

LOSS PREVENTION: CUSTOMER SERVICE AS BORDER SECURITY

by

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Submitted to OCAD University
in partial fulfillment of the requirements
for the degree of
MASTER OF DESIGN
in
STRATEGIC FORESIGHT AND INNOVATION

Toronto, Ontario, Canada, 2011

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Abstract

This major research project for OCAD University's Strategic Foresight and Innovation program argues for improved customer service at border crossings as a method of enhancing border security. In particular, it focuses on alterations to Canada's border service design, using Saffer's service design framework of people, objects, processes, and environments. It merges this framework with personal and mediated narratives regarding border crossings in an effort to prototype a better and more secure experience for both travellers and guards. Following a major literature review of both design thinking frameworks and the wicked problems endemic to North America's international borders, it offers a fictionalized narrative scenario regarding the problem of endangered species smuggling and how border service officers could be better equipped to handle it with enhanced service.

Acknowledgements

This thesis would not have been possible without contributions from several people. Karl Schroeder encouraged me to join the Strategic Foresight and Innovation programme. Robert Ashby supported me throughout much of my time in it. Lenore Richards, Greg Van Alstyne, and Emma Westecott provided work, understanding, and a listening ear. Suzanne Stein continually helped me re-frame my thinking. Ken Hudson encouraged me to be more optimistic and balanced in that re-framing. Cory Doctorow encouraged the project, as did Brian David Johnson. The participants of the Border Town design studio, specifically Emily Horne and Tim Maly, provided more resources than I thought possible.

David Nickle asked me to accompany him to Port Huron for the sentencing of Peter Watts. He also provided work space, steak, wine, patience and love during the writing of this piece.

Dedication

To Andrew Beaudry: your actions in the name of the U.S. Customs and Border Patrol demonstrated the need for a coherent customer service strategy as the activities of Spring-heeled Jack did for modern forensics.

And to the Canada Border Services officer at the Lansdowne crossing who processed me on January 20, 2006: I never got your badge number, but I got my status.

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Epigraph

If you buy into the Many Worlds Interpretation of quantum physics, there must be a parallel universe in which I crossed the US/Canada border without incident last Tuesday. In some other dimension, I was not waved over by a cluster of border guards who swarmed my car like army ants for no apparent reason; or perhaps they did, and I simply kept my eyes downcast and refrained from asking questions.

Along some other timeline, I did not get out of the car to ask what was going on. I did not repeat that question when refused an answer and told to get back into the vehicle. In that other timeline I was not punched in the face, pepper-sprayed, shit-kicked, handcuffed, thrown wet and half-naked into a holding cell for three fucking hours, thrown into an even colder jail cell overnight, arraigned, and charged with assaulting a federal officer, all without access to legal representation (although they did try to get me to waive my Miranda rights. Twice.). Nor was I finally dumped across the border in shirtsleeves: computer seized, flash drive confiscated, even my fucking paper notepad withheld until they could find someone among their number literate enough to distinguish between handwritten notes on story ideas and, I suppose, nefarious terrorist plots. I was

not left without my jacket in the face of Ontario's first winter storm, after all buses and intercity shuttles had shut down for the night.

In some other universe I am warm and content and not looking at spending two years in jail for the crime of having been punched in the face.

But that is not this universe.

Peter Watts, December 11, 2009

Introduction: Standing at the Border of a Wicked Problem

The dilemma of how to reconcile the needs of security with the desire for humanity is the defining question of the twenty-first century. Since the attacks on New York and Washington, D.C. on September 11, 2001 and the attacks on London and other cities that followed, defending international borders from the threat of terrorism has become the subject of laser-like focus in the security community, rivalled only by the intensity of focus on controlling air travel. However, fortifying borders against drug trafficking and illegal immigration was a goal in the United States and elsewhere in the last years of the twentieth century, and the legacies of those policies live on in today's border enforcement. Each of these concerns – anti-terrorism, forestalling unauthorized migration, preventing the smuggling of drugs and firearms and animals and people, collecting excise taxes – is one facet of the wicked problem that is border security.

Rittel and Webber described wicked problems at length in their theories of planning in the 1960s and '70s. They are unique problems with multiple causes and consequences, whose solutions are always high-cost one-shot operations that only cause further problems. Above all, they are the types of planning problems in which the planner is never allowed to be wrong. (Rittel & Webber,

1973) As Buchanan later noted, the strength (and weakness) of the “wicked problem” formulation of design thinking is in its non-linear nature, and its stubborn refusal to offer a single or definitive solution to a problem. (Buchanan, 1992) Weber and Horn further describe wicked problems as “social messes,” which “are seemingly intractable problems. They are composed of inter-related dilemmas, issues, and other problems at multiple levels society, economy, and governance. These interconnections—systems of systems—make Wicked Problems so resilient to analysis and to resolution.” (Weber & Horn, 2007) In short, wicked problems are the toughest to deal with, but they also surround and connect us in our daily lives, often in unseen ways. Dig deeply enough into any one social problem, from the price of a cup of coffee to the graduation rates of your local high school, and there will be a more wicked problem undergirding it. These problems are also fundamentally social in nature: they arise from fickle human desires, needs, motives, cultures, patterns, and behaviours. Their intractability lies partially in the strong emotions that often surround the problem. To solve a wicked problem is to break a cycle.

Illegal immigration is a good example of a wicked problem: increased border patrolling is only one high-cost solution to the problem, but it does nothing to resolve the issues of systemic poverty or ongoing warfare that can make the prospect of migration attractive despite its inherent dangers. But increased border patrolling itself becomes a wicked problem for travellers

snarled in traffic on the road or in the airport, corporations interested in just-in-time manufacture or international retail, or workers who travel frequently to deal with international clients. The concerns of security, commerce, travel, nationality, territory and identity all intersect within the border space, often with only a single border security officer and a single process to resolve them. This “one size fits all” method more closely resembles a fast-food drive-through window or a line-up at a bank branch than a sophisticated method of risk assessment and identity verification. Worse yet, in the United States alone this method has resulted in the deaths of over four thousand people between 1998 and 2009. These deaths happened even after a threefold increase in budgets and manpower for border security operations following the establishment of the Department of Homeland Security in 2002. In another section, I explore at length how throwing money at this particular wicked problem has done little to solve it.

This project chronicles the wickedness of the problem that is border security, focusing on problems related specifically to North America, with a special section on border control efforts in the American Southwest. Characterizing border security as a wicked problem is nothing new: the Center for Strategic and International Studies convened an entire conference the subject in 2009. (Center for Strategic and International Studies, 2009) It suggests interventions to the border services’ design, based on Daniel Saffer’s POPE framework for service design. It also employs narrative in three ways: first, I

relate my own personal reasons for wishing to re-design border services in memoir format; next, I cite mediated narratives of border conflicts; then, I offer a fictionalized scenario for the future of border services in Canada. Scenario fictions are a method of offering one possible vision of the future in a foresight context. They are not predictions, but rather stories about what could happen. In this way, they are like “science fiction prototypes” or fables. Following the scenario, I outline the implications it has for border security. I describe the current and future technologies in the story at length, and grid them out according to Saffer’s framework.

In my concluding remarks, I offer a series of possible design interventions that are “shovel-ready projects.” These are things that almost any border services agency could do in any country to reduce boredom and frustration on the part of travellers while increasing intelligence and enhancing surveillance. In the end, re-designing border services is about breaking a cycle. The design interventions I suggest in this project are intended to help travellers and officers alike to experience the process of crossing a border in a different way, so that the next experience will be laden with far less emotional baggage. We already carry enough with us when we travel – there is no need to carry fear or doubt or mistrust as well.

Methodology: Everyone has a story

I did not begin this project with any single methodology in mind. The problems of border security are so wicked, so vast and far-reaching, that relying on any one method to solve them is to invite disaster. There are multiple methods for understanding wicked problems: structure dialogic design, mess-mapping, appreciative inquiry, workshops, Delphi surveys, cultural probing and other embedded ethnographic research. All of these methods require months if not years of research time, plus teams of researchers and the funding to sustain them. I did not have access to any of these elements. If I had, I would have framed and completed this project in a far different manner, with greater participation from relevant authorities.

This is not for lack of trying. When I asked an acquaintance to speak in his expert capacity on the CBSA's media relations strategy (itself part of service design), his employers told him: "any interview on the record where you're asked to comment on your work as a CIC employee needs to have questions submitted in advance and answers go through approvals." Similarly, I inquired via a contact in the CBSA about how border security officers are trained, and was shunted to a representative of the communications branch. She recommended that I fill out the contact form on the website. Obviously, questions about

experience and training cannot be answered by employees without their asking permission, first, and certainly the honesty of those answers would be questionable. However, this does not mean I was without assistance: my secondary advisor, Ken Hudson, has designed virtual worlds for the training of BSOs in the CBSA at Loyalist College, and was able to speak to his experience of these individuals during our thesis meetings. I did not conduct formal interviews with him, as he has already written extensively on the subject of both the virtual world and the students who visit it. In his own work, Hudson has speculated on the future of border security through the lens of new technologies:

Virtual worlds have the potential to become ubiquitous training environments for applied learning, and they are already being put to work in top level training programs, such as military and law enforcement. In the very near future, these environments will revolutionize training approaches for average organizations to leverage role and sector specific engaging instructional environments quickly and affordably. (Hudson, *Applied Training in Virtual Environments*, 2010)

The importance of experience and repetitive, iterative behaviour in this context cannot be over-stressed. Much of this project became about new ways of experiencing what it is like to cross a border, and this is also one of Hudson's areas of expertise.

While researching and writing this project, I was also a member of the Border Town design studio, organized by Tim Maly and Emily Horne. This group of graphic, information, and experience designers met for one night each week

at Toronto's Site 3 Co-laboratory. Border Town met for ten weeks in total to discuss readings related to cities divided by international borders, and to welcome guest speakers interested in border policies. It was in this context that I met the CBSA employee who I later asked for further information.

Instead of pursuing more traditional research methods, I strived to something very similar to what I do as a science fiction writer. The age-old dictum to "write what you know" extends to the areas of design, as well. What this project does is take what is already established knowledge among the border services, design, and academic communities, mix it with my own personal experiences and those of a select few others, and offer an example of another possible experience.

The role of narrative

The reader will find multiple narratives, and multiple types of narratives, interspersed throughout this document. The first is a personal narrative from me, about my worst experience on the border between the United States and Canada. The second is another personal experience narrative from Peter Watts, regarding the epigraph that precedes the body of this document. Following that are more mediated narratives about border conflicts that have made their way to the cultural consciousness through the Internet, television and other news outlets. Lastly, there is a fictionalized scenario – another narrative about what might be, based on what currently is.

I believe firmly in the power of story. I say this not only as someone who grew up to be a novelist, but also as someone who recognizes stories as a primary method of relaying information. Cultures all over the world have their own unique and special cautionary tales, fables, and parables. And despite the plethora of ancient material available, creators continue making up new narratives that they hope will age gracefully into myths. These stories sink deep into our personal identities as well as our shared communities, such that referencing the right story at the right time can act as a shibboleth that binds interlocutors more closely together. (This is especially true in niche cultures, like fandoms.)

Stories are also sometimes didactic in nature: Walter J. Ong, S.J. alleges that the reason that Homeric epics like *The Iliad* contained such detailed descriptions of sacrifices to the Greek gods was because the poems themselves acted as instructional lectures on the proper way to make the sacrifices that the listening community thought were necessary for survival. (Ong, 1982) Biblical texts are similarly detailed, providing information on lineages, battles, journeys, sacrifices, and the stuff of life important to the communities they were spoken and written for. Even popular children's classics like *Robinson Crusoe*, the *Little House* books, *The Boxcar Children*, *My Side of the Mountain* or *Island of the Blue Dolphins* focus equally on the development of practical matters as well as moral or ethical ones. It was not uncommon to find instructions on building a shelter or butchering an animal in their pages, as well as more abstract lessons on growing up into a nobler human being.

