



Canadian
Business



SenseAbility

INCLUSIVE DESIGN THINKING

A GATEWAY TO INNOVATION



Inclusive design helps with finding the path toward innovation. It isn't a silver bullet, but when you're asking yourself where to even begin — how to change what you're doing now, how to diversify what you're doing now, how to evolve and find new markets — inclusion and diversity are the places to look.

Forbes is talking about “fostering innovation through a diverse workforce”

HBR is talking about “how diversity can drive innovation”

Facebook, Google, Apple — all have hiring practices that aim to create diverse teams

WHY? When you're looking for “out of the box” thinking — YOU CAN'T CREATE A BOX OR A MONOCULTURE

So we've all heard these words: innovation, inclusion, disruption — we're all trying to find a way to differentiate ourselves, our companies, our products... HOW DO WE DO IT?

My goal is for you to experience a perspective shift that helps you see ways you can innovate, ways you can create conditions for others that enable innovation, and ways that you can understand how inclusion and innovation are linked.

To get at what it means to find the path toward innovation through inclusion we're going to start by talking about some features of innovation and fold that into learning about inclusive design.

Then we're going to apply those concepts to specific problems in an activity that we'll be doing in groups.



What does it mean? What is Innovation?

I think we often associate it with creating something completely new, or being the first to do something or being clairvoyant and knowing what's coming next...

A few examples:

Facebook came along and there was nothing like it before — the Internet was already well distributed (even in the developing world you had Internet cafes), many people had cell phones with cameras and wanted to share pictures and gloat and stay connected. The whole pipeline was there.

Fast food came alongside a time in history when families needed two incomes to stay afloat, then they needed two cars to handle family needs (two jobs, two locations, kids to school or daycare, pick up food on the way home, two car garage, the suburbs exploded). This had a huge impact on transit, on food, on families, on products, and on manufacturing. Drive thru dinner. (electric garage door openers, motion-activated lights, programmable thermostats)

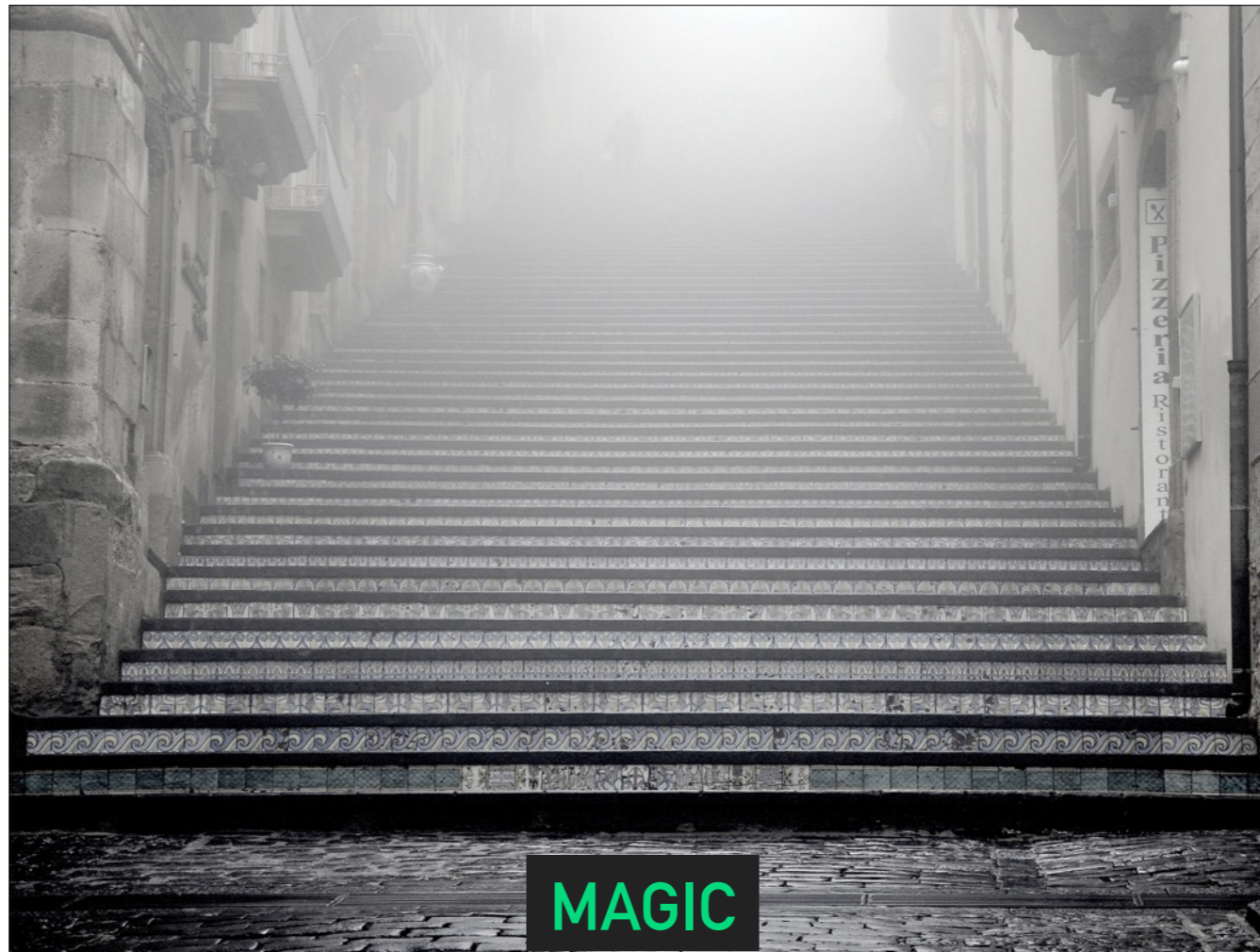
So, innovation is certainly those things, but it's also so much more — and sometimes very small things:

