b></p>	<p>automotive warehouse is increasing where can control temperature. (JM)</p> <p><b>Financial Planning</b></p>	<p>people's expectation is getting high &gt; free shipping. (JM)</p> <p><b>Financial Planning</b></p>	<p>Opportunity area for corporation since local business are more likely for those smaller deliveries to be done by the delivering company (P&amp;DM)</p> <p><b>P&amp;DM</b></p>	<p>Communication from manager to contractor is based on level of services done, more attention is given when there are need to be fixed (P&amp;DM)</p> <p><b>P&amp;DM</b></p>	<p>more critical to get products to the right store location for brick and mortar than the right warehouse for ecommerce (warehouse preserves flexibility) (CR)</p> <p><b>Demand Planner</b></p>
<p>owned inventory = higher risk (CR)</p> <p><b>Demand Planner</b></p>	<p>GRS software used for walmart stores (CR)</p> <p><b>Demand Planner</b></p>	<p>customers look for high value, quality control and technology. (JM)</p> <p><b>Financial Planning</b></p>	<p>tracking package more efficiently not just printing a paper? such as using RFID. (JM)</p> <p><b>Financial Planning</b></p>	<p>It is important for any company to always be on their toes and be aware of any disruptors in the supply chain</p> <p><b>Logistics Analyst</b></p>	<p>about the crisis: Keep products moving because the demand is still there and it doesn't really stop (P&amp;DM)</p> <p><b>P&amp;DM</b></p>	
<p>it's not you know one or two days not good enough right now. Customers wanted same day, and they still want to free though.</p> <p><b>postal carrier @ FedEx</b></p>	<p>customer ratings determine worker routes and prioritization the day after they receive them (JR)</p> <p><b>postal carrier @ FedEx</b></p>	<p>small companies allow for local 3PL which helps cut costs and creates better communication (A-DF)</p> <p><b>port strategic initiative m...</b></p>	<p>The user interface should feel similar across all platforms</p> <p><b>Brandon</b></p>	<p>So the idea that you're going to fully automate this industry overnight is very very naive</p> <p><b>Tom Gioia</b></p>	<p>suppliers like nestle work directly with walmart supply chain</p> <p><b>Demand Planner</b></p>	

SCADpro x Future Logistics

The Business of Logistics

**INCOMING INSIGHTS FROM SECONDARY + INTERVIEWS**

01

**Transparency**  
Communication needs increased transparency.

03

**Expectations**  
Logistics companies' abilities to meet consumer expectations are limited by their physical footprint.

05

**Empathy**  
Logistics lacks empathy.

02

**Global vs. Local**  
Globalized supply chains pose higher risk and lower stability than localized supply chains.

04

**Last Mile**  
Last mile shipping typically involves multiple stops with low drop sizes.





The research process in a project is essential in order to know all the existing problems and current solutions to a given situation. Team members may execute interviews, read articles related

## PROCESS NOTES AFFINITIZATION/

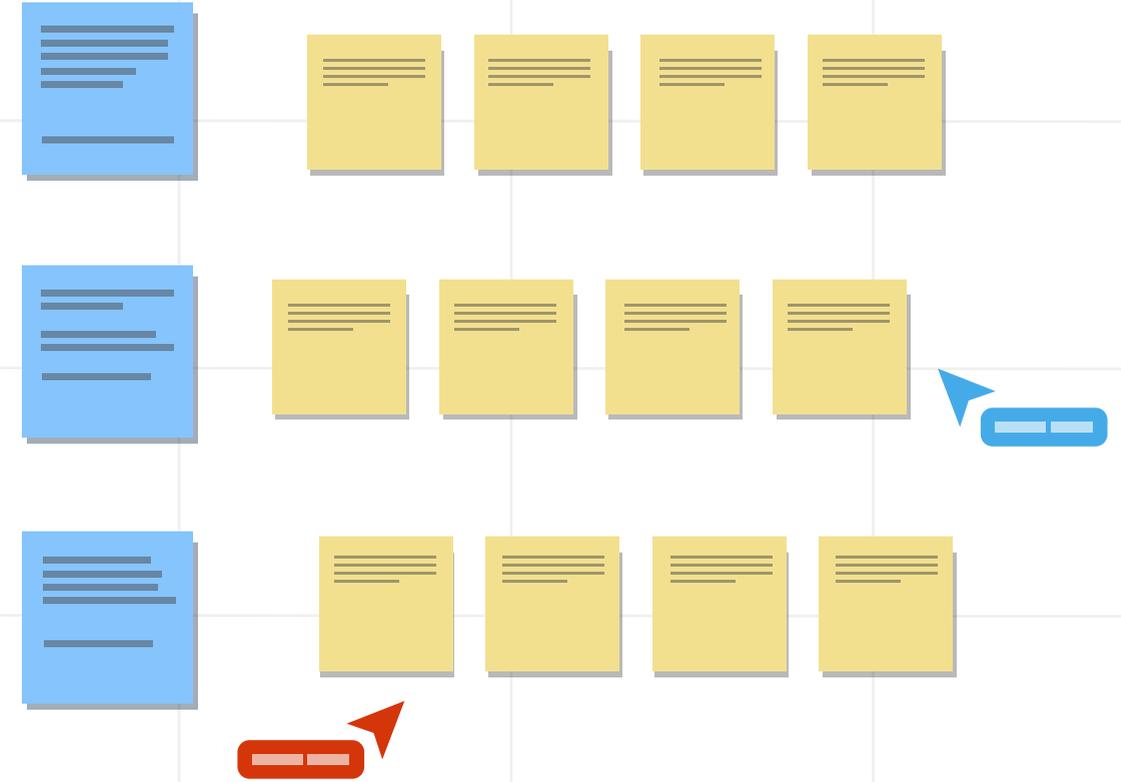
to the topic, do observations, etc. in order to build data. Once all of these data points are collected, the ideas are ready for affinitization. The insights are written as statements on individual sticky notes. Working together, the designers group ideas that are related in topic or value. The design group works together in order to find patterns within the insights. As the statements start to condense and bigger

groups develop, the key insights are created. The key insights are one or two sentences that explain each group of related data points. These condensed statements will help create the design questions, which lead into the ideation process.

Affinitization is an ongoing process of constant research and analysis of a problem. As new ideas develop and there are new findings, the design group is able to expand their understanding and work toward a solution. Affinitizing can take many rounds, but it is all worth it in order to get to the core ideas of a problem or situation. Finding these insights allows a team to better understand a situation and align goals moving forward.

LAST  
MILE  
DELIVERY

HOW  
MIGHT  
WE...



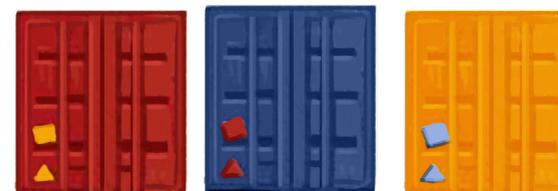
## BUILDING AN UNDERSTANDING WHAT DOES LOGISTICS LOOK LIKE?

It's a truck? It's a factory? It's a delivery man

It's an exchange of goods through various modes of transportation?

If the world is a body, is logistics is the system of blood vessels.

