# More than Usability:
Differential Access to Digital Security & Privacy

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CYBER SECURITY IN THE AGE
OF LARGE-SCALE ADVERSARIES
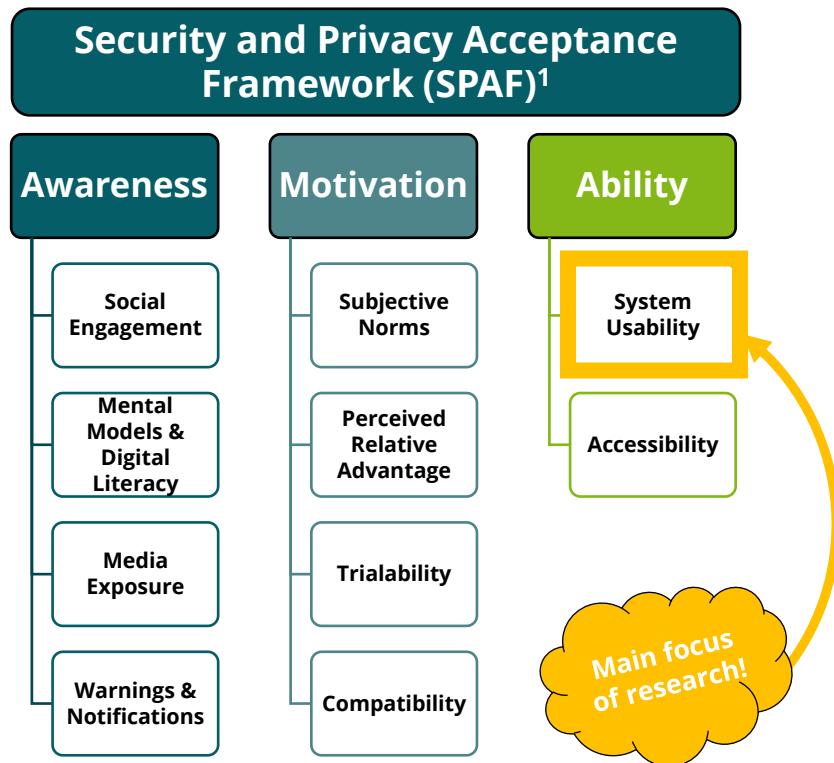
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MOTIVATION

"If enough people employed basic, expert-recommended best practices [...] the cybercrime industry would be hamstrung."[1]

Expert Advice

User Behavior
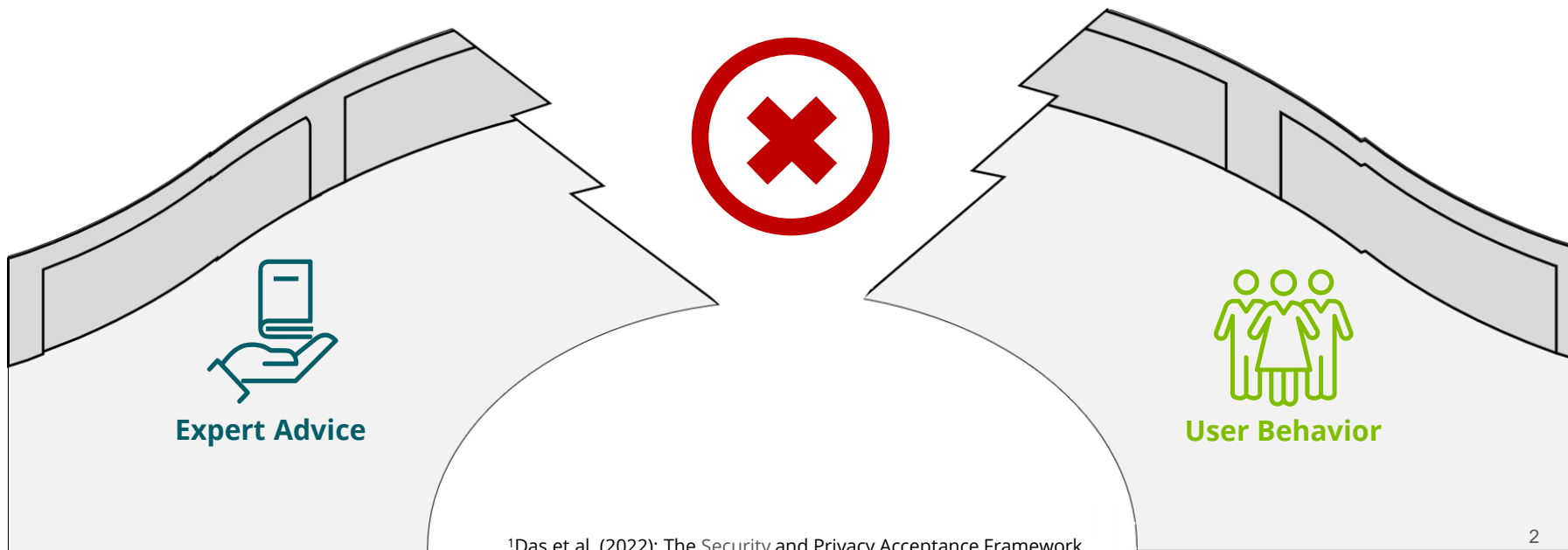
[1]Das et al. (2022): The Security and Privacy Acceptance Framework.

