Design Spaces Book Club
Design Beyond Devices:
What Comes Next?

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WHAT WILL WE COVER TODAY?

Since this is a book club, I'm assuming you've already gone through some or all of the book. Today, we'll focus on key concepts and some next steps.

- Definitions and theme review

- Capturing customer context

- Working with stakeholders

- Evaluating potential ideas

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PROLOGUE
Definitions

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The future is multimodal, because humans are multimodal.

A **mode** (in this context) is a type of communication, and humans communicate using their senses.

A **multimodal interaction** is an exchange between a device and a human being where multiple input or output modalities may be used simultaneously or sequentially depending upon context and preference.

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COMMUNICATION MODALITIES

Modality	Description
Visual	Projection or rendering of a stimulus that will be interpreted over optical channels—from books and e-readers to GIFs and videos.
Auditory	The use of acoustic waves to communicate meaning: music, sound effects, or language.
Haptic	Communicating meaning with changes to the physical environment: pressure, vibration, force feedback, or direct manipulation like taps or clicks.
Kinetic	Communication based on movement or orientation in space.
Ambient	Inferred meaning driven by environmental or biometric conditions: temperature, heart rate, lighting, etc.

As defined in the book; there is some debate about how to split the Kinetic and Ambient categories.

Note that these don't align 1:1 to the human senses.

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What is multimodal design?

DEFINITION

Multimodal design seeks to coordinate the delivery of multiple input and output stimuli to create a flexible, coherent experience for our customers.

PRACTICE

Multimodal design is an additional layer of design rigor added on top of our existing modality-specific designs, like voice UI (VUI) designs.

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You're still going to need to do full VUI or NUI designs for multimodal experiences.

MULTIMODALITY JUST ADDS ONE MORE LAYER OF COMPLEXITY.

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WHY INCLUDE BOTH "MULTIMODAL" AND "CROSS-DEVICE" EXPERIENCES?

Wasn't just multimodality complicated enough for one book?

It's short-sighted to assume ANY experience exists in a vacuum. Our customers are swimming in devices.

Even websites are cross-device now: most websites must function on desktop and mobile, which means interruption, context, and notifications become relevant.

The limits of multimodality on one device may cause a customer to turn to another device.

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THE BOOK CAN BE DIVIDED INTO FOUR THEMES.

Each chapter fits into one or two of these core themes, each a critical piece of the puzzle you'll need to complete to become a responsible, resilient multimodal designer.

1. Customer context & ethics

2. Multimodal frameworks

3. Ideation and Execution

4. Emerging technology

But what comes after the final page? How do you start to put some of these concepts into practice?

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Getting context for informed design choices

BEFORE YOU CAN BEGIN, YOU NEED TO KNOW MORE THAN BEFORE

From the Echo to automotive, smartwatches to your television - not all multimodal experiences are created equal. How do you choose the right interaction model?

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Dimensions driving multimodality

How rich is your information?

- Low information density

  Smart watch or wearable

- High density

  Book or computer screen

How close is the device to the customer?

- Close proximity

  Wearable to arms-reach

- Long range

  3-10 feet

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THE SPECTRUM OF MULTIMODALITY

By plotting information density and proximity on a grid, you can place all current and future experiences in one of four categories.

RICH INFORMATION

CLOSE PROXIMITY

LONG RANGE / FAR FIELD

QUADRANT 2
Anchored

Experiences with rich physical presence where a customer is usually nearby.

Fire TV, Xbox One, Cortana on PC

QUADRANT 1
Adaptive

Experiences that support both close proximity and long-range interactions.

Echo Show, Facebook Portal, Google Nest Hub

QUADRANT 3
Direct

Customer and device must be in direct contact or extreme proximity for use.

Fitbit, Google Glass, Hololens, Apple Watch

QUADRANT 4
Intangible

Hands-free experience where close proximity to the device is not required.

Echo (original) Google Home

SCOPED INFORMATION

HOW DO YOU CHOOSE?

You must understand your customer's context to know what interaction model makes sense in the moment.

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Anchored

Adaptive

Context matters.

Direct

Intangible

Use CROW to help you define and capture customer context.

CROW is a storytelling shorthand we use at my improv theater (Unexpected Productions) to quickly define the essential elements of a scene.

CROW stands for:

- **Character**

- **Relationship**

- **Objective**

- **Where**

CROW-INSPIRED INTERVIEW GUIDE

The good news is that many of the questions you'll want to ask are similar regardless of the product context. I've created an interview guide to inspire your own question selections.

