Human Trust in Artificial Intelligence

- Who uses generative AI, how, and why? A cluster analysis on motives, perceptions, and use patterns of ChatGPT

Dr Fabian Braesemann | Oxford Internet Institute | June 2024

A research project in collaboration with

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To trust or not to trust?

In order to drive the adoption of generative AI in the workplace, we need to understand what makes people use or not to use the technology

[1] Mayer et al. (1995, p. 712), [2] Colquitt et al. (2007)

Photo by Airam Dato-on from Pexels: https://www.pexels.com/photo/a-cell-phone-with-the-word-connect-on-it-15940005/

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Research Objective: *To identify and characterise **user archetypes** along their motives, perceptions, attitudes, and usage of ChatGPT*

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Conceptual Background
(Generative) artificial intelligence

*A system's ability to correctly interpret **external data**, **to learn from this data** and to utilise the knowledge gained to **solve tasks**.*[1]

[1] Kaplan und Haenlein (2019, S. 17) [2] Jebara (2004)

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(Generative) artificial intelligence

*A system's ability to correctly interpret **external data**, **to learn from this data** and to utilise the knowledge gained to **solve tasks**.*[1]

„*Discriminating*“ AI[2]

Suited to classify and predict from data.

Generative AI[2]

Suited to generate new data.

[1] Kaplan und Haenlein (2019, S. 17) [2] Jebara (2004)

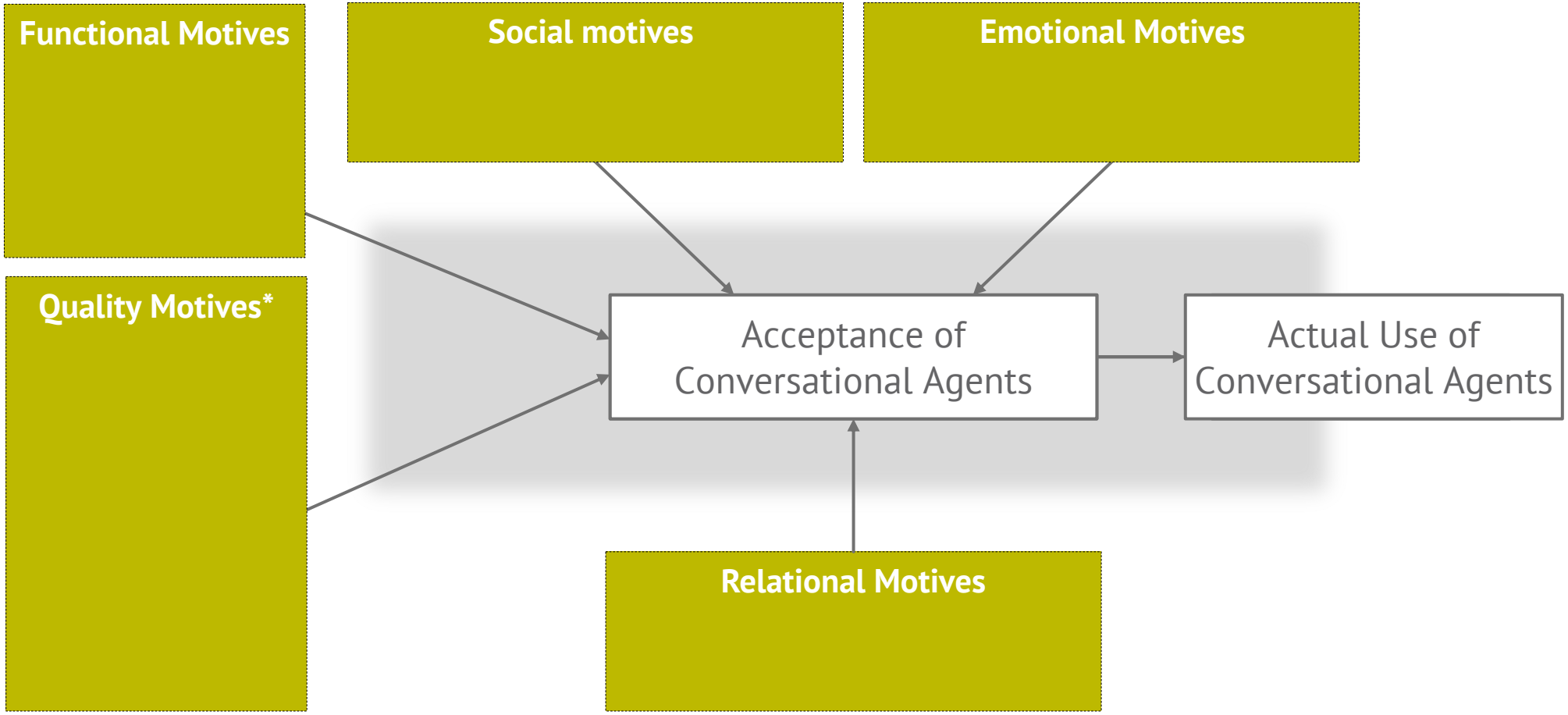
Conceptual Background

Trust and technology acceptance of conversational agents

[1] Davis (1989), [2] McKnight et al. (2002), [3] Fishbein & Ajzen (1975), [4] Ajzen (1985)