Innovation is also possible with existing things (thing we use every day) and as the slide says doesn't have to be a totally new sprocket but a better sprocket or a better way to interact.

An example of this could be something as simple as how we get into our cars.

Historically first we had a car, then someone wanted to lock it so we added a lock and a unique key, then someone questioned the key and put an electric keypad on it that would light up when you touched your first key, then we stuck a fob in our bag or our pocket and now we can simply press a button...

These innovations in entering the car came from asking some of the following questions:



We all want the 10 step process to do this.

We want to make it reproducible, concrete steps that will yield predictable results.

We want the science of innovation.

All of our organizations want to be innovative.

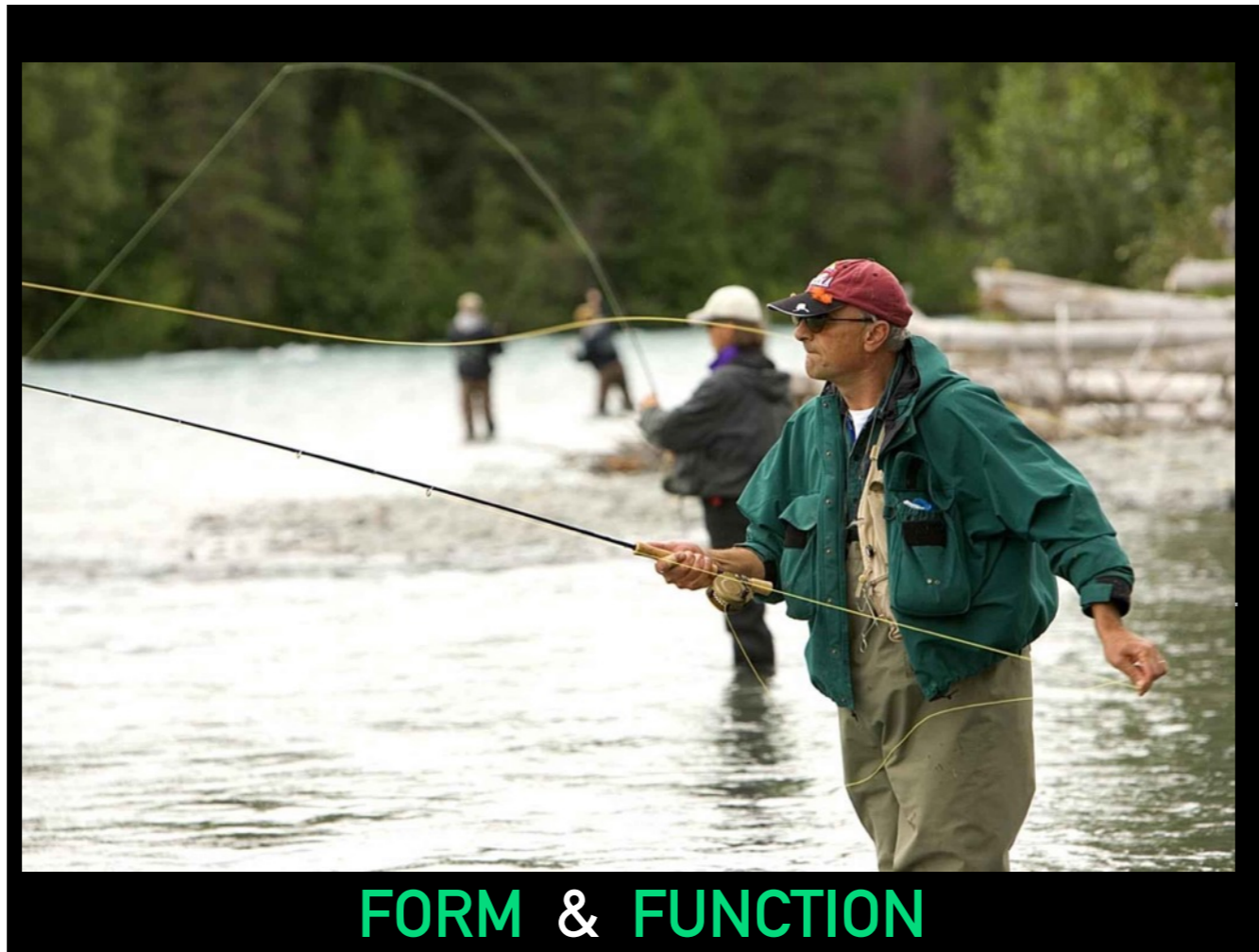
But if it were a science then all of us would be doing it, not trying to do it. So what really is innovation?