BACKGROUND

Security and Privacy Acceptance Framework (SPAF)[1]

Awareness	Motivation	Ability
Social Engagement	Subjective Norms	System Usability
Mental Models & Digital Literacy	Perceived Relative Advantage	Accessibility
Media Exposure	Trialability	
Warnings & Notifications	Compatibility	

Main focus of research!

Inclusive and Accessible S&P

❖ From „*average, general user*" to **diverse user groups**

❖ Usually: one specific group/factor

➢ „**contradictory results and vast unknowns**" how socio-demographic factors shape S&P behaviors

➢ Recent work suggest to investigate **intersectionality** and **universal barriers**

[1]Das et al. (2022): The Security and Privacy Acceptance Framework.

RESEARCH QUESTIONS & CONTRIBUTIONS

In-depth interviews to see...

❖ How can SPAF explain S&P behaviors of a **diverse sample**?

❖ What **barriers** occur when engaging S&P?

We contribute...

1. **New underlying factors** for awareness, motivation, and ability

2. Insights into **barriers to S&P**

3. The concept of *differential access* to S&P

4

IN-DEPTH INTERVIEWS WITH DIVERSE SAMPLE

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Diverse Sample
- N = 47, diverse in gender, age, income, education, health & ability, expertise

Probing for
- S&P in everyday life
- S&P perceptions, behaviors, challenges, advice/support, …

Bottom-up Analysis
- Centering participants' perceptions and experiences, barriers, wishes
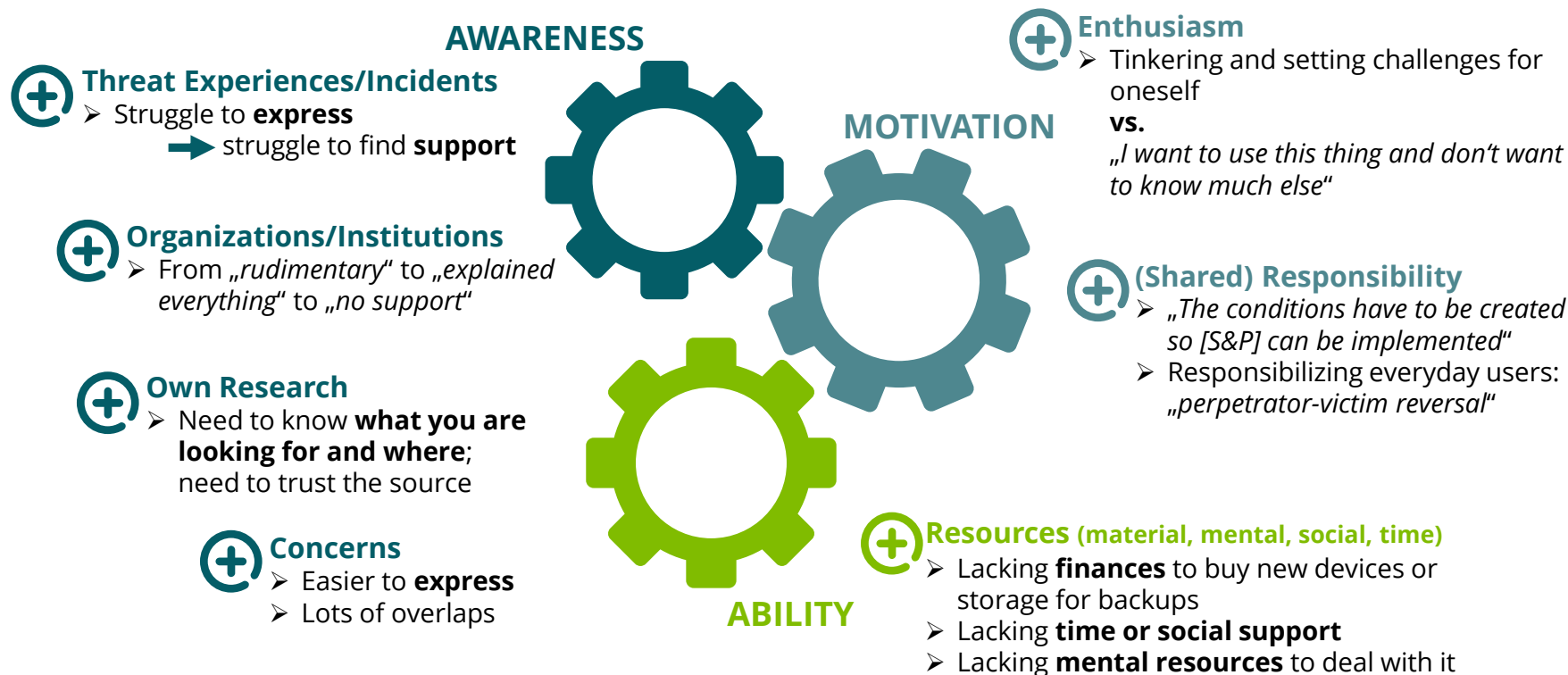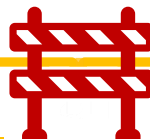- Looking for intersecting factors