Conceptual Background

Motives for accepting and using conversational agents



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Conceptual Background

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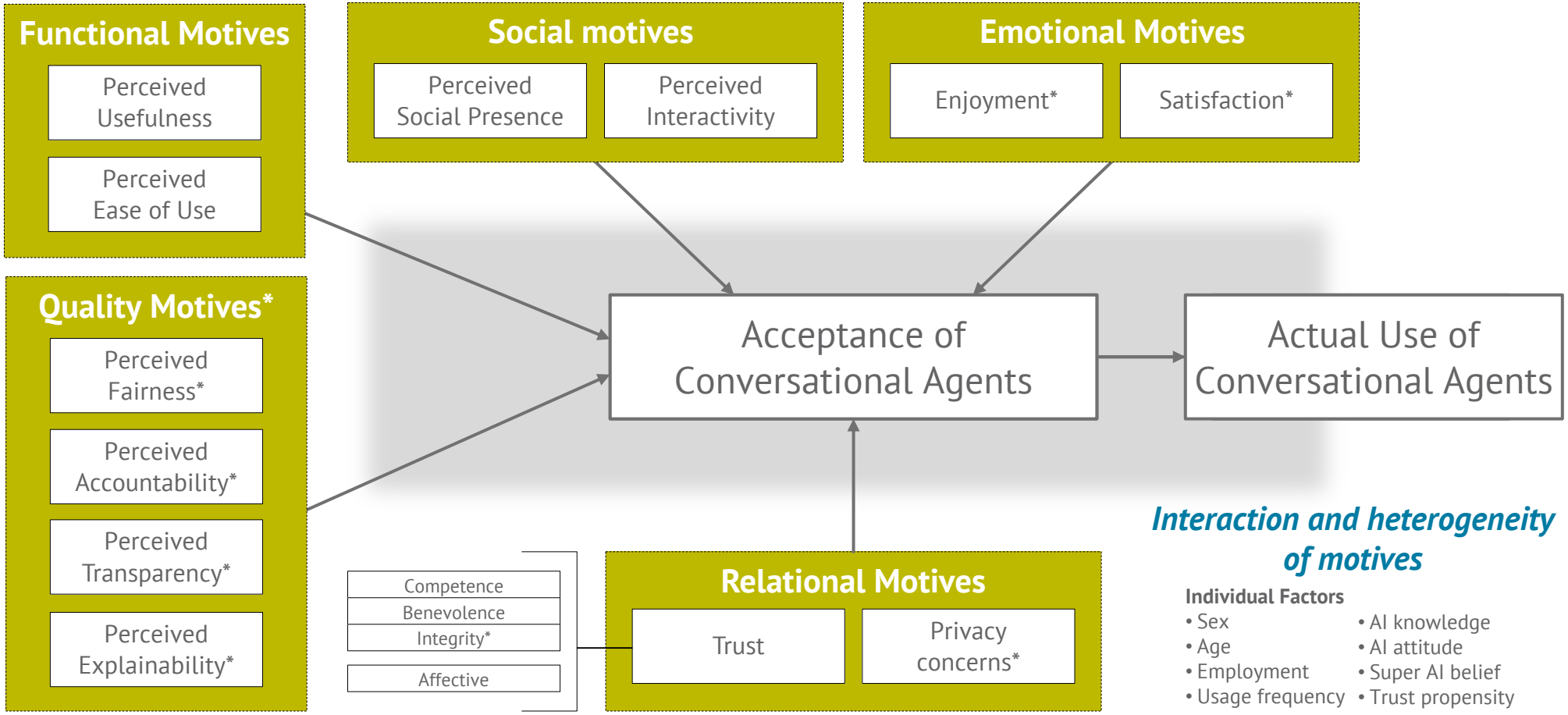

* Extention to Service Robot Acceptance Model (sRAM)[1]

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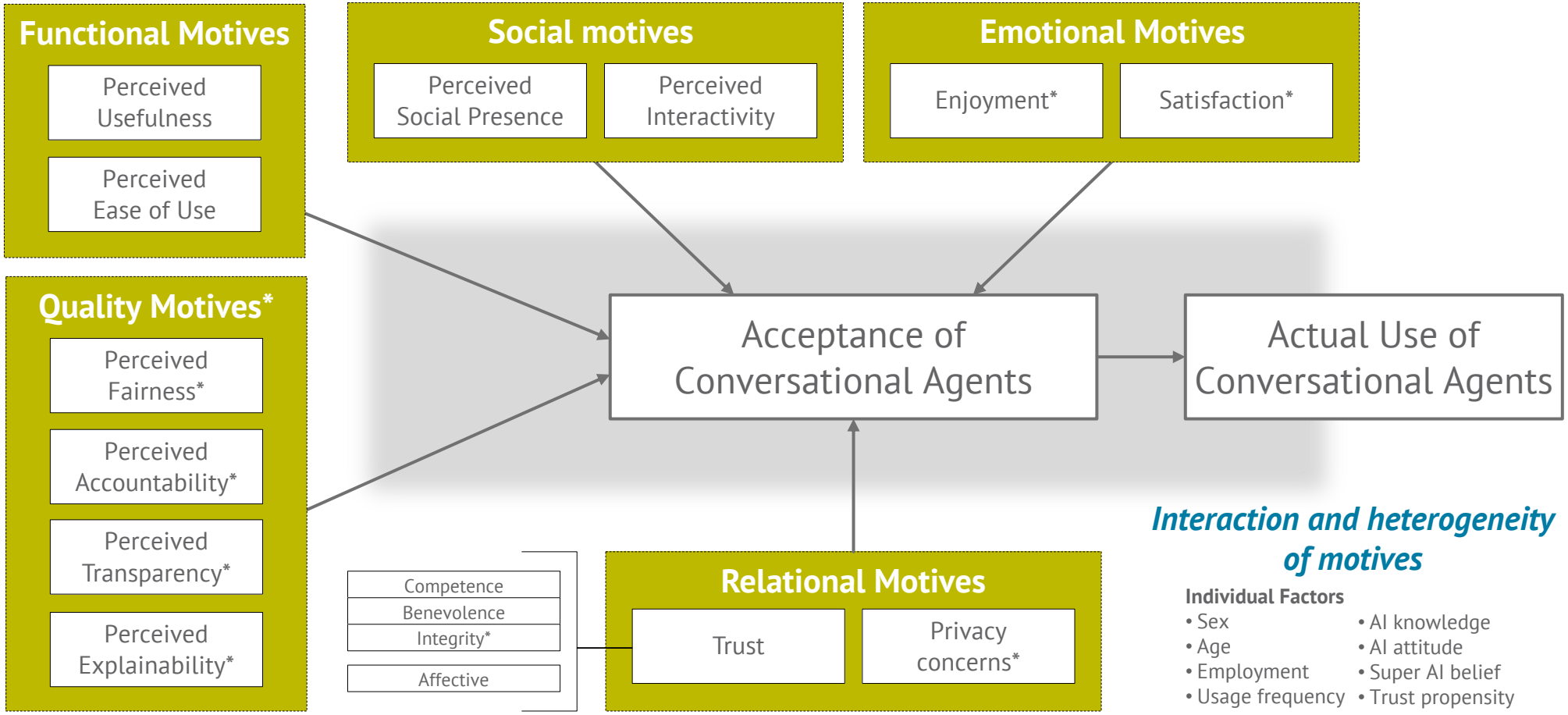