Let's break it down a bit...

What are some of the parts of innovation we value?

- the ah-ha moments
- the solving puzzles/problems/gaps
- the delight
- the meeting unmet needs
- the discovering new markets
- the convenience
- fluidity and thoughtfulness (I wish I'd thought of that!)
- it's unobtrusive — it just works
- the magic

There are some things we know about this magic — it happens more easily in certain contexts...



FORM & FUNCTION

There seem to be conditions where nurturing innovation is easier, more natural, or more frequent.

How many of you have been stuck on a problem, gotten up to take a walk and then had some clarity for next steps?

Relaxed attention, taking a walk, plans on the back of napkins, waking in the middle of the night with a great idea, the shower.

These are all places where you can loosen your mind: experiment, fail, be creative, think outside the box.

Is that done at a conference table with 20 chairs, a meeting leader, and a notetaker? Could be... but maybe not. Just as we see diversity positively effecting our teams and businesses, diversity of meeting places also helps. It helps to spend the day at OCAD University talking about something different in a different space. Form and Function are related!

So, let's all go fishing and we'll have brilliant ideas. No, not necessarily...

We see this phenomenon when we try to concentrate or pay really close attention to something —

Some people do better with lots of distractions, some with no distractions at all. Doodlers are often people who have to occupy part of their brain to pay close attention — so they doodle.

Some of us cannot multi-task — we can only pay attention to one thing at a time. We're all different and we're different from day to day.

Man fly-fishing in a river

https://upload.wikimedia.org/wikipedia/commons/e/ee/Men_fly_fishing.jpg



QUESTION ASSUMPTIONS | EXPERIMENT

And we know creativity, experimentation, questioning assumptions, and failure are closely related to innovation... kids are good at this, adults less so.

As adults, what's the first thing we do when presented with a problem? WE SOLVE IT — we don't want to skin our knees. We want to get to solutions fast, efficiently. We're busy!

And when we do that, we introduce assumptions or we perpetuate them (knowingly or not). How often do we hear or behave in a "That's the way we've always done it" manner? But what if it wasn't?

The LightBulb

What if we slowed down and didn't race to the finish, but spent time on the hard, the complex?

We at the IDRC stumbled upon something that seems to hold some of the secrets to innovation — and that is to really understand the problem you're trying to solve, look to the edges where it's currently failing to meet needs or perform. Those edges are often the extremes (extreme hot or extreme cold, extremely busy or extremely distracted, extremely strong, extremely weak).

And this is the perspective shift that inclusive design brings us...

3 kids with skinned knees



And this is the perspective shift that inclusive design brings us...

- instead of thinking of solving for the majority, what happens if we solve for the 20%?
- instead of thinking of average people, what happens if we design for real people with real problems?
- to change the door, the key, the lightbulb we have to ask ourselves some fundamental questions:
 - what problem am I trying to solve?
 - what am i trying to accomplish?
 - for whom?
 - who did I leave out? what other assumptions were there?

So, no, this doesn't come for free — it requires you to change your perspective and your practices... And we're going to talk about that for a bit now, and then we're going to do it.

Building looking up, turned sideways

<https://www.flickr.com/photos/wvs/280384849/>



WHAT IS INCLUSIVE DESIGN

Inclusive Design is design that considers the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference.