It was in that spirit that Brian David Johnson, lead futurist for Intel, developed his theory of "science fiction prototyping." Describing the process, Johnson asks, "What if we could use science fiction based on science fact to not only imagine our future but develop new technologies and products? What if we could use stories, movies and comics as a kind of tool to explore the real world implications and uses of future technologies today?" (Johnson, 2011) In Johnson's model, telling the story helps the reader to understand the different ways that real people could interact with new products or technologies. The details of this

interaction emerge as a result of having told the story, not as a result of having developed the product in a lab. In this way, the story is a sort of short-cut to experiencing that new product, that comes with the weight of a more immersive narrative. Johnson later adopted this model for *The Tomorrow Project*, wherein a group of prominent science fiction writers were asked to write stories about upcoming innovations for the benefit of Intel engineers and designers. The model has since been adopted by the Analytic Design Group, which describes the method this way:

Science Fiction Prototyping can explore technology in greater generalities or finer detail than a physical prototype. It focuses on the interactions and the relationships with the technology, rather than the specific look or feel. It can give the designer greater depth for their thinking process, and help hook the shareholders by telling an interesting story about a technology that's not too far into the future. (Analytic Design Group, 2011)

In the scenario included in this project, "Welcome to the Jungle," I tried to do many of these same things. It is primarily about the close relationship between a border services officer and her technology, and how that relationship enables her to do her job in a better, kinder, and cleverer way.

I chose this method because I wanted the readers of this project to have a good story to remember while going through customs. I believe that stories carry a certain weight that feels heaviest in context. In much the same way that we remember stories about serial killers while walking home late at night, we also remember stories about institutional brutality when dealing with an institution.

In the highly-charged border space, where personal questions are asked and sometimes haltingly answered, these stories and recollections can leap to the top of the mind. In writing my scenario, I wanted another story to sit at the top that would instill greater confidence and hope in the future of both border security and customer service. This is because my own personal experiences have been so fraught.

My dread of customs desks

It's April 2009, and I'm standing in line for the customer service desk at my local IKEA when a singular and inexplicable dread takes over me. I look around, trying to locate the instigator of my discomfort. No one is staring at me. No alarms have gone off. The environment is benign, if a little lonely. But my fear increases: something is terribly wrong, and I feel as though I've discovered a loose thread in the fabric of reality that, if I pick at it long enough, will unravel my world. Again, I try to analyze the fear. Nothing is wrong with me, physically. I'm not in any danger. I am standing before a row of blue desks (they're more like kiosks, I realize) waiting to be called by a lamppost that will blink above the next open kiosk. Behind me, there are rows of hard wooden benches. They sit mostly empty aside from a woman with a stroller who regards her curling receipt with a pinched, fretful expression.

My light goes off, and I understand: It's just like Customs and Immigration.

My dread of customs desks can be traced to two separate dates. On January 20, 2006, I was denied entry to Canada and turned away at the Lansdowne crossing. Then on February 1 of the same year, I was held for over an hour by a Canadian customs official when I tried to enter the country through

the Vancouver airport. Both times, I thought I had done everything right. Both times, I panicked.

That January, my then-boyfriend was offered a position at a Canadian company. It was an improvement over his current job, and he wanted to return home to Toronto where he was born and raised. I wanted to go with him. The Canadian immigration website said that I could live with him there for up to six months. So we packed up a van and a truck, and joined by his father and brother, we drove up to Lansdowne to cross into Canada and start the next phase of our lives.

The drive felt magical. Black walls of granite loomed over our teetering vehicles as they navigated the two-lane highways. The towns grew older and more distant, the signs promising live bait more weathered. We ate in a diner that played AC/DC. It was my last night in America for a long time, or so I thought. The following afternoon, when we stopped at the Lansdowne crossing, our vehicles were directed toward secondary inspection. My boyfriend happily handed over his itemized list of our belongings and their value, as well as his banking records and the other documents he thought would be of use. But they had already checked my passport and pulled me aside, away from the other three and toward a little desk. "Wait here," I was told.

From a back office, a tall, broad man with hair the colour of German mustard came and stood at the desk. He said nothing to me. He conferred with a much shorter female agent, nodded once, then looked at my documents. "Why are you coming to Canada?"

"I'm living with my boyfriend."

He retrieved a yellow slip and pushed it across the desk. "Sign that."

I examined the document. Written in legalese, it seemed to say in flowery terms that I intended to spend some time in Canada. In that regard, it was accurate. I signed it, and he took it from me. "By signing this document, you've indicated to me your intention to enter Canada for the purposes of immigration," he said. "As such, I cannot permit you to enter the country now or at any time in the near future. You'll have to go back to the American side of the border."

I don't really recall what happened next. I know that I wandered away from the desk, toward my boyfriend and his father and brother. They were waiting for me on a wooden bench built into the wall. They had watched the entire exchange from a distance. I remember saying something about being denied entry. I remember that they asked some questions. And then, when I realized that I would be flying back to Seattle without my partner and without any hope of joining him, I remember losing my mind. There in the customs office, I had my first full-blown panic attack.

My shock, and the naïveté that made it possible, were likely fueled by white American middle class privilege. Aside from my mother's cancer diagnosis the previous year, I had never experienced real misfortune. The system had always worked for me. Dating a Canadian, I'd traveled between the two countries frequently and had learned the routine. I'd smiled my way through customs desks with nothing more than a JPEG of my birth certificate. I'd sweet-talked agents into processing myself and my boyfriend as a household, despite our not being married or even sharing an address. Five years after September 11 and the increased security measures that followed it, I still thought nothing could touch me.

The American border guards lent me a box of tissues after I shuffled to their station. We found a hotel that gave us a bereavement rate once they heard our story. My room had everything in it except the one person I wanted most. Perhaps by mistake, someone had left an iron on a fold-out board. I stared at its gleaming surface, and thought briefly about burning myself with it. I picked up the phone instead.

Ten days later, after two appointments with the consulate, I flew from Seattle to Vancouver. Once again, I was pulled aside for secondary screening. This time the agent, a South Asian woman with a long ponytail, spent an hour asking me questions about what had happened and why, and what my plans

were and who I really was. I stood in an empty space between rows of benches and rows of kiosks, watching the lights blink on and off as other people, luckier people, passed through. I tried to remember the words of wisdom my boyfriend had sent me -- Tolkien and Homer and other poets whose strength he thought I might need. I stuck with Frank Herbert, and recited the Litany Against Fear as she went back and forth to call my family, my former employers, and my boyfriend.

"Why are you joining this guy?" she asked.

"He received a better job offer in Toronto," I answered. "And I believe that when you love someone, you support them when they try to improve their lives."

"That's true," she said, "but what is he willing to do for you?"

I had no idea how to answer that question, or most of the others. After more than an hour, when my connecting flight was ten minutes away from departure, I cracked. I started to beg.

"Please," I said. "Just let me in for a while. Just let me see where this relationship is going. I don't even know if I want to live in Canada for good, but I'll never find out if you don't give me the chance to try."

At the age of twenty-two, I became a wife and an immigrant. I also became a science fiction writer. I joined the Cecil Street Irregulars, one of the oldest genre writers' workshops in Toronto. Without a work or education visa, I had

plenty of time to sharpen my prose and meet other writers. Two years later, I told my story to fellow science fiction writer Peter Watts. "My blood just boils when I hear about shit like that," he said.

In December 2009, Peter was assaulted and arrested by American border guards. After his rented truck cleared a US customs kiosk at Port Huron, Michigan, he was waved aside and, not understanding why, exited the vehicle. He was attacked for doing so, punched in the face and maced. Despite only clinging to border guard Andrew Beaudry's shirt as he fell to the ground, Peter was later charged with assaulting a federal officer. Because the state of Michigan's laws include a statute that lumps failure to comply with a federal officer's orders in the same class as assaulting that officer, he was convicted of a felony offence. His sentence was commuted, but as a convicted felon he can no longer enter the United States.

Our customs need a re-design

I recognize now that my experience and Peter's are the exception to the rule. Both Canadian and American border security personnel are put through rigorous training before they begin their work, and the majority of Canadian Border Service officers (BSOs) are interested primarily in obtaining information through listening, not intimidation. (Hudson, Applied Training in Virtual Environments , 2010)(Hudson & Degast-Kennedy, Canadian border simulation at Loyalist College, 2009) That sense of intimidation – and my acute awareness of the power differential between the BSOs and myself as an immigrant – lingers with me, and it tinges this report. But I acknowledge the difficulty of the work these men and women are engaged in, and its importance. As with any service, border services are at their best when they are almost invisible, but breakages in the system or bad behaviour by any one BSO can make the service instantly visible – often in a memorably negative way. We tend to remember these bad interactions better than the good or neutral ones, without pausing to consider the statistical likelihood of being treated badly on a regular basis. In other words, most every traveler has at least one annoying story about clearing customs, but they will have several more boring stories to go with it. This is true for me, as well. I will note, however, that the most satisfactory experience I had with a border guard happened while entering Port Huron, Michigan over the

Blue Water Bridge, where the female guard was so friendly and conversant that she elicited far more information from me than she really needed. I simply wish all interactions with border guards could be this pleasant. While developing this project, I realized that the real question undergirding this report should be: How can anticipating design needs for the customs information transaction improve the experience of both sides? After reviewing the relevant literature, and considering multiple design frameworks, I developed fictionalized foresight scenario narratives in an attempt to model what the answer to that question might feel like.

The worst possible scenarios

As harrowing as Peter's ordeal was, it could have been far worse. Anastasio Hernández Rojas and Sergio Adrian Huereka both died within weeks of each other in the summer of 2010. The former, a 32-year-old father and husband living illegally in San Diego, was repeatedly stunned and beaten by United States Customs and Border Patrol (CBP) agents following an attempt to deport him from the San Ysidro border crossing. He died in hospital, shortly after the agents discovered he was no longer breathing. (Archibold, 2010) Video of the encounter has since appeared on YouTube. The latter, Huereka, was a 15-year-old boy who died after being shot by a border patrol officer when that officers fired into a

crowd of Mexicans attempting to cross the border illegally by running through it. (Olson, 2010)

According to the National Foundation for American Policy's most recent report on the subject, 4,375 immigrants died on or near the United States border between 1998 and 2009. The report notes that, "Alarming, immigrant deaths increased in 2009 at a time when illegal entry fell significantly." (Anderson, 2010) And over the past fifteen years, arrests at United States borders have steadily fallen in number. (Simpson, 2009) So although illegal entry into the United States is at a historic low and arrests are down, fatalities are up.