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Capturing Customer Context
Starter Interview Guide

Don't have a ton of time to prepare your own discussion guide, but you need to conduct a customer interview that goes beyond "how do you use our product"? Use this discussion guide based on content from Design Beyond Devices: Creating Multimodal, Cross-Device Experiences to get you on your way. Remember CROW – to get a well-rounded picture of your customer's context, you're looking to establish elements of their Character, Relationships, Objective, and their Where.

Remember, this is just a starter guide. You can ask questions in any order, you can rephrase them, and you can add or remove questions as appropriate. If you are not already working on a specific product, you'll probably rephrase these to focus on tasks.

Section 1: Character (Attributes, Attitudes, and Choices)
1. If you were meeting a potential friend for the first time, how would you describe yourself?
2. What parts of your personality are you most known for?
3. How do you like to express your individuality? Do you generally feel safe doing so?
4. Do you identify with any specific identity groups that you're willing to share with me? What are they?
5. What parts of your identity do you feel are overlooked or misunderstood?
6. If you feel comfortable doing so, could you tell me about a time where you felt excluded or disadvantaged because of an element of who you are?
7. How do you feel your family upbringing influences your choices now?

Section 2: Device relationship
1. Do you own this device, or does someone else? How long have you had it in your possession?
2. How do you feel about the device? Does it have a nickname?
3. How much time do you spend with this device a day?
4. Do you have to take special care of this device?

Section 3: Product relationships
1. Are you the person who gets to choose what to purchase or use for this task? If not, who does?
2. How do you feel about the product you're using? The business that makes the product?
3. Who else uses this product with you? At the same time, or do you take turns?
4. If you're sharing this product, how is that going? How does everyone feel about that arrangement?

Section 4: Objectives
1. What are you hoping to accomplish this year?
2. What does a good day (at work, at home) look like for you?
3. Is anything getting in the way of what you're trying to do on a regular basis?
4. What were you hoping to accomplish when you started using this product?
5. If you were going to hire someone to do the job this product is doing, what would that job description be?

Section 5: Where
1. In what locations would you complete this task? What specific parts of that location?
2. What else is at arm's reach when you'd be using this product?
3. Would power usage be an issue? Would chargers be handy when you're using this product?
4. Are the places you'd use this product distracting? What kinds of distractions?
5. Would you ever be doing this task while looking at something else?
6. Are there other people around in the spaces you'd complete this task? How do those people affect your use of the product, and how you feel about using it?

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It takes a village, so bring your stakeholders

HOW DO YOU CONVINCE THE SKEPTICS?

It's not uncommon to encounter skepticism when exploring multimodality or cross-device work.

"WE ALREADY KNOW OUR CUSTOMERS"

Sometimes, when you seek to get that extra customer context, your stakeholders will claim they already know all they need to about your customers.

"WE CAN ALREADY DO THIS TODAY"

In other cases, your stakeholders will push back at the perceived cost and complexity of new solutions when there's conceivably an app for the scenario today.

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How do you convince stakeholders to let go of outdated knowledge?

Shared understanding workshops generate buy-in while effectively gathering the sum total of the group's knowledge.

Generate energy and curiosity around your customer scenarios!

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Shared Understanding Workshop

SESSION GOALS

- Everyone has the same basic knowledge

- Gaps in understanding are identified

- Stakeholders feel heard

SESSION AGENDA

PART 1: Review existing knowledge

PART 2: Ideation & exploration

PART 3: Analysis & synthesis

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Framing the session with your stakeholders:

The goal of this session isn't to solve the problem.

We're trying to understand our customers and the human context in which the potential problem occurs.

We're also working to make sure everyone on the team has the same information about our customer insight so we can speak the same language and make smart decisions about our research and product priorities as a group.