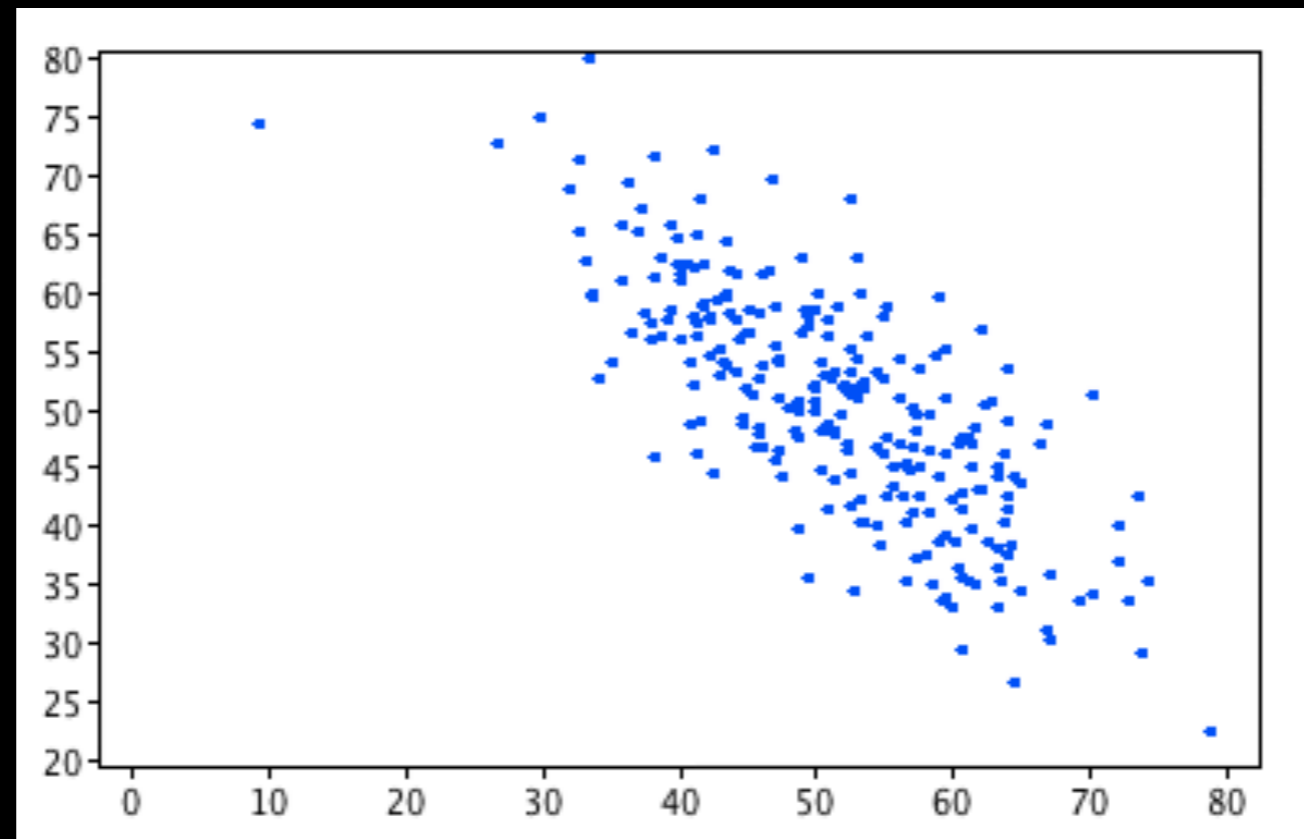
Stacked, colourful cups

<https://www.flickr.com/photos/doug88888/2987668742/in/photolist-5y1zQ3-9iioxp-4hGtdR-e86mXv-7S3xLA-oGJ71U-2GKVgd-cqo7RQ-LgBMB-LB3EG-5SZRyN-LBbgF-9GAD7c-6tYNTm-4Ev2tX-4QjDbk-8Vd1QL-gnpzqR-6ZKmp-rsfoP-teU2X-9q5WPk-9q8YjY-7BF8ob-LBbgP-7EQk6t-dx7TCA-e8bXp5>

INCLUSIVE DESIGN

1. recognize diversity and uniqueness
 - in people and places
2. personalize
 - wherever possible, let me be me
3. ask yourself: were you brilliant or did you just exclude someone?
 - beware of introducing new assumptions

1. everyone is different; all of our homes, families, cars, offices, — everything is different. Today is different from yesterday. the alternative to this is one-size-fits-all which we know never really does. That's us compromising our own individual needs or preferences for something basic.
2. let me be me — i'm the best at it. Empower me to make decisions and I will!
3. beware the brilliant design decision — ask questions to avoid introducing new assumptions



EDGE | OUTLIERS

Where does the 80 - 20 come from —

At least in part it comes from a perspective we've been taught

We're taught to look at the majority, the average, the most — what if we change that perspective and look at the outliers — what can they tell us?

Todd Rose — The End of Average

Scatter plot showing a clump of dots and a few outliers

https://upload.wikimedia.org/wikipedia/commons/2/29/Scatterplot_r%3D-.76.png

THE MAGIC AT THE MARGINS

- innovation
- benefits the majority
- supports the spectrum
- resiliency

EDGE | OUTLIERS

Instead of fearing the edges or trying to forget them we should be focusing on them.

DISABILITY



So, how does this all fit in with inclusion and diversity? We're taught that one way we describe people who are different is to talk about their difference as a disability. We sometimes hear disability described as a medical condition — someone is afflicted, they can't do something — they lack an ability.

Stethoscope:

<http://cbsnews1.cbsstatic.com/hub/i/r/2014/01/24/d6bd0d38-cb4a-4411-bd1d-7a5dcc4e319d/thumbnail/620x350/fa75501812b1d1d699dd40da9648001a/stethoscope.jpg>

DISABILITY



And it is often associated with the medical model of 4 main categories of disabilities:

a loss or lack of:

mobility

cognitive abilities

hearing

sight

But at the IDRC we completely redefine disability. It isn't a medical condition to us...>>>

Categories of Disability:

https://www.worknetncc.com/Uploads/Disability_symbols_16.png

MISMATCH



EDGE | OUTLIERS

Disability is a mismatch between the needs of the individual, their goals, and the service or experience offered
Disability is not a personal trait and because it's so context dependent, it is a relative condition not permanent.
Accessibility = the ability of the service or system to match the needs of the individual

Square peg, round hole:

http://wp.production.patheos.com/blogs/adrianwarnock/files/2015/08/3546059144_1b33dfdc0e_o.jpg

**ALL EXPERIENCE
MISMATCH**

**DISABILITY IS
MISMATCH**

**MISMATCH IS
SOLVABLE**

**INCLUSIVE DESIGN
CAN SOLVE MISMATCH**

Solve for the real problems, not the imagined problems of an average. And do that by understanding that people are unique and their contexts, needs, preferences are not static — we are far too complex to be categorized so simply. So, take on the hard puzzles and figure out how to make things work better, make things easier, simpler, solve problems unobtrusively and elegantly — perform magic!