Even when borders do not prove lethal or simply dangerous to the people crossing them, they are still an inconvenience and a site of anxiety and distress. For those who share the same name as an individual on a terror watch- or a no-fly list, travel can become nightmarish if not impossible. Andrew Feldmar attempted to pick up a friend at the Peace Arch crossing, and was detained with a customs agent used the Internet to search his name and found an article on drug use. Dr. Munir El-Kessem was detained for four hours at the Detroit airport on his way to present at an inter-faith conference encouraging unity between Muslims and Christians. José Santos shares the name of a wanted murder suspect, and goes through secondary screenings each time he attempts to cross a border. These are only a few such stories of inconvenience and degradation

rooted in a simple systems error at the border. (International Civil Liberties Monitoring Group, 2009) Such stories seem to be the confirmation of suspicions that the advent of national identity cards or other systemic or computerized methods of identification and authentication would only further marginalize those under-served by their governments. (Lyon, 2004) As one woman noted in Clement and Smith's findings on the subject of Canadians crossing the United States border:

When you go to US even though you have everything. You have the visa and your passport...you have your permanent resident [card] and they will [still] interview you for hours and keep you in a small cell and try to find out who you are... [Y]ou have everything they can see your picture, they can see your signature and everything is there. So it's a little bit annoying....I can't wait to become Canadian citizen and once I have that I'm sure they're not going to put me through that. (Clement, 2011)

Their findings lead them to conclude:

..many Canadians and residents have experienced challenges when crossing borders. Our participants told us of watching a friend undergo a slow border crossing (Mia), being held at security due to his name (Salim), having a post 9/11 watch list experience (David), being intensively questioned (Kassa), and having errors on documents which may cause border crossing and bureaucratic problems (Razi and Kassa). *Clearly, individuals are frustrated when they are personally inconvenienced, delayed, or identified as a potential risky traveler.* (Emphasis mine)

The frustration experienced by travelers like the ones Clemente and Smith profiled can escalate a troublesome situation into a lethal one. Robert Dziekański died October 14, 2007, following an incident at the Vancouver

International Airport between himself and a group of Royal Canadian Mounted Police (RCMP) officers. In this case, officers of the Canadian Border Services Agency (CBSA) performed their job as expected: Dziekański required language assistance to complete his customs form and interview, and received it without any trouble. However, the lack of language support throughout the rest of the airport, a mistake made by his mother regarding where the two should meet, and a secondary customs screening due to an un-processed visa all contributed to his visible agitation and rage upon finally exiting the customs area.

Dziekański had spent nine hours looking for his mother and trying to find help without receiving any. He had answered two separate customs and immigration interviews. Perhaps knowing that he would receive language assistance, he tried propping the door between the customs clearing area and baggage claim with a chair. He picked up and threw a computer and a small table. He was brandishing a stapler as a weapon when four RCMP officers rushed to the scene and used a stun gun on him multiple times, even when he had fallen to the ground in convulsions. His heart stopped beating after the fourth charge, and he did not receive CPR or other medical attention until emergency services arrived fifteen minutes later. He died in the airport, where just hours earlier employees had mistakenly informed his mother that he had not yet arrived. (Nurwisa, 2007)

Dziekański's death was not simply the result of an over-reaction on the part of RCMP officers. It was the result of a systemic failure. Long before officers arrived, Dziekański was exhibiting behaviours that should have clued customs agents, airport employees and security personnel in to the very basic, completely understandable reality that he required assistance. Consider the facts: he wandered between secure locations for nine hours, completed two interviews with language assistance, and his own mother gave his name to airport employees *after* he had landed and completed the first of those interviews. At any point during that nine-hour period (longer than the duration of a regular workday shift), he could have received further assistance from a variety of personnel within the airport environment. Why did security and RCMP officers allow him to roam freely for so long? Is the CBSA so radically disconnected from the rest of the airport that one agent could not spare a moment to connect Dziekański with someone at a customer service desk? Was each node of the airport's system – customs, security, service – completely unaware of its fellow nodes and how they operated? Could this man's fatal eruption of anger and frustration have been avoided by a simple act of good customer service?

Threshold anxiety

We live in a time when emotions like anger and anxiety can become fatal if displayed in the wrong context. In fact, some psychologists have a phrase for the

condition that makes this event possible: *excited delirium*. According to the professionals who believe that excited delirium is a genuine mental disorder that belongs in the *Diagnostic and Statistical Manual* (it is not yet listed there), sufferers exhibit symptoms of high stress and anxiety before their hearts and lungs give out from the strain. Often, this happens while those afflicted are in contact with police, and they die. It's not the stun guns, delirium experts argue, it's the disorder. (Ligaya, 2007) But whether the cause is neuro-chemical or simply situational, excited or agitated people can trigger uses of force from police officers, security personnel, or customs agents. In short, one important step in traveling safely and without incident is to remain calm. Otherwise, even a simple gesture of confusion and frustration (such as exiting a vehicle) can provoke real violence (like the use of a baton). Below, I have charted this process as a flow (Figure 1). While rather high-level, I feel it adequately communicates the cycle of emotions at play in scenarios like the ones described above.

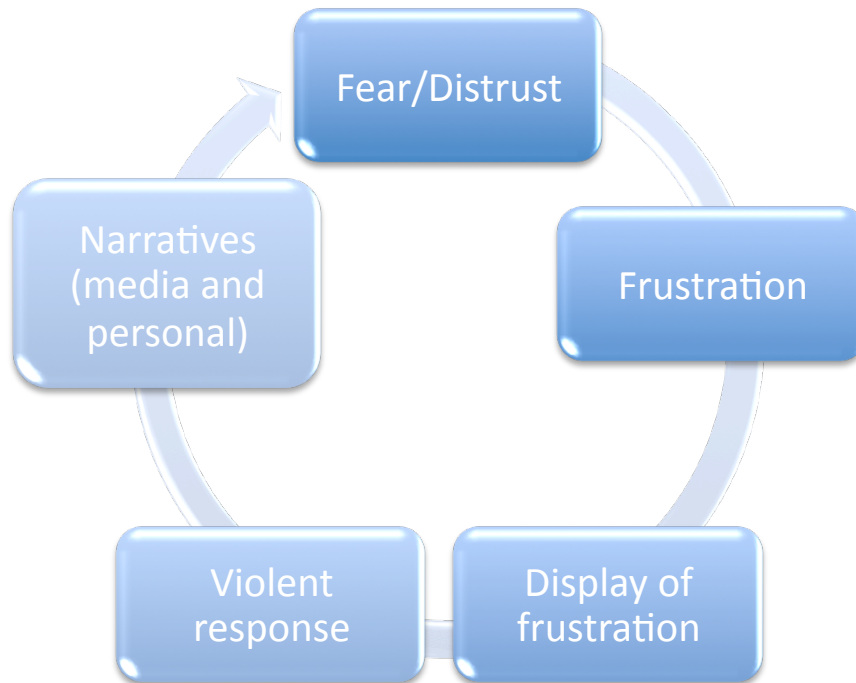


Figure 1: The Fear Cycle

When Temple Grandin noticed a similar feedback loop between agitation and violence in American slaughterhouses, she re-designed them. And while it may seem strange or even insulting to compare the process of crossing an international border through a customs kiosk to the process of herding livestock for slaughter, the reality is that most customs crossings treat humans in exactly this way. At most major airports, people move in undifferentiated masses (herds) until they hit a customs area (a holding pen), where they queue up and travel through a series of narrow switchbacks (a corral) until they approach a desk (a squeeze chute) and wait for a stamp (a stun). (In making this comparison, I ask you to remember that the phrase “standing stock still” comes from the business

of animal husbandry – ranchers need their stock to stand perfectly still for grooming, immunization, and slaughter. Keep this in mind, the next time your customs line seems not to move.)

Further, consider Dr. Grandin’s words on fear in livestock:

Fear responses in a particular situation are difficult to predict because they depend on how the animal perceives the handling or transport experience. The animal's reactions will be governed by a complex interaction of genetic factors and previous experiences. For example, animals with previous experiences with rough handling will remember it and may become more stressed when handled in the future than animals that have had previous experiences with gentle handling. Previous handling experiences may interact with genetic factors. Rough handling may be more detrimental and stressful to animals with an excitable temperament compared to animals with a more placid temperament. (Grandin, 1997)

If we replace the word “animals” with “travellers,” could Grandin’s thesis be applied to humans in a customs context? Grandin advocates the idea that the ethical treatment of animals involves designing affordances for all animal temperaments, but the customs process has no such affordances for the broad spectrum of human feeling and experience. Why should this be so? Should the same respect and consideration for cattle on their way to death not be given to humans on their way to another country?

Due to her unique ability to immerse herself in the animals’ experiences and prototype it for herself, Grandin was encouraged to re-design the slaughterhouses of America, first one and then another, and another and

another until almost fifty percent of the slaughterhouses in the country had adopted her model, along with slaughterhouses worldwide. This saved them from the revenue lost on cattle that balked and drowned because they were frightened of the corral, dip or squeeze chute. It also saved the lives of ranchers who were herding frightened cattle – docile cows meant fewer incidences of bucking or jostling that could harm the people working with the herds.

While the problem of American slaughterhouses was not nearly so wicked as that of America's borders, it probably seemed so for ranchers during the 1970s and 1980s. At the time, the loss of revenue from dead stock was considered the cost of doing business. Many people feel this way about international borders, and the stress of dealing with customs officials. This need not be so, and when the values of desirability, feasibility and viability are given pride of place within a design solution (as they were in Dr. Grandin's work), you have a solution that others can get behind and work for. These values are taken from the IDEO Human-Centered Design Toolkit, otherwise known as the HCD toolkit. Written long after Grandin became such a valuable member of the design community, it nonetheless espouses all of the things she does in her work with and for animals: dignity, respect, humanity, and possibility. (IDEO, 2009)

Our customs need a re-design that is just as desirable, feasible, and viable.

Why design?

While discussing wicked problems, Richard Buchanan wrote: “There is no area of contemporary life where design – the plan, project, or working hypothesis which constitutes the "intention" in intentional operations – is not a significant factor in shaping human experience.” It is in this spirit that we must consider the future of border security and customs interaction. Clearing customs is an experience, and experience design is one of the fastest-growing fields in the business. As Bill Buxton notes: “Despite the technocratic and materialistic bias of our culture, it is ultimately experiences that we are designing, not things. Yes, physical objects are often the most tangible and visible outcomes of design, but their primary function is to engage us in an experience – and experience that is largely shaped by the affordances and character embedded into the product itself.” (Buxton, 2007) In other words, the designed elements in a specific space are cumulative and add up to a total sensation that is inextricably bound to the space.

Wicked problems

The border space is a site of what in the design field are referred to as “wicked problems.” These are the thorny problems arising from a number of causes for which no single solution can or ever will work. According to Rittel and Webber, wicked problems can be identified by the following characteristics:

1. There is no definitive formulation of a wicked problem
2. *Wicked problems have no stopping rule*
3. *Solutions to wicked problems are not true-or-false, but good-or-bad*
4. There is no immediate and no ultimate test of a solution to a wicked problem
5. *Every solution to a wicked problem is a "one-shot operation"; because there is no opportunity to learn by trial-and-error, every attempt counts significantly*
6. Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan
7. Every wicked problem is essentially unique
8. *Every wicked problem can be considered a symptom of another problem*
9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice explanation determines the nature of the problem's solution
10. The planner has no right to be wrong (Rittel & Webber, 1973) (Emphasis mine)

Many of the problems illuminated by the border space are wicked: illegal immigration, drug trafficking, endangered or exotic animal smuggling. These

problems often stem from systemic causes like socioeconomic disparity, war and violence, or cultural change that are also problems in and of themselves or “a symptom of another problem.” Attempting to solve a wicked problem like illegal immigration inevitably results in trying to solve another one, like the economic downturn in the country from which the migrants are fleeing. Attempting to solve a wicked problem like drug trafficking means working hard to eliminate the demand for drugs among potential and continuing users. These are long-term problems occurring on a global scale that simply cannot be solved in the four-year election cycle common to most democratic governments, because they have “no stopping rule.”