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CROW CUSTOMER CONTEXT WORKSHEETS

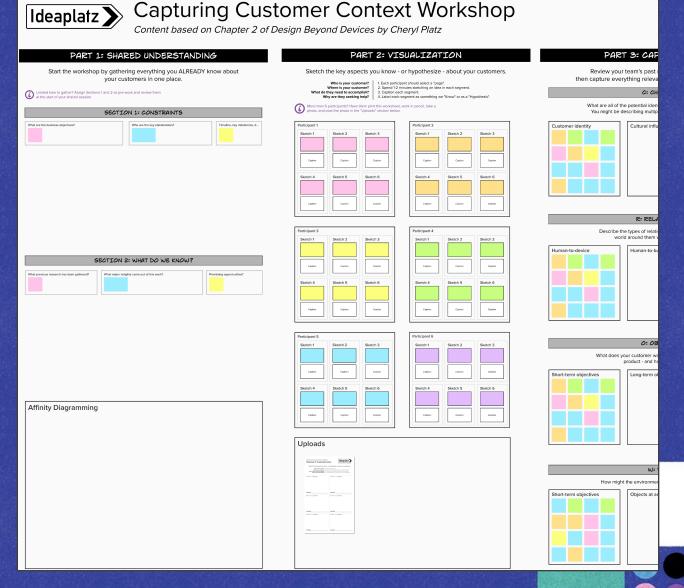I'm making these worksheets available for you to download and use from the Ideaplatz company website.

1. Shared Understanding Baseline
2. Visualizing Context
3. Capturing CROW
4. Open Research Questions

https://bit.ly/DBDContextWorksheets

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Capturing Customer Context
Worksheet 1: Shared Understanding Baseline
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Constraints
What are the business objectives?

Who are the key stakeholders?

Is there a timeline or key dates?

What do we know?
What previous research has been completed?

What major insights inspired this work?

Have we identified specific opportunities yet?

Capturing Customer Context
Worksheet 2: Visualizing Context
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Sketch the key aspects you know - or hypothesize - about your customers.

Who is your customer?
Where is your customer?
What do they need to accomplish?
Why are they seeking help?

1. Tear off instructions.
2. Fold along dotted lines to create 6 blank segments.
3. Spend 1-2 mins sketching an idea in each segment.
4. In each segment, circle either "Know" or "Hypothesis."

1. Know - or - Hypothesis?   2. Know - or - Hypothesis?

CAPTION: _____   CAPTION: _____

3. Know - or - Hypothesis?   4. Know - or - Hypothesis?

CAPTION:

5. Know - or - Hypothesis?

CAPTION: _____

Capturing Customer Context
Worksheet 3: Capturing CROW
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As you review the team's sketches, capture relevant insights about your customer's CROW.

C: Character
Customer identity

Cultural influences

Other notes

R: Relationships
Human-to-device

Human-to-business

Human-to-human

O: Objective

W: Where
...arm's reach
...stractions

Capturing Customer Context
Worksheet 4: Open Research Questions
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Check the items you believe you understand, and circle those that require further exploration.

C: Character

ATTITUDES
- How does your customer define their own identity to themselves and others?
- How does your customer differ from other customers when communicating?
- Would your customer have any physical limitations that might impact their experience?
- Which of your customer's attributes are underrepresented in the greater population?

ATTRIBUTES
- What cultural influences have shaped your customer's preferences and beliefs?
- What is your customer's likely emotional state when starting this experience?
- Would this customer have any relevant preconceived opinions or learned behaviors?

CHOICES
- Why would a customer choose to seek out your experience? Did they have a choice at all?
- What choices are you asking your customer to make when engaging with you?
- How does your customer express individuality? Is your experience part of that expression?

R: Relationships

HUMAN TO DEVICE
- How long has your customer possessed the device? Who owns it?
- Does your customer consider the device expensive & treasured, or cheap & disposable?
- Does your customer anthropomorphize the device? Are they likely to give it a name?
- How much time does your customer spend with the device, and how do they feel about it?

HUMAN TO BUSINESS
- Does your customer deal directly with your company or a 3rd party?
- Did they get to choose to work with you, or is their choice limited due to circumstances?
- What are your customer's expectations of your business and your brand in this situation?

HUMAN TO HUMAN
- Is the experience used by multiple people? At the same time, or do they take turns?
- Who determines who will share a specific device? Head of household? Manager? Someone else?
- When sharing an experience, do your customers trust each other?

O: Objective
- What is your customer thinking when they engage with your product?
- What does your customer want to achieve when they engage with your product?
- If your customer was going to hire someone to do this task, what would the job description be?
- In what ways are your customers' objectives being obstructed with their current experience?

W: Where
- In what location(s) will your experience be used? Will your customer be moving between locations?
- Where is the device located? Is it fixed or mobile? Does it need to be near a charger?
- What objects or devices are within arm's reach? Is your customer busy holding other objects?
- What potential obstructions or distractions exist in the likely environments of use?
- Where is your customer looking? Do they see the device at all?
- What are the social norms in the spaces in which the experience will be used?