Start with empathy — we are all unique.

Then, let me be me...

ONE SIZE FITS ONE



PERSONALIZE

When I can, I want to be empowered to design my own life and my own experience. My living room looks different from yours.
When I can't personalize — make it easier for me or teach me or lead me so I can make my own decisions — I'll have more stake in what I'm doing — I'll be more engaged.

Harness the power of personalizing — extending it to everybody.

https://upload.wikimedia.org/wikipedia/commons/8/82/Stafford_livingroom.jpg

WHY PERSONALIZE INTERFACES?



PERSONALIZE

We live in an increasingly digital world.

WHO, WHAT, WHERE

DESIGN IDEAS:

- With this brilliant design idea who just got excluded?
- Is there a way I can bridge the gap I just created? A way I can solve for the mismatch or avoid it?

BRILLIANT OR EXCLUSIONARY

So when we build products and services and tools we should be asking all along who isn't here? And who got excluded?

One way we do this in the digital world is to make it multi-modal

- text
- audio
- video
- image

avoid hard to read fonts or font sizes
create an appropriate level of contrast

simulations and visualization provide interesting challenges

make targets easy to hit
can you use it with the keyboard?
be wary of time-based operations
keep content structured — semantic content

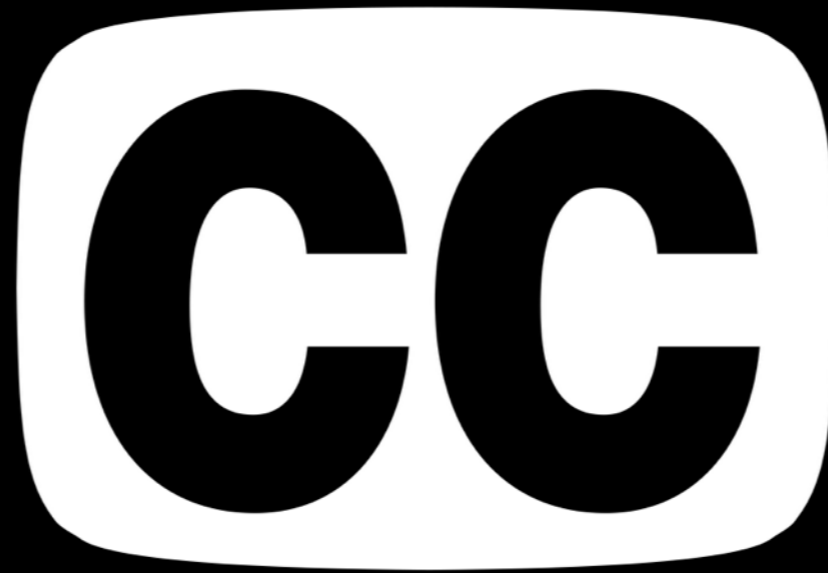
But if we just wrap ourselves in WCAG and AODA, we are still missing the point: people are unique, there are gaps in meeting their needs, innovation is in the gaps.



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

In Universal Design there's the curb cut — does everyone know what a curb cut is?

Curb Cut: <http://www.flickr.com/photos/50393252@N02/4822063888/>



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

We have examples in the digital world too:

top 3 uses:

1. in a bar
2. in a gym
3. in bed with a sleeping spouse

CC: https://en.wikipedia.org/wiki/Closed_captioning#/media/File:Closed_captioning_symbol.svg

WHAT WE SHOULD BE AIMING FOR



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

There is so much to discover, so much to adapt, so much to refine —

[https://upload.wikimedia.org/wikipedia/commons/a/aa/So_Many_Choices_\(11693539025\).jpg](https://upload.wikimedia.org/wikipedia/commons/a/aa/So_Many_Choices_(11693539025).jpg)

simplifying the physical action needed

OXO



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

OXO good grips was created when the owner's wife had trouble gripping tools because of some mild arthritis.

These tools for kitchen and gardening became the go-tos in rehabilitation centres working with people on activities of daily living...

Who else has trouble gripping things?

comfort and usability

Oxo: http://images.bloomingdales.com/is/image/BLM/products/7/optimized/8017617_fpx.tif?wid=1200&qlt=90,0&layer=comp&op_sharpen=0&resMode=sharp2&op_usm=0.7,1.0,0.5,0&fmt=jpeg

OXO



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

this population.