When a wicked problem’s solution creates more problems

To illustrate how complex and wicked this problem is, I offer the example of the European Union’s RFID-tagged passports or “e-passports.” Passports have been characterized as “the central struggle in the information politics of the twenty-first century,” (Lyon, 2004) so it is no surprise that they were first in line for technological innovations. Although security analysts and computer engineers touted e-passports for their safety and security, a German hacker found a way to crack them almost immediately using simple tools available at local electronics stores. Doing so required specialized knowledge, but no more specialized than the types of knowledge required to carry out recent terror attacks. Indeed,

terrorists whose names had been placed on watchlists and no-fly lists seemed to be the intended end user of the vulnerability:

The demonstration means a terrorist whose name is on a watch list could carry a passport with his real name and photo printed on the pages, but with an RFID chip that contains different information cloned from someone else's passport. Any border-screening computers that rely on the electronic information -- instead of what's printed on the passport -- would wind up checking the wrong name. (Zetter, Hackers Clone E-Passports, 2006)

Further, the same hacker proved that the passports could also be used to *crash* the systems of customs officers when scanned:

Lukas Grunwald, an RFID expert who has served as an e-passport consultant to the German parliament, says the security flaws allow someone to seize and clone the fingerprint image stored on the biometric e-passport, and to create a specially coded chip that attacks e-passport readers that attempt to scan it. (Zetter, Scan This Guy's E-Passport And Watch Your System Crash, 2007)

Clearly, the EU e-passport problem was a problem in and of itself: a security risk not just to the borders but to the data carried on each individual passport and to the people it belonged to. Closing the security loopholes could involve changing the passports, as well as the procedures involving them. Thus I put forward this example to highlight of the fractal nature of wicked problems: one is always nested inside another, a microcosm of the larger issue. The same is true of international borders.

The training of border security personnel, and service as security

My answer to this wicked problem is that we should examine the *service* side of our border services agencies, and remember that “customs” and “customer” come from the same root word. In other words, the area of design thinking that is most beneficial to facilitating a cultural change that enhances calm and helps people travel safely is not simply experience or interaction design, but one of their subsets: *service design*.

It may sound strange to suggest that service design can show the way toward safer borders. After all, when imagining how to stem the tide of smuggled drugs, or how to avoid human trafficking, the question of whether a customs form is legible or whether the agent at the desk is well mannered seems to carry little weight. But it is exactly these areas to which no attention has been paid. Millions have been invested in security cameras, stun guns, and biometric passports, but aside from new hires no real investment has been made in people. In the United States, becoming a Customs & Border Patrol (CBP) Agent takes eight weeks of training with six months’ probation in the first year of work – significantly less than an Federal Bureau of Investigation (FBI) Special Agent’s twenty-one weeks of training and two years of probation at their first field office. Further, the FBI will only accept applications from university graduates, while the CBP does not require any such degree beyond a high school diploma. (US Customs & Border Patrol , 2010) (Federal Bureau of Investigation) Yet both are

federal law enforcement positions with standardized, academy-based training and similar proficiency requirements for physical fitness, language specialization, and weapons acumen. The disparity is evident in both their respective pay scales, and in the quality of service offered. This is not to say that high salaries or university degrees are instant guarantors of national security or good customer service. But as anyone who has worked in retail sales knows, attentive customer service ensures loss prevention.

This is a lesson that the employees of Israel's Ben Gurion Airport in Tel Aviv have known for years. Since 2002, the airport has not suffered any major losses related to security, in part because it implemented a nimble strategy based on attentiveness to customers entering the airport. There are five layers of security, all staffed by human beings who are trained to make between twenty and twenty-five seconds of eye contact with travelers:

- Roadside
- Armed doormen outside
- Magnometers inside
- Trained interviewers at check-in line
- Luggage scanning
- Blastproof boxes & blastproof rooms for suspicious luggage (Kelly, 2009)

This method of airport security has proven so effective that Boston's Logan airport is now pilot testing a similar process as part of the TSA's "expanded behaviour detection program." It features officers trained to have "casual conversations" with travelers about their destinations and their intentions. The behavioural detection strategies are already part of the TSA's ongoing Screening Passengers by Observation Techniques program, aka SPOT. The training focuses on facial expressions, attitudes, and body language. (Pawlowski, 2011) These methods are similar to the ones practiced by retail clerks everywhere, who are trained how to spot suspicious behaviour in anticipation of dealing with shoplifters.

The "Israelification" of airports and other spaces is not without its critics. First, there are economies of scale to deal with. Bruce Schneier and others have argued that Ben Gurion is equivalent to a regional United States airport in size and customer base, and therefore the techniques will be difficult to apply to larger airports with more travelers. (Schneier, Adopting the Israeli Airport Security Model, 2010) Others have criticized the method on privacy and civil liberties grounds. The Israeli model can be deeply invasive, and is no more foolproof than any other human detection of emotion or affect. Anyone who has had a disagreement with a friend or loved one about "tone" or "expression" will understand where this kind of detection can go awry.

Nevertheless, what remains striking about this particular approach is the way it treats customer service as security. Points that traditionally belonged to service representatives like doormen or desk clerks are now within the security purview. And while this is an innovative practise in today's airports, it is not an unusual method of obtaining information whatsoever. Even during military action, one catches more flies with honey. Most famously, Luftwaffe interrogator Hanns Scharff used politeness, respect, and generosity when dealing with prisoners of war, rarely if ever resorting to violence or threats of pain. Scharff inquired as to the health of ailing prisoners, asked for minimal details, and did his best to save airmen from execution by providing his superiors with accurate information. His techniques enabled him to get the best information quickly, because his demeanour encouraged even hardened men to drop their guard and give up pieces of intelligence that Scharff could later patch together into a more cohesive picture. (Marine Corps Interrogator Translator Teams Association) He correctly recognized that the prisoners he was interrogating could be useful to him and to his superiors, but only if they were in the proper shape to help. He saw prisoners as clients, not as threats, and treated them accordingly. By contrast, contemporary airport security and customs enforcement treats everyone as a threat – despite the fact that travellers are already in custody by the time they hit the border. It is this innovation in particular that I will dwell on in the next section, by focusing on service design.

What's so special about service design?

“Service system design is instrumental in managing the time and effort costs required for customers to use a service.” (Berry, 2002) Daniel Saffer characterizes services as: intangible, owned by the provider, co-created, flexible, time based, active, and featuring fluctuating demand. Perhaps more so than any other, these adjectives describe the customs process. Clearing customs is a participatory process between the agency, the agent and the traveler that is highly dependent on intangible cultural elements and the intermittent flows of human stock into the system. Further, service design works on multiple “touchpoints” over time, each of which is nestled within four related contexts:

- environments
- objects
- processes
- people

Speaking of processes more specifically Saffer says,

Processes aren't fixed. Customers can be exposed to multiple, varied experiences via repeated exposure to the service. The process can subtly or radically change from place to place or over time. Moreover, there are often multiple pathways through a service; there isn't usually one way to do anything—people are simply too messy for that. Designers have to give up control (or, really, the myth of control) when designing a service

process. (Saffer, 2010)

Careful consideration of the services we interact with on a daily basis reveals that Saffer is essentially correct about the fact that processes are not fixed. The services that help us achieve our goals may change, but the goals themselves are basically the same no matter where we go. Many of the service processes we take for granted are cultural artifacts in and of themselves. Contemporary use of telephony technology is a good example. In the early years of the telephone, users spoke with operators who manually connected lines that enabled conversations. Then the process became automated, and the users took up the burden of dialing the right number to speak with the intended person. Now the process has been automated even further, and mobile phone users can speak the name of the person they intend to call, and the phone dials the number for them. At different points in history, each of these processes would have been unthinkable – just as our forebears would have trouble adjusting to the idea of a “mobile” phone, North Americans at the inception of the twenty-first century would likely have issues waiting for another human being to connect a phone call, much less informing a total stranger of who we were calling or the nature of the call being placed. Although these services seem commonplace and habitual, they are in fact anything but. They are relative, fashionable, and subject to change. There is no reason to believe that the process of clearing customs should be any different. (And as I shall indicate in a

later section, borders themselves change in size and scheme, often as a result of policy shifts rather than national ones.) As Saffer notes, designers of services and the interactions that accompany them must be sensitive to the possibilities created by new technologies, and to the changes to the cultural landscape that will inevitably arise as a result of those possibilities.

Increasingly, interaction designers are involved (sometimes without even knowing it) in service design. The introduction of new technology such as RFID tags and mobile devices into services makes this inevitable as the traditional designers of services—the service providers and business consultants—turn to interaction designers for their expertise in bridging the gap between technology and people. This is a good thing. Services are too often created as though the humans engaged with them are an after- thought. Applying interaction design techniques to these processes that are all around us can lead to a richer, more humanistic world. (Saffer, 2010)

That “richer, more humanistic world” can also come about as the result of simple good manners and designing service environments to encourage comfort, honesty and engagement. Siehl, et al have codified the expectations of “psychological involvement” necessitated by different types of services. Each is characterized by predictable elements that act as “rites of integration” that further include or exclude the customer and the service provider. “Rites of

integration can result in customers experiencing an appropriate level of psychological involvement which, in turn, disposes them to share and clarify information necessary for service production.”(Siehl, 1992)

Services that require low psychological involvement include fast food or convenience store shopping, and are defined by minimal eye contact, casual language with few sentences, a focus on price rather than quality, limited visibility, and large spaces dominated by bright lights and straight lines. Conversely, services requiring a high degree of psychological involvement, such as medicine or law, often involve customers with frequent eye contact, total visibility, close spaces, and comfortable and more personal furnishings. In the middle, services like restaurants involve customers through small talk and themed surroundings that match brand expectations. All of these details can be either designed into the environment or performed by employees, and they help to more closely integrate the customer and the service provider.

Ironically, services like airport security and customs clearing have the same goals as services requiring a high level of psychological involvement, but work in an environment better suited to a service requiring only a low level of involvement. Customs and border security agents must accurately assess a total stranger’s true intentions and decide whether or not she is lying, much as a doctor or therapist does, but they operate in an environment that more closely

resembles a convenience store or fast food drive-through window. In other words, neither the space in which the service occurs nor the behaviour that traditionally characterizes the service leave enough room for travelers to reveal themselves. Yet for honesty to occur, this is exactly what is needed:

Even in the low involvement situation, customers will not expect apathy, boredom, or a total absence of displayed emotion. Nor will they typically respond positively to hostility, aggression, or a surly attitude. Service providers, in order to develop medium involvement, should exhibit personal caring, empathy, eagerness, and enthusiasm. *For high involvement, service providers should display compassion, high levels of empathy, trust, and sympathy.* (Siehl, 1992) (Emphasis mine)

This is not to say that customs agents or other service providers should “fake” displays of emotion or goodwill. Dishonesty or disingenuousness can have its own adverse effects on individual performance in the workplace and on work-group unity. Siehl, et al have outlined the problems with the “faker” approach, suggesting that “employees cannot easily differentiate what feelings are their own and what feelings go with the job,” and “fakers” will at times have difficulty knowing when they are acting.” This only perpetuates a sense of alienation in the workplace. However, for those who can naturally (or with minimal coaching) provide a sense of openness and calm and create high psychological involvement between customer and provider, “tenure in the organization and reward systems which support certain display rules are likely to lead to employees following and advocating those rules, and rites [of integration] can, over time, shape how

employees think and feel-even to the point of shaping their self-definition of who they are... (Siehl, 1992) Clearly, there is a performative aspect to service provision. "Service organizations create value for consumers through performances." (Berry, 2002) Authenticity must be learned and practiced before its true benefits can be witnessed or measured. But this kind of authenticity can ultimately create a more hospitable environment for both customers and service providers.