SPAF
- Mapping to SPAF factors

Germany

Gender		Age	
Woman	23	Young Adult	9
Man	23	Adult	22
Non-Binary	1	Older Adult	16
Education		**Income**	
Lower	13	Lower	23
Higher	13	Middle	11
Uni/Coll.	21	High	13
Chronic Disease / Disability		**Enthusiast**	
Yes	20	Yes	12

All these intersect in various ways!

5

1. NEW UNDERLYING SPAF FACTORS

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AWARENESS

MOTIVATION

⊕ **Threat Experiences/Incidents**
  ➢ Struggle to **express**
      ➡ struggle to find **support**

⊕ **Organizations/Institutions**
  ➢ From „*rudimentary*" to „*explained everything*" to „*no support*"

⊕ **Own Research**
  ➢ Need to know **what you are looking for and where**; need to trust the source

⊕ **Concerns**
  ➢ Easier to **express**
  ➢ Lots of overlaps

ABILITY

⊕ **Enthusiasm**
  ➢ Tinkering and setting challenges for oneself
  vs.
  „*I want to use this thing and don't want to know much else*"

⊕ **(Shared) Responsibility**
  ➢ „*The conditions have to be created so [S&P] can be implemented*"
  ➢ Responsibilizing everyday users: „*perpetrator-victim reversal*"

⊕ **Resources** (material, mental, social, time)
  ➢ Lacking **finances** to buy new devices or storage for backups
  ➢ Lacking **time or social support**
  ➢ Lacking **mental resources** to deal with it

6

2. INTERRELATIONSHIPS AND BARRIERS

AWARENESS

Concerns can **increase / inhibit** motivation

MOTIVATION

Enthusiasm can **increase** awareness and ability

ABILITY

Usability can **increase / inhibit** awareness
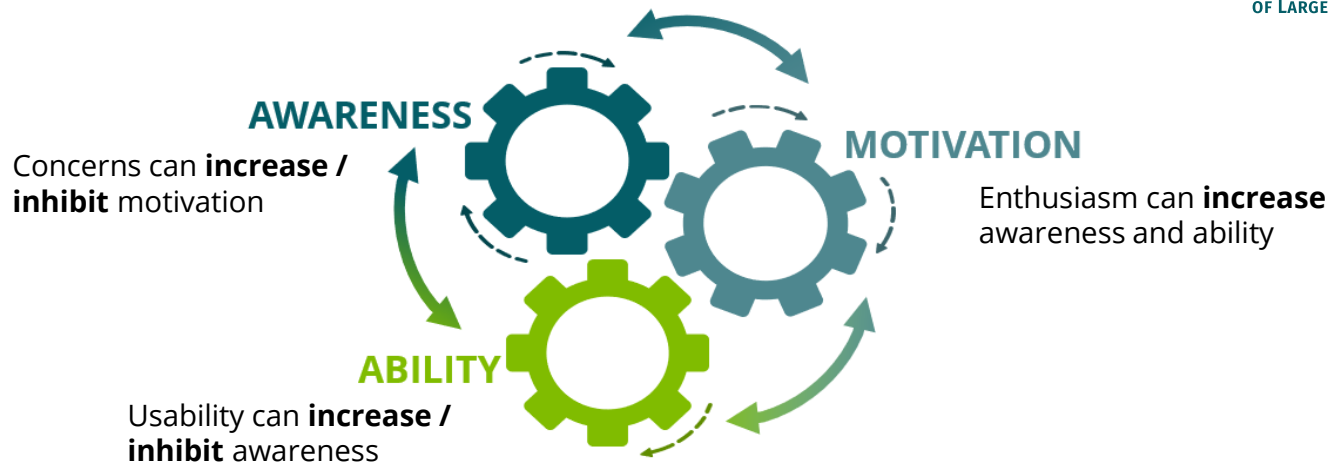
S&P Communication	Fear and Limited Trust	Limited Digital Skills	Limited Social Support
"35-year-old nerds write for 35-year-old nerds. But we are simply left out."	*"I don't want to go online with shaky fingers."*	*"If you don't know what you're doing, you're very lost."*	*"There is a tremendous need and perhaps we should address it."*