OXO saw a market and broadened their products.

Oxo Sippy: <http://www.peppermint.co.uk/media/catalog/product/cache/1/image/9df78eab33525d08d6e5fb8d27136e95/s/i/sippy-cup-with-handles-green.jpg>



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

Jar Pop

https://cdn.shopify.com/s/files/1/0840/1971/products/img_7115_17efbe60-0f8d-4b4c-a6cf-f40564a1bbcb_1024x1024.jpeg?v=1464889393

NIKE FLYEASE



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Inspired by a letter to Nike by a basketball loving teenager with Cerebral Palsy — what resulted is a sexy shoe with an innovative entry that is usable and attractive to everyone.

Nike Flyease: <http://cnet2.cbsistatic.com/hub/i/r/2015/07/15/dc055c68-bb4b-47a6-9472-6cf1475a6703/resize/970x546/1433d7364455c56e45c91189e023357d/nikeflyeasecolor.jpg>

TRAMPOLINE



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BLOORVIEW rehab hospital has one of these and what's so cool about it is that you have kids in their integrated school program playing together without barriers and kids in wheelchairs who have never had the sensation of jumping can feel what it feels like to jump.

Trampoline: <https://s-media-cache-ak0.pinimg.com/736x/8b/21/67/8b2167d7e787e6ca66e6087f694c9ec2.jpg>

Stop Gap: <http://1.bp.blogspot.com/-cQjJTeXAgGM/UIM1OJYztYI/AAAAAAAAAHw/rIsUt6YhWt0/s1600/DSC04762.JPG>

STOPGAP



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

Stopgap created these little wedges to help folks in wheelchairs get into businesses in the GTA. Folks with strollers also use them — no one is inconvenienced by them and they help.

Luke Anderson an avid mountain biker had an accident and became paralyzed. He started stopgap.

Stop Gap wooden wedge leading into a business with one step in front: <https://www.davidberman.com/wp-content/uploads/Two-stopgap-ramps-outside-a-store-front.jpeg>

ADAPT TO ME



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

- Nike's brand new power lacing shoe — HyperAdapt 1.0
- autolace from Back to the Future
- Michael J. Fox tried prototype out
- He has parkinsons — a population of people who would benefit from this
- In Back to the Future he was a adventurous kid who also benefited from this
- Michael J. Fox said when he tried this out "I wish I had this on my hockey skates"
- Your context changes, the environment changes, your feet swell, need them tighten during the game
- Some people can't tie their shoes

Electro Adaptive Reactive Lacing: E.A.R.L.

<https://www.wired.com/2016/09/nike-self-lacing-design-hyperadapt/#slide-1>

HERE ONE



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

Here One

With two smart earbuds and a connected app, you can stream music, take phone calls, **reduce unwanted noise, amplify speech, access Siri and Google Now, and more.** Selectively choose what you want to hear and remove what you don't using Smart Noise Cancellation.

<https://hereplus.me>



Manage your money like never before

Mint makes staying on top of your finances a cinch. Be the master of your money so you can get more out of life.

SIGN UP FREE



All in one



Track & pay bills



Easy budgeting



Free credit score



Alerts and advice



Simple categorization



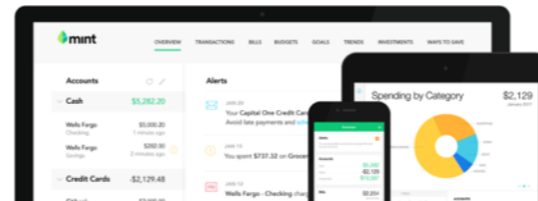
Investment tracking



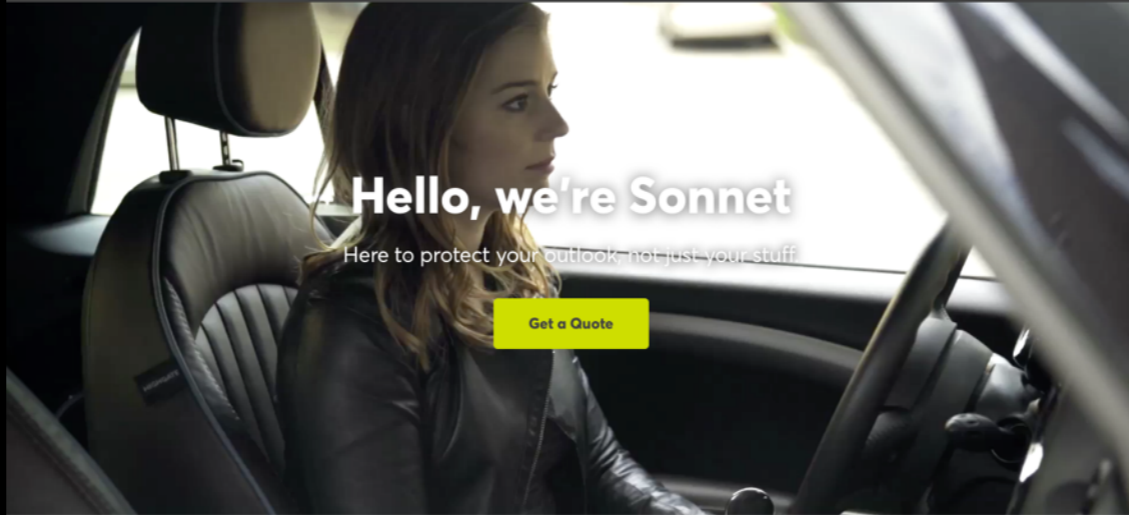
Security

See everything in one place

We bring together everything from balances and bills to your credit score and more. It's your financial life, in one place that's easy to understand.



EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?



Hello, we're Sonnet

Here to protect your outlook, not just your stuff

[Get a Quote](#)

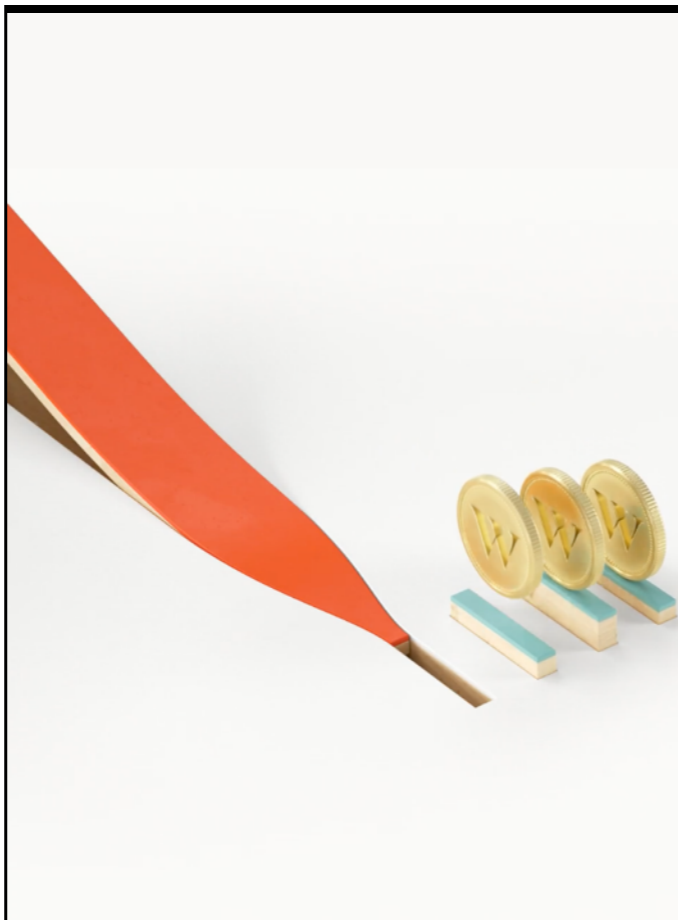
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How it works

Make your money make money

We build you a personal, low-cost portfolio and put your money to work like the world's smartest investors.

Start investing

EDGE | OUTLIERS || PERSONALIZE || BRILLIANT OR EXCLUSIONARY?

INNOVATION

DOESN'T HAVE TO BE NEW

MAGIC

FORM & FUNCTION

QUESTION ASSUMPTIONS | EXPERIMENT

PERSPECTIVE SHIFT

HOW CAN I DO THIS?

- think about the **edge** | **outliers** and solve for them
- can you let the user decide — ONE-SIZE-FITS-ONE - **personalize**
- think about design decisions — **brilliant** or **exclusionary**

EDGE CASES

"We have clients come to us and say, "Here's our average customer:", for instance, "She's female, she's 34 years old, she has 2.3 kids..." And we listen politely and say: "Well, that's great but we don't care about that person". What we really need to do to design, is look at the extremes, the weakest, or the person with arthritis, or the athlete, or the strongest or the fastest person. Because if we understand what the extremes are, the middle will take care of itself".
– Dan Formosa, Smart Design, "Objectified"

They aren't describing a person. It's so abstracted and so removed from what a person does, it's not that functionally useful. In other words, it's useless.

How about Emil, he's 32, and he's been dating Angela for two years. He has a pretty good job at a tech startup in downtown Toronto, where he works long hours. He likes going to the gym and he and his girlfriend are thinking about getting him a running companion — a puppy. All this planning has got Emil thinking about the future and how to best prepare for it.

