Episode 89: Technical Systems, Human Behaviours

with Rachel Yang, Senior Behavioural Scientist with Technical Safety BC

Rachel Yang rejoins the podcast to provide updates on how Technical Safety BC is integrating behavioural insights into their vision of "Safe technical systems. Everywhere." Rachel shares two examples: a project encouraging contractors to comply with new regulations, and a project encouraging skiers to ride chairlifts more safely. Throughout, Rachel weaves in takeaways about linking results to organizational mandates and tracking projects' ripple effects.

Transcript:

KIRSTIN APPELT, HOST: Welcome to this edition of Calling DIBS. I'm your host, Kirstin Appelt, Research Director with UBC Decision Insights for Business and Society, or DIBS for short. Today, we're calling DIBS on Rachel Yang.

Rachel is Senior Behavioural Scientist with Technical Safety BC, and she was a member of our very first cohort of the Advanced Professional Certificate in Behavioural Insights, which, believe it or not, was five years ago. With Rachel's perceptive mind and eagerness to engage with BI, we were really lucky to have her in that first year where we were kind of building the plane while we are flying it.

In the years since, Rachel's been on a really interesting journey and we've had a window seat to see some of her successes and even to partner with her in different ways. So I'm looking forward to chatting today as a follow up to our prior conversation back in Episode 27.

Welcome back to the podcast, Rachel.

RACHEL YANG, GUEST: Hi Kirstin, it's great to be here again since our last podcast recording three years ago.

APPELT: Time flies. Well, I'm sure everyone remembers almost every detail of our previous conversation, but just in case they have some memory gaps, can you remind folks a little bit about who you are and how you arrived at BI.

YANG: I'm Rachel Yang, I work at Technical Safety BC as the Senior Behavioural Scientist, and I'm based in Vancouver. And my journey to BI began from a very young age. I was always curious about human behaviour and tried to understand why and how people made decisions, so I noticed that sometimes people's actions didn't seem to align with their goals or even contradicted them at times. And, you know, now we'd call that the intention-action gap, but at the time, I was quite puzzled by this.

So fast forward to university, I took a consumer behaviour course at UBC taught by David Hardisty, who is also part of the teaching team for the Advanced Professional Certificate in Behavioural Insights at UBC, And it was one of the few classes where I was actually very engaged in the class, you know, constantly raising my hand to

participate and actually reading the textbook out of personal interest. So that really ignited my journey in the fields of psychology and behavioural insights.

And so after graduating from my undergrad, I ended up starting my career in quantitative market research, and I worked for Ipsos in Vancouver, a global consulting firm. So that's where I learned all of my practical skills in survey development, statistical analysis, project management, as well as reporting and storytelling.

And I'd been working at Ipsos for about five years at that point, and, you know, I was ready for a bit of a change, so I heard about the BI certificate course at UBC and ended up being in that very first cohort. And through the program, you know, I developed a passion for BI, and it solidified my interest in the field since I was able to link back to my puzzling thoughts in childhood about human behaviour. And I also knew that I wanted to do something meaningful and contribute positively to society.

The BI program also confirmed my desire to do more education, actually. So I completed my Masters in Organizational Psychology last year. But back to finishing up the BI program, I joined Technical Safety BC shortly after that, where I'm currently part of leading the BI practice.

APPELT: That is such an awesome journey. I love just how the pieces came together and this whole little journey from tiny little Rachel to now adult Rachel who is just following that same thread. That's so great.

So I'd love to hear some of the things that are going on at Technical Safety BC, but I know not everyone is familiar, so I was hoping you could give us a little bit of context about Technical Safety BC. Who is Technical Safety BC? What does the organization do?

YANG: Yeah, so Technical Safety BC is a not-for-profit safety regulator. We oversee the safe installation, operation and maintenance of technical systems across the province. So we have safety officers that go out into the field and inspect equipment in compliance with our acts and regulations. So everything from electrical and gas equipment, boilers, elevators, ski chairlifts, roller coasters and railways, things that we interact with every day, but we just don't really realize it or know it. And as an organization, we're also focused on safety behaviour in terms of understanding and being able to influence the behaviour of duty holders when it comes to technical safety.