CUSTOMER CONTEXT MURAL TEMPLATE

Remote-only? Hybrid? No problem. I've also built a free MURAL template for you to use to try and build shared understanding.

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Ideaplatz Capturing Customer Context Workshop
Content based on Chapter 2 of Design Beyond Devices by Cheryl Platz

PART 1: SHARED UNDERSTANDING

Start the workshop by gathering everything you ALREADY know about your customers in one place.

Limited time to gather? Assign Sections 1 and 2 as pre-work and review them at the start of your shared session.

SECTION 1: CONSTRAINTS

What are the business objectives?

Who are the key stakeholders?

Timeline, key milestones, d...

SECTION 2: WHAT DO WE KNOW?

What previous research has been gathered?

What major insights came out of this work?

Promising opportunities?

Affinity Diagramming

PART 2: VISUALIZATION

Sketch the key aspects you know - or hypothesize - about your customers.

Who is your customer?   1. Each participant should select a "page".
Where is your customer?   2. Spend 1-2 minutes sketching an idea in each segment.
What do they need to accomplish?   3. Caption each segment.
Why are they seeking help?   4. Label each segment as something we "Know" or as a "Hypothesis".

More than 6 participants? Have them print this worksheet, work in pencil, take a photo, and post the photo in the "Uploads" section below.

Participant 1 — Sketch 1, Sketch 2, Sketch 3, Caption; Sketch 4, Sketch 5, Sketch 6, Caption

Participant 2 — Sketch 1, Sketch 2, Sketch 3, Caption; Sketch 4, Sketch 5, Sketch 6, Caption

Participant 3 — Sketch 1, Sketch 2, Sketch 3, Caption; Sketch 4, Sketch 5, Sketch 6, Caption

Participant 4 — Sketch 1, Sketch 2, Sketch 3, Caption; Sketch 4, Sketch 5, Sketch 6, Caption

Participant 5 — Sketch 1, Sketch 2, Sketch 3, Caption; Sketch 4, Sketch 5, Sketch 6, Caption

Participant 6 — Sketch 1, Sketch 2, Sketch 3, Caption; Sketch 4, Sketch 5, Sketch 6, Caption

Uploads

PART 3: CAP

Review your team's past then capture everything releva

C: CH

What are all of the potential iden
You might be describing multip

Customer identity

Cultural influ

R: RELA

Describe the types of relations
world around them

Human-to-device

Human-to-b

O: OB

What does your customer wa
product - and ho

Short-term objectives

Long-term o

W:

How might the environmen

Short-term objectives

Objects at a

And what about those stakeholders that think the phone is solution enough?

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Why storyboarding?

When you're working on experiences that aren't locked into a single screen, storyboarding is a KEY early envisioning technique.

Context matters, and you need to bring your customer's context to life for your stakeholders.

Storyboards will help you:

- Set the stage

- Start the debate

- Gain support for the cause

- Create and maintain a shared vision throughout your product team.

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DEFINING A "GOOD" UX STORYBOARD

Your goals when storyboarding for user experience scenarios – especially multimodal or cross-device scenarios – are much different than, say, a cinematic storyboard.

- It's focused on one or more users of the product, not the product itself.

- It supports one of these goals:
  - Context for a specific customer scenario
  - Exploring potential interaction issues

- It's fairly technology-agnostic
  - More than 3 screens or devices in a row early in production? You may be solutioning too soon.

- The customer's context or circumstances change over time.

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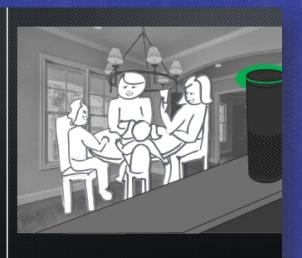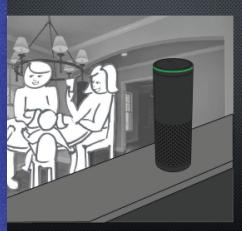
IT'S NOT ART, IT'S CUSTOMER CONTEXT.

Your stakeholders haven't seen the nuances of your customer's experience that make a natural user interface, cross-device experience, or multimodal experience important. Your goal is to use just enough technique to get that context across.
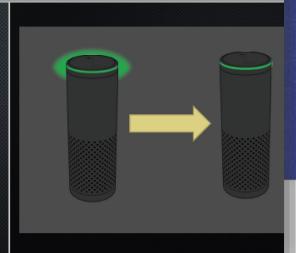
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How do we identify the right problems to solve and ensure we're solving them correctly?

