

Appendix A PRE-SURVEY

Qualtrics Survey Software 04/05/2025, 10:43

Introduction

This research is part of a Graduation Project for the Master of Science in Strategic Product Design at Delft University of Technology (TU Delft).

Your participation is entirely **voluntary**, and you may skip any question or withdraw at any time. This survey is **completely anonymous**, and no personal data will be collected. Responses will be securely stored, used only for this research, and deleted after the study is completed.

About the Survey

We all have values that guide our decisions, but when different perspectives emerge, our priorities can shift. This study aims to uncover the values that shape decision-making and how they change when new viewpoints come into play. The survey will take approximately 2 minutes to complete. By proceeding, you consent to your responses being used in this research.

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Understanding Value Prioritization

In your experience, how do you prioritize the following values when making everyday decisions in your **professional** life? (1 = Most important, 6 = Least important)

Human Values (Creativity, self-expression, Independence)

Cultural Values (Collective identity, governance structures, shared traditions)

Use Values (Functionality, Effectiveness Practical benefits)

Social Values (Fairness, justice, responsibility toward others)

Economic Values (Financial growth, cost-effectiveness, resource optimization)

Environmental Values (Sustainability, conservation, Ecological health)

When making decisions about **technology** in your professional life, how important are the following values to you?

	Not Important	Slightly important	Neutral	Important	Extremel ^s importan
Innovation	0	0	0	0	0
Privacy	0	0	0	0	0
Usability	0	\circ	0	0	0

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Security	0	0	\circ	0	0	Competitive Advantage	0	0	0	0	0
Profit	0	0	0	0	0	Sustainability	0	0	0	0	0
Sustainability	0	0	0	0	0						
						If you were responsib	le for mana (ging wa	ter res	ources,	how
When making le	adership de	cisions t	hat imp	act othe	ers, how	important would thes	e values be t	o you?			
important are the	following value	ues to yo	u?				Not	Slightly			Extremely
							Important	Slightly important	Neutral	Important	important
	Not Important	Slightly important	Neutral	Important	Extremely important	Human Health	0	0	0	0	0
Creativity	0	0	0	0	0	Equality	0	0	0	0	0
Social Power	0	0	0	0	0	Usability	0	0	0	0	0
Success	0	0	0	0	0	Responsibility	0	0	0	0	0
Equality	0	0	0	0	0	Profitability	0	0	0	0	0
Efficiency	0	0	0	0	0	Sustainability	0	0	0	0	0
Sustainability	0	0	0	0	0						
						Professional Experti	ise				
If you had to make	e a decision o	about foc	d prod	uction a	nd	VA/leigle of the efall accions		+			
supply , how impo	ortant would t	hese vali	ues be to	o you?		Which of the following expertise? (Select all	•	nost reie	vant to	your wo	ork Of
	Not Important	Slightly important	Neutral	Important	Extremely important	Technology					
Accessibility	0	0	0	0	0	☐ Leadership					
Responsibility	0	0	0	0	0	☐ Food ☐ Water					
Fair Living Wages	0	0	0	0	0	□ Water □ None – my work or exper	rtise does not stro	nalv relate	to the ab	oove	
Affordability	0	0	0	0	0	= Helle Hij Welk er exper			10 110 010		

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Additional Input or Remark

Thank you for participating, your input will give great insight into this research.

If you have any questions or remarks, please let me know in the	
box below.	

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Appendix B INTERVIEW GUIDE

Interview Guide

Participant

Organizational decision-maker involved in strategic decisions

Research Goal

Objective of the Study

This study explores how computational methods can detect and surface values expressed in conversations. The goal is to understand what kinds of value-related insights — such as most discussed, missing, or interconnectedness of values — could support better alignment during decision-making processes.

Key Research Objective for this Interview

To explore how decision-makers perceive the role of values in team conversations and strategic discussions, and what kinds of value-based insights would be meaningful or useful to them.

Informed Consent

Before we begin, I'd like to ask for your verbal consent to record this conversation for the purpose of my graduation project at TU Delft. The recording will only be used for analysis and won't be shared externally."