Offering this kind of care to service providers is crucial, as customer service behaviour can often be attributed to job characteristics. (Rogelberg, 1999) Much of this is dependent on corporate or organizational culture. "Individuals may not be encouraged to behave in a service oriented manner unless an organizational climate exists that is supportive of customer service." According to Rogelberg's study of the relationship between job characteristics and customer service behaviour, it is crucial that service representatives have a good pre-disposition to service, a reasonable measure of autonomy, the requisite time and resources with which to do their jobs, and a good model of what excellent customer service behaviour looks like. Rapid prototyping techniques such as those employed in service design could help establish all of these. But first, we must take a good look at the customs clearing process, and what customs agents need to do their jobs.

Changing our customs



Figure 2: Border Fence at Nogales, Arizona.

Source: Jim Greenhill (Creative Commons Attribution license)

Borders are the intersection not merely of nations, but of national systems, policy, and culture. They are the inevitable collision of identity with economy and security. They are liminal spaces that slow down an inherently transient moment (travel) and make it into its own process (clearing the checkpoint). There are multiple reasons for crossing a border, and multiple types of crossings. Each of these contexts requires specific training and an in-depth understanding of what is acceptable for each type of crossing. Much of this experience can only be

gained on the job, once agents are already in place, although the CBSA has recently taken strides toward innovation in education by training BSOs for customs interviews in Second Life. (Hudson, Applied Training in Virtual Environments , 2010)(Hudson & Degast-Kennedy, Canadian border simulation at Loyalist College, 2009)

At this point it is important to stress once more the fact that in general, BSOs are conscientious people who are interested primarily in the most basic information: why travelers have come to their destination, how long they plan to stay, and whether they have brought inappropriate amounts of food, money, alcohol or germs. Scrutiny is their job, and if they do not do it, another service will – perhaps in an even more invasive, if invisible, way. Either way, the scrutiny has to happen at some point for the information transaction to be complete and for the needs of border security to be satisfied. This is true of even the relatively mundane commercial interactions at the US/Canada border, where the most that agents are worried about is whether or not the proper excise tax has been paid. However, most countries aren't so lucky in the lightness of their troubles. Below, I explore the US/Mexico border, to prove that even with triple the money and labour, wicked problems can persist.

The US/Mexico border

The border between the United States and Mexico is a wicked place on multiple levels. It is the site of thousands of deaths, many of them undocumented. It is also the theatre of the narco-wars, both the horrific skirmishes between local cartels and the US-led War on Drugs. But for the purposes of this project, what makes this border truly wicked is the way that it absorbs attempts at repair and redistributes them as death, violence, extortion, suffering, and continued poverty. This is an example of a wicked problem that is entirely resistant to money, manpower, or any of the other “solutions” that major world power commonly throw at other problems of a similar scale.

The United States Border Patrol has “tripled in budget and manpower” over the past ten years. (Haddal, Border Security: The Role of the U.S. Border Patrol, 2010) Borders are also steadily increasing in total real estate. The U.S. Border Patrol watches over 8,000 miles of borderlands, and the US Code of Federal Regulations, Title 8, part 287, allows Customs and Border Control Agents to stop and search people and vehicles within a hundred miles of the border itself. (Justia US Law) This means that for every mile of border separating the United States from Canada or Mexico, there are another hundred miles wherein CBP Agents are allowed (and potentially expected) to carry out their duties. This has caused some to question the efficiency of the agency:

Consider the Tucson Sector zone of the Border Patrol deployment...262 miles of border. Take the 3,000 Border Patrol agents currently assigned to that sector...figure 1,000 per shift...and either scatter them in an area 262 miles long and 100 miles wide (26,200 square miles)...or 262 miles long and 10 miles wide (2,620 square miles). In the current scenario that works out to one Border Patrol agent for every 26.2 square miles. In the close-in deployment the agent density would drop to one agent per 2.62 square miles....

A lot of us border areas residents cannot understand what the point of putting so many Border Patrol agents all over the place many miles from the border. Conspiracy minded folks see this zone as an experiment [sic] in how much violation of our Constitutional rights the feds can get away with. (Holub, 2011)

The state of Arizona is no stranger to strict legislation regarding border security and immigration. In the spring of 2010, Arizona Governor Jan Brewer signed into law a new obligation for Arizona police: search and seizure of anyone the officer has "reasonable suspicion" is an illegal immigrant. Before it was signed into law, President Barack Obama spoke out about the legislation:

"Our failure to act responsibly at the federal level will only open the door to irresponsibility by others. That includes, for example, the recent efforts in Arizona, which threaten to undermine basic notions of fairness that we cherish as Americans, as well as the trust between police and their communities that is so crucial to keeping us safe." (MacAskill, 2010)

This is but a taste of the cultural and political tensions that intersect at national borders. It should come as no surprise, then, that seemingly everyone has an opinion on how they should be managed. Stephen E. Flynn analyses the central tension succinctly:

The global economy's movement toward more open societies and liberalized economies does not just facilitate the movement of products

and workers, it also expedites passage for terrorists, small arms, drugs, illegal immigrants, and disease. The obvious solution to the challenge of filtering the bad from the good might seem to be increased funding for border controls. On the face of it, such an investment would appear logical. Stopping threats at the frontier is better than trying to cope with them once inside the country; customs officials also have the strongest legal authority for inspecting and searching people and goods. Accordingly, if there are more people and goods to police, there should be more agents and security forces the border to do so.

But efforts to bolster regulatory, enforcement, and security operations at busy borders may result in a cure worse than the disease. Such endeavors place governments on a collision course with easy trade, which is key to the sustained expansion and integration of the global economy. Most successful enterprises need to move workers and products quickly, reliably, and affordably around the planet. Delays associated with intensified inspections along borders under mine the competitiveness of exports by raising transaction costs. Overseas buyers are likely to avoid ports where there is a heightened risk that products will arrive damaged, spoiled, or late. And rapid, hassle-free immigration controls are essential to both global business and tourism. (Flynn, 2000)

Tragically, Flynn was more prescient than he could have expected.

Elsewhere in his article, he predicted that “the political base for global liberalization could be severely and irreparably eroded” in the event of a terrorist attack. (Jokingly, he suggested that the best method for Osama Bin Laden to smuggle weapons of mass destruction into the United States is via illicit drugs. Apparently, such humour was circulating the watercoolers at the Pentagon in the year before any planes crashed into its side.)

However, this does not mean that we should dismiss Flynn’s ideas. As Deborah Cowen’s research into the historic relationship between military strategy and business logistics indicates, Flynn’s thinking was symptomatic of

still-popular opinion in military circles regarding the importance of logistics to both global economies and combat operations. In the private sector as well as military operations, using a systems-based approach to the wicked problem of transporting goods, services, and people across vast distances has resulted in the steady thickening of the contemporary international border space:

Supply chain security already appears to be reconfiguring the geographic space of border security, as well as the legal and social technologies for governing border space. New security programs seek to govern integrated global economic space, while at the same time retain politically differentiated sovereign territories (Cowen 2010). Efforts to recalibrate security around the network space of supranational supply chains challenge longstanding territorial notions of state sovereignty by extending the zone of border management 'outwards' into the ports of foreign states, 'inwards' along domestic transport networks and into the space of "logistic cities" (Cowen 2009), and through the creation of exceptional zones – 'secure areas' - around ports where normal laws and rights are either mediated or suspended (Cowen 2007).

I offer these examples to remind readers that borders and the environments that surround them are just as subject to change as any other system. They are not hard and fast, and any illusion of their rigidity or impermeability is belied by history. Borders in and of themselves can be arbitrary: Gertrude Bell, whose maps were approved of by British Empire even if her ideals of self-determination and national sovereignty were not, drew the current borders of Iraq in 1921. Twentieth century history was in many ways defined by the fight over existing borders and the development of new ones. Twenty-first century history may be defined by the innovation of those same

borders from a political, technological, and social perspective. Flynn had three prescriptions for starting this process:

1. Countries should tighten security on logistics systems to reduce crime
2. States should encourage transparency in international corporations to enable “virtual” audits of incoming goods
3. Border services should develop or obtain faster intelligence-gathering mechanisms (Flynn, 2000)

Make no mistake: these are free market principles applied to national policy. The idea is that if the border worked more like a company, it would also work more efficiently. Flynn’s concern was global trade and the impact the border has on it – he saw borders as a hindrance that complicated the “just-in-time” delivery system that enables modern product assembly and distribution. However, Flynn is not the only one to advocate such a policy shift. Even those who disagreed with his assertion that borders hinder commerce (Globerman, 2009) argued for a decongestion of the Most Favoured Nation tariff program. Ten years after Flynn’s ideas were published, the National Foundation for American Policy suggested the following steps to reduce the number of deaths at the U.S.-Mexico border. (I have paraphrased them for brevity.) They are:

1. Provide new temporary visas for lesser skilled foreign workers, especially those from Mexico.

2. Increase the number of H-2B visas for seasonal, non-agricultural workers.
3. Congress should pass measures for visa reform.
4. Congress should increase the number of green cards for low-skilled permanent residents above the current 5,000/year allotment.
5. Congress should avoid creating a commission to regulate the flow of foreign-born workers.

It may sound strange to recommend changes that have nothing to do with either border security or patrols in order to prevent the deaths of illegal immigrants. But the NFAP is thinking systemically, examining the whole picture of illegal immigration from Mexico into the United States. And while that picture includes death at the hands of unscrupulous “coyotes,” who help groups of impoverished Mexicans cross the border illegally for an exorbitant fee, it also includes two governments that have simply failed to prevent the advent of such unrepentant parasites. As the NFAP points out: “the criminal enterprises are filling the gap created by the absence of U.S. laws to provide legal avenues for lesser-skilled workers.” (Anderson, 2010)

Understanding that borders are dynamic environments with expanding and contracting territories, how can we understand the needs of customs agents?

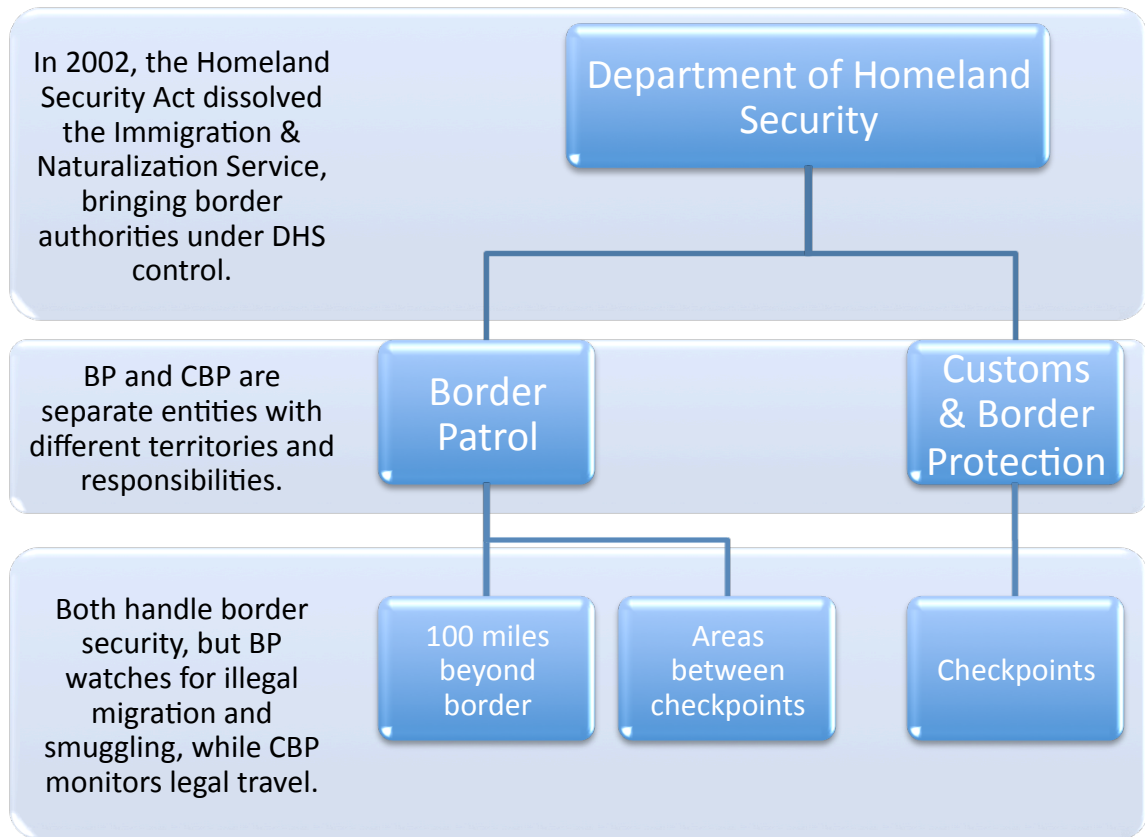


Figure 3: A simple rendering of the border authority organizations

Not pictured: Immigration and Customs Enforcement, which works with CBP. This reflects the relationship between the Canada Border Services Agency and Citizenship and Immigration Canada.