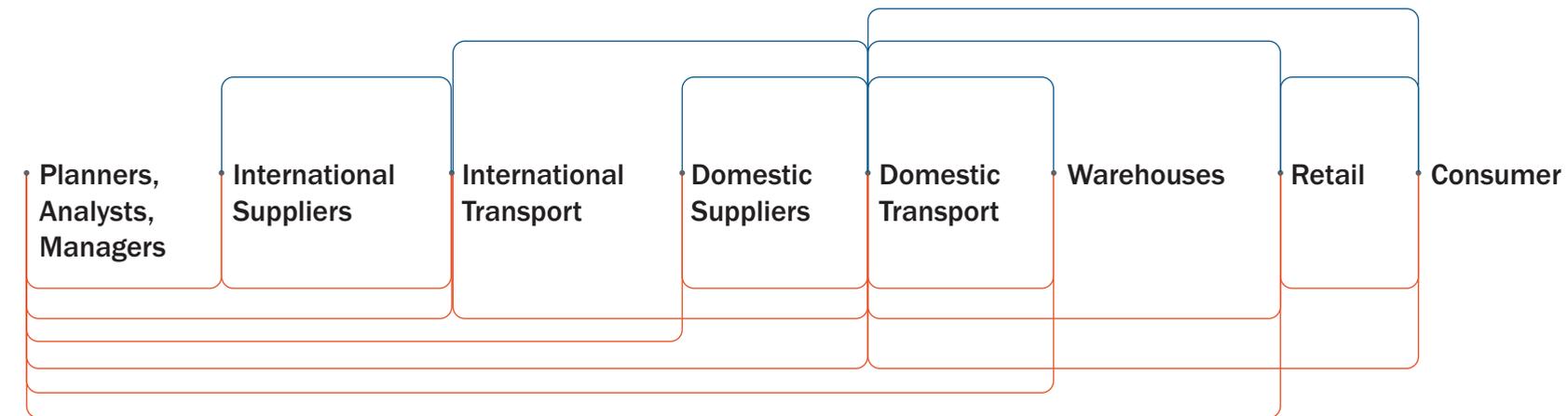
What we found was that logistics isn't just a flow of goods. It's a flow of information. It's constant communication and interaction between people from supplier to consumer.



The Business of Logistics

SCADpro x Future Logistics

## BUILDING AN UNDERSTANDING THE LOGISTICS LANDSCAPE



— Flow of Goods — Flow of Services

## ROUND 1

### INITIAL DESIGN QUESTIONS

After our research and affinitization sessions, we observed what we had learned. It was clear that there was ample opportunity! In order to respond to the opportunities we identified, we developed several guiding design questions. In the first round of design questions we asked, “How might we...” to further investigate our leaning. In the first round we captured ideas like:

- ✦ Empower local suppliers to diversify supply chains in an unstable global market?
- ✦ Optimize data collection to provide predictive analytics that promote supply chain efficiency?
- ✦ Integrate systems between businesses in order to provide more accurate and empathetic communication?
- ✦ Connect people, physical resources, and data in a way that improves the experience for all stakeholders?
- ✦ Leverage technology to compliment human ability?

We couldn't stop ourselves with just that first round of thinking—not with all of this incredible research providing so much inspiration. Our next round of design questions brought out some even more compelling ideas.

- ✦ Alter the logistics process in order to bring a greater satisfaction to the customers?
- ✦ Use technology to have more efficient communication between transporting methods?
- ✦ Leverage technology to compliment human ability rather than replace humans by utilizing collected data to increase efficiency?
- ✦ Make more efficient last mile delivery?
- ✦ Implement technology (associated with automation) to improve the efficiency in last mile delivery?



Opposite: The team knew how to relax and let loose between research sessions. Game Night was a popular past-time.

After sharing, we revisited our guiding questions one by one. We each spent one minute developing an idea for each question. After this speed round of ideation, we spent one minute in group meditation. Next, we began merging our own ideas to develop more complex and comprehensive solutions. We had three two-minute rounds to develop these solutions. After doing so, we spent another minute in group meditation.

After meditating, we broke into three groups to share, merge, and develop concepts, inserting new perspectives into existing ideas. Each team merged their many concepts into one or two group concepts.

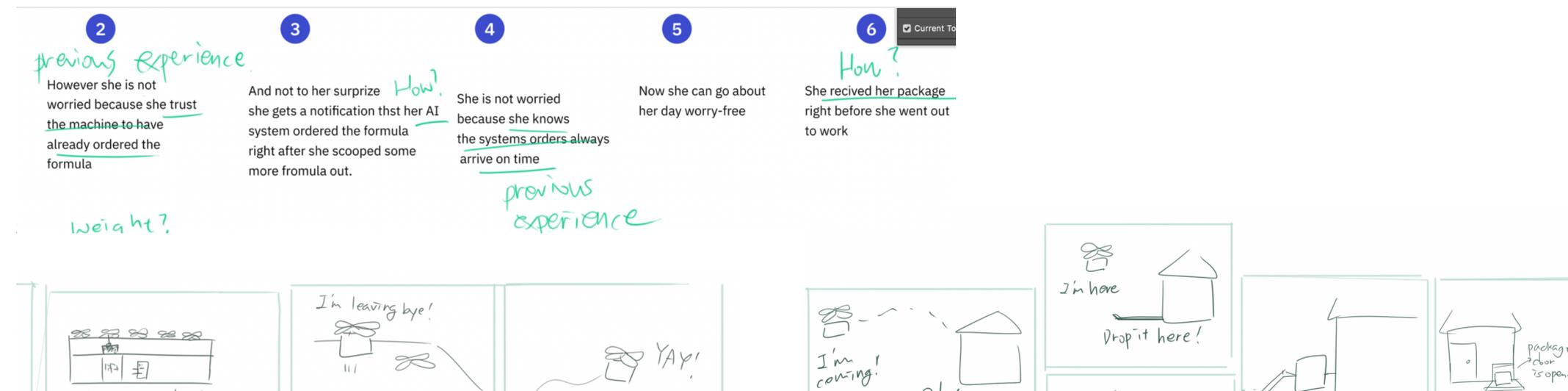
After about 20 minutes in groups, we converged as a team to share and discuss ideas. We identified opportunities to merge ideas and narrowed all of our initial, divergent concepts down to five key directions.



## BRAINSTORMING

We discussed key insights from our research and journey maps and diverged to brainstorm. We came up with some crazy ideas and some not-so-crazy ideas. It was hard to stop with the dreaming. The world of logistics has so many opportunities for design. There are so many places where empathy can make a difference. This made brainstorming both exciting and overwhelming.

After brainstorming, we converged to discuss ideas and align directions for our final solutions.

