



Needfinding and context discovery for assistive technologies

Lecture	Needfinding – what, why and how
Exercise	Discover by Interviewing
Discussion	Your ideas, your questions
	Project dynamics

Three things...

Things don't have needs; people do.

Look at all the people in the problem space

What are their needs related to the problem and the person?

Walking Stick Project
Improved Walker Project
Power for Veterans Project
Authoring Grade School Lessons on Disability and/or Assistive Technology
Information Support System to Destigmatize Mental Health in the Black Community
Knee Brace Project

Define the need in experience terms

How does the person experience the need?

What about the other people in the picture?
How are they affected?

What is it like when the need is satisfied?

What changes when the person experiences satisfaction?

How are the other key people affected?

Art Tools Project
Aesthetic Brace Fairing Project
Educational Design Challenge Kit for Children with Disabilities
PDA and Me Project
Horseback Riding at Home Project

Four things to learn about needs & context

WHAT

Goals

What does the person want to do, have, or accomplish?

WHY

Values

What's important about what they want or the way they achieve it? What does it mean for them?

Four things to learn about needs & context

WHAT

Goals

What does the person want to do, have, or accomplish?

WHY

Values

What's important about what they want or the way they achieve it? What does it mean for them?

HOW

Capabilities

What resources, skills or abilities does the person have or bring to the situation?

BLOCKS

Constraints

What kinds of obstacles, limitations, or deficits are at work in the situation?

How do we do it?

We have ways to learn

Interview – talk to people

Observation – watch people's activity, in context

Prototype – make something and see what they do with it



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Then what?

Critical thinking

Facts

Assumptions

Inferences

Design thinking

Ideate

Sketch

Prototype

Iterate

Interviewing

Tips

Avoid leading questions

Ask them to show as well as tell



- + We get information directly from user
We get their perspective, how they feel about it
- Time and skill intensive
Must be careful when generalizing
What people say often different than what they do