Figure 4: United States Border Patrol guards train at a firing range, Nogales, Arizona

Source: Jim Greenhill, CC Attribution license

To understand the needs of customs agents, it is important to understand the lineage of their position. In this section, I will focus exclusively on the United States. I do this because the recent history of the United States' borders is unique, and is a striking example of a truly wicked problem that has been approached from a variety of perspectives.

In 1993, the United States developed a strategic plan regarding border security, illegal immigration, and drug trafficking, all of which were major problems throughout the 1980s. This strategic plan recommended specific

changes to border checkpoint placement, and out of this plan arose the 1995 “Prevention Through Deterrence” policy. In this case, the deterrence included replacing checkpoints or ports of entry so that all unguarded areas on the southwestern border with Mexico were in the least hospitable areas of desert. In other words, the logic of this policy dictated that if illegal migrants and drug traffickers were going to attempt entry, they would have a hell of a time trying. The unintended consequence of this policy change was a significant rise in the number of migrant deaths at a time when apprehensions fell by almost 44%. (Haddal, *People Crossing Borders: An Analysis of U.S. Border Protection Policies*, 2010) The deaths were so high in number that in 1998 the Border Safety Initiative facilitated the creation of Border Patrol Search, Trauma and Rescue (BORSTAR) teams to assist illegal migrants in their crossing. In the first three years of the initiative, these teams rescued almost four thousand people. (Haddal, *Border Security: The Role of the U.S. Border Patrol*, 2010) Tragically, the teams have not been able to protect everyone: in 2003, Border Patrol guards found a truck full of corpses in the remote desert. They had died of asphyxiation during a trafficking attempt. Their number included the family of a five-year-old child, also dead. (Anderson, 2010) Worse yet, this is nothing strange – in 2002, Border Patrol guards found a railway car full of 19 migrant workers, all dead. (Haddal, *Border Security: The Role of the U.S. Border Patrol*, 2010)

Following September 11, 2001, the United States government worked to tighten border security in several different ways. These were not skin-deep changes, but systemic shifts in how the border operated. Congress passed the Homeland Security Act in 2002, officially dissolving the Immigration and Nationalization Service and creating the United States Border Patrol (USBP), Immigrations and Customs Enforcement (ICE), and the United States Customs Agency (USCA) to deal with matters of security, immigration, import/export, and travel. In this system, Border Patrol guards keep watch over the areas between ports of entry, customs agents monitor those ports, and immigration investigators look into cases regarding illegal migrants who may have entered the country and remained there. Perhaps as a result of these changes, the Border Patrol saw an 18% rate of attrition in 2002. Many former agents went to the newly established Transportation Security Administration (TSA). Despite funding and staffing levels nearly tripling between 1990 and 2002, and a mandate for 20% staffing increases between 2002 and the present, there was still a 10% attrition rate in 2009, and significant skill dilution among agents, many of whom have only two years' experience. For every two miles of the United States' northern border, there is one Border Patrol guard; there are eight for every mile of the southern border. Despite concerns about terrorism and drug smuggling, the Border Patrol's IDENT system of fingerprinting is different from (and incompatible with) the FBI's IAFIS system. These changes led to yet more

changes, all of which subtly impacted the roles and responsibilities of customs agents:

The concentration of inspection activity at the border means that significant resources must be present in order to ensure efficient operations. Inefficiencies not only cause congestion, but can be costly to businesses, both at the border and in the interior. Thus, there is considerable pressure on CBP to provide for rapid processing. Yet, expedited processing can lead to missed opportunities for interdicting threats. As a countermeasure to this vulnerability, CBP has promoted the use of registered traveler programs, although in some cases the lack of adequate port of entry infrastructure has prevented end users from reaping the promised benefits of such programs. (Haddal, *People Crossing Borders: An Analysis of U.S. Border Protection Policies*, 2010)

Haddal further characterizes the problems endemic to the job:

Major Systemic Challenges to Border Officials

- Corruption
- Congestion and Time Pressures
- Limited Outbound Screen/Registration

Potential Weaknesses

- Circumvention of Protection
- Fraud/Identity Misrepresentation
- Stakeholder Resentment (Haddal, *People Crossing Borders: An Analysis of U.S. Border Protection Policies*, 2010)

These are threats from within, as well as threats from without. Often, drug cartels take advantage of the brittle bonds between border guards and attempt to plant their own people within the organization. Or, they attempt to sway the loyalties of existing customs or border control employees. This does nothing to ease the already heavy burdens of these men and women – burdens that a threefold increase in money and manpower has done little to ease. This is a truly wicked problem.

The Scenario

“Scenarios are stories (or narratives) set in the future, which describe how the world might look in, say, 2015 or 2050. They explore how the world would change if certain trends were to strengthen or diminish, or various events were to occur.” (Foresight Horizon Scanning Centre, 2009) Foresight scenarios have a long and venerable history in strategic planning. Most famously, the Mont Fleur scenarios were used to help key members of South Africa’s leadership decide on new directions following the end of apartheid. RAND, Shell, Intel, and the Canadian Armed Forces have also used them as imaginative tools.

The strength of scenarios is in storytelling. Stories are one of the most basic methods for humans to share information. Myths, parables, fairy tales and fables all have a special place in our lives as individuals and in our shared cultures. As people, we tend to prefer anecdotal evidence to statistics – occasionally to our detriment. We remember popular fiction in greater detail than scientific fact. And sometimes, we can’t help but be inspired by new information. For example, consider the extrapolations that Clement and Smith derived from their study of Canadian immigrants:

We imagine that it would be vey [sic] technically feasible for individuals to use QR codes which can be photographed by individuals carrying cell phones, to link to internet pages which tell these stories of active

resistance of subjugation. For example, in Canadian airport locations, it would be possible to affix QR code stickers to signs, water fountains, or flooring. The QR code codes could be linked to a website much like travelwatchlist.ca, which encourages travellers to share their border crossing stories. The site could also encourage travellers to post updates about their border crossing experiences to their social media presences such as Twitter, Facebook, or a blog. Additionally, the website could feature stories about travelers such as Suuad Hagi Mohamud, Maher Arar, Robert Dziekanski who have endured the differing outcomes of detainment, torture and death due to the actions and politics at border crossings. (Clement, 2011)

What scenarios do best is present what we already know and recognize as fact in a new and interesting way that will be easy to understand and remember later. For some people, these narratives are more immersive than a graph or chart, or a bulleted list of numbers. More importantly, they offer a vision of what *might* be, so that we can decide whether one course of action is better than another. For anyone who watches *A Christmas Carol* or *It's A Wonderful Life* each December, this is not such an unusual idea. Sometimes when confronting the implications of a new idea or policy, we feel like Ebenezer Scrooge crouched over his own grave asking whether these visions are the shades of what *will* be or what *can* be, and wondering how to avoid them. Foresight scenarios are a method of examining those implications, like Scrooge and his ghosts, from the inside.

The following scenario will incorporate Saffer's framework, as well as address concerns raised by Temple Grandin's work and by Siehl's discoveries regarding services that require high psychological engagement. In this instance,

what inspired the events and details of this scenario were the documents and resources I discovered in my literature review. I tried my best to take them into consideration when imagining a situation that would improve the experiences of both travelers and BSOs. I was also influenced by my own and Peter Watts' more negative experiences at the border, and by stories I heard while researching this project. (Telling someone that your work is on the future of customs services tends to elicit a rather loquacious response, often punctuated by colourful language.) I also strove to create an environment that would diminish the fear cycle I mentioned as a possible cause for otherwise random violence at the border. (Never at any time is violence advocated as a solution to the problems of this story.) However, this is not to say that I didn't attempt to gain some insight "straight from the horse's mouth," as it were. It's just that when I did, I found myself completely frustrated in my attempts.

The problem posed by this scenario, sadly, is not terribly futuristic: someone is attempting to smuggle young, rare animals into Canada for sale in the exotic pet or traditional medicine market, and it is the BSO's job to keep him and the animals from entering Canada. I chose animal smuggling as a problem because it is a \$20 billion black market (Trex, 2010), second in profit only to the drug trade (Lovgren, 2007). It is also a threat specific to ethnically diverse communities like Los Angeles and other major international travel hubs. And recently, exotic animal smugglers have only grown more brazen: a man was

recently caught at Heathrow transporting over 200 rare animals, including 18 baboon spiders, 88 Indian star tortoises, and 34 ball pythons (Hoyland, 2011). But unlike drug trafficking or illegal immigration, the problem of animal smuggling is relatively non-partisan. Legislators and the enforcers who carry out their policies can understand both the moral decrepitude of those who steal already endangered creatures from their natural habitats, and the biological threat imposed by animals that have not had proper veterinary care and could be carrying bacteria, parasites or viruses dangerous to humans. (This threat is secondary to that of venomous exotics escaping from captivity and breeding in the wild, out-competing local species and escalating the risk of things like lethal bites, E.coli and salmonella outbreaks, and fasciitis, staph, or cellulitis infections.) The method of dealing with these smugglers is also fairly straightforward: investigation and conviction, followed by fines and passport flagging. Further, exotic animal smuggling is a problem that any well-equipped border service should understand how to identify because many of those who purchase such animals might already dabble in other areas of crime. As such, this is also an area where border services would likely interact with local police forces as well as fish and wildlife authorities. In short, methods of dealing with animal smugglers offer a template for dealing with other threats to security at the border.

I designed these solutions around the IDEO Human-Centered Design (HCD) Toolkit's criteria: desirability, feasibility, and viability (IDEO, 2009). These are

very basic criteria for finding the solution to any problem, although obviously the IDEO HCD Toolkit considers them especially helpful when considering design problems. But they are also the criteria necessary to changing any habit: one must *want* to, one must be *able* to, and one must be able to *continue* doing so. Changes to border services, which are so reliant on basic human habits and behaviours, must take these criteria into account. I have attempted to do the same, here.