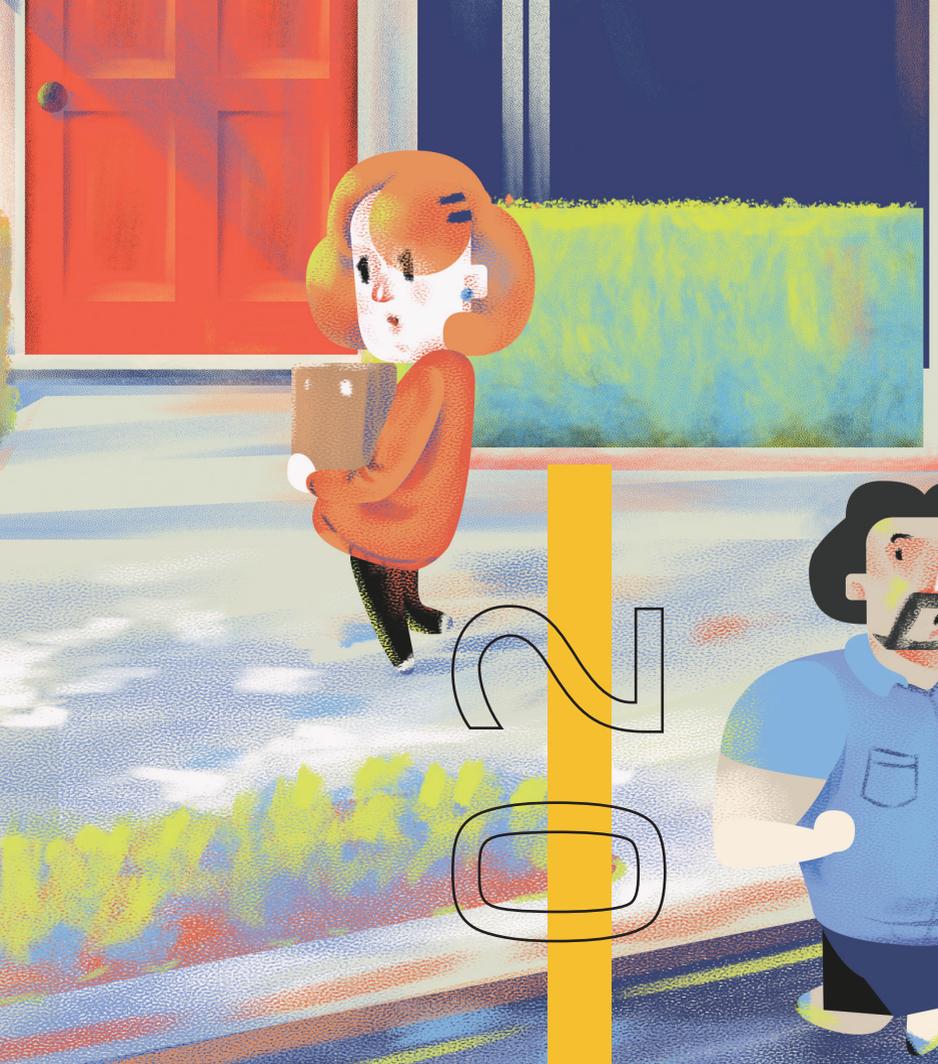




The Business of Logistics

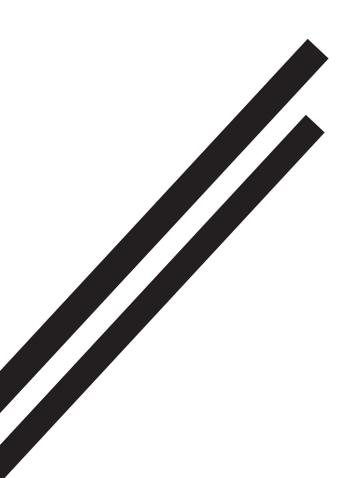
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## THE PEOPLE OF LOGISTICS

Moving forward we set out to understand the wants and needs of users within the system and users impacted by the system. In this section, we define our scope to the last mile of logistics. We conduct additional secondary research and interviews to better understand how to cater to users. We create two surveys—one for drivers and one for customers—to test our assumptions about our users. We consult YouTube videos and memes created by drivers to get a better understanding of shared attitudes and frustrations. In the end, we execute our final round of ideation.



## MIDTERM CHECK-IN + LAST MILE

Halfway through our project, we presented our research and directions to our partners. We discussed many of our findings, but one seemed to resonate most strongly: **logistics lacks empathy**. In our initial phase of research, we struggled to find information regarding the human experience within logistics. We observed a lack of empathy within the industry. Our partners confirmed that this lack of information about people was in fact a reflection of a lack of focus on people in the industry. We grabbed onto this idea and began to consider how we might introduce empathy to a system focused rigidly on efficiency.

We identified last mile delivery as a key opportunity for introducing empathy. We recognize the last mile of logistics as

the step that ties a complex, global system directly to individuals around the world. In our solutions, we aim to alleviate the driver and consumer stress that typically comes with last mile delivery. We also aim to promote the opportunity for community engagement and empathy for those involved in the distribution and reception of goods.

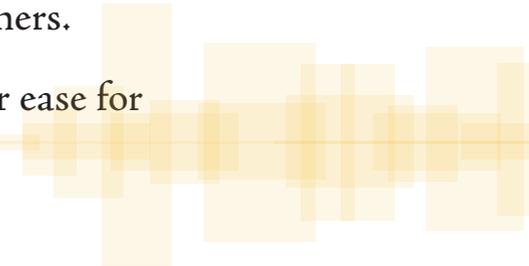
With a now-narrower scope of introducing empathy in the last mile of logistics, we returned to secondary research to build upon our foundational knowledge. This time, however, rather than looking within the industry, we looked around it.

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The People of Logistics

## INSIGHTS

- ✦ Empathy and appreciation for employees can motivate and create a better work environment.
- ✦ Clear communication is critical to understand and empathize with others.
- ✦ Personalized experiences can create better communication and greater ease for the customer.
- ✦ Employees' efficiency is directly related to the level of communication.
- ✦ Empathy and motivation are key to behavior change for employees and consumers.
- ✦ Customer loyalty is based on services provided and values represented.





# PROCESS NOTES PARTNER CHECK-INS/

Connecting with our partners and other advisors is a hugely important part of the process. Not only does it give us a chance to develop alignment across the broader team and make sure we were on the right path, it give a design team the chance to get gut-check responses from their broader team. Outside experts, team leadership, and others are given the chance to see and respond. It also forces the team to step out of the weeds and tell the story to someone else. This storytelling moments is often when ideas begin to gel—when you put together the end-to-end stories of experience you make sure that they make sense. These checkpoints are a vital part of any design process.

*Slides from our mid-term presentation. Arundhati and Heejin did a masterful job of presenting!*

The People of Logistics

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The presentation slides include the following content:

- Future x Logistics** (SCADpro - Spring 2020)
- Logistics** (with icons of a ship, plane, and truck)
- 5 countries** and **6 majors** (with a world map)
- Let's create a future.**
- Our F-L partners** (with photos of team members)
- Logistics.**
- Logistics** (with icons of a ship, plane, and truck)
- Logistics** (with a globe and human anatomy diagram)
- Research Methods.** (Expert Interviews: 3 experts, Contextual Interviews: 17 users, analysts, partners, & managers)
- e2 Kyle** (CEO & Founder, Horizon Partners): "Logistics is a 20th century industry in a 21st century world."
- i3 Anu** (Demand Planner, Yoco): "Logistics is a sh\*tshow and always gonna be one but with a prettier dashboard."
- i11 Anu** (Postal Carrier, UPS): "I guess they [managers] just don't care."
- Logistic Landscape.** (Flow of goods diagram)
- micro Affiliation** (Network diagram)
- Key Insights.**
  - There is a push for **increased transparency** within the company and between companies.
  - Disrupted supply chain poses **higher risk** compared to a localized supply chain.
  - Competitive abilities to meet customer expectations are **limited** by the company's physical footprint.
  - Last mile shipment typically involves **multiple stops** with low drop rates.
  - Logistics lacks **empathy**.
- Design Questions.**
  - How might we empower brand suppliers to directly supply their goods to a selected global market?
  - How might we aggregate customer behavior between companies to create a greater user experience and equitable communication?
  - How might we optimize data collection to provide accurate, actionable, and granular supply chain insights?
  - How might we network people, physical resources, and digital data to meet the dynamic requirements for an adaptable?
  - How might we leverage technology to **empower human ability**?
- micro Ideation** (Mind map diagram)
- 5 Target Experiences.**
- 1 "Where's Waldo?"** Improving tracking transparency for businesses.
  - Some B2B logistics companies still face challenges in real-time tracking and accurate predictions.
  - Specifically for international suppliers and small logistic companies.
- 2 "Space Mountain"** Improving the waiting experience for customers.
  - Larger shipping times means a higher profit margin for logistic companies.
  - The truth as you make the shipping faster, customers will always have to wait.
  - Clearly and transparent the waiting experience.
- 3 "Matchmaker"** Applying the sharing economy in logistics.
  - Overhead, empty warehouses, and unused space in personal vehicles are all opportunities.
  - People are becoming more and more connected with new technology.
  - Businesses need new models and infrastructure during times of change.
- 4 "Homegrown"** Helping businesses to localize their critical supply chain.
  - The global supply chain is vulnerable in times of crisis.
  - Emphasis on **localing** local economies.
  - Businesses need new models and infrastructure during times of change.
- 5 "The Closer"** Increasing efficiency of last mile logistics.
  - Consumer logistics is growing exponentially.
  - Last mile logistics makes up 50% of the total cost of shipping for companies.
  - Companies are trying to become efficient ways of delivering large quantities of low-drop size goods.
- 1 "Where's Waldo?"** Improving tracking transparency for businesses.
- 2 "Space Mountain"** Improving the waiting experience for customers.
- 3 "Matchmaker"** Applying the sharing economy in logistics.
- 4 "Homegrown"** Helping businesses to localize their critical supply chain.
- 5 "The Closer"** Increasing efficiency of last mile logistics.
- Design Questions.**
- Research Scope.** (Icons for Operations, Innovation, Risk Management, Data, and Life & Health)
- Partner Check-In** (with a group photo)
- Logistics.**
- Thank You.** Questions? Comments? We appreciate any feedback.