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Approach

Data Collection & Analysis

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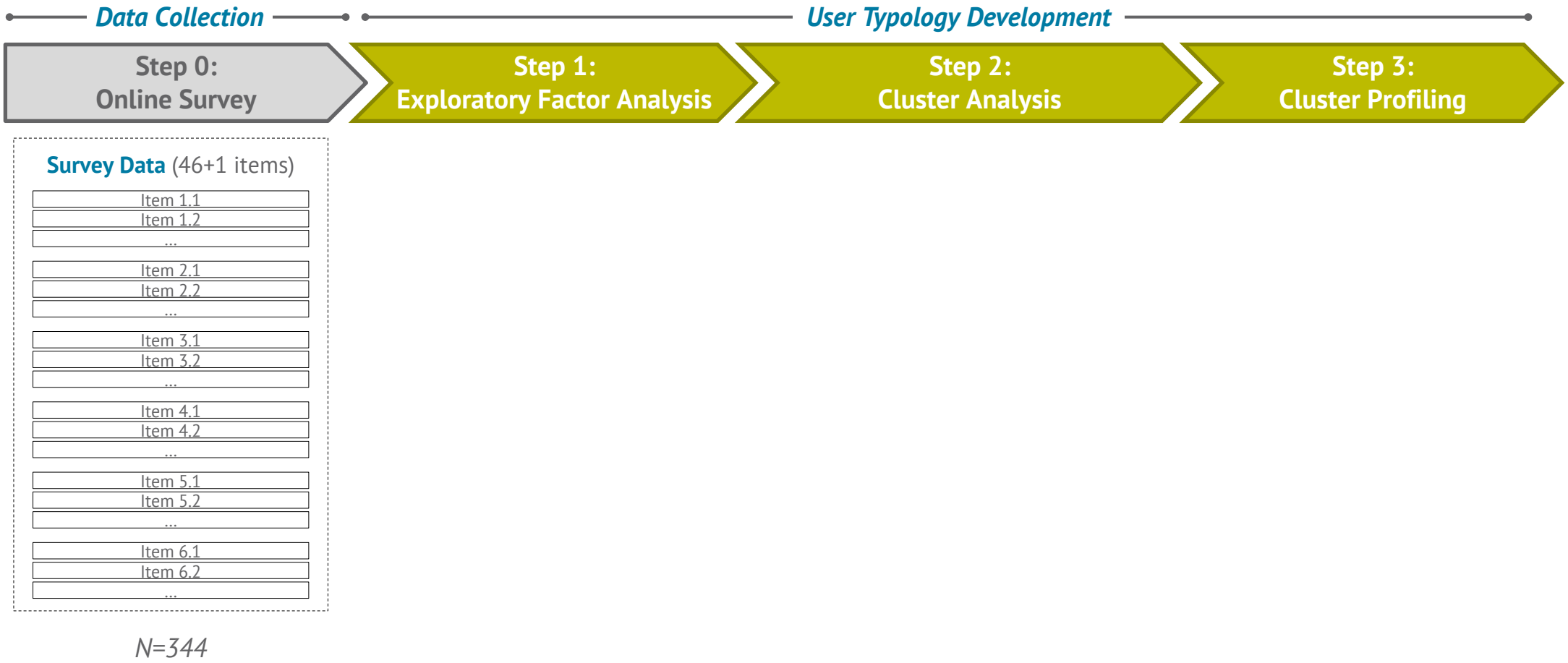

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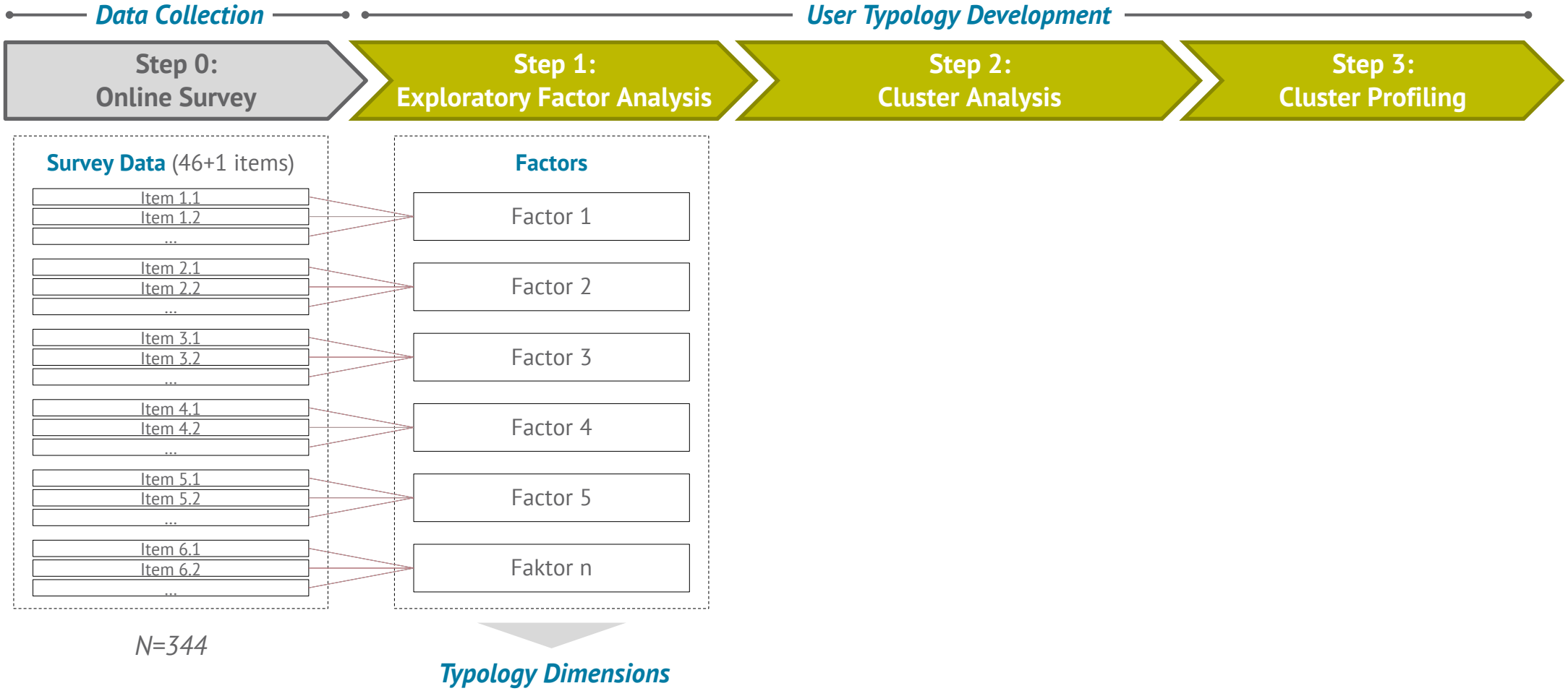

