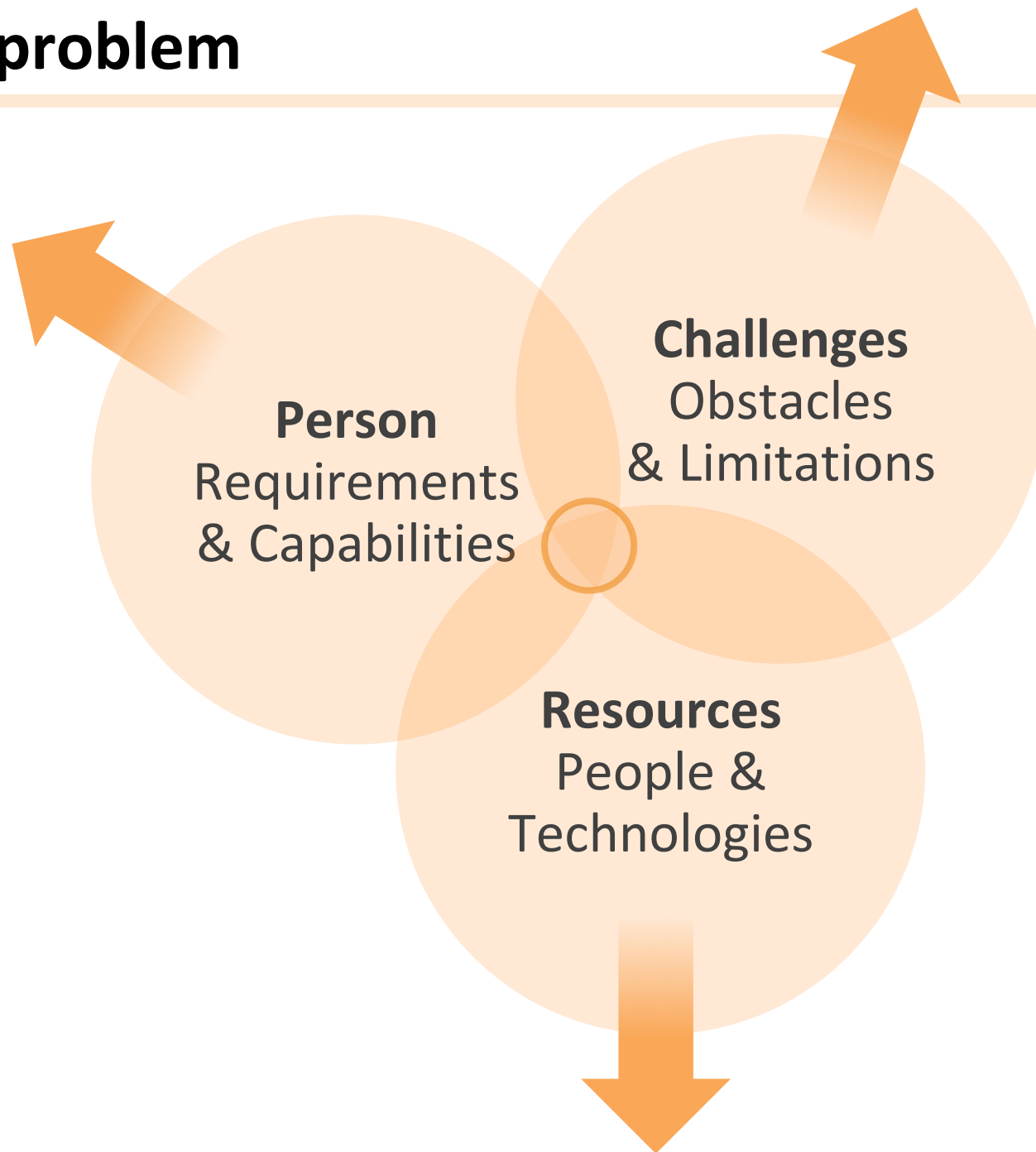


Creating Assistive Technologies

UNDERSTANDING THE PROBLEM

Lecture	Understanding – What, Why and How
Exercise	Discover by Interviewing
Discussion	Your ideas, your questions