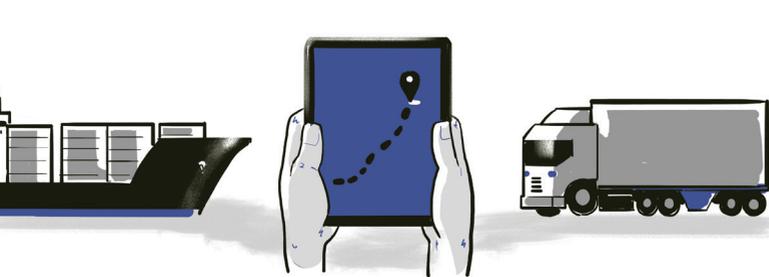
**EARLY IDEATION**  
**FIVE TARGET EXPERIENCES**

**1**  
**IMPROVING TRACKING**  
**TRANSPARENCY FOR BUSINESS**

**Where's Waldo?**

**OPPORTUNITIES**

- Some B2B logistics companies still face challenges in real-time tracking and accurate predictions.
- Specifically for international suppliers and small logistics companies.

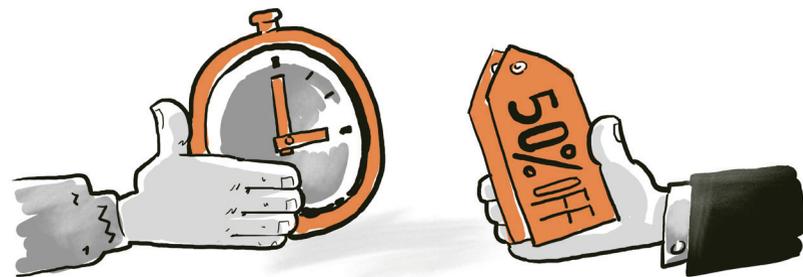


**2**  
**IMPROVING THE WAITING EXPERIENCE**  
**FOR CUSTOMERS**

**Space Mountain**

**OPPORTUNITIES**

- Longer shipping time means a higher profit margin for logistics companies.
- As much as you make the shipping faster, customers will always have to wait.
- Game-ify and incentivize the waiting experience.



**3**  
**APPLY THE SHARING ECONOMY IN**  
**LOGISTICS**

**Matchmaker**

**OPPORTUNITIES**

- Deadhead, empty warehouses, and unused space in personal vehicles are all opportunities.
- People are becoming more and more connected with new technology.
- Invite everyday people to participate in logistics; provides more jobs.



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**4**  
**HELPING BUSINESS TO LOCALIZE**  
**THEIR CRITICAL SUPPLY CHAIN**

**Homegrown**

**OPPORTUNITIES**

- The global supply chain is vulnerable in times of crisis.
- Emphasis on fostering local economy.
- Businesses need new models and infrastructures during times of change.

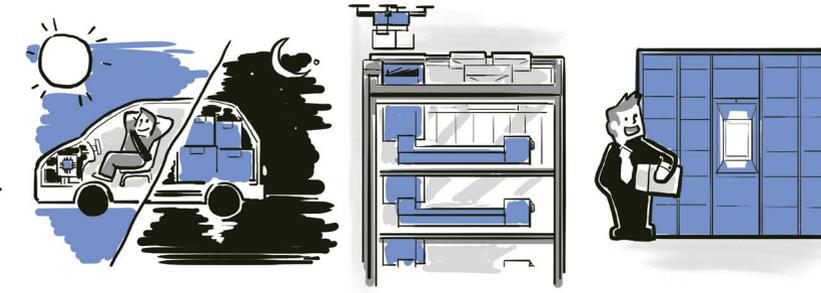


**5**  
**INCREASING EFFICIENCY**  
**OF LAST MILE LOGISTICS**

**The Closer**

**OPPORTUNITIES**

- Consumer logistics is growing exponentially.
- Last-mile logistics results in 53% of the total cost of shipping for companies.
- Companies are trying to find new efficient ways of delivering large quantities of low-drop-size goods.



## INTERVIEWS

### ROUND 2



After building upon our secondary research, we revisited a few of our initial interviewees. This time, however, we didn't just ask them to describe a day on the job or to detail how their company runs. Rather, we asked them how they feel in and out of work. We asked about their motivations, their hobbies, and their families. We asked them how their work impacts their relationships.

Even after interviews, we found that our understanding of people was clouded by assumptions from our own experiences. We identified personal and societal assumptions about delivery drivers and consumers and designed surveys to test them.

## QUOTES FROM SURVEYS

“I know very little [about the logistics of package delivery]” **CUSTOMER**

“Logistics places exploit people, never ask same day delivery because you cause problems.” **CUSTOMER**

“I'm always afraid that I have packed [my package] wrong. I feel really dumb when I go to the post office.” **CUSTOMER**

“Finishing early means a good day on the job.” **DELIVERY DRIVER**

“Being able to find the right box right away [makes my job enjoyable].”  
**DELIVERY DRIVER**

## UNDERSTANDING

### THE LAST MILE EXPERIENCES

Following our mid-term presentation, we doubled-down on empathy. To build a sense of empathy in the logistics experience, we set out to understand the experiences around the various parts of the last mile experience. From the warehouse to the final consumer delivery, there are several real humans going through their days and at many points there are opportunities for improvement.

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The People of Logistics

## LAST MILE WAREHOUSE

Phases	Unloading packages and product	Receive an order and prepare delivery	Planning and organizing warehouse
<b>Doing</b>	<ul style="list-style-type: none"> <li>Unloading product/packages</li> <li>Take out fillers</li> <li>Scan packages</li> <li>Find the right locations in warehouse</li> <li>Find correct shelves</li> <li>Store products</li> </ul>	<ul style="list-style-type: none"> <li>Using a scanner</li> <li>Access management software</li> <li>Finding products</li> <li>Preparing to pack products</li> <li>Put fillers in packages</li> <li>Printing and placing labels</li> <li>Sealing packages</li> </ul>	<ul style="list-style-type: none"> <li>Looking at planograms</li> <li>Creating bin cards</li> <li>Establishing different areas</li> <li>Estimating project costs</li> <li>Implementing package labeling</li> <li>Training workers</li> <li>Ordering Materials</li> <li>Gathering inventory</li> </ul>
<b>Thinking</b>	<ul style="list-style-type: none"> <li>Let's get this started</li> <li>This is a lot of packages</li> <li>What's for lunch today?</li> <li>This package is damaged</li> <li>I can't read this bar code</li> <li>My work is so repetitive</li> <li>I need a break</li> </ul>	<ul style="list-style-type: none"> <li>I wish there was better technology</li> <li>Where's the product?</li> <li>Is this the right aisle?</li> <li>I can't read the code</li> <li>I can't reach it</li> <li>What else do I need?</li> <li>Hope I didn't miscount</li> <li>I'm almost done</li> </ul>	<ul style="list-style-type: none"> <li>I wonder how much space we need?</li> <li>Do I need more workers</li> <li>How do I plan for capacity</li> <li>Safety and training cost a lot</li> <li>I hope we get investors</li> <li>Should we consider AI?</li> <li>How do we fit more inventory?</li> </ul>
<b>Feeling</b>	<ul style="list-style-type: none"> <li>Neutral</li> <li>Bored</li> <li>Busy</li> <li>Stressed</li> <li>Tired</li> </ul>	<ul style="list-style-type: none"> <li>Busy</li> <li>Confused</li> <li>Surprised</li> <li>Relieved</li> <li>Tired</li> </ul>	<ul style="list-style-type: none"> <li>Busy</li> <li>Stressed</li> <li>Confused</li> <li>Neutral</li> <li>Relieved</li> <li>Tired</li> </ul>