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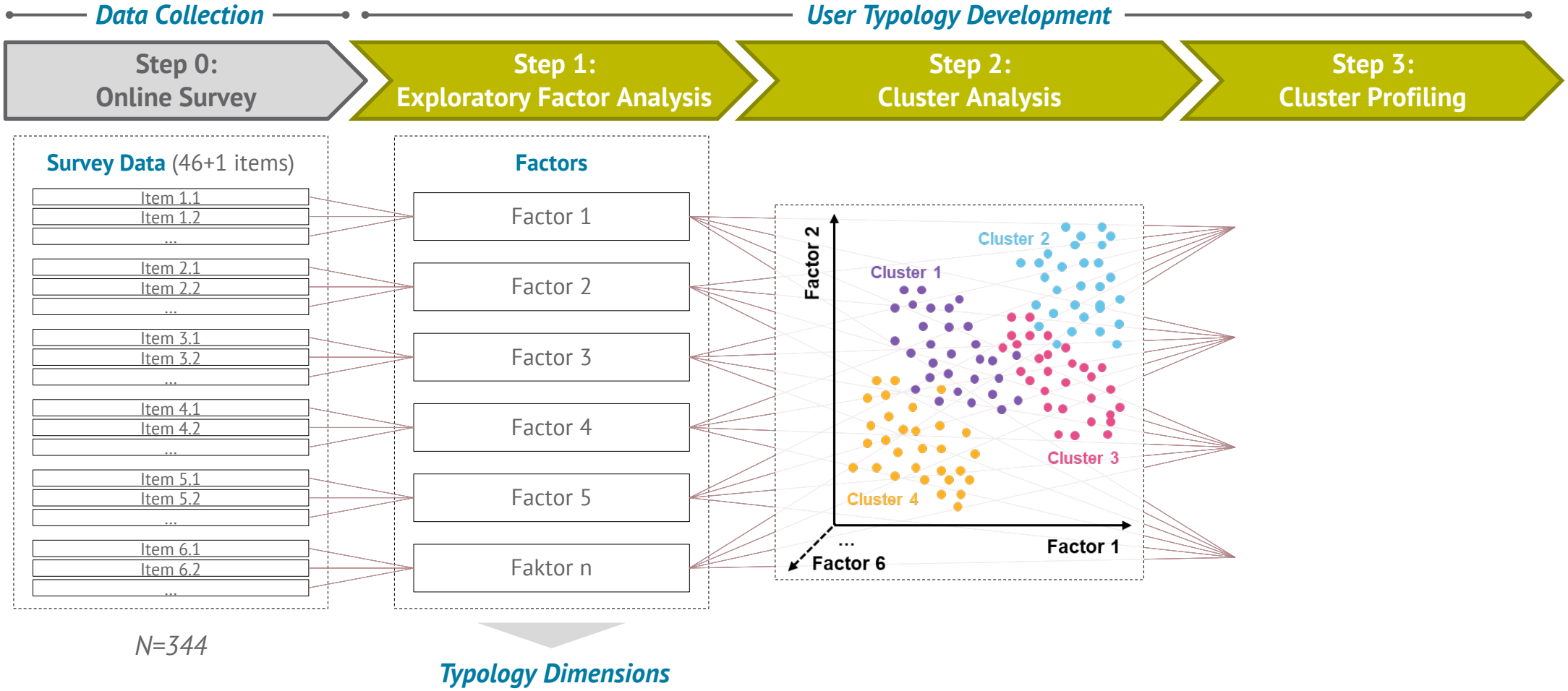