"Also, would it be okay to refer to your role and company name when discussing insights in the context of this project, or would you prefer to stay anonymous?

Interview

1. Introduction

The interviewer introduces themselves and frames the session:

"Thank you for making time for this. I'm working on a graduation project at TU Delft, where I'm exploring computational methods to help uncover the values that surface during conversations — especially in contexts like strategic meetings, design

discussions, or alignment workshops. The aim today is just to hear your thoughts on how this might relate to your work and what would (or wouldn't) be useful."

"Feel free to share examples or challenge ideas along the way — this is all part of understanding how such methods might (or might not) fit into real decision-making."

2. Starting with Values (Easing In)

Purpose: Start with relatable reflections to ease into the concept of values

- In your experience, when you're involved in a project or making strategic decisions, how do you become aware of the different values people bring to the table?
- When you're in a conversation or a group discussion, do you find it easy to recognize the values being expressed — either by yourself or others?
 - Follow-up on how and why

3. What Role Do Values Play in Decision-Making?

Purpose: Uncover their personal mental model of values and where it fits into their processes

- How do values influence the way you prioritize or align when making decisions with others — either within your team or with external partners?
- Are values something you consciously bring into the room, or do they stay in the background?
 - o Follow-up on the approach. How or why not?
- Can you think of a time when you made a decision and later realized it didn't fully align with your own or your organization's values? What made you feel that way?

4. Introducing the Computational Approach

Purpose: Begin linking the concept of values to what computational methods might do

"The idea I'm exploring is whether computational methods can help surface the values that are being expressed — implicitly or explicitly — in conversations. For example, identifying moments where themes like sustainability, privacy, or innovation are being brought up, even if they're not named as such.

But this is only the foundation. What I'm really trying to understand through these interviews is what kind of value-based insights would be most helpful — like identifying which values were prioritized, which were missing, or might be

interconnected somehow since they occur together. Either complementary or even in tension." (Show the slides)

- What's your first reaction to this kind of method being applied in your context?
- How could this kind of value insight support your work?

5. Exploring Insight Preferences

Purpose: Discover what kinds of value-based insights they would actually find meaningful

"There are many ways this kind of analysis could be used — but before I share more on what I have been able to discover, I'd love to hear from you what would be most useful."

- If a system could show you something about values in a conversation, what would be most interesting for you to see? (show example on slides if they are not able to think)
 - Which values were **most present**? What was **absent** or **missing**?
 - Was there a **connection** between values?
 - What people say they value might not always be aligned with what they actually value or act upon?
 - Would it be helpful for individual reflection to see are you actually bringing your true values that drive your decisions to the table?
 - Would you want to use it as a real-time feedback to help nudge conversations towards a particular value?
- What kind of insight would actually influence your next step or decision?
 - O Why would it be important?

6. Use Context and Format

Purpose: Understand how and when they'd want to access such insights

- If this were integrated into your workflow, when would be the right moment to look at this kind of analysis?
 - Before a session? After? During? And why?
 - Would you want to do it individually or with a group? And why?
- What kind of format or presentation would make value-related insights most useful or actionable for you?

7. Motivation & Risks

Purpose: Surface both adoption drivers and trust thresholds

- What would be the "aha!" insight that would make you want to use this kind of method again?
- What would make this feel untrustworthy, irrelevant, or even risky to use in your context?

8. Wrap-Up and Close

- Looking back at your recent work, is there a specific moment where having more visibility into values might've changed the conversation or outcome?
- Do you have something to add or say before we finish the interview?

"Thanks so much — your thoughts are incredibly valuable to shaping how (and whether) this method can be meaningfully used."

Appendix C PRESENTATION SHOWN DURING THE INTERVIEW

Uncovering Value Dynamics in Conversation through Computational Methods

Vidhi Chopra

MSc Strategic Product Design



A Conversation.....