APPELT: Yeah, I've always thought it's really neat how Technical Safety BC really saw this opportunity with behavioural insights, because, for a layperson, you think technical systems, you think technical, technology, you don't immediately make that bridge to behaviour, but of course all the technical systems are built, maintained, programmed, operated by humans, so there's so much human behaviour there.

From this outsider perspective, I've been just really impressed at how Technical Safety has integrated BI into the organization. I'm wondering if you can tell us a little bit about the insider perspective of how that process has been? How did you or how, as an organization, have you integrated the BI into the work you do?

YANG: So firstly, our vision as an organization is safe technical systems everywhere, and at the core of our mandate, and what we're always asking ourselves is like, how can technical safety be improved across the province? And so being a regulator, we've always been either knowingly or unknowingly influencing safety behaviour. And I think that can be said for many different industries, so whether you're in retail sales and trying to sell product or in medicine, you know, advising what procedures and medications a patient should consider, behaviour tends to be something we think about, even if we aren't labeling it as behavioural insights or behavioural science, so it really is everywhere that we look.

That being said, in recent years, Technical Safety BC has been taking a more proactive approach to understanding and influencing safety behaviour. So there's been a recognition, like you mentioned, that while we regulate technical equipment, really at the center of it all is the individuals that interact with that equipment from qualified individuals and license holders who are technically savvy to the general public that don't have a technical background but use the equipment, so like when you ride an elevator, for example.

And more specifically, integrating the practice of BI as we know it at Technical Safety BC began, you know, before I joined. So my manager, Kaylyn Kretschmer, really led the charge in integrating BI into the organization and brought me on to continue expanding the practice. And we started by initiating pilots and testing BI concepts in initiatives like email messaging to duty holders to encourage them to pull their electrical operating permits and other things like making noncompliance notifications easier to understand. So through these types of projects as well, it's becoming more and more clear to me that, you know, BI alone will not fix all the challenges that are prevalent in a complex system like technical safety.

So we almost have to take a systems thinking approach to the challenges and tackle it little by little. And I'm actually taking a systems thinking course right now, and there's a lot of overlap with the BI methodology in terms of putting people and users at the center of the issue, you know, piloting and testing on a small scale, being able to measure impact and continuously learning from and iterating on the results. But in general though, you know, now at Technical Safety BC, we're integrating BI into more high priority initiatives and our corporate goals and actually making it part of the overall solution.

APPELT: We're going to have to have you back to have a full podcast on systems thinking, but for now, I'd love to zoom in a little bit and see if you can give us an example. I know there's a lot of different projects under your belt. Can you tell us an example of a project that's helped integrate BI into technical safety, and maybe has shown how BI can fit into that bigger picture for technical safety?

YANG: Yeah, for sure. So this past year, we worked with another cohort from the UBC BI certificate program on their capstone project, and it was an exciting initiative around compliance with a new regulation. So, to give some context, in 2022, new regulations came into effect in BC that license contractors must display their license number and company name on their marketing materials when advertising their services to the public.

APPELT: Sorry to interrupt, but I'm wondering if you can clarify what you mean by licensed contractors. Are we talking about plumbers, electricians, both of those, neither of those, some other groups? Just trying to understand which audiences you were trying to work with here.

YANG: Yeah, so the scope of who we consider licensed contractors are businesses who employed certified individuals who are qualified to work on regulated equipment specified by the Safety Standards Act and general regulations. And in this case, we were trying to influence the behaviour of license holders in four of our technologies, because those are the ones that the new regulation applied to. So electrical, gas, boilers, pressure vessels, and refrigeration and elevating devices. So in this context, licensed contractors might be those that employ qualified individuals like Red Seal electricians, gas fitters, power engineers or elevating devices mechanics.

Back to the new regulations, you know, we see similar rules for realtors, massage therapists, etc., and so this was a new legislation that came into effect in 2022. And there was an opportunity to work with the BI cohort to measure compliance with this new regulation as well as influence compliance, too. And we focused mainly on digital advertisements on websites and Facebook. And the cohort team did the heavy lifting in terms of scouring the internet to measure whether a subset of licensed contractors in our internal database were

compliant with the regulations. And they then ran a trial in partnership with our marketing team to test behaviourally informed messages to see which ones might influence compliance.