Observing

Tips

Observe *actual* activity

Approximate the design target

Immerse yourself in context

Shadow, record, review

Collect a rich description of activity

Look for

Resources used to accomplish

Hindrances that get in the way



Exercise – How you start your day

Work in groups of 2-4

One person volunteers to be the ‘interviewee’ – or –

Work with a community member here today

Ask about what they do to start their day

Activity

Materials

Gear

See what you can learn about their

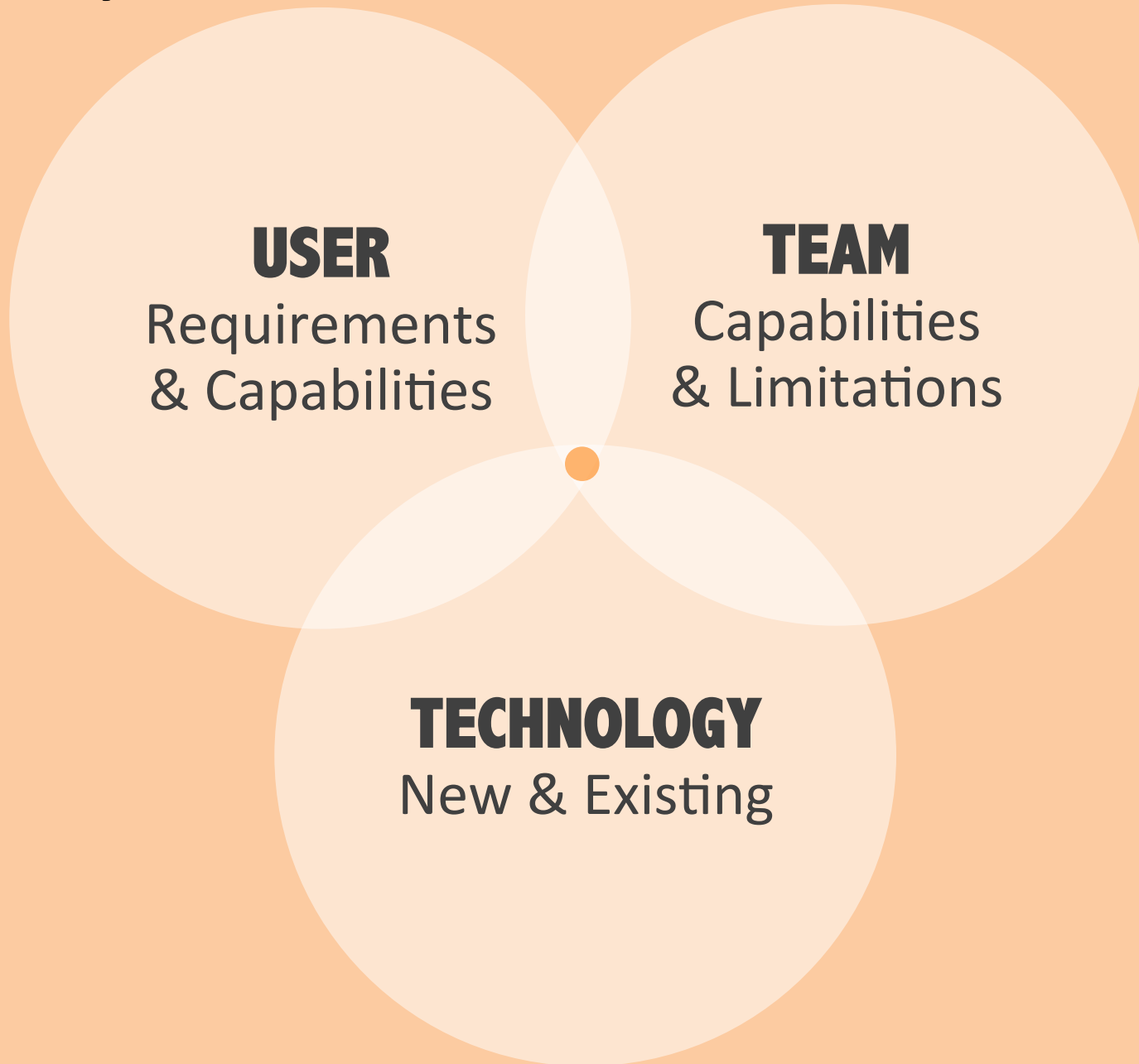
Goals – what they want/need to do

Values – what’s important about how they do it

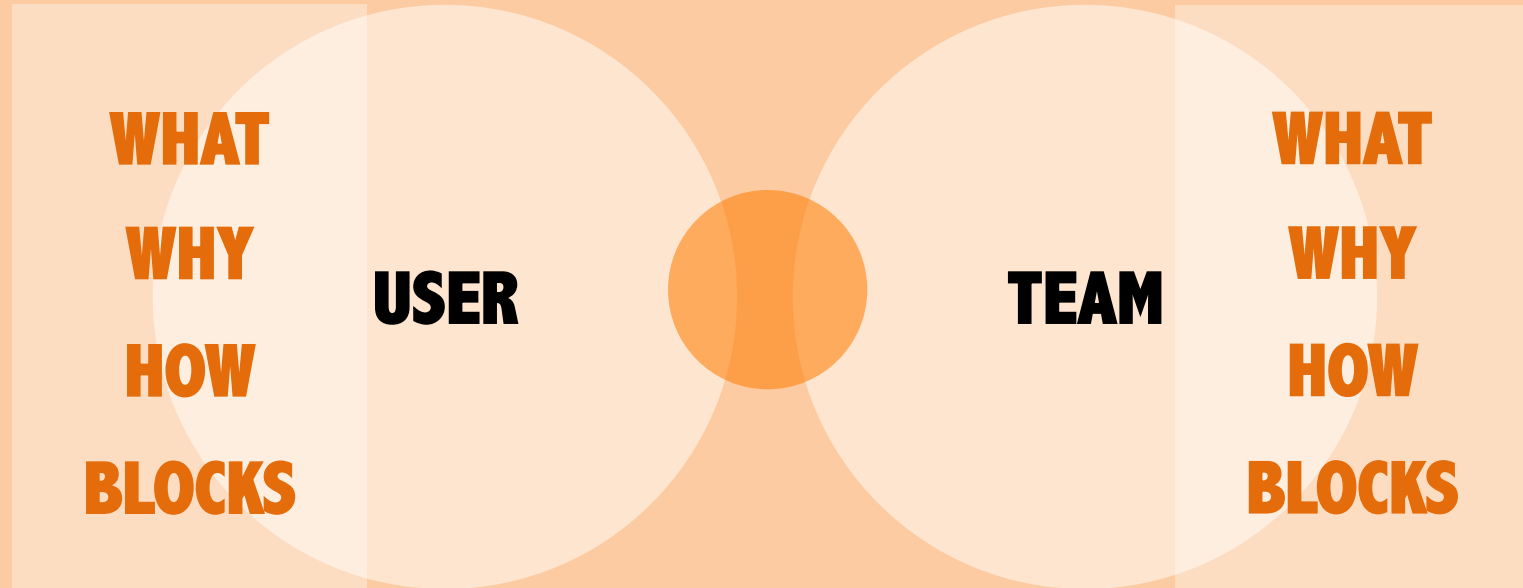
Capabilities – what resources are available