ONCE WE'VE GAINED CONTEXT AND IDENTIFIED A PLAN, EXPLORE CONSEQUENCES.

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PICS OR IT SHOULDN'T HAPPEN

Should you build it?

These four dimensions – and related challenge questions – help you examine all elements of a potential idea to evaluate whether it's actually worth pursuing.

Problem

- Who has this need & how did you identify it?
- Is there a better use of this time and energy?
- Are you working on a solution in search of a problem?

Inclusion

- Does your team include many perspectives?
- When you consult experts, are you taking action on their recommendations?

Change

- What is your theory of change?
- What might success and failure look like?
- What happens if your product goes away?

Systems

- What systems might be disrupted by your work, and how can you minimize harm?
- How will your solution interact with institutionalized racism or other forms of systemic discrimination?
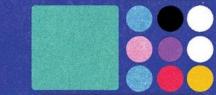
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OPTI-PESSIMISM

If you're building it, what's the worst that can happen, even if things go well?

Exercise your imagination and push your scenarios to the extremes before they become too costly to adapt.

These four steps – and a series of related challenge questions – can help ignite your ethical imagination and help you foresee some of the biggest problems you'll need to plan for when coming up on a big product release or change.

Guideline	Example questions
Consider the human context	• What are the worst conditions in which your product will be used? • How might this make the world worse?
Design for the best case	If your product is wildly successful, what other platforms might your customer want to interact with?
Plan for the worst case	• How could your project harm your customer? • How will customers abuse your product?
Be ready to adapt in the moment	• What signals might you watch for that your product is not working as intended? • What's the riskiest part of this project?

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All of the concepts covered in the book fit together to give you an end-to-end process for multimodal and cross-device design.

Putting it all together

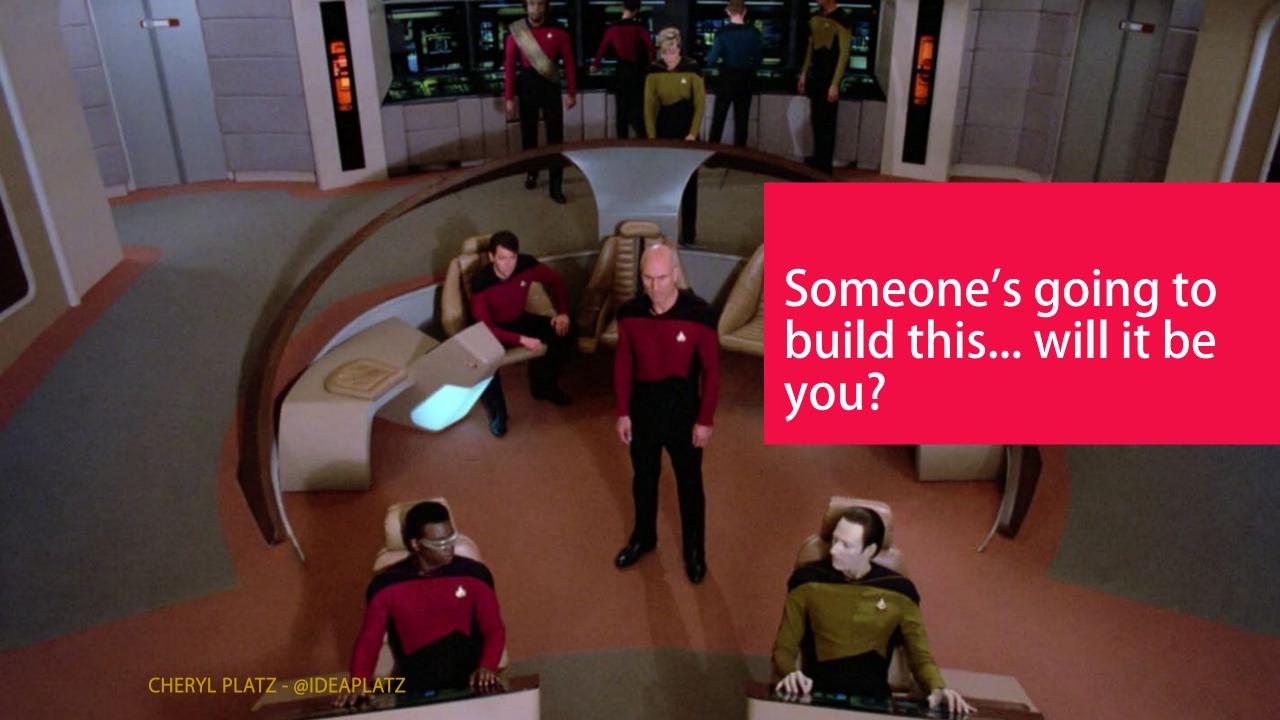| Discover Opportunities	Evaluate Technology	Envision and Explore	Deliver Designs
2: Capturing Customer Context	5: Language of Devices	4: Activity, Interrupted	9: Lost in Transition
3: Understanding Busy Humans	6: Expressing Intent	8: It's a (Multimodal) Trap!	10: Let's Get Proactive
13: Beyond Devices: Human + AI Collab		11: Breathe Life into the Unknown	12: From Envisioning to Execution
7: Spectrum of Multimodality	14: Beyond Reality: XR, VR, MR, AR		
		15: Should You Build It?	