And it turns out that the message that had FOMO or fear of missing out language, in terms of, you know, you may miss out on potential business opportunities if you don't comply, that message was the most effective. While we didn't see statistically significant results from the intervention, this was still a big win for us because the post measured demonstrated that there was a 4% improvement in compliance as result of the trial, which was managerially significant for us.

And so now the results gave us a direction in which we could be a little more confident in the message's effectiveness. And with a few tweaks, like using the message that performed best during the trial and adjusting the language to make the desired action a bit more clear, we ended up scaling the intervention to the entire database of licensed contractors. And so overall, this was an excellent example of how BI can inform highly important strategic initiatives and influence real world change. This was also one of the most rigorously measured evaluations of our own regulation in recent memory, if at all. So we're really proud of the work and have to give props to the BI team who led the project.

APPELT: That's really neat. I don't know if I would have guessed a priori that a FOMO messenger would have been the one, that's really neat.

And I like to hear about this idea that it was a new opportunity at Technical Safety around measurement, because I know when we talk in class, we often talk about how policies across different jurisdictions are often implemented, and it's only down the road, you know, if they've been successful or not, so it's really neat to see that Technical Safety is adding this in early on after the policies are live.

So talking about this measurement and evaluation piece, how has that always factored in? Is it something that's been baked in or is that been more new that you've been able to figure out how to measure the impacts of behaviourally informed solutions? I guess I'm just curious about measurement and evaluation and the role that's played

YANG: For sure. So measurement and evaluation is something that many organizations struggle with, including our own. You know, it's not always easy to measure the impact of our work, especially in regulatory contexts, where it may not be possible to conduct a rigorous evaluation. We've definitely had to learn along the way, be flexible in our approach, and work around the limitations and constraints that we have. So, for example, sometimes the data that we want to measure doesn't currently exist or is of poor quality. And in those cases, we may need to use other proxy measures or rely on qualitative data to evaluate the impact.

And in the sciences, we're taught to do things a certain way, whether it's randomization or statistical analyses. And while that's usually ideal, you know, sometimes that strict way of thinking can be limiting and make you believe that you can't do anything BI related in your organization. So you just have to be a bit creative and be able to tell the story of how the work of one project, you know, impacts that bigger picture. So that's something that we've had to do as an organization.

APPELT: Yeah, that's certainly been a learning journey for me, moving from my PhD program back in the day into working with organizations and just the ways that the pretty rigid thinking that is traditionally part of the academic enterprise, it's evolved a lot, but that traditional, very rigid, like this is the way the data has to look, and this is the research design we're interested in, when the rubber hits the road, being flexible is going to get you a lot further than just sticking to that one size fits all kind of mindset.

This sounds like it was a pretty big deal at Technical Safety BC. Have there been any ripple effects or other opportunities or ways it has opened up other ideas for BI with this project?

YANG: Absolutely. We've presented the results of this capstone project at all levels of the organization. And this one, along with other BI projects we've been working on, they've been raising the profile of BI as a viable and successful tool in our regulatory toolbox. So yeah, for sure.

APPELT: It's been really neat to see these effects because I've seen, you know, the first BI project is often a bit, I'm just going to mix all the metaphors together, like flying the plane while you build it as we referenced for the certificate. And then the second BI project, you have a better sense of, like, what data you might need, and so they just get smoother and then they open up more and more opportunities.

So I guess where I'm leaning is, can you provide another example of a project? Is there another one that you've done that's been an interesting learning experience?

YANG: Yes for sure, and it's a project that we've presented at the Big Difference BC Conference a few times now. But over the past few years, we've been working with the ski industry on influencing safe chairlift behaviour.

So back in the 2020 to 2021 season, we saw a significant increase in the number of reported incidents related to falls from carriers, or in other words, you know, people falling out of chairlifts. And through our exploratory research, we learned that the majority of incidents and injuries involving falls from carriers are caused by rider behaviour rather than technical equipment failure. So we brought together an industry working group to understand the issue and brainstorm potential solutions, and we identified restraining bars as a potential area of intervention because these are a key safety feature of the chairlifts, and they're also relevant to our regulatory jurisdiction as a regulator.

So in the first year of testing, we piloted regulatory signs to try and promote the correct time to raise the restraining bar, because we observe that many raise that bar too early. And from that initial pilot, we saw a marginal 2% increase in proper restraining bar usage, and we learned that the visibility and placement of the signage, you know, may have led to these somewhat underwhelming results, so we had some takeaways for the following season.