The problem



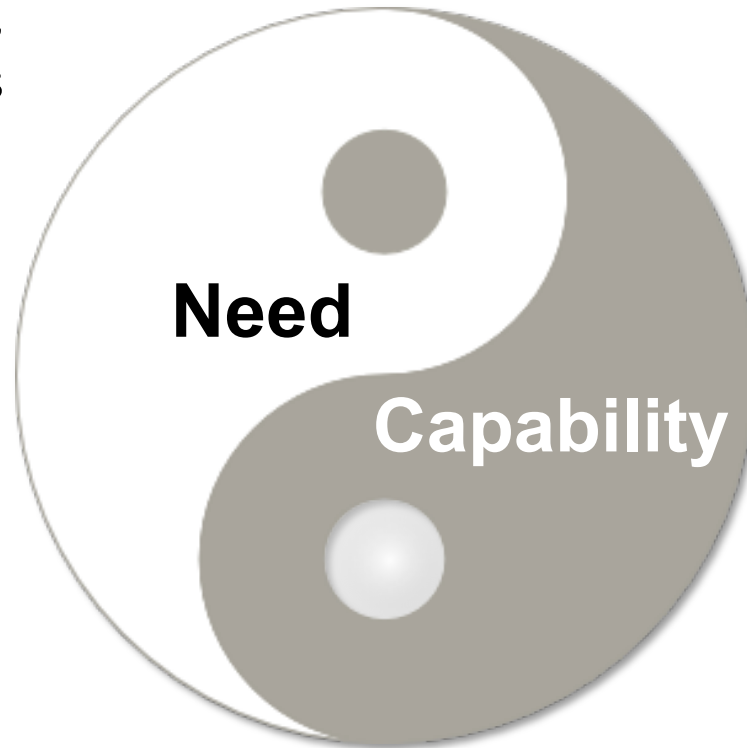
Definitions

Need Finding

Working to identify a person's requirements, wishes, and aspirations related to a particular task or goal.

Context Discovery

To identify the circumstances, forces and limitations that affect how people satisfy their needs



Capability

Resources, skills, tools, systems that enable a person to satisfy their needs and reach their goals.

Assistive Technology

Devices, systems or technologies that enable a person reach their goals

What are needs? Maslow's Hierarchy

Independence



Three things to know about needs...

**Things don't have needs;
people do.**

**It helps to define the need
in *experience* terms.**

**See what happens
when the need is met.**

Who are all the people
in the problem space?

How does the person
experience the need?

What changes when
the person experiences
satisfaction?

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

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

How are the other key
people affected?

Warm Up Exercise – How did you get here today?

**Think about what you did to get here today –
From the time you woke up, or from your last stop.**

Make a list

The things you did to get here...

Make note

1. What things were important?
2. Why was it important to be done in that way?
3. Tools/enablers you used
4. Blocks you managed

Self-actualization
Esteem
Love & belonging
Safety needs
Physiological needs

Four things we want to learn about the problem

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 we want to learn about the problem

WHAT

Goals

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

HOW

Capabilities

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

WHY

Values

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

BLOCKS

Constraints

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

How do we do it?

Interview – talk to people

Observation – watch people's activity, in context

Prototype – make something and see what they do with it



How do we do it?

Interview – talk to people

Observation – watch people’s activity, in context

Prototype – make something and see what they do with it

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 the person – the user
We get their perspective, how they feel about it
- Time and skill intensive
Must be careful when generalizing
What people say is 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 they got here today

Work in groups of 2-4

One person volunteers to be ‘interviewee’ – or –

Work with a community member who is here today

Ask about how *they* got here today

Activity | Materials | Gear

See what you can learn about their

Goals – why they wanted to be here – their goal in coming

Values – what was important about the way they got here

Capabilities – what resources were available or used

Constraints – what blocks stood in the way



2020 – Team Project Titles: (year originally suggested)

Projects with Abby: - Background

Camping Cot Project (2020)

Laptray Project (2020)

Alert Project (2020)

TravelScoot Camping Project (2020)

WHILL Model Ci Enhanced Visibility Project (2020)

Projects with June: - Background

Clean House Project (2018)

Within Reach Project (2019)

Project with Paul:

Access to Photography (2020)

**Projects with Olenka at the Magical Bridge Playground
(2 projects)**

Accessible and Inclusive Playground Attractions (2020)

Project with Danny & Stanford: - Background

Wheelchair Position & Transfer Project (2020)

Wheelchair Restraint Project (2020)

Projects with Amy:

Wheelchair Dancing (2019)

**Creative Expression using an Instrumented Wheelchair
(2019)**

Projects with Nick: - Background

Arm Rest Project (2020)

Improved Wheelchair Caster Project (2020)

Project with Nathan & Zia:

Wheelchair Accessories Project (2020)

Project with Ben:

Laptray for Ben (2020)

Project with Jerry:

**Smartphone and Tablet Holder for Easy Viewing and
Stability (2020)**

Projects suggested by Dave:

Creative Expression (2014)

Designing Your Afterlife (2014)

Student-defined Team Projects