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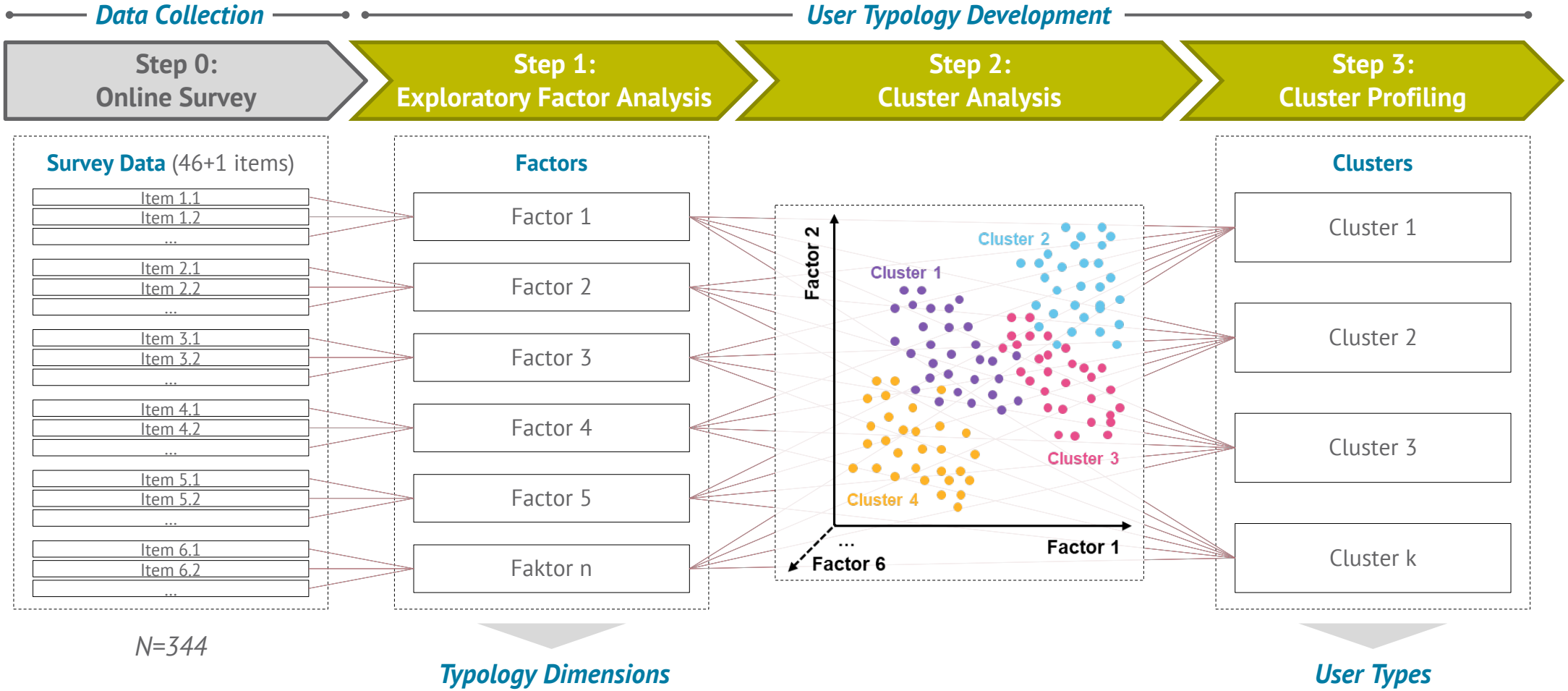

Results - Step 1: Exploratory Factor Analysis

Variable		Factor					
	Item	(1)	(2)	(3)	(4)	(5)	(6)
[SA2]	Overall, I am happy with the responses provided by ChatGPT.		.88				
[SA1]	Overall, ChatGPT fulfills my expectations.		.86				
[CO1]	ChatGPT is competent and effective in its interactions with me.		.78				
[CO2]	ChatGPT performs all of its tasks very well.		.59				
[EM1]	Using ChatGPT is much better than what I expected.		.54				
[CO3]	ChatGPT is capable and proficient.		.53				
[EM2]	I feel comfortable with the responses provided by ChatGPT.		.45				
[IT]	I feel that I have control over ChatGPT when using it.						
[BE2]	If I asked for help, ChatGPT would do its best to assist me.						
[IN2]	I would characterize ChatGPT as honest.			.82			
[IN3]	ChatGPT is sincere and genuine.			.72			
[FA1]	ChatGPT has no favoritism and does not discriminate against people.			.65			
[BE1]	ChatGPT acts in my best interest.			.59			
[IN1]	ChatGPT is truthful in its dealings with me.		.32	.53			
[BE3]	ChatGPT is interested in my well-being.			.49			
[FA2]	The data foundation of ChatGPT is consistent and easily verifiable for everyone.			.46			
[AF2]	When I am uncertain about a response, I believe ChatGPT rather than myself.			.42			
[AC1]	ChatGPT has a person in charge accountable for its adverse individual or societal effects.			.38			
[AC2]	ChatGPT is designed to enable third parties to examine and review its behavior.			.34			
[EU1]	ChatGPT is easy to use.				.77		
[EX1]	ChatGPT is easy to understand.				.75		
[EN2]	The actual process of using ChatGPT is pleasant.				.68		
[EX2]	ChatGPT can be well explained to others.				.46		
[TR]	Outputs produced by ChatGPT are understandable.				.43		
[EU2]	It is easy to become skillful at using ChatGPT.				.40		
[EN1]	I find ChatGPT to be enjoyable to use.				.39		
[US2]	Using ChatGPT increases my productivity in daily work.					1.02	
[US1]	Using ChatGPT improves my performance in daily work.					.86	
[AF3]	I have a personal preference for using ChatGPT to complete a task.					.53	
[AF1]	I would feel a sense of loss if ChatGPT was unavailable and I could no longer use it.					.42	
[SP2]	When I use ChatGPT, there is a sense of personal connection.						.82
[SP3]	When I use ChatGPT, there is a sense of sociability.						.79
[SP1]	When I use ChatGPT, there is a sense of human contact.						.78
[PC1]	I am concerned that the information I submit to ChatGPT could be misused.						.88
[PC3]	I am concerned about providing personal information to ChatGPT due to unforeseen uses.						.74
[PC2]	I am concerned that others could find private information about me through ChatGPT.						.70