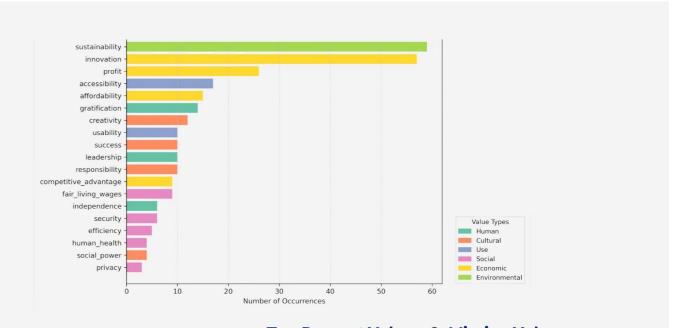
"I think we should pilot the AI prototype even if it's not fully tested — we'll learn more by doing."

"That's bold, but let's also think about how we ensure user trust and avoid unintended harm."

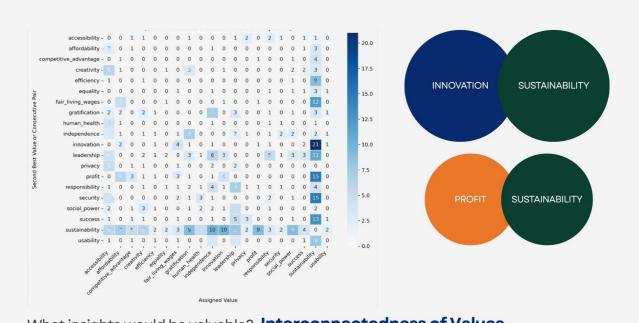


"I think we should pilot the AI prototype even if it's not fully tested — we'll learn more by doing." "That's bold, but let's also think about how we ensure user trust and avoid unintended harm."

What insights would be valuable?



What insights would be valuable? **Top Present Values** & **Missing Values**



What insights would be valuable? **Interconnectedness of Values**







What insights would be valuable? Reflection or Real-time Nudging

Appendix D USE OF CHATGPT FOR GENERATING VALUE-BASED UTTERANCES

To simulate how values might be expressed in natural conversation, this study used Open Al's ChatGPT to generate example utterances for each selected value. Large Language Models (LLMs) offer unique capabilities well-suited to this task:

- **Natural Language Variation:** LLMs are designed to mimic diverse speech patterns, enabling them to generate multiple expressions of a concept like "sustainability" or "gratitude" across different tones and contexts (Tai et al., 2024; Meincke et al., 2024).
- Contextual Understanding: LLMs evaluate the surrounding linguistic context rather than relying on fixed keywords, helping capture the nuanced and latent nature of value expression (Tai et al., 2024).
- Scalability and Efficiency: LLMs can quickly generate multiple phrasings with minimal manual effort, making them ideal for constructing broad example sets that reflect both explicit and implicit value articulation (Meincke et al., 2024).
- Concept-Specific Prompting: LLMs can be guided through carefully crafted prompts to generate outputs that
 align with predefined conceptual categories, making them functionally similar to structured deductive coding
 tools (Tai et al., 2024).

PROMPTING CHATGPT TO CREATE VALUE DICTIONARY

The value dictionary was created using ChatGPT to generate short, framework-aligned descriptions for each of the 108 value examples from Marina Bos-de Vos's framework. For each value, I provided its type, perspective, motivational goal, and example. I then prompted ChatGPT to produce a standalone narrative description based on the framework without comparisons or assumptions. Examples of the instruction and a few generation examples are shown in the screenshots below.

Column	Explanation	Example Entry
Value Type	Broad overarching dimension of value (e.g., Human, Cultural, Economic, Use, Social, Ecological).	Human Value
Value Perspective	Identifies if value is a Guiding Principle (Individual/Group) or Quality with Worth (People/Environment).	Guiding Principle (Individual-level)
Motivational Goal	Specific motivational goal from Marina's framework.	Enjoyment
Value Example	Concrete example explicitly mentioned.	Pleasure
Narrative Description	Exact description derived directly from Marina's paper/framework.	Pleasure is a universal human value serving as a guiding principle stemming from individuals' biological needs and social interactions. It acts as a criterion people use to evaluate and select their behavior and give meaning to what they consider important in life.