Further, I have attempted to make the world of this scenario equally as complex as the ones mentioned earlier in this report. The solutions depicted here conform are meant to nestle inside this particular wicked problem and give the stakeholders within it a bit more room to breathe, not solve the problem once and for all, because (as noted in the earlier sections) trying to solve a wicked problem in one fell swoop can only result in disaster. These solutions rely on small extensions of technologies that already exist, such as touchscreens, QR codes, augmented reality and automated profiling. Any or all of these could be pilot-tested in a single airport in much the same way that Boston Logan is testing their new Israeli model of security. Also, I have kept in mind Saffer and Siehl's wisdom, here. The technologies in this story are primarily service-oriented: the technologies that help the narrative's protagonist catch the animal smuggler are rooted in customer convenience (shorter, more interactive line-ups; family line-ups; seatback touchscreen customs forms), and heightening the psychological

involvement that BSOs feel with their work environment and the travellers within it (better lighting; extra information; enhanced and interdisciplinary communications training). Following the narrative, I have listed these interventions in a table format that reflects Saffer's POPE framework for easy reference. I have also made reference to Temple Grandin's work on keeping herd animals docile during lineups: the smart walls in the story resemble nothing so much as a chute.

Scenario: Welcome to the Jungle

Brandy Schumacher occasionally suspected that she had some kind of split personality disorder. At home, she was quiet and kept to herself. Her best days were spent cuddling her fluffy silverpoint Siamese, Aloysius, in her lap while wearing pyjamas and reading vampire books. What litter she generated usually came in the form of food delivery containers. Her neighbours somehow managed to sneak in their greetings and gossip during the rare moments she visited the balcony to water her rosemary tree. (They were old people who loved both the sun and her quiet habits. Somehow, they always managed to keep her talking far longer than she intended to.)

But after donning her uniform, Brandy transformed into another person. She made eye contact. She asked almost uncomfortably personal questions, and then followed them up with even more. And she did it all with a smile – a smile that was so big and so bright that even the boy she dated for a whole month senior year of high school didn't recognize her when she processed his passport last Christmas. The room made it easier, of course: Pearson had switched out those horrid fluorescent tubes lighting the customs room for more flattering "natural" LEDs as part of a civic re-branding campaign directed at international travellers. (This really just meant that they glowed beige, not white, but Brandy

wasn't complaining. The people waiting in line looked less like the walking dead, and so did she.)

This all came with being a BSO.

The communications training had gone a long way to preparing her for the transformation. Part of the qualifying exam asked multiple-choice questions about customer service. For the most part, a teenager working a retail job could answer them, but Brandy remembered a tough one about dealing with someone who had a nosebleed. The right answer was C: Offer the traveller a tissue before asking about the nosebleed. (Answer A was the reverse – questions, then tissue – and apparently almost everyone in her class got it wrong.)

But after the exam came the training, and the training was hard. Brandy's French wasn't bad, but it wasn't the best, either. She watched a lot of French films to keep thinking in the language. She also made sure to practise with the virtual role-play a number of times the day before taking her benchmark quizzes. But the hardest part of the training was learning to put her emotional uniform on with her real one. Like most of the students, she did all right at first – the uniform went a long way to putting you "in character" – but she tended to fall apart once any real problems came up. She panicked too soon in conflict situations, and was quick to pass even basic problems like surly travellers on to

superiors. It wasn't the sort of thing an officer of any authority should or would do.

A consultant from Disney explained it as a confidence problem. She was the senior VP in charge of strategic communications, "cast member" division, which meant she designed the personality each non-costumed employee in the parks was meant to bring to life. (The people in costume, the Cinderellas and Mickeys and so on, apparently went through even more rigorous training in what the consultant affectionately dubbed the "Dao of Disney." It involved going away to some kind of camp for two weeks.) The personalities were different for each park based on cultural expectations, with subtle gradations based on the age and gender of the park visitor the cast member was speaking to. Part of the cast member training involved taking them on a field trip to the animatronic labs down in the basement below the parks, where they saw how each artificial intelligence was calibrated. Cast members were encouraged to emulate this calibration – to think of their hand gestures and tones of voice and word choices as something they could adjust the way they might adjust volume or brightness on their phones.

Granted, the situation in the Disney parks was very different from that at the customs hub at the airport. But, the consultant stressed, there was still the potential for a lot of criminal behaviour in the parks that cast members had to

watch out for while still maintaining a high standard of service – people kept trying to have sex in the Haunted Mansion, when they weren't busy leaving human cremains there; the Pocahontas canoe ride was a regular site of aboriginal activist art; the parks themselves were common hunting grounds for pedophiles and crazed ex-spouses. Hearing these things about a theme park, Brandy wondered how she was ever going to manage possible drug traffickers or illegals or whatever other trouble the airport decided to test her with.

Her test came in the form of Jorge Rivera, exotic animal smuggler.

Rivera was a short-ish, balding man with outdated glasses and a preference for counterfeit Lacoste shirts. He never ventured into the rainforest himself to steal rare butterflies or jaguar kittens or spider monkeys. He also didn't buy the animals himself, although he knew the gangsters and other lowlifes who did. The money he made smuggling animals was less than he would have smuggling drugs, but the risk was lower and the penalties smaller.

What made Rivera great at his job was his heart condition. It required beta-blockers, the side effects of which were so well documented that they were prescribed off-label for soldiers with PTSD. The man could be carrying a dummy external hard drive full of larval tarantulas, and he'd walk up to customs snapping his gum and smiling. What's more, his medical ID bracelet usually gave him a free pass from security guards and police officers – it broadcast his

condition to law enforcement layARs, and nobody wanted to bother the guy with the jumpy heart, much less use a stun gun on him.

Of course, Brandy had no idea about most of this.

What twiggled Brandy to Rivera's dishonesty wasn't the series of answers on his customs form, or the big custom walking stick he carried, or even the fact that a man with a serious heart condition claimed to be visiting Canada for a hiking trip in Algonquin Park. (In retrospect, she realized this should have clued her in.) It was how her cultivated personality brushed up against his and caused no change to his affect.

Affect detection was another aspect to the training. In addition to the consultant from Disney, her cohort of recruits participated in seminars with an improvisational comedy troupe from Toronto, and a former relationship counsellor from Seattle who specialized in affect detection and had helped design an algorithm-based smartphone app that helped autistic children understand what the people around them were feeling. Affect, the counsellor explained, was more than the "micro-expressions" the Americans trained their airport personnel to look for. It included posture, gait, tone of voice, speed of response, and other things that Brandy had once taken for granted. Affect was a natural part of human communication that most all humans noticed on a subconscious level, the counsellor said. You were born with it. To prove this

point, he had shown them video of a baby who started to cry when its attempts to elicit a change in facial expression from an adult failed. The cries only became more shrill and demanding when the adult continued not responding.

“That’s why you have to show some emotion,” he explained. “If you’re too stone-faced, the people in front of you will start to panic because they aren’t receiving any indication that they’re doing the right thing. So on the one hand, you can’t interrupt your travellers with too many questions – otherwise, you’ll never find out anything. But on the other hand, you have to offer cues that you’re still listening. Pretend you’re at a family or dinner, or something – all the same nodding and smiling, only this time you’re actually listening.”

Everyone in the room laughed, but Brandy worried: she’d never really been good at that kind of social interaction. She had decided to enter the CBSA because she wanted a relatively secure government job, and because she grew up in a family of firearms owners and therefore easily merited the payscale that came with carrying a weapon on the job. She hadn’t really considered the social intelligence requirements. She’d always thought that the agency would soon splash out on the same intent-detection devices they had at Reagan and Heathrow.

Brandy caught herself wishing for one of those fancy intent detectors while interviewing Jorge Rivera. As it was, her layARs only displayed his heart condition

as a pulsing red glow on his left side, and a vaguely yellow aura surrounding his head in a cautionary halo. The rest of the herd glowed green. Brandy hadn't seen a Red come through in months, and even he was part of a secret agency audit. He and a very silent, stoic child tried to enter the country through the family line, but the custody agreement he showed the BSO had a malfunctioning QR code. He got all huffy with the BSO, but upon separating father and child for interviews, the BSO recognized a kidnapping in progress. The agency usually did a kidnap simulation before the summer started. With so many kids off from school, it was easier to sneak them into other countries. A few weeks later, Brandy saw the kid in a commercial for a local butter chicken chain.

“Can you tell me why you're visiting Canada today?” she asked, after ascertaining that he didn't need a Portuguese translator. She blinked three times to obtain additional information on why Rivera was yellow. A tiny countdown appeared in the upper right corner of her glasses.

Rivera seemed not to notice the lights dancing across the surface of her glasses. His smile, the one he had greeted her with, remained in place. “I'm going hiking in Algonquin Park.”

She had to play for time. “Oh? For how long?”

“The whole week.” He lifted what looked like some sort of wizard's staff. It was a gnarled old piece of wood about six feet long with a bunch of feathers tied

to its head with a beaded leather thong. “Got my special walking stick and everything.”

Brandy examined Rivera. He wore a salmon pink polo shirt and pleated khaki trousers, with thick socks under the suede straps of his cork-bottomed sandals. The clothes didn’t make much sense, for a Yellow. Most of them came up to the kiosk with a lot of attitude, and that showed in their clothes, too: big logos, big jewellery, big sunglasses, even indoors. Rivera looked so...tame. Like the Brazilian version of her dad.

“Where are your hiking boots?” she asked.

He smiled affably and nodded in the direction of baggage claim. “I checked them. They’re too heavy to wear for so long, on the plane.”

“What about your camping equipment?”

Dimples deepened in his face. “My friends are bringing it.”

“Did you bring enough layers?”

He seemed absurdly delighted not to know what she meant. “Excuse me?”

“Layers. Your clothes. In Canada, we wear a lot of layers, to deal with the climate.”

He grinned. “Even in the summer?”

“Even in the summer. There are black flies.”

If possible, his grin grew even wider. “I’m not afraid of bugs. We’ve got some big ones, where I’m from.”

Rivera’s record came up, finally. He had no priors, but occasionally got surly about the weight of his luggage and once, ten years ago, had tried bribing someone at check-in not to notice the weight. (It was for this reason that he’d been Yellowed – the system took attempted bribery very seriously.) Almost every trip, he packed too heavy, but refused to check his baggage. He made a fuss, and eventually got his way. His home airport and preferred airline had gotten used to this, but his destinations in America, Canada, England, and Italy made no complaints. He checked the same number and types of bags on his return trips, but they always weighed in at the proper number and he never had to pay for the extra kilograms.

Why is his luggage so light on the way back? Brandy wondered. *That almost never happens.*

Brandy quickly assessed her options. His passport would tell her nothing. They were unreliable, these days. Worse yet, some would actually crash your system. Ditto the customs form – he had filled it out using the touchscreen on the seat-back in front of him, and it had popped up the moment she waved the passport across her desk. At best, she could use it to see if he was lying. She took another glance at his smile. He was too good – something was wrong, but she

didn't know what and she had nothing to hold him on. If she flagged him for no reason, it would go on her record and she'd have to explain herself. BSOs only got one mulligan a month, and she'd used hers on a woman who "couldn't remember" how much she'd spent in the duty-free shop. She considered going for help.

For some reason, a vision Aloysius' unique brand of feline disappointment arose in her mind. *Oh, come on, Schumacher. It's in the national anthem, for goodness' sake. "We stand on guard for thee." Try living up to it, for a change.*

"Is there something wrong?" Rivera asked.

"No," Brandy said automatically, but she was already matching Rivera's fingerprints with the smart walls installed at regular intervals along the line. Ostensibly, they acted as advertisements for attractions in the Toronto area (that disgusting casino on the lakeshore featured prominently). They gave travellers something else to look at besides how long the line was and how slowly it was moving.

They also took fingerprints and added them to passenger profiles.

"Which hotel are you staying at?"