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Factor 1: Utilitarian value

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Factor 6: Privacy Concerns

Results

Step 2: Clustering

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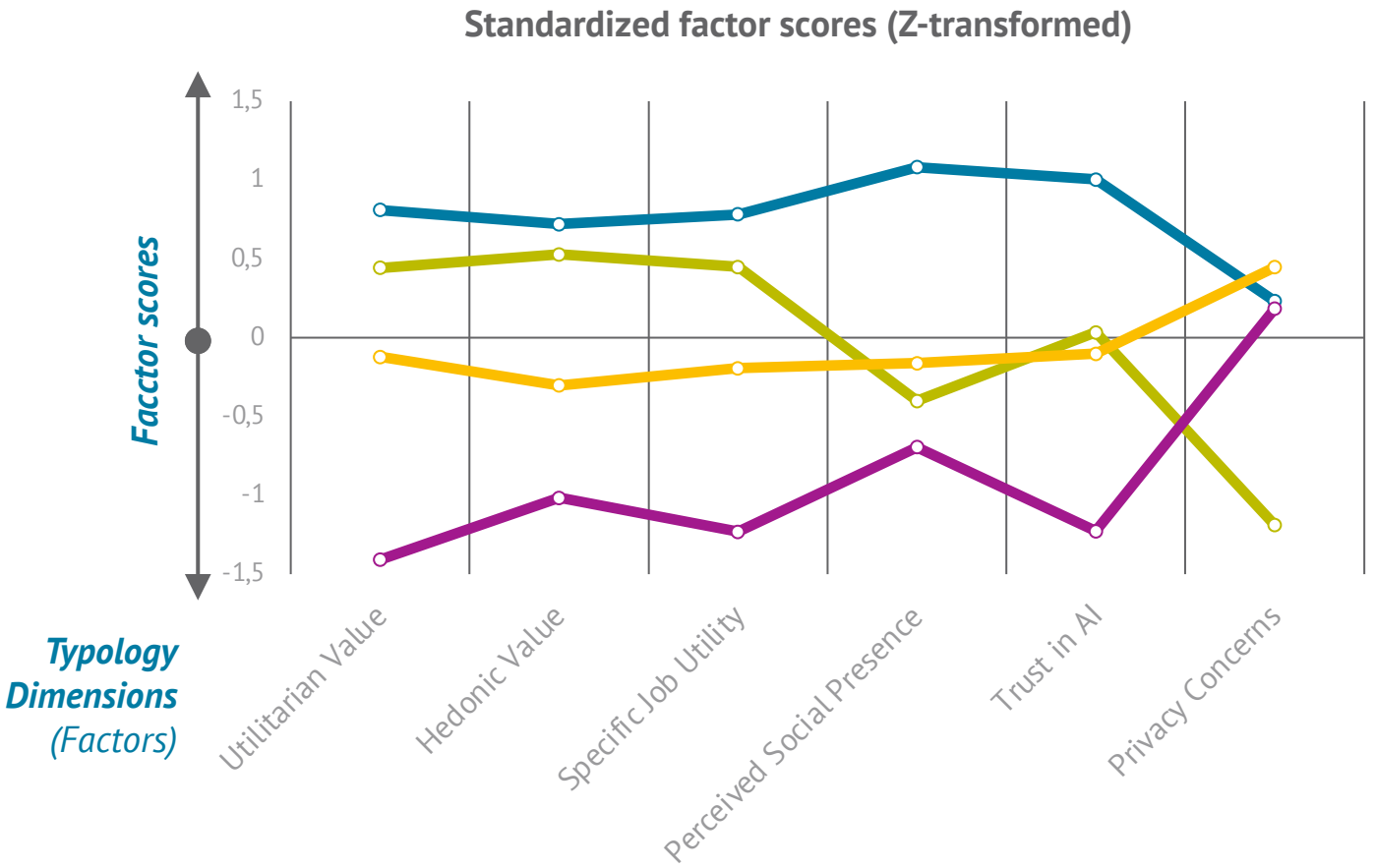


Cluster 1:
Reserved Explorers
(n=61 / 17.7%)

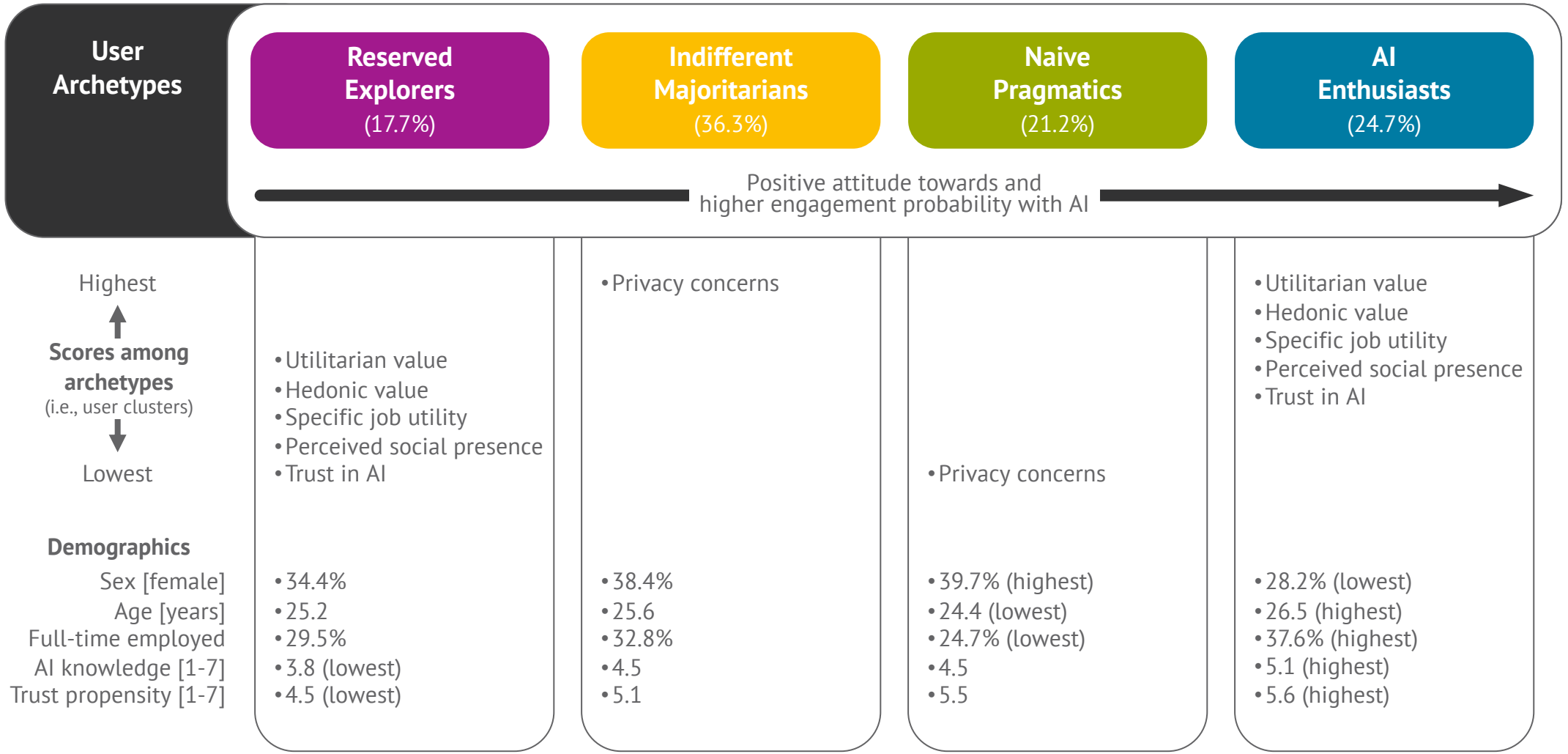
Cluster 2:
Indifferent Majoritarians
(n=125 / 36.3%)

