OPTI-PESSIMISM: DESIGN FOR THE BEST CASE, BUILD FOR THE WORST

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Hi, I’m Cheryl.
I’m a designer who loves exploring complexity and new technology. My interests have led to an adventure of a career.
Technology has changed. How are we changing?
Today’s topic applies to all designers and researchers: whether we’re working on a traditional website, or a large scale AI-infused experience.
Is your glass half full... or half empty?
For years, our design glass was half full – more “happy paths”, less edge cases.
But glass-half-full optimism isn’t enough in an increasingly complex environment.
LET’S TALK ABOUT AN ELEPHANT.
No, not a metaphorical elephant.
An actual elephant.
This story is a reflection on the danger of unchecked optimism.
In 2014, I had the privilege of teaching design workshops at the iHub in Nairobi, Kenya.
Afterwards, I headed to the Maasai Mara for a 3-day safari. Shoutout to our hosts at Oldarpoi Mara Camp!
On our last day, we took an early morning hike.
Our experienced guides demonstrated how to identify dung from elephants and zebras.
“So... elephants have passed through this area? Thank goodness it’s dry dung.”

My inner monologue
“That bush is trampled. An elephant... and her baby... probably slept here last night.”
“It’s before 7 in the morning. Isn’t ‘last night’ basically now?

...It’s fine. The guides aren’t scared. Just be cool.

The inner monologue”
Then, we found *fresh* elephant dung. Flies and all.
FRESH elephant dung?? The guides do this all the time. I’m sure we’ll be fine.

My inner monologue attempts a Fonzie
At this point, we split up because I couldn’t climb the steep hill.
A few minutes later, Leonard and I heard yelling from up on the hill in the Maasai language.

A moment passed as he strained to hear.
“RUN!

(you learn a lot about yourself in this moment)
WAIT. WHAT DOES THIS HAVE TO DO WITH DESIGN?
WAIT. WHAT DOES THIS HAVE TO DO WITH DESIGN?

EVERYTHING.

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OUR INDUSTRY HAS BECOME ADDICTED TO IMPACT.
But as our “adventures” become greater, they become more dangerous.
SO HOW DO WE COPE?
GET OPTI-PESSIMISTIC.

Four techniques to apply to your product design process to consider the best – AND worst – of what your product has to offer.
RULE 1: CONSIDER THE HUMAN CONTEXT

Surround yourself with customer context, and ask good questions of those around you.

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How do you spot the dung if you’ve never been in the field?
“Your scientists were so preoccupied with whether they could, they didn’t stop to think if they should.”
Higher stakes demand greater attention to the context of use.

We need our customers to guide us. Not the other way around.
Woe to those who build without guidance.
Ethnographic research can lead you down unexpected paths toward better solutions.
Meet your customers where they are.

Qualitative data doesn’t have to be scary.

- Interviews (in-person or remote)
- Diary studies (like dscout)
- Site visits

Cheryl Platz - @Muppetaphrodite
Consider adding ethnography to your toolkit.

Whether you conduct ethnographic research on your own or work with an outside company, the investment of time and money may save you millions in misdirected product work.

Recommended reading
Be curious.
Learn your customer’s context.
Share that context with your team.
An important piece of human context I missed? 
Leonard had once been injured by an elephant.
HOW DOES YOUR PRODUCT FIT INTO THE BIG PICTURE?

How will this make lives BETTER?

• Does it include more people than other solutions?
• Does it solve a previously unsolved problem?
• Does it solve a customer problem in a uniquely beneficial way?

How will this make the world WORSE?

• Are we introducing stress into a customer’s life?
• Which customers might be excluded by our product?
• Are we putting our customers at risk?
RULE 1: CONSIDER THE HUMAN CONTEXT

- What are the worst conditions under which our product will be used?
- Where will the product be used?
- What devices will our customer prefer?
- How will our customers feel if we fail?
- Who are we excluding?
- Is this product worth building?
RULE 2: DESIGN FOR THE BEST CASE

Embrace the glass-half-full mentality and explore the consequences of success.
Success brings complexity. Explore those possibilities.

What are the best problems you could have?
What if your customers want to engage cross-channel?
What if customers who aren’t like you want to engage with your product?
Are you at risk of excluding customers?
Microsoft’s Inclusive Design toolkit includes activity cards to jumpstart your thinking.
Inclusivity also means asking (only) the right questions.

What do you really NEED to know about customers? Start there, and be judicious.
The ‘best problem’ to have on our hike was also the most dangerous: encountering one of the Big 5 game animals in person.
RULE 2: DESIGN FOR THE BEST CASE

• Assume customers will want to interact with you on a **variety of platforms**, and account for this early.

• Assume customers will love your product, and **think through long-term relationships** with your product over time.

• Assume a wide variety of customers will want to use your product, and **design for inclusivity** from the start.
RULE 3: PLAN FOR THE WORST CASE. BE PESSIMISTIC.

Don’t remove human agency: instead, provide tools to overcome the worst.

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The harm our products can cause has never been greater.
According to two anonymous sources who talked to Efrati, Uber's sensors did, in fact, detect Herzberg as she crossed the street with her bicycle. Unfortunately, the software classified her as a "false positive" and decided it didn't need to stop for her.

*Timothy B. Lee, regarding the fatal Uber autonomous car crash* 
*ArsTechnica – May 7, 2018*
“The more that culture teaches people to equate women with assistants, the more real women will be seen as assistants – and penalized for not being assistant-like.”

Quoted from ‘I’d Blush If I Could’ UNESCO report; as cited in New York Times May 23 2019
What is the WORST CASE impact our product could have?

This is no longer a quantity discussion. It doesn’t matter if your worst case “only happens occasionally”.