And so in the second year of testing, we leaned into the idea of salience to improve restraining bar usage. So we tested another sign that was an orange high visibility banner that was eye catching. It had a pictogram icon on it representing a restraining bar being raised, and then it had big words and in bold font it said 'raise bar now'. That was printed on the banner, and we worked with the ski hill to have those positioned in a place that sort of makes sense for that particular lift, because every lift is different, every mountain or a different terrain can vary, so we worked with our partner to figure out what was the, you know, appropriate place to put that sign to encourage people to raise the bar at the right time.

And so, as a result of the salient signage, we actually saw a significant increase in proper restraining bar usage. So before the sign, we observed that 20% of riders raised the restraining bar at the right time, and that increased significantly to 65% with that salient sign. And so this was a massive result, especially considering that we didn't see any significant impact in the first year. So this was a really great result for us and the industry as a whole. And so overall, this multi-year project was really an example of how piloting and iterating can be beneficial, and that there's always something to be learned with every trial.

APPELT: That's really neat. And that's such a massive effect, congratulations, that is huge. And I know as a as a skier myself, I'm always trying to do the right thing, but it is something where it does, like you say, it varies from mountain to mountain, from run to run, so you don't, it is often an awareness problem, so it's a perfect example for where salience is going to play a major role.

I'm curious, have there been any other impacts of this project? Has this had any kind of ripple effects?

YANG: Yeah, so we've presented the results of this work within our organization, and it's generated a ton of interest in terms of how we might be able to do more of it in different areas of the safety system. And we've also presented back to the ski industry, including to our partners that worked with us on the trial, and there was definitely renewed interest from industry to continue piloting and testing different interventions at local ski hills.

And, you know, overall, I'm just really excited about the future of BI at Technical Safety BC, and I'm really proud of where we've come in a short amount of time. So I definitely intend to keep building and demonstrating the value of BI as a tool that can impact real world change.

APPELT: That's really exciting to hear about the ways you've gotten to share the word out and that it's building interest, not only at Technical Safety BC, like you said, but also at the partner organizations. And that's exactly what we'd love to see, because there are, at any organization, so many opportunities where behavioural insights can be used, so the more folks that are willing to play in the sandbox, more metaphors the better. Or I guess the more folks that are willing to go down the ski run? I'm not sure.

YANG: Yeah, that's right.

APPELT: Well, I'm curious if you have a message for our new BI practitioners in training now that you're coming with a bit of a different perspective than last time you were on the podcast.

YANG: Yeah, so whether you're doing BI full time or interested in incorporating it into your organization, you know, look for the early wins and remember the bigger picture. So don't get too bogged down into one specific project and try to link it back to that higher level organizational strategy and show that this stuff really can work. And as usual for the students, you know, nudge for good as well.

APPELT: That is perfect. Yeah, I love that. The good and also just that idea of remembering to tie it back to the mandate because I think sometimes by the end of a project, we're so focused on the result, we forget to do that translation step of saying and this is why it mattered that we do this.

YANG: Yes, that's exactly right.

APPELT: Well, any last thoughts, questions I should have asked and didn't or just anything else you wanted to raise?

YANG: No, nothing that was missed. But I'd be happy for any students or members of the BI community that listen to this podcast to reach out to me and continue the conversation. And I'd especially like to hear from any practitioners that are trying to integrate BI into their work, because there's comfort in knowing that we're not alone here. But yeah, thank you so much again for having me on the podcast, Kirstin.

APPELT: Thank you. Yeah, and I love that message. I feel like that's something we're still hacking on as a community, is ways to have more multilateral dialogs where, maybe we need a community slack channel or something like that where we can all both congratulate and commiserate, as the case may be.

Well, thank you, Rachel, for joining. It's always a delight to catch up with you and hear about what you're working on, and I'm a fan of all the cool ways Technical Safety integrates BI to make technical systems safer, but I mean even bigger fan of you and the work you do, so I'm so happy we got a chance to chat today, and then I get to keep watching what you're doing, so thank you.

YANG: Aw, thank you so much Kirstin. You as well, thanks for the support.

APPELT: Always. And thank you to our listeners for joining another episode of Calling DIBS.