Cluster 3:
Naïve Pragmatics
(n=73 / 21.2%)

Cluster 4:
AI Enthusiasts
(n=85 / 24.7%)

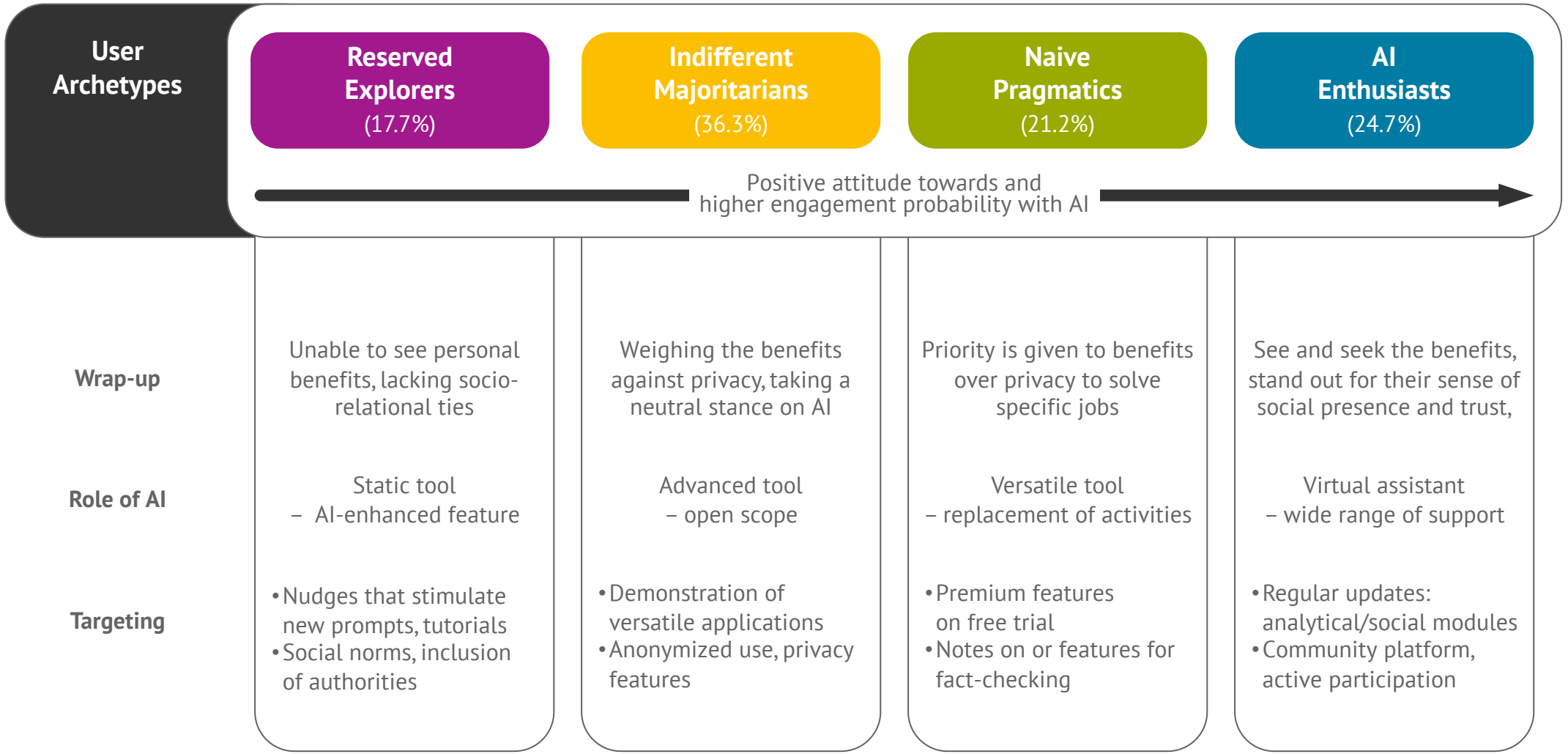
Results

Step 3: Cluster Profiling – scores & demographics



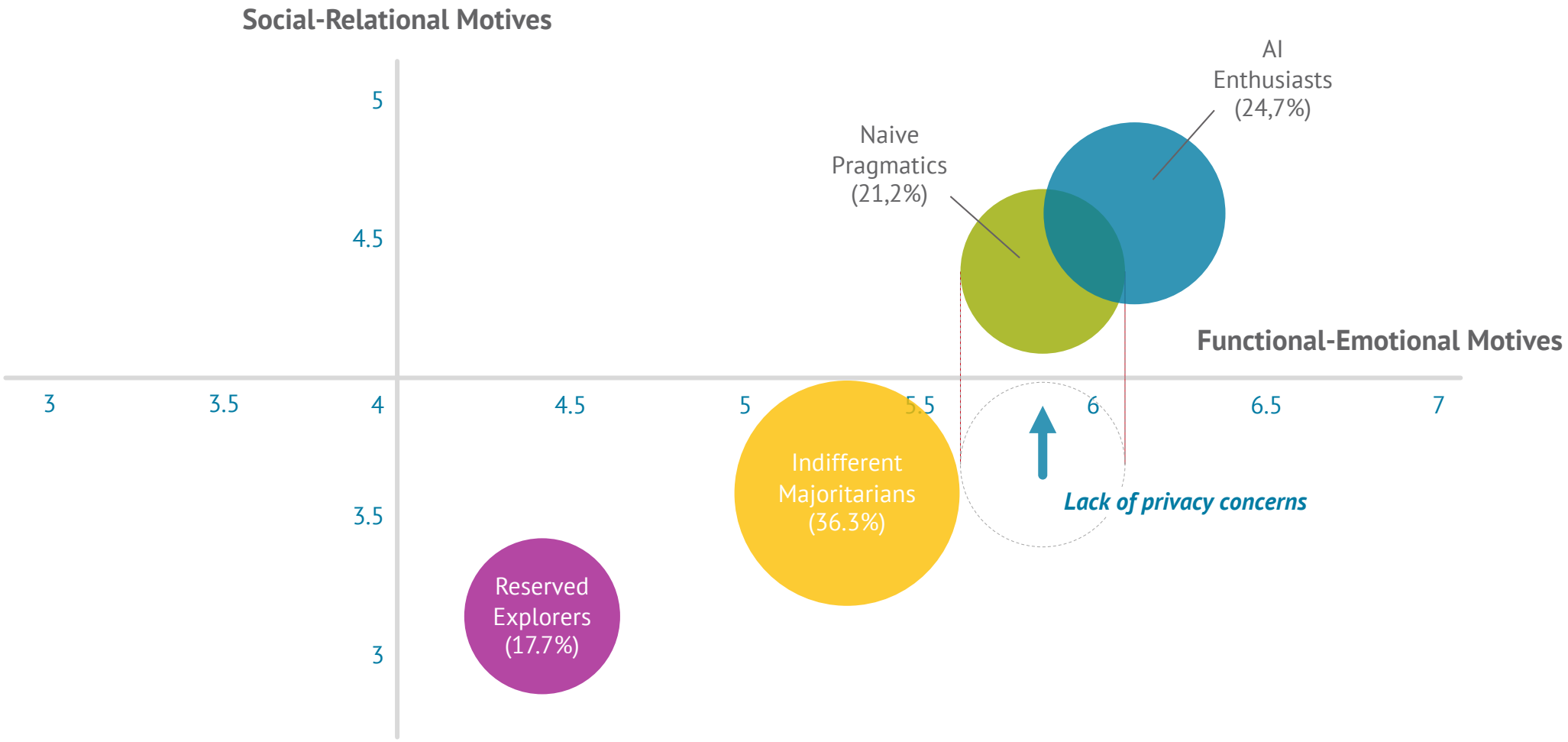
Discussion

Wrap-up & targeting of clusters



Discussion

Privacy-utility trade-off



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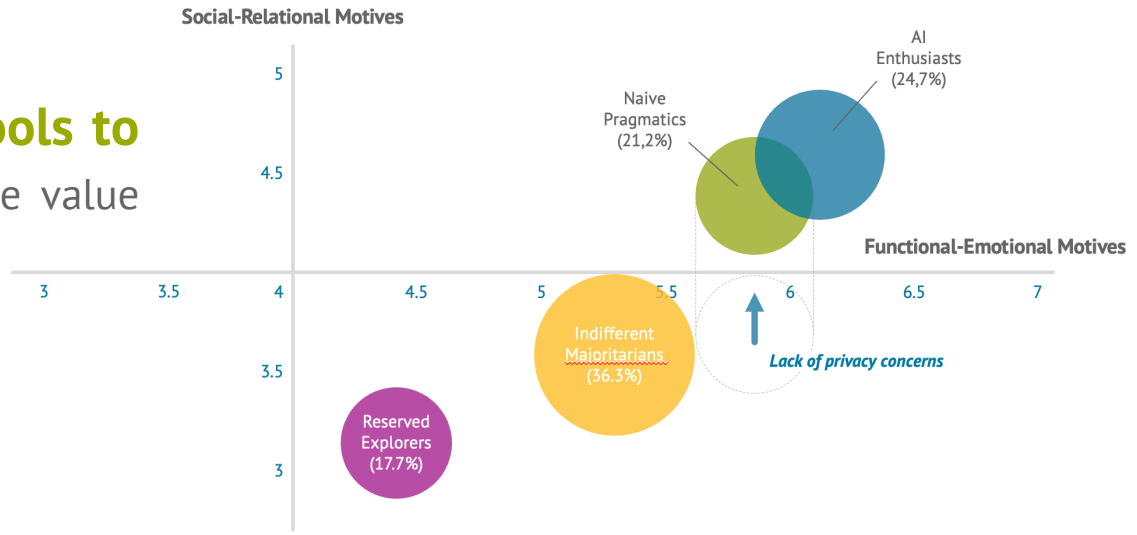
Summary

1. We develop a **theoretical framework** to describe the **trust and adoption of generative AI** technologies by extending established technology acceptance models

2. We find that **four different groups** need to be distinguished: **AI enthusiasts, Naïve Pragmatics, Indifferent Majority and Reserved Explorers**

3. Policy makers and industry need to **tailor generative AI tools to these different user groups** in a way to emphasise the value while mitigating privacy concerns



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