## LAST-MILE DELIVERY DRIVER

Phases	Loading/picking up packages from a distribution center	Commute and Driving	Delivery	Picking up a customer's outbound package
<b>Doing</b>	Driving to the center Waiting to pick up a vehicle Loading a vehicle with packages Scanning packages in the vehicle Organizing packages in the vehicle Reading customer evaluations Determining the route	Checking GPS Stopping at rest stops Filling gas, eating lunch and snacks Observing outside Obeying traffic laws Listening to music, radio, etc.	Finding the location Carrying a package Giving package to customer Pressing door bell or knock Placing package Hiding package for customer Scanning delivered package	Going to different locations Talking to customers Scanning packages Putting packages in vehicle
<b>Thinking</b>	I hope everything goes smoothly I hope I don't forget anything I wonder if I can finish earlier today This is a lot of packages What's in this package?	I have a lot of work to do Where do I go next? I'm bored Traffic is bad today The weather is pretty nice today	My hands are full! These packages are heavy What's inside this package? Is this the right place/house? Where's the customer? Onto the next step	Will I need a cart? Hope they aren't too heavy How much is left? I'm almost done!
<b>Feeling</b>	Excited to start the day Tired Annoyed Neutral	Good Neutral Tired of driving, tired of sitting Cramped Bored	Tired Anxious Relieved Confused Satisfied Homesick	Neutral Anxious Tired Happy to be done

## LAST-MILE CONSUMER

Phases	Ordering Online	Waiting	Receiving the package	Returning a package	Sending a package
<b>Doing</b>	Go to a website Comparing prices Looking at reviews Putting item in cart Putting address in Delivery options Purchasing	Checking emails Tracking a package Checking the billing Reading reviews Telling your friends Preparing to receive	Watching the door Checking outside Checking mailbox Unboxing Checking product Throwing away box/trash. Leaving customer review	Write reason for return Contact company Printing return label Purchasing packaging Going to drop-off location Waiting in line Talking to worker	Printing labeling Purchasing packaging Wrapping Going to drop-off location Waiting in line Talking to worker
<b>Thinking</b>	I want this When can I get this Weighing my options Should I walk? What's the delivery fee? I want free shipping	When will it get here? Where is the package? I hope it isn't lost I wish it could come faster I hope it doesn't get stolen I hope it is sage It is almost here	Where's my package? When will it get here? I forgot I ordered this! Yay it is here! Hope nothing is broken This box is dirty and ugly	I might have to reorder Another thing to deal with This is painful Now I have to wait longer This is so tedious	Hope my package is safe Hope it doesn't get lost This line is long This is a hassle I don't like this process I wish I was at home
<b>Feeling</b>	Excitement Neutral Unsure Satisfaction Happy Regret	Anticipation Anxiety Nervous Excited Impatient	Excitement Satisfaction Disappointment Relieved	Sad Annoyed Angry Relieved	Excited Neutral Frustrated Lazy

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## UNDERSTANDING

### LOGIC MODELS AND REFINED CONCEPTS

To better understand our design concepts, we drafted some logic models to better see how the various parts of the systems would work. We refined our concepts from the initial round of ideation to four more streamlined ideas.

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#### CONSTRAINTS

- Safety, security, and regulations
- Size of drones
- How do drones deliver? Is it a centralized hub? Calibrate drones to windows?
- Weather



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### HEDWIG: NEAR-FUTURE LOGIC MODEL

Inputs	Activities	Outputs	Outcomes	Impact
R&D Cost	Flying independently guided by GPS system	Increase in packages delivered	Providing control over the B2C last-mile logistics for consumers and sensitivity to their needs (ad-hoc)	Faster, long-term solution to the increase of ad-hoc and immediate delivery
Technology and Software	UTM Tracking and route optimization for obstacle avoidance	Volume of data generated from distance traveled	Reduced cost for last-mile logistics for companies	Much more sustainable and efficient method of transportation that helps reduce the last-mile carbon footprint
Drone Delivery Software	Regulating elevation, speed, and drone fleets with the Drone Delivery Software	Packages being able to be delivered in 30 minutes or less	Flexibility in consumer delivery	Long-term investment for consumers that flips the last-mile delivery landscape
IoT Chips	Communicating, tracking, delivering, and sending information and data such as ETA and position		Efficient and quicker delivery especially in urbanized or crowded cities	
Unmanned Traffic Systems (UTM)				
AI				
Lobbying and regulations				
Space	Personalizing last-mile logistics for consumers by giving them control			

### OPTIMUS PRIME: DISTANT FUTURE LOGIC MODEL

Inputs	Activities	Outputs	Outcomes	Impact
Level 5 fully autonomous vehicles	At night or when not being used, vehicles can “transform” the interior to have become a delivery van	Increased usage of underutilized vehicles	Reduced cost due to sharing existing autonomous utilities instead of developing more	Utilized autonomous vehicles to its fullest potential
Technology and Software		Continuous stream of revenue		Cuts time off of delivery and provide more flexibility
R&D Cost	Can serve as transportation in the day and cargo delivery by night		B2B delivery at night	
Partnerships within sharing economy/public transportation	Renting out personal vehicles as cargo vehicles			
Improved facilities for autonomous delivery				

- CONSTRAINTS**
- Extra cost on car maintenance
  - Shortens lifespan of vehicles
  - Unload and unpackaging
  - Safety and security



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### wARehouse: FAR-FUTURE LOGIC MODEL

Inputs	Activities	Outputs	Outcomes	Impact
Development of AR wearable technology	Integrating digital and physical space	Warehouse workers using AR technologies are more productive (46% faster)	Assistive technology will provide more organized and seamless warehouse workflow	Ensures safety of employees and less workplace injury
Technology, software, facilities, and space	Visualizing traffic, workflow, location, real-time tips and notifications.	Transparent flow of communication	Increase efficiency and organization	Enhances and provides a much more engaging workplace experience with less turnover
Employees and training	Visualizing tasks and more intuitive scanning and interactions between packages.	Predictive visualizations to decrease workplace injury	Guiding employees with visualized and better communicated, clearer instructions.	Not every company will have a fully realized and autonomous warehouse—AR warehouses are easier to adopt.
Intuitive planograms				
Cost and money		Estimated \$25 million cost of lost packages and goods		

- CONSTRAINTS**
- Cost structure
  - Adoption rates



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## PIGEON: NEAR FUTURE LOGIC MODEL

Inputs	Activities	Outputs	Outcomes	Impact
Modular and universal technology	Personalizing packaging with tracking technology	Immediate reduction in carbon footprint	Tracking transparency for customers	Reduced operational cost for last-mile logistics
R&D Cost	Tracking the package via software in real-time	Decreased lost or stolen packages	Reassures consumers and provides better security for packages	Reduces amount of waste from unnecessary packages
Production facilities	Unlocking packages via software or application		Modular and standardized design can be compatible with any form of transportation	
Tracking technology				
Condensable material design				
Software development				
Security technology				

### CONSTRAINTS

- Getting the right material
- Return process
- Cost structure and compatible technology

FINISHING EARLY MEANS  
A GOOD DAY ON THE JOB.  
DELIVERY DRIVER



# AS IS + TO BE JOURNEY/

## PROCESS NOTES

As designing for empathy became a larger theme in our process, we really needed to step back and bask in the people we wanted to design for. We broke our insights down into three experiences we wanted to design for and look into more. We constructed As-Is and To-Be scenario maps where we considered what people were thinking, feeling, and doing in each phase of their experience. Through this process, we found that the business and the people of logistics are inseparable. We found that when people do well, the business does well and vice versa. In our final round of ideation, we set out to create solutions that make good business sense and good people sense.