"The SoHo Met. Downtown."

Then why are your fingers all over a map of Markham? Why are you so interested in the suburbs of Chinatown North?

Maybe that's where his friends lived. Maybe he was meeting them later, and wanted to know how long the trip would be. Or maybe he was just lying. Brandy took another look at his grin. He was completely at ease, seemingly happy just to be there, unconcerned that she'd delayed him this long. No restlessness, no shifting from foot to foot, no huffing his breath or checking his phone. He was, in short, exactly what the VP of strategic communications, cast member division, wanted in a theme park employee. Completely unnatural.

Vampire, Brandy thought. Flag him.

"Let me just hand this to you, and you can go right on ahead." Brandy gave him a coded receipt to show the secondary inspector after picking up his baggage. While watching him leave, she deliberately avoided signalling her readiness to process another traveller. Instead, she tapped her earpiece.

"Did you get all that?" she asked her CO, Charles.

"Yeah," he said. "Why'd you hold him up like that?"

"I've got a funny feeling. He was slimy. And his plans didn't match up with his form. I checked his map searches."

"He was slimy? That's it? Maybe he just thought you were cute."

Brandy rolled her eyes. If Charles weren't gay, she'd have been seriously angry. In this case, his teasing was just an annoyance, and not something to really worry over. "Careful, boss. That's harassment, and five minutes from now it'll be archived on the server."

"Noted. You flag him?"

"Yup."

"All right then. I'll go see what he's got in his luggage."

What Rivera had in his luggage required the use of two blastproof boxes: one for the spiders, and one for the snakes. The clouded leopard kitten they wrapped in a thick blanket, and placed in a cargo trailer with a mesh enclosure on top. It (they were nervous about checking its sex and waking it up) was still wearing a tiny gas mask. Both Charles and Brandy guessed it had come all the way from Thailand. It might have been asleep for as long as three days. An emergency vet was on her way from Willowdale with some food and an IV drip. They had called the Toronto Wildlife Centre for help, and apparently they knew someone at Pinewood Studios who knew a venomous creature wrangler, because five minutes after opening Rivera's luggage and figuring out what he was hiding in his "walking stick," Charles got a text reading "DONT SHAKE THE BAGS!!!" followed by "U HAVE A FREEZER?"

Now they had Rivera on ice, waiting for RCMP to take him so he could tell them who the buyers for his goods were. They were likely gangsters, or people pretending to be gangsters, or traditional medicine practitioners with links to other suppliers in the endangered species market.

Brandy ended up telling her neighbours this as she watered her rosemary tree and harvested more catnip for Aloysius. (She had already told him the story, with special emphasis on the rare jungle cat and how he was still more adorable.) As she left the balcony, she felt a little sad to end the conversation. In the elevator, she realized that this was probably the first time she'd ever felt that way about talking to her neighbours.

The system works, she realized.

Below, I've listed the design interventions available to BSOs in the present day, and depicted in the scenario above. The far right column takes into account the designed elements already in play in 2011, but adds to them with desirable, feasible and viable technologies.

Interventions	Present Reality	Scenario
People	BSOs; security guards; airport personnel;	New training methods for communication and
People	BSOs; security guards; airport personnel; travellers;	New training methods for communication and investigation; corporate consultation;

Objects	Metal detectors; body scanners; X-rays; passports; passport scanners; biometric scanners; computer terminals; kiosks; stun guns; guns; pepper spray; handcuffs; batons; customs forms;	LayAR (augmented reality) glasses, alerting personnel to medical needs and possible flags; smart walls with embedded biometrics;
Processes	Disembarking; proceeding to customs; visiting the washroom; filling out a customs form; deciding which line to stand in; waiting in line; going to a kiosk; answering questions/asking the questions; running a passport; asking about duty-free items & items to declare; paying tax; stamping a form; waiting for baggage; collecting baggage; handing off a form; inspecting a form; possible secondary screening;	Internal audits with paid actors; scanning QR codes on legal documents (custody, citizenship, etc.); “Israeli-style” airline customer surveillance and flagging; access to airline flagging records; filling out customs forms via the touchscreens affixed to seat-backs on airplanes;
Environments	Customs room; customs line; separate lines for frequent travellers; inert signage (posters) in French and English; secondary screening rooms; fluorescent lighting;	Separate customs lines for families with children; interactive signage in multiple languages; softer lighting; constant audio surveillance and recording;

Figure 5: Innovations present and future

What just happened?

The preceding scenario may require a bit of unpacking for some people.

Basically, the scenario suggests enhanced customer service training for border services officers, so that they can keep travellers chatting long enough to

evaluate their personalities and assess whether they may be hiding something.

This system is augmented by additional technologies that assist in surveillance efforts. These technologies are primarily ambient and almost unnoticeable, and

cause far less anxiety. In addition, they reduce boredom and frustration while

increasing intelligence. Some of these technologies are fairly basic, such as a

blastproof box (the sort that is already available at Israeli airports like Ben

Gurion). Others are more advanced and complex, such as an augmented reality

layer for BSOs and smart walls for travellers who want information and

entertainment to distract them while in line. However, the end result is a more

intimate environment wherein both parties feel better about the entire process,

and where border services actually feel like customer service.

The weakness of the technologies presented in this scenario is that they are context-dependent. For example, many of them would not work outside the airport environment, and would require further development to be viable at drive-through crossings or on trains or boats. Further, these solutions presume a populace that is already very comfortable with invisible surveillance and a

distinct lack of privacy. One could argue that the popularity of social networks like Facebook and others make this comfort a foregone conclusion, but doubtless there are others who would insist on greater privacy or at least tighter control over it. In this way, the solutions here are also just as wicked as the problem that inspired them: they usher in even more problems than they solve.

However, it is important to note that the narrative presented above is far different from my own or Peter Watts' or many others regarding the border crossing experience. BSO Schumacher is a shy woman who overcomes her innate tendencies to become a better officer by performing a more extroverted identity while simultaneously trusting her instincts and digging deeper for the truth. At no point does she attempt to intimidate Rivera, or harass him, even though she suspects that something strange is afoot. Nor does she attempt to stonewall him with long silences or a flat, emotionless affect. She also makes no effort to trap him in legal terminology, or to ask him to sign something he does not understand. At all points, she is nothing but friendly and well-mannered. Moreover, she counts on her team to execute other points of the process, from surveillance to secondary inspection. This is not a lone wolf character who plays by her own rules. This is an officer who understands her position within the chain of command and as a part of a functioning service system.

Conclusions and future research

I leave it to the reader to decide whether the solutions outlined in the story are in keeping with the design principles I have mentioned throughout this report. First, it is important to remember that they are not “solutions,” per se, but suggestions. No technology, and no style of training, is ever completely foolproof. Failures happen. However, I believe this story offers a way of arranging the border crossing at airports that is “richer and more humane,” and more enjoyable for both BSOs and the people they process through the system and into the country.

Narratives and stories have a certain power to take us back to a specific time or place if they are told well, or at least told memorably. Stories became a key element in the work of framing, writing and completing this project. It seemed that everyone had a bad border story, and everyone wanted to hear mine, or to hear the others that I had heard. This included my hair stylist, total strangers, and my fellow writers and academics. Everyone had an opinion, it seemed, as well as a story to tell. It was also through story and narrative that I was able to better empathize with border patrol and border services officers. Reading stories about animal smuggling, or finding truckloads of corpses in the desert, is an instant way to earn reader sympathy for the people who have to

deal with these affronts to basic human decency on a daily basis. I would not want to be a border guard or service officer. Their job is difficult and dangerous, and it should come as no surprise that after a while, some of these individuals can become jaded in such an obvious way that travellers cannot help but notice.

It also bears mentioning that the stories we do *not* tell are just as important as the ones we do. Good service tends to be invisible and therefore unremarkable. This should not be the case. Good service, especially at international borders, should have attention called to it early and often. Positive reinforcement can work wonders in any organization, and it is important to remember that for every one border officer who seems intent on making things difficult, there are likely five or ten others in the same room who have no such intention. They are the reasonable ones, and they deserve all the appreciation they can get.

For these reasons, I am happy that this first version of this project relied so heavily on narratives. Stories about the border are instantly relatable for other travellers, and this collection of stories might be a good conversation-starter for those who work in border services, at any level. There are certainly enough ideas in the story, although not as many as would have been generated by using another method like structured dialogic design, workshopping, mess-mapping, or any of the other methods intended to gather input from multiple sources in

person. For this reason, I have included a second list of the interventions that can begin tomorrow without any special technologies.

What changes can be implemented tomorrow?

Here is a list of the possible “shovel-ready” projects that border service agencies all over the world could start working on tomorrow, that would increase traveller satisfaction and create a more secure environment:

- Create a separate line for families with children.
- Position service-oriented BSOs throughout the line *before* travellers reach the kiosks, so that they can ask questions about the process or how to fill out their forms.
- Change the lighting from fluorescent to “natural” compact fluorescent, so the environment feels less institutional.
- Partner with local tourist boards or chambers of commerce to create smart posters and ad campaigns aimed directly at travellers. Distract them.
- Start the security process as soon as travellers enter airports. Implement a variation of the Ben Gurion model, or the model currently being tested at Boston’s Logan Airport.
- Hire “chatty” BSOs. Focus on candidates with customer service backgrounds, not law enforcement backgrounds.

- Bring in consultants from communications experts to train BSOs. These may include family or other therapists who specialize in body language and how to ask hard questions in a softer manner.
- Differentiate customs lines from holding cells. At the moment, both are blandly institutional. The line should feel like a more welcoming place where travellers can let their guard down. If they are held for any reason, that holding space is the one that should feel intimidating – not the one that greets travellers who may know little else about their destination.

Future research

This major research project has led me in several interesting directions, and the journey does not end here. I am under contract to deliver a report to Brian David Johnson, lead futurist at Intel, on this topic. That report will build on this research, and will be used as a text for students in the company's innovation training program for United States Air Force cadets. These students will be learning about design thinking and wicked problems, with the US/Mexico border as their primary context.

The report will source information from contacts I have made during the process of completing this project, including Ken Hudson and his students, as well as volunteers with the Arizona-based migrant aid organization No More Deaths. It will also utilize data derived from my experience guest-blogging about

this project at BoingBoing.net, a public website that has focused previously on border-related issues as well as those of contemporary culture, technology, and art. I will not start blogging there until October 2011 at the earliest.

For any researchers or designers interested in prototyping service solutions at the border, I suggest the iterative model espoused by Blomkvist. Rapid prototyping allows for a “small bets” style of intervention where one variable can be envisioned, changed, and evaluated in shorter order without disrupting a service as a whole. (Blomkvist, 2011) However, it is most important to do the requisite envisioning before this process can begin. The vision I have offered here of the future of borders will likely not appeal to all or even many of the stakeholders involved. It is bound to offend almost everyone on some level, from its invasive surveillance practises of both travelers and BSOs to the additional money it would doubtless cost to implement higher-tech solutions. There is profound inertia at work in these environments as they exist now, and usually only major wildcard events like September 11 or SARS can change them. But by prototyping, changes to the system can happen at a more gradual pace that allows stakeholders to accept one difference at a time.

I would also recommend to anyone seriously intending to alter this system that they work on a team. All of the research collated in my literature review (and there is much I did not quote directly) was done in teams – even the very

important work of Chad Haddal at the Congressional Research Service. The stakeholder analysis, problem framing, and research implementation required to achieve lasting change in systems of this size is far too large a task to be done by one person. It must be a team effort, and that team will likely have to operate in multiple airports and land crossings in order to fully understand the nature of the problems. The work would take years. It would be worth it.

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