Example 1: Pleasure

Value Type	Value Perspective	Motivational Goal	Value Example	Narrative Description
Human Value	Guiding Principle (Individual- level)	Enjoyment	Pleasure	Pleasure is a universal human value serving as a guiding principle stemming from individuals' biological needs and social interactions. It acts as a criterion people use to evaluate and select their behavior and give meaning to what they consider important in life.

Solution Example 2: Equality

Value Type	Value Perspective	Motivational Goal	Value Example	Narrative Description
Cultural Value	Guiding Principle	Egalitarianism (Fairness, Social Justice)	Equality	Equality is a cultural value shared within communities or groups, emphasizing fairness and social justice. It shapes and justifies
	(Group-level)			collective beliefs, actions, and goals, aligning group members towards common ideals and behaviors.

PROMPTING CHATGPT TO CREATE EXAMPLE UTTERANCES FROM VALUE DICTIONARY

To explore how values might be expressed in real-world conversation, I used ChatGPT to generate diverse example utterances based on the value dictionary. Each value was provided with its description, and ChatGPT was prompted to return multiple examples across four expression styles:

- Stories / Narratives / Experiences
- Expressive Phrases (Slang, Metaphor, Jargon)
- Implicit via Actions, Emotions, or Design Choices
- Explicit Naming (Core or Aspirational references)

For each value, I received 8 utterances, enabling a nuanced understanding of how values manifest both implicitly and explicitly in natural language. Screenshots below illustrate the prompting format and sample outputs.

Got it! For each value you provide, I'll now return 8 diverse examples — 2 per expression format — as follows:

Format #	Expression Style	# Examples
1	Stories, Narratives, or Lived Experiences	2
2	Expressive Phrases (Slang, Jargon, Metaphor)	2
3	Implicit via Design Decisions, Actions, Emotions	2
4	Explicit Naming (Core/Aspirational)	2

All expressions will reflect the given value and its description.

▼ Ready to go — please share the first value and description.

Value: Pleasure

Description: Pleasure is a human value rooted in the motivational goal of enjoyment. It guides individuals to seek experiences that produce immediate positive feelings, often through activities that are emotionally or physically satisfying.

Give it in the code format.

Here's the value "pleasure" expressed in 8 diverse ways, across 4 expression styles, in your requested code format:

```
"pleasure": [

// 1. Stories, Narratives, or Lived Experiences

"Last weekend, I spent hours cooking with my partner—it wasn't about the food, just t

"Every time I visit that beach, I feel a kind of deep, simple happiness I can't get a

// 2. Expressive Phrases (Slang, Jargon, Metaphor)

"This is my guilty pleasure—don't judge!",

"That's pure bliss in a bottle.",

// 3. Implicit via Design Decisions, Actions, Emotions

"We added haptic feedback to make interactions feel more delightful.",

"She lingered on the onboarding screen because the animation made her smile.",

// 4. Explicit Naming (Core/Aspirational)

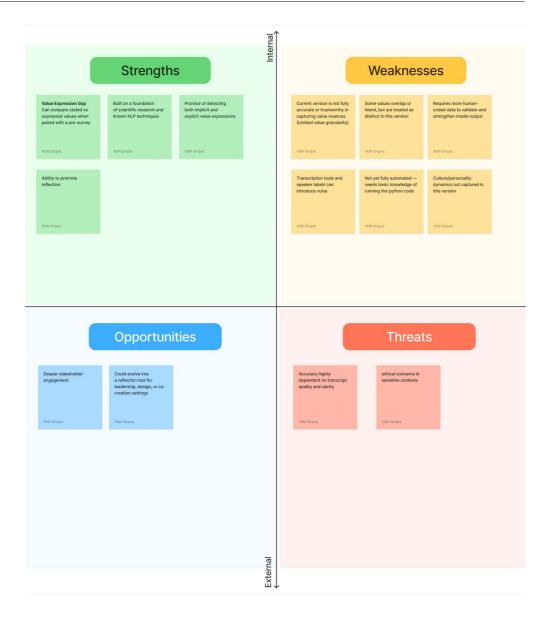
"Pleasure is a core value in how we craft user experiences.",

"I try to design moments that spark immediate joy and pleasure."

]
```

Let me know the next value you'd like to convert!