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### DELIVERY DRIVER EXPERIENCE

### AS IS + TO BE..

The People of Logistics

PHASES

LOADING PACKAGES

DRIVING

DELIVERY

OUTBOUND PACKAGES

DOING

THINKING

FEELING



## THREE-QUARTER CHECK-IN A KICK IN THE PANTS

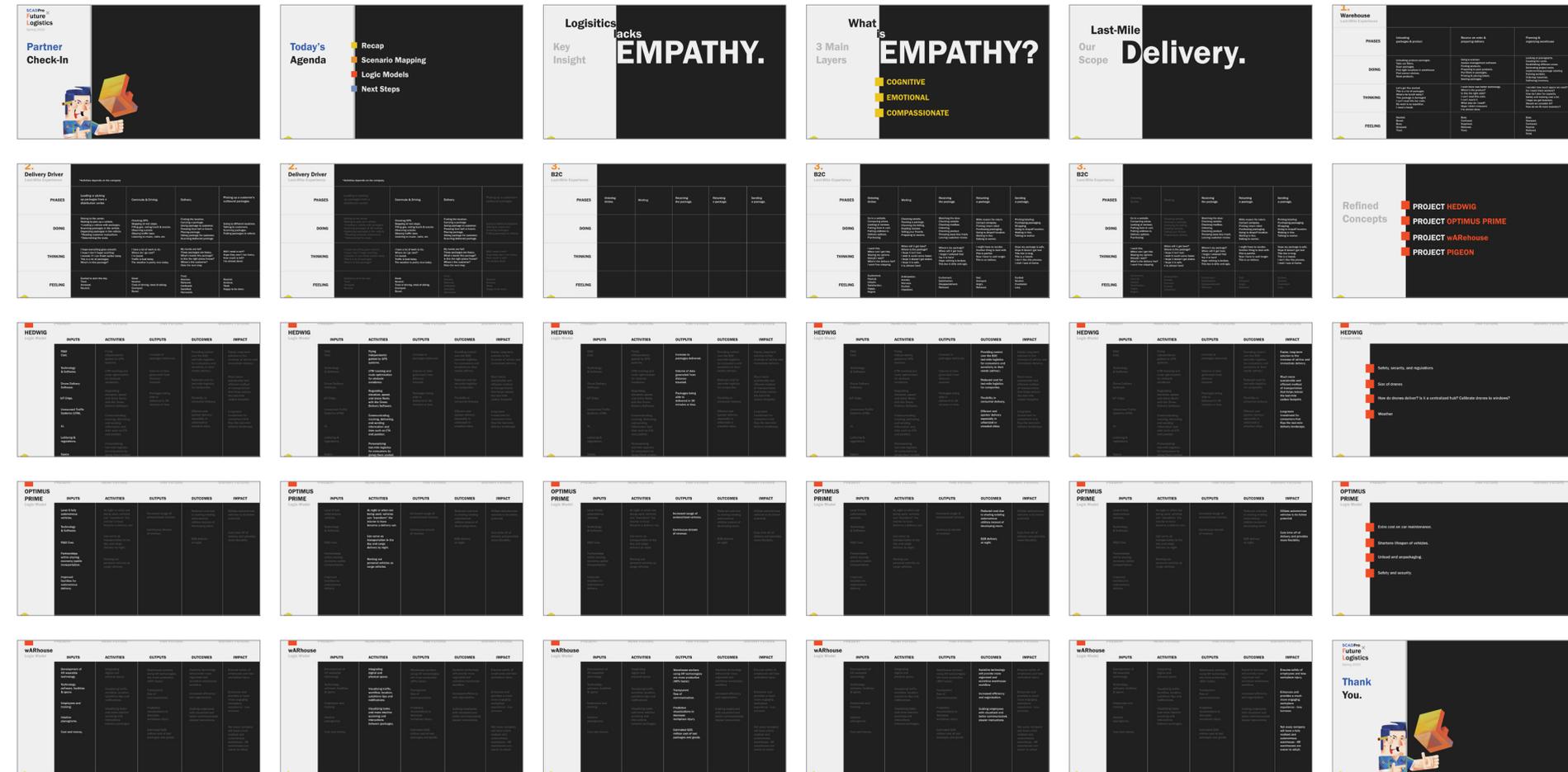
In week seven, we scheduled another check-in with the partners. Luckily Adam Cutler from IBM was able to join us to see our progress. We presented our most recent batch of work: the user scenarios and logic models based on our refined concepts.

The feedback was surprising to us. We had lost sight of the users. In an attempt to force empathy between the people of logistics, we have forgotten to be empathic designers.

Thankfully, Adam set us on the right path again. We even met with him separately to workshop some of our additional thinking. That working session (pictured on the next spreads) were huge steps forward as we sprinted toward the final concepts and presentation.

Logistics lacks empathy. And so did our process.

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The People of Logistics



Finally, we developed three solutions that tell the story of both the business and the people of logistics. We developed three solutions that tell the story of the future of logistics, a system by people for people. Each of our solutions are designed for a specific person's experiences and needs. In order to hit those opportunity points that all three of our users experienced we developed three solutions that work synchronously in a system to answer unique human needs—solutions for unique human beings.

Once upon a time...



The story of the future begins much like any other day. Three people, Madison, Dave, and Nicole, begin their days in Hopetown.



Madison is a single-mom. This weekend her youngest child, Katie, is turning five so Madison is making sure the party goes smoothly. However, as she's going down her checklist she realizes she forgot an important item.



Madison has a lot on her plate. She is challenged to balance her work-life, her home life, and her personal care. Madison is a hero to her kids, but even heroes need sidekicks. Lady bug is Madison's sidekick and the answer to the unpredictability in her life.



When unpredictability comes Madison's way and she needs to get something quick, she opens the Ladybug app.

Today, she needs to get a birthday cake from the local Bakery. She opens the app and enters the Bakery as the pickup location and her own address as the drop-off location.

The Story of the Future



She sees that Blu and Lady Scarlet—a couple local drones—are in her neighborhood. Blu is less expensive and would get to her fastest. Plus, she's used Blu in the past and feels confident in his abilities.

She chooses Blu and gets back to mingling with guests at the party. Ten minutes later, Blu delivers the cake. Ladybug relieves the stress associated with last minute shopping.



Ladybug delivers urgent items—items that have high value in the immediate future but significantly lower value if delivered too late.

Ladybug allows Madison to get what she needs when she needs it without compromising time with her children



Dave is a hardworking delivery driver. He takes his job seriously and is committed to getting the job done. He also loves spending time playing baseball with his nephew. It's important to him that he can balance his work life and home life.



Dave recalls a time when he ran into traffic often, made frequent stops, and often had to work late, but recently the Web has transformed Dave's experience.

Web allows Dave to optimize his route and plan his days in and out of work. When Dave boards his truck, he places Web on his head and sees insights into his day.

Based on load and route, Dave is projected to complete his day at 4:30. When Dave begins driving, Web gives him a suggested route based on traffic.

The Story of the Future



Dave reviews the suggestion and confirms the route. He looks into his truck and the correct package is highlighted by the Web. He pulls out the package—a large TV—and delivers it to the house.

Dave gets back in the truck and follows Web to the next stop. He has another large package to drop here. Web also suggests that Dave deploy his drones—designed for small packages—here, since it's a central location.



Dave deploys the drones and heads to his next big stop. While he delivers this package, the drones return to the truck. At 4:30, all of the packages are delivered. He removes Web and returns home, where his nephew is waiting to play baseball.



Web allows Dave to live his work life and his home life to their fullest, increasing efficiency and eliminating unnecessary stress and uncertainty.



Nicole is a busy college student and every morning she goes on a jog. During her run she always stops by a local bakery to grab a refreshment and it has become a pleasant stop on her run. It always brightens her day and she would love to have an excuse to come by more often.

Nicole is an outstanding student and stays busy with schoolwork. Nicole misses her family and wishes her college town felt more like home. Nicole craves routine, community, and, recently, new running gear.

Hive fills Nicole's needs. Hive integrates speedy delivery into healthy routines, getting consumers goods faster and promoting community engagement.

The Story of the Future

During a study break, Nicole finds some new running gear online at Nike. She's eager to receive the gear, since hers is getting worn out quickly.

Once she gets to the shipping section, she sees an option to have her gear shipped to a community Hive.

She notices that the Hive shipping is faster, less expensive, and comes with a reward. She chooses Hive option and sees that Back in the Day Cafe is one of her community Hives. She chooses to have her package delivered to the bakery.

After a few days, she is notified that it has arrived. After her morning run, she stops by the bakery to pick up her package and grab a discounted smoothie. She feels connected and is motivated to check out other Hive locations in the future.

EXPERIENCE DETAILS

MADISON

AGE: 37

LOCATION: SAN FRANCISCO, CA

OCCUPATION: ACCOUNT MANGER

FAMILY: SINGLE MOTHER OF TWO



- High-Stress
- Medium-Stress
- Low-Stress

1

It is her daughter, Katie's birthday and Madison is setting up decorations and making sure everything is for guests

2

She is going down the list and making sure she has all the decorations and party favors .

The Story of the Future

SCADpro x Future Logistics

3

Madison suddenly remembers that the cake she ordered was set for pick up and not delivery.