Constraints – what blockers are there too

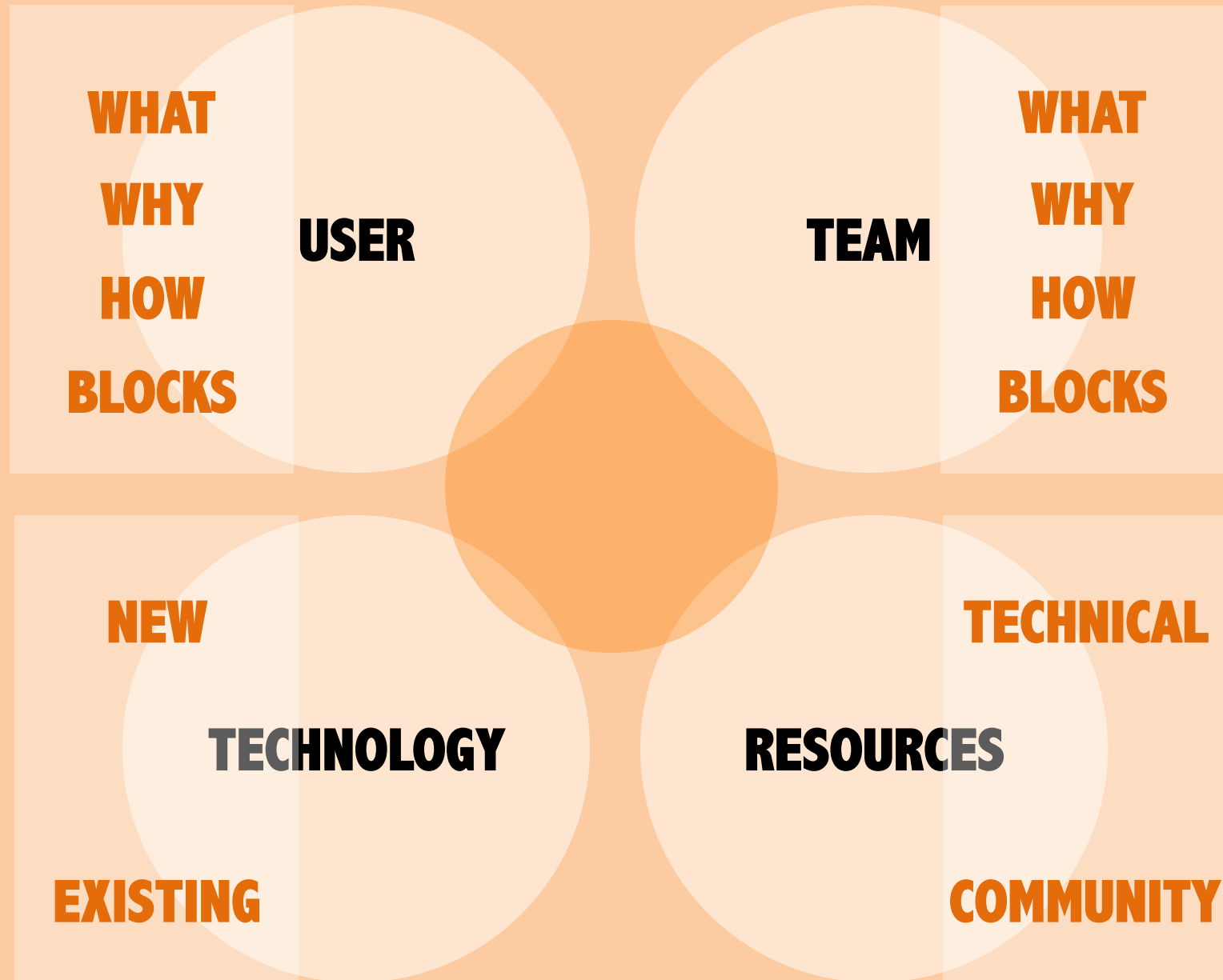
Project dynamics



Project dynamics – the people



Project dynamics – a working system





Six things to remember when observing what people do

1.



Cast aside your biases, listen and observe

Let subjects tell their own story, and listen for the things that elicit emotion, cause them concern or frustration.

"If you want to find out what people really need, you have to forget about your problems and worry about their lives."

2.



Note the contradictions between what people say and what they do

Opportunities for Innovation lie within the disconnect between action and words.

Six things to remember when observing what people do

3.



Listen to people's personal stories

Let them relate their successes and failures.

Stories encompass the implicit rules that govern and organize people's lives and reveal what they find normal, acceptable and true. They reveal moral codes, sources of pride, shames, shoulds and should-nots.

4.



Watch for "work arounds"

People make do and work around the shortcomings of products and situations.

In everyday life, we all come up with "work arounds," clumsy or clever, that we usually are totally unaware of.

You must take note.

Six things to remember when observing what people do

5.



Distinguish between needs and solutions.

Needs open up possibilities, solutions constrain them.

If you start with a solution then you may overlook the possibility of coming up with an entirely new and revolutionary product or service.

6.



Look beyond the obvious.

Your research may seem so routine and familiar that you feel there is nothing new to be learned.

Boredom and frustration easily set in. Stay alert.

The epiphanies and insights emerge from the nuances.

Resources

hci.stanford.edu/courses/dsummer/handouts/NeedFinding.pdf

What to do in Need Finding

hci.stanford.edu/courses/cs247/2012/readings/dschool-observing.pdf

Observant Observing

hci.stanford.edu/courses/agile/handouts/Interviewing-observing.pdf

Interviewing and Observing – Agile Aging

hci.stanford.edu/courses/cs447/docs/NeedFindingCribSheet.pdf

Need Finding Tools