Appendix E SWOT ANALYSIS

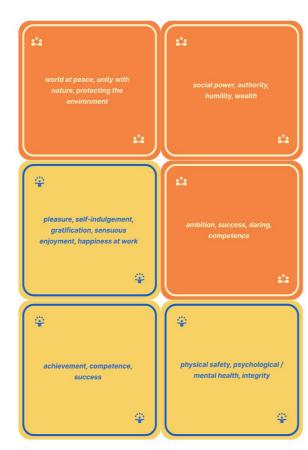


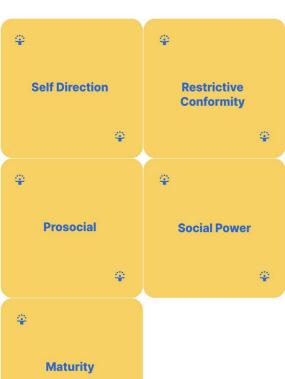
Appendix FVALUE TOKENS USED FOR WORKSHOP

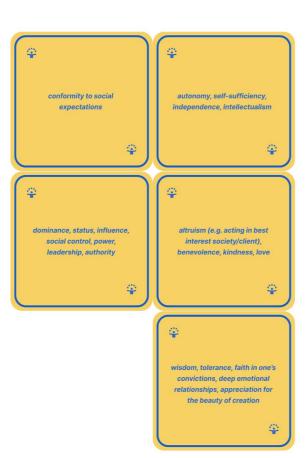


FRONT BACK



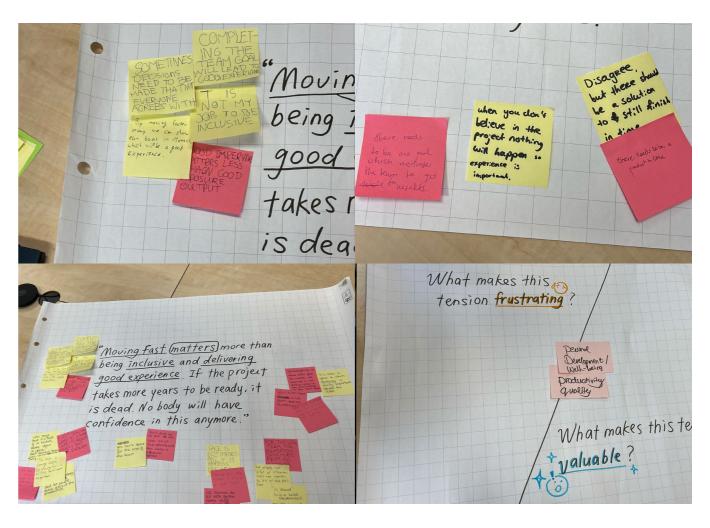






Appendix G WORKSHOPS





Appendix H VALUE DICTIONARY

Value Perspective	Type of Value	Motivational Goal	Value Example	Description
Guiding Principle (Individual-level)	Human Value		Pleasure_human	Pleasure is a human value rooted in the motivational goal of enjoyment. It guides individuals to seek experiences that produce immediate positive feelings, often through activities that are emotionally or physically satisfying.
			Self-indulgement	Self-indulgement is a human value centered on the unrestrained pursuit of personal enjoyment. It is associated with excess or prioritizing one's own gratification even when it may conflict with responsibilities or collective norms.
		Enjoyment	Gratification	Gratification is a human value based on the fulfillment of personal desires or needs. It guides individuals to pursue actions that result in a sense of reward or satisfaction, often after effort or anticipation
			Sensuous Enjoyment	Sensuous enjoyment refers to the value placed on pleasurable experiences derived through the senses—such as taste, touch, or sound. It guides individuals toward activities that provide physical o sensory satisfaction.
			Happiness at Work	Happiness at work reflects the expression of enjoyment in a professional context. As a guiding principle, it motivates individuals to seek emotional well-being and joy in their work environment and daily tasks.
		Security	Physical Safety	Physical safety is a human value that reflects the need for protection from bodily harm or danger. It guides individuals to make decisions and take actions that preserve their physical well-being and ensure a secure environment.
			Psychological / Mental Health	Psychological and mental health is a human value that emphasizes emotional stability, self-awareness, and the ability to cope with stress. It guides individuals toward environments and behaviors tha support inner balance and mental resilience.
			Integrity	Integrity is a human value rooted in moral consistency and trustworthiness. It guides individuals to align their actions with internal principles and ethical standards, creating a sense of psychological security and self-respect.
			achievement	Achievement is a human value associated with attaining goals or standards of excellence. It guides individuals to pursue success through personal effort and high performance.
		Achievement	competence_human	Competence is a human value that reflects the drive to develop and apply one's abilities effectively. It guides individuals to take on challenges that affirm their skills and growth.
			success_human	Success is a human value focused on realizing goals and gaining recognition for accomplishments. It motivates individuals to act with purpose and ambition.
			autonomy	Autonomy is a human value that reflects the desire to make independent choices. It guides individuals to act according to their own beliefs and preferences.