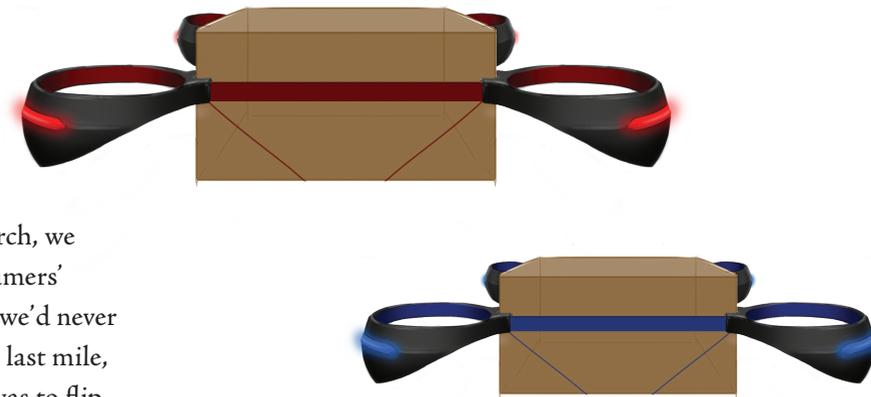
4

Madison is really stressed because guests had started to arrive and she doesn't have the cake ready

OPPORTUNITY

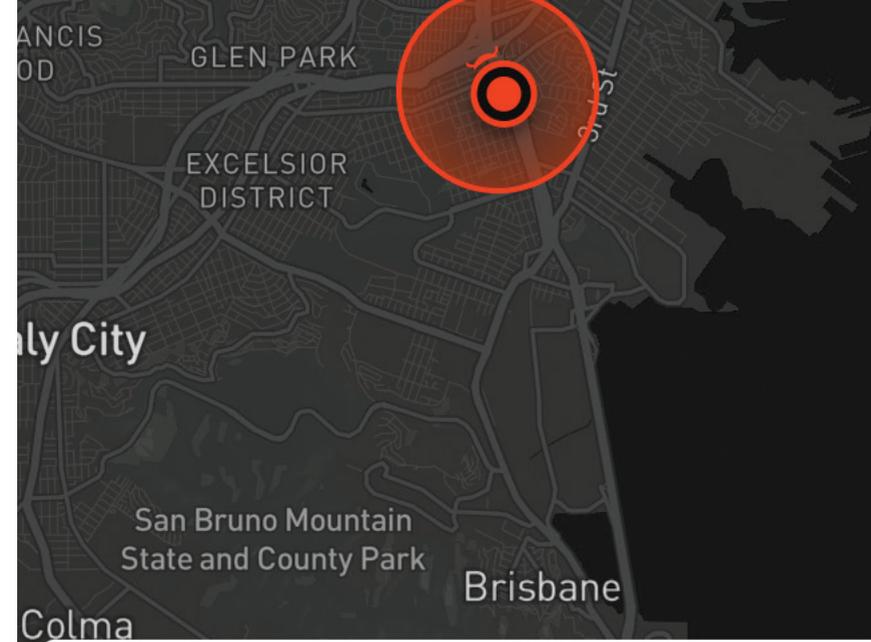
## DESIGNING FOR UNPREDICTABILITY EVERY HERO NEEDS A SIDEKICK

Our first concept was aimed at end-consumers. Through surveys and research, we saw an opportunity to design for unpredictable circumstances in our consumers' lives. This coronavirus epidemic was more reason to account for situations we'd never envisioned before. Traditionally, delivery companies are responsible for the last mile, which is also the most expensive part of delivery. The concept of Ladybug was to flip that traditional model and allow consumers to be in control of the last mile instead. Using the ladybug app, the customers would be able to book drones based on their requirement to pick up products that they need with an estimated time of delivery. These products would mostly be perishables and pharmacy items. The focus here is to create a service that consumers can depend on when things go wrong in their lives and they need something immediately.



The Story of the Future

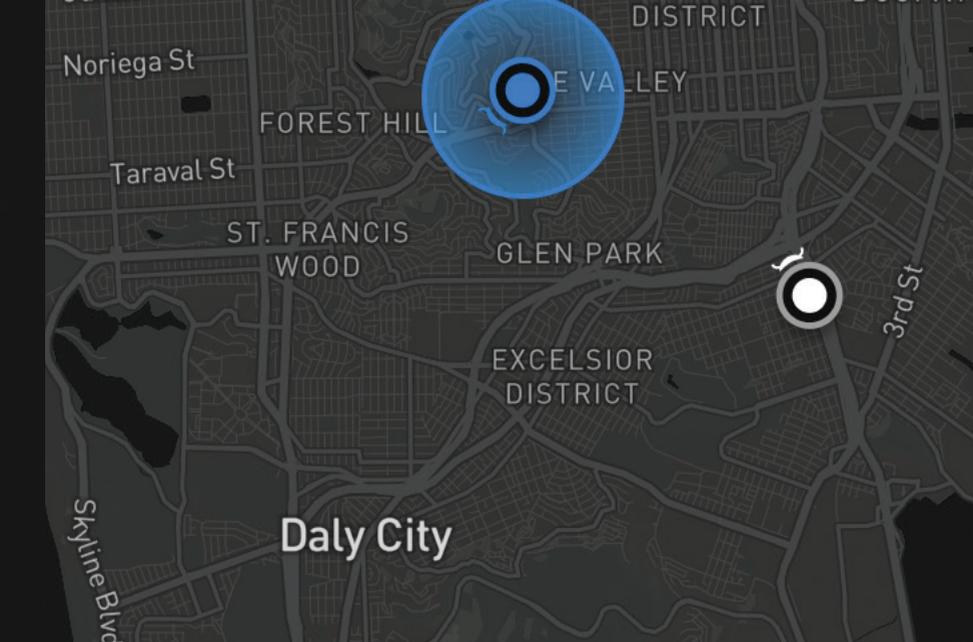
SCADpro x Future Logistics





**Lady Scarlet**  
\$8-10 • EST. 25 min delivery

**CONFIRM**





**Blu**  
\$5-7 • EST. 10 min delivery

**CONFIRM**



### EXPERIENCE DETAILS

**DAVE**

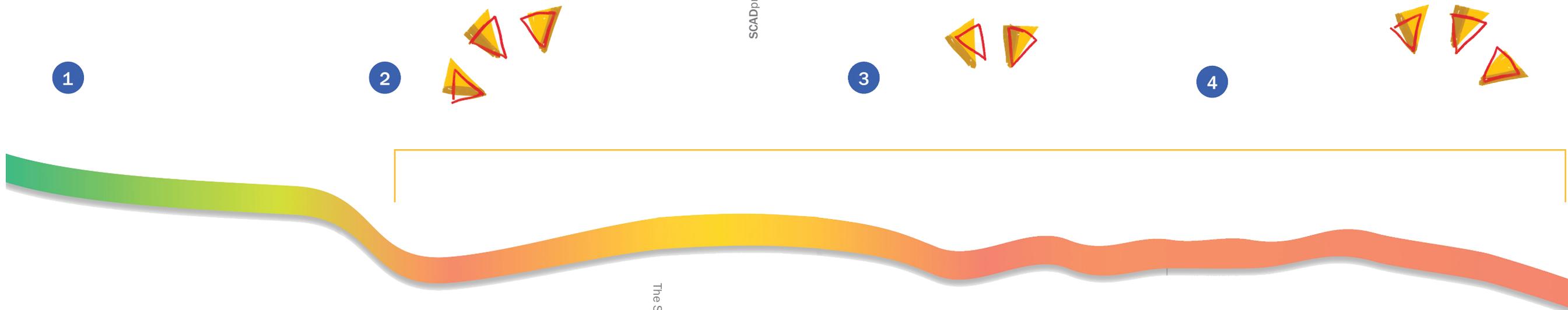
AGE: 22

LOCATION: OAKLAND, CA

OCCUPATION: DELIVERY DRIVER

FAMILY: HIS NEPHEW

- High-Stress
- Medium-Stress
- Low-Stress



Dave starts his morning ready to make his daily rounds

As he starts driving he has to adjust his route unexpectedly due to heavy traffic. This delays his entire schedule and he is stuck in the car longer.