What matters is the proportional impact that worst case has on a customer’s day or life. Even if that’s just a single customer.
THE 747-MAX IS A TRAGIC CASE IN POINT.
“We and Airbus should have been more on top of things...

...We put the pilots into a bad situation. MCAS put them in a situation they were ill-prepared to handle. You wonder about the detailed systems engineering that went into that.

Former senior executive at Boeing
Quoted in Seattle Times, May 16 2019, page A5
Learned helplessness and scientific detachment are dangerous – but surprisingly common.

“There is no such thing as machine error (a la Boeing), it can be traced back to engineering failure.”

- A comment on one of my recent Medium posts
Bjorn Fehrm, a Swedish pilot and aerospace engineer... said Boeing and Airbus cannot rely on the roughly 300,000 pilots flying worldwide having a good day and being perfectly trained for every emergency.

‘It’s not the reality, and reality rules.’

From “FAA Chief: Manuals should have given 737 MAX pilots details on new system”

Seattle Times, May 16 2019
It IS our job to make sure our products function without causing harm.

Even in extreme circumstances. Even when it’s hard.

*Blaming sensor failure isn’t good enough.*

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Explore the tough questions *before* the cost is too high.

Yes, that means YOU.
You don’t need to build life-or-death systems to face this responsibility.

Amazon Echo secretly recorded a family's conversation and sent it to a random person on their contact list

- A family in Portland says their Echo device recorded their conversation and sent it to a random person on their contact list.
- Amazon reportedly confirmed the incident and blamed it on Alexa misinterpreting background conversation as commands to send a message to a contact.
- The incident raises privacy concerns as voice-assistant devices like the Echo gain more popularity.

Eugene Kim | @eugenekim222
Published 4:54 PM ET Thu, 24 May 2018 | Updated 7:58 AM ET Fri, 25 May 2018
Use tools like Artefact’s Tarot Cards of Tech to help you identify your blind spots.
What happens if our success is not customer success?

If we’re too successful, how could customers be harmed?

- Addiction
- Stress
- Broken relationships

How will customers abuse our product?

- Impact of leaked data
- Malicious mob behaviors
- Out of context use
As customer advocates, the responsibility of telling these tough stories often falls to us.
Use your storytelling skills to bring the voice of your customer to difficult conversations.
So how do we deal with the worst case?

PROVIDE TRANSPARENCY.
ENCOURAGE AWARENESS.
PREERVE HUMAN AGENCY.
I could have asked: “What should we do if we encounter a dangerous animal?”
RULE 3: BUILD FOR THE WORST CASE.

Confront your nightmare scenarios.

- Your hardware & sensors WILL FAIL.
- Your training data IS BIASED.
- Your customers will get interrupted.
- Your customers will be distracted.
- Your system will make odd decisions.
- Your system can cause real harm.
- Your system will encounter unexpected and uncertain circumstances.
RULE 4: BE READY TO ADAPT IN THE MOMENT.

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“RUN!

(you learn a lot about yourself in this moment)
"ME: Why are we running?

LEONARD: Elephant!

ME: ...oooooohhhhh.

Our conversation, at speed."
Conditions change quickly...
@Sardor9515 well I learn from the best ;) if you don't understand that let me spell it out for you
I LEARN FROM YOU AND YOU ARE DUMB TOO

Should you adapt at the speed of the internet?
What if our feature causes physical or emotional harm?
Our experiences are now decentralized, and increasingly uncertain.
Design at scale requires embracing uncertainty. More attention must be given to the error experiences than the desired outcome.
Most AI can’t explain itself. We can’t predict its behavior – we can only prepare to respond.
But you can’t foresee all of the ways your system will fail.
So how do we know conditions are changing?

Pair your nightmare scenarios with metrics designed to indicate a turn for the worst as it happens.

Then pair those metrics with thresholds and actions for remediation.
A relevant hiking metric: Freshness and source of dung. How do we respond in extreme cases?
Build a system that helps you respond to surprises – in real time.
RULE 4: BE READY TO ADAPT IN THE MOMENT.

- What signals might we watch for that our product is not working as intended?
- What’s the riskiest part of this project?
- What are our blind spots?
- What’s our rollout plan?
- Do we have fail-safes in place that allow us to adjust performance in the field?
- Are we committing to revisiting the launched product with resources to make changes?

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SO, HOW ABOUT THAT ELEPHANT?
We ran. Through groves of spiked acacia trees.
And then we hit a crevasse.
My theoretical elephant became a *contextual* elephant.
When you have a 90% chance of being trampled by an elephant, it’s time to question your life choices.

My inner monologue
My nightmare scenario: I tripped.

And adapted.

(Live long and prosper, indeed.)
The elephant ran away from us. We got lucky.

“According to the National Geographic Channel documentary Elephant Rage, some 500 people are killed by elephant attacks each year. Such attacks are becoming increasingly common, researchers say.”

National Geographic, June 2005
We sat waiting for the elephant danger to pass while watching... dung beetles.
Hiking was an optimistic act, but I should have been more pessimistic DURING the journey.

I could have avoided this situation.
But I was too optimistic that things would “be fine.”
ADOPT OPTIMALISM IN YOUR PROCESS.
Embrace your optimistic desire for a better world.
But don’t let unchecked optimism blind you to the real dangers lurking in the field.
The elephants in the room require us to confront the dangers ahead.
ON YOUR NEXT ADVENTURE, GET OPTI-PESSIMISTIC.

1: Consider the human context.
2: Design for the best case.
3: Build for the worst case.
4: Be ready to adapt in the moment.

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DREAM BIG, BUT CONFRONT YOUR NIGHTMARES.

GET OPTI-PESSIMISTIC.

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MAY YOUR ELEPHANTS RUN AWAY FROM YOU.

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