		Salf Direction	self-sufficiency	Self-sufficiency is a human value that emphasizes the ability to function independently. It motivates individuals to rely on their own resources and judgment.
		Self-Direction	independence	Independence is a human value that supports freedom of thought and action. It guides individuals to live and make decisions free from external control

		intellectualism	Intellectualism is a human value rooted in the pursuit of understanding and knowledge. It guides individuals to seek insight through reasoning, reflection, and learning.
	Restrictive-conformity	conformity to social expectations	Conformity to social expectations is a human value that reflects the desire to behave in accordance with social norms. It guides individuals to maintain harmony by aligning their actions with collective standards.
		altruism (e.g., acting in best interest of client)	Altruism is a human value that reflects concern for the well-being of others. It guides individuals to act selflessly and support others' needs and interests.
	Prosocial	benevolence	Benevolence is a human value characterized by goodwill and a desire to help others. It guides individuals to promote social harmony through kindness and generosity.
		kindness	Kindness is a human value that motivates individuals to be compassionate and considerate. It guides daily interactions that nurture trust and emotional well-being.
		love	Love is a human value based on deep emotional bonds and care for others. It guides behavior that maintains close relationships and emotional connection.
		dominance	Dominance is a human value that centers on exerting control or influence over others. It guides behaviors that assert authority or leadership in social interactions.
		status	Status is a human value related to one's position or prestige in society. It guides individuals to seek recognition and maintain social standing.
		influence	Influence is a human value that motivates individuals to shape the opinions or actions of others. It guides engagement in persuasive or directive roles.
	Social Power	social control	Social control is a human value that involves regulating behavior within groups. It guides individuals to maintain order and adherence to expected norms.
		power	Power is a human value reflecting the capacity to enforce decisions or outcomes. It guides individuals to seek and manage authority within personal or organizational contexts.
		leadership	Leadership is a human value grounded in guiding and inspiring others. It motivates individuals to take responsibility for group direction and outcomes.
		authority_human	Authority is a human value that reflects legitimacy and responsibility in decision-making. It guides behaviors that support structured leadership and rule-following.
		wisdom	Wisdom is a human value based on insight, reflection, and life experience. It guides individuals to act thoughtfully and ethically.
		tolerance	Tolerance is a human value that promotes acceptance of differing views and behaviors. It guides individuals to respond to diversity with openness and respect