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Since he is behind schedule, Dave impatiently tries to finish his work faster and ends up forgetting where he places packages and gets frustrated.

Dave forgot his nephew had a baseball game today and missed his game due to his schedule getting pushed back.

OPPORTUNITY

## DESIGNING FOR CERTAINTY AN EXTENSION OF YOURSELF

Web is a concept that focuses on the delivery driver and enhances their experience by providing various tools that ease their workload. Web is a wearable AI personal assistant that allows the driver to see constant updates on routes based on traffic. It also allows the delivery driver to scan barcodes hands-free. The scanning function lends itself to looking for misplaced packages in the van. Web works in conjunction with drones that the driver sends off to deliver smaller packages, while the driver focuses on making bigger delivery drops to pick-up hubs and houses. By creating a delivery team between the driver and the drones, this shaves off valuable time within last mile delivery. The AI system also gives the driver suggestions for the best spots to disperse the drones for maximum efficiency. But most importantly, this AI system is able to provide the driver with an estimate of when they will complete their deliveries, thus allowing them to plan their days outside of work.



The Story of the Future



## EXPERIENCE DETAILS

**NICOLE**

AGE: 24

LOCATION: SAN FRANCISCO, CA

OCCUPATION: COLLEGE STUDENT

FAMILY: LIVES ALONE



- High-Stress
- Medium-Stress
- Low-Stress



1  
Nicole wakes up to start her morning run

2  
As she's nearing the end of her daily route she stops by the bakery to say hello. She is extremely tired at this point.

The Story of the Future

3  
She purchases a glass of juice and sits down to relax and refresh herself.

4  
As she's relaxing she contemplates how she can find more opportunities to come to the bakery

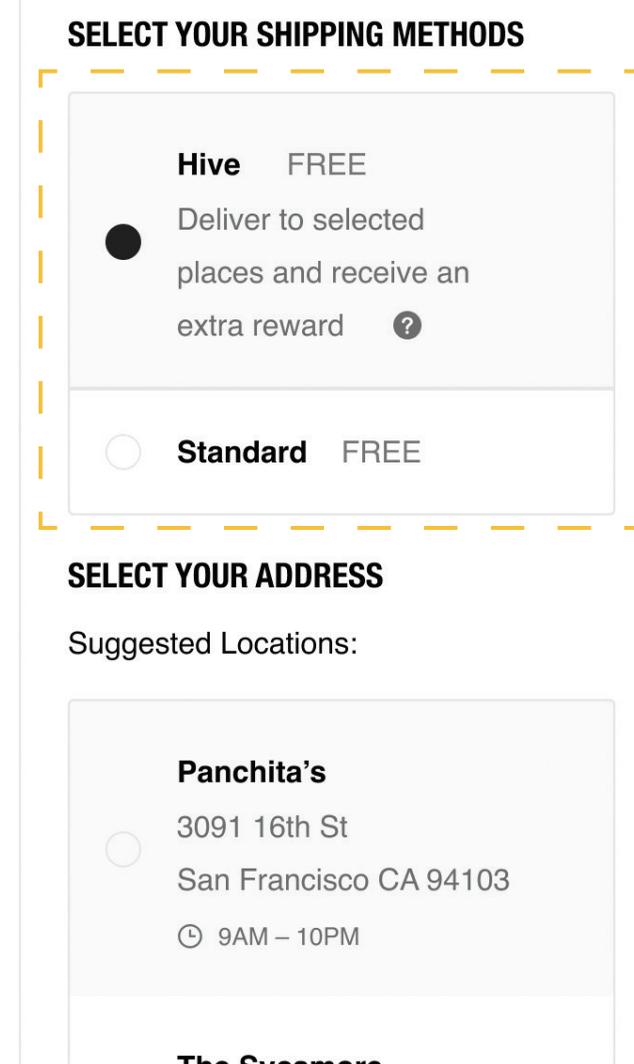
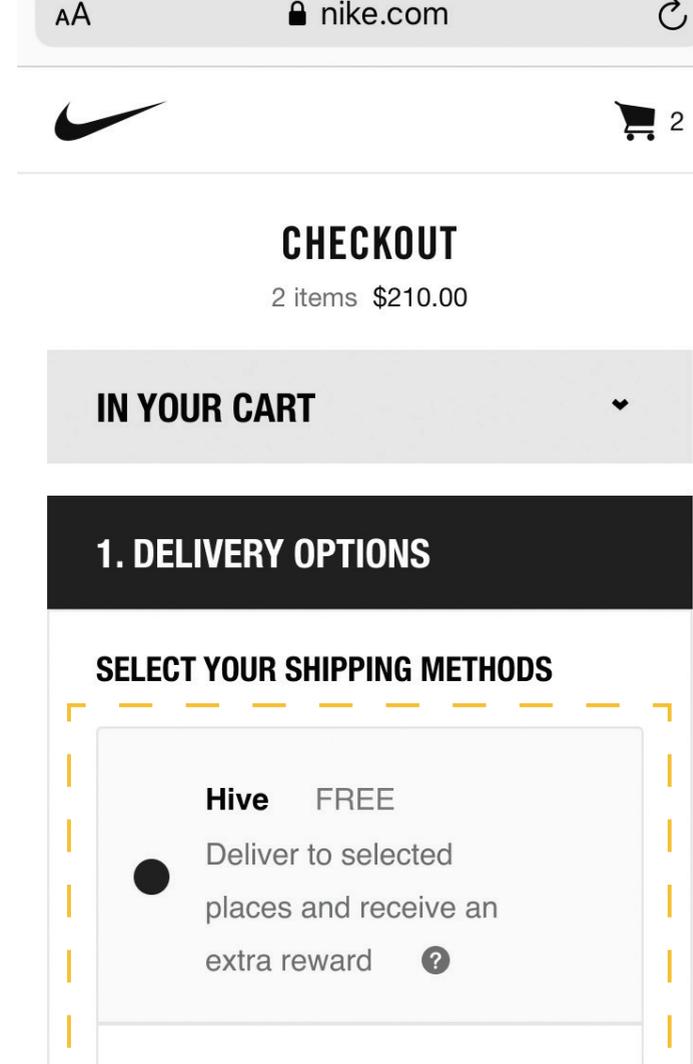
OPPORTUNITY

## DESIGNING FOR COMMUNITY BUILDING ROUTINES TOGETHER

Our last concept is based around the community. In this concept consumers are incentivized to pick up their packages from pick-up hubs called Hives. In return they receive a small discount coupon to be used at their Hive hub. These Hive hubs are special since they are the local mom and pop stores, cafes and restaurants etc. The idea is for this hub to be a spot that is already a part of the consumer's routine thus, giving them an excuse to visit their favorite places more often, with the added benefit of getting a free treat while they pick up their package! This not only benefits the consumer, but also the Hive hubs themselves as there is more traffic in their stores. Consumers might even discover new stores through these Hive hubs. Lastly, the delivery companies benefit as well since the delivery driver now only has to make a big drop at the Hive hubs instead of going to the individual houses to drop off the packages door to door. With Hive, there is something for everyone within the community!



The Story of the Future



## THANK YOU

**\$2 off your next purchase at  
Back In The Day Bakery**

**420CC15**

For your next purchase in Back In The Day Bakery, use the promo code to get a discount!

**Confirmation Number**

**00194381476**



## WHAT'S NEXT? . . .

While we're ecstatic to share our story so far, we hope that the story will go on beyond this point. We would love to continue the conversation around the future of logistics. We believe the need for empathy permeates all parts of the industry, from raw material to end consumer. We plan to move forward with select solutions and continue sharing our research and invite you to join the conversation. The process and solutions described in this book can be viewed and shared at [futurelogistics.scadpro.org](http://futurelogistics.scadpro.org). Please feel free to add to the story, helping us build a future by people, for people.

# Big Thanks From The Crew

Spreading Empathy One Package at a Time



JASON



MARIN



SARINA



BRITTNEY



JESENIA



ABBY



TOM



HEEJIN



ARUNDHATI



HUIQUAN





SCADpro