3. DIFFERENTIAL ACCESS TO S&P

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Intersectionality

➢ Intersecting socio-demographic factors and identities **amplify or alleviate burden of S&P**

➢ These factors can **change over course of life**

Intersectionality

Differential Access
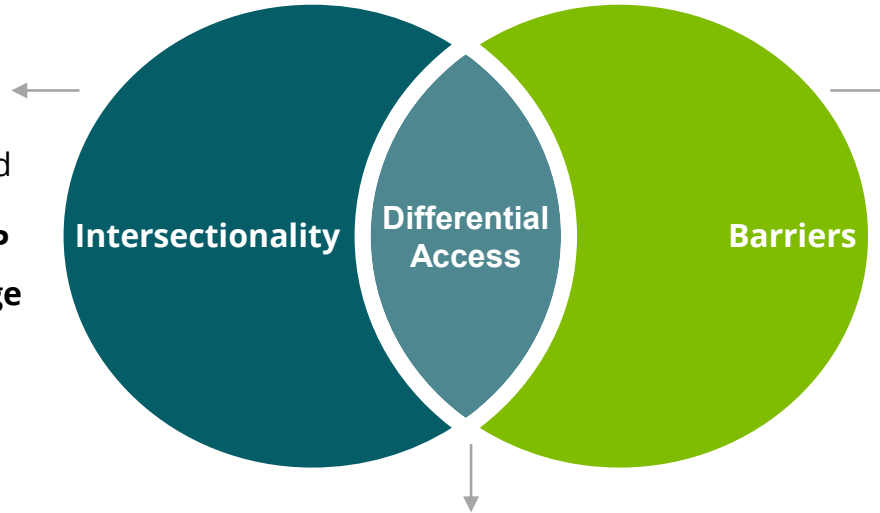
Barriers

Barriers

Barriers in design and social environment **run across**…

➢ SPAF factors

➢ Socio-demographics

Differential Access

➢ Intersectionality & barriers result in **differential access** to S&P

➢ **Access to S&P** hinges on **social and relational position** within society

➢ Supports uncovering & explaining **underlying „whys"** of user behavior & contradictory results

BRIDGING THE GAP: FUTURE WORK

Expert Advice

User Behavior

Integrative Approaches
Address awareness, motivation, and ability concurrently.

Recognize Differential Access
Develop measures that are adaptable to different contexts, acknowledging intersectionality and barriers.

Improve S&P Communication
Foster creative methods to reduce fear and build trust. Focus on user concerns rather than threats.

Empower S&P Multipliers
Support S&P supporters in disseminating S&P knowledge and skills.

Shared Responsibility
Engage the broader ecosystem of experts, organizations, regulators, and social networks.

9

- We validated **SPAF** and identified **new underlying factors** for S&P awareness, motivation, and ability, along with four **critical barriers**.
- The **interrelationships** of awareness, motivation, and ability require **integrative approaches**.

- We contribute the concept of *differential access* **to S&P**: social position and relations, intersecting identities, and barriers **fundamentally shape access to S&P.**
- This requires **contextual engagements and interventions**.

- S&P is deeply **embedded in larger social and cultural processes**, requiring lifelong learning, social support, and adaptability to diverse contexts.
- This requires **close cooperation among a diversity of stakeholders**.
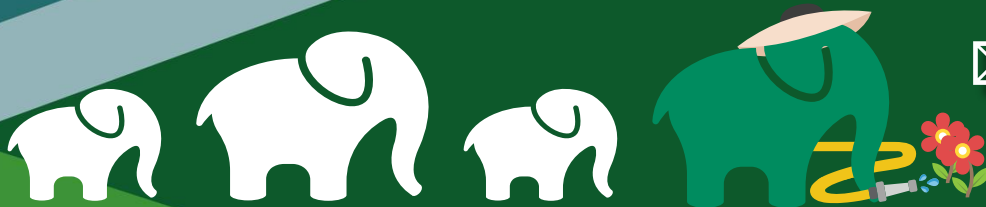
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Read our paper here!

❖ **Thank you for your attention!**

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