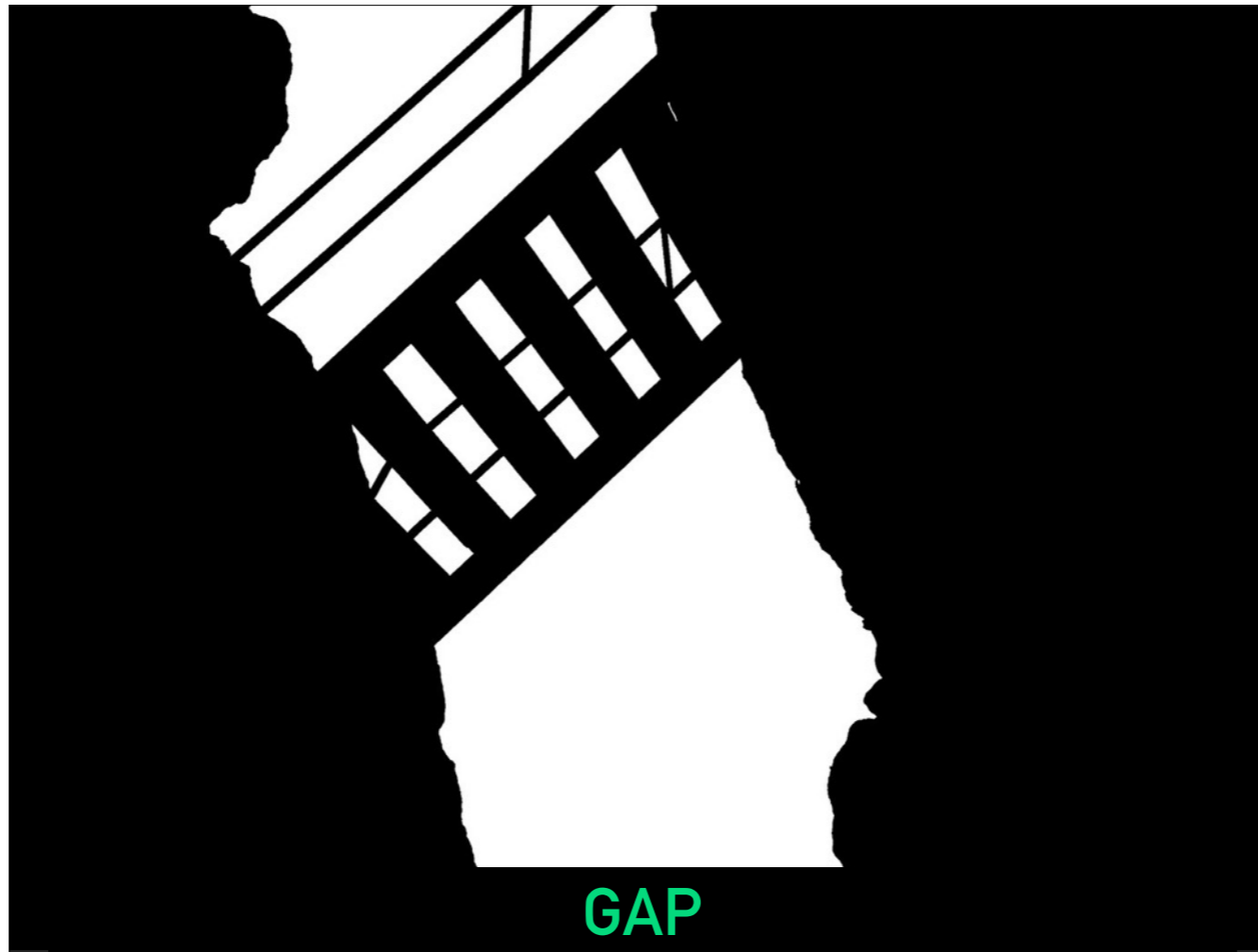
Emil has an RRSP but he doesn't really know what that is. He is trying to save money because he knows that Toronto real estate is hard to afford but paying rent the rest of your life doesn't sound awesome. He wants to buy his girlfriend a wedding ring but has no idea how or where to do that. He also wants to manage his money better — he knows there are more creative things out there, he just got something in the mail about high interest savings accounts, but he really doesn't know what's right for him and doesn't understand all of the lingo. Let's face it, Emil is lucky if he remembers to pay his credit card balance on time each month.

He knows it's time to get serious about these things. And he knows that includes getting a will put together once he's married. Again, it's something he's avoided because he doesn't understand it.

He's pretty sure he's terrible at being an adult and he wants to do the responsible and right thing, but obviously could use some guidance.

Sounds pretty typical, right? Emil has ADD and has struggled all his life to organize, plan, and execute hard tasks.

<http://sugoru.com/2013/07/14/designing-for-the-extremes/>



Solve for the GAP

Identify the gap — between the core and the outliers — you'll see quite tangibly where innovation can happen — then you'll brainstorm about solutions for the gap.

<https://pixabay.com/en/stairs-gap-crack-1131800/>

LET'S DO THIS NOW

- think about a problem you want to solve; or a service you want to improve
- map how it meets your needs now
- think about the edge case — WHO
- solve for them ONE-SIZE-FITS-ONE / PERSONALIZE
- ITERATE — watch for Design BRILLIANCE THAT EXCLUDES

trupanion
(pet insurance)

loved one end-of-life — immigrant with assets in two countries


preparing healthy meals during the week

delivery of a service (health? food? transportation? power?)

finding a job

hiring someone for a job

simplify, easy to use, convenient, quick

 inclusive design
research centre



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Thank you and I want to thank SenseAbility for having us all here today. And please take these links to keep in touch and participate in inclusive design.



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