As I tell folks outside the software industry, I hope this book will be the design manual for folks who want to design the bridge of the Starship Enterprise.
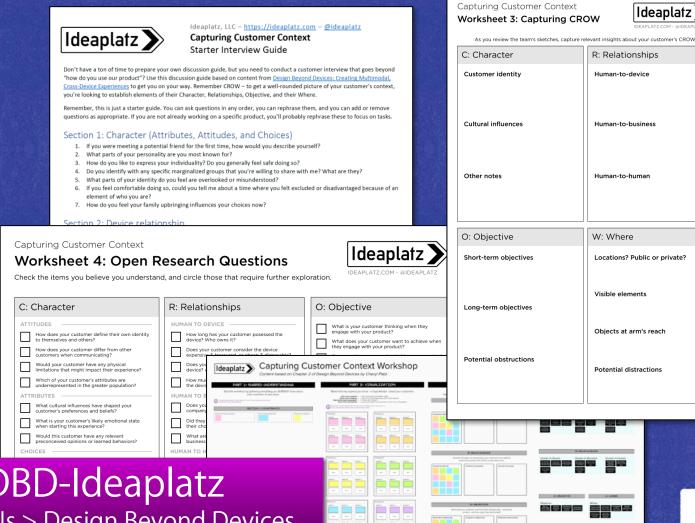
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Someone's going to build this... will it be you?

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VISIT THE BOOK SITE ONLINE

- Free downloads, guides, and templates

- Podcasts and sample chapters

http://bit.ly/DBD-Ideaplatz
or Ideaplatz.com > About Us > Design Beyond Devices

DESIGN BEYOND DEVICES:
CREATING MULTIMODAL, CROSS-DEVICE EXPERIENCES

Want a free signed bookplate? Send a name and mailing address to Cheryl@ideaplatz.com. Your contact information will not be used for any other purpose.

For more detail on the topics covered today: available from rosenfeldmedia.com or major online booksellers.

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Have fun at the final frontier!

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QUADRANT 1:
ADAPTIVE experiences
(Echo Show, Google Nest Hub etc.)

PROXIMITY: Far (or close)
INFO DENSITY: Medium/High

- Generally support both close and far scenarios

- Scenarios are completable remotely but proximity unlocks new options

- Customers can choose how to interact in some or all situations

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QUADRANT 2:
ANCHORED experiences
(Smart TV, home computer, VR, etc.)

- Customer is likely to be in arms' reach of a controller or screen

- Close proximity means high density displays are supported

- Voice is usually supplemental due to high visual load

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QUADRANT 3:
DIRECT experiences
(Smart watches, Google Glass, AR, etc.)

- Device is usually attached to or in immediate proximity to customer

- Proximity allows use of additional ambient input sensors

- Small, constrained screens force low information density

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QUADRANT 4:
INTANGIBLE experiences
(Smart speakers, etc.)

PROXIMITY: Far
INFO DENSITY: Low/Medium

- Customer is rarely near the device

- Customer does not have to look at the device to interact

- All interactions should be completable without physical interaction due to lack of proximity

- Lower information density

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Computer, who is Cheryl?

- Author of **Design Beyond Devices**

- Original UX Designer on Echo Look team

- Original designer for Alexa Notifications

- Voice, systems, and multimodal design: Alexa, Cortana, Windows Automotive, Dynamics Power Virtual Agents

- Shipped one of the first speech-enabled Nintendo DS games (Disney Friends)

- Creator of several Alexa skills

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