		Maturity	faith in one's convictions	Faith in one's convictions is a human value reflecting confidence in one's moral or personal beliefs. It guides consistent and principled action.
			deep emotional relationships	Deep emotional relationships are a human value that prioritize strong interpersonal bonds. They guide actions that foster intimacy, loyalty, and connection.
			appreciation for the beauty of creation	Appreciation for the beauty of creation is a human value that reflects wonder and reverence for life and the world. It guides behaviors that express awe, gratitude, and care.
Guiding Principle (Group-level)	Cultural Value	Affective Autonomy	broadmindedness	Broadmindedness is a cultural value that reflects openness to diverse ideas, beliefs, and lifestyles. It guides collective norms that support acceptance and tolerance within teams, organizations, or societies.
			curiosity	Curiosity is a cultural value that encourages questioning, exploration, and interest in new knowledge. It guides organizational and societal priorities toward learning and innovation.
			creativity	Creativity is a cultural value that promotes original thinking and imaginative problem-solving. It guides environments to support innovation and non-conventional approaches.
			pleasure_cultural	Pleasure as a cultural value reflects a group's emphasis on individual enjoyment and emotional satisfaction. It supports norms that encourage personal expression and well-being.
			exciting life	Exciting life is a cultural value that promotes dynamic, stimulating, and adventurous experiences. It guides collective attitudes that favor variety, novelty, and stimulation.
			varied life	Varied life is a cultural value that reflects a group's support for diversity and change in daily experiences. It fosters flexibility and encourages openness to new routines and environments.
			social order	Social order is a cultural value that emphasizes structure, cohesion, and regulation within a group. It guides shared expectations that maintain stability and cooperation.
			respect for tradition	Respect for tradition is a cultural value that supports the preservation of established customs and beliefs. It guides behaviors that align with historical continuity and group identity.
		Embeddedness	security_cultural	Security is a cultural value that reflects collective efforts to ensure safety, reliability, and predictability. It informs policies and behaviors that reduce risk and promote trust.
			obedience	Obedience is a cultural value that supports adherence to rules and hierarchical authority. It guides behaviors that reinforce discipline and role-based expectations.
			wisdom	Wisdom is a cultural value that values deep understanding and prudent decision-making. It guides collective judgments based on experience, knowledge, and ethical reasoning.
			equality	Equality is a cultural value that promotes equal rights, opportunities, and status for all members of a group. It guides policies and practices that counter discrimination and hias

		social justice	Social justice is a cultural value that focuses on fairness in the distribution of resources and treatment. It guides initiatives aimed at rectifying systemic inequality.
	Egalitarianism	responsibility	Responsibility is a cultural value that promotes shared accountability for individual and collective actions. It guides expectations for ethical and constructive participation in group life.
		help	Help is a cultural value that encourages mutual aid and cooperation. It supports norms that foster supportive relationships and social solidarity.
		honesty	Honesty is a cultural value rooted in truthfulness and transparency. It supports trust-based communication and ethical standards within groups.
		social power	Social power is a cultural value that legitimizes structured authority and influence. It guides group organization around leadership, control, and governance.
	Hierarchy	authority_cultural	Authority is a cultural value that affirms the right of designated individuals or institutions to lead. It guides deference to rules and recognized leadership roles.
		humility	Humility is a cultural value that supports modesty and restraint, especially in hierarchical structures. It encourages respect for one's position and acknowledgment of others' contributions.
		wealth	Wealth is a cultural value that reinforces status through material success. It guides recognition of hierarchical positions based on economic achievement.
		world at peace	World at peace is a cultural value that emphasizes the absence of conflict and the presence of cooperation across groups. It guides collective goals focused on diplomacy, coexistence, and shared wellbeing.
	Harmony	unity with nature	Unity with nature is a cultural value that reflects alignment between human activity and the natural world. It guides environmental consciousness and ecological responsibility.
		protecting the environment	Protecting the environment is a cultural value that emphasizes conservation and sustainability. It shapes policies and behaviors intended to reduce harm and safeguard ecological systems.
		ambition	Ambition is a cultural value that promotes striving for excellence, advancement, and recognition. It guides goal-setting and competitive behavior within a group.
	Mastery	success_cultural	Success is a cultural value that reflects the achievement of objectives and desired outcomes. It guides norms that reward productivity and accomplishment.
		daring	Daring is a cultural value that encourages risk-taking and bold actions. It guides collective attitudes that value courage, experimentation, and forward-thinking.
		competence_cultural	Competence is a cultural value that emphasizes skill, knowledge, and effectiveness. It guides standards of excellence and professional development within teams or organizations

Quality with Worth (People-related)	Use Value		functionality	Functionality is a use value that reflects how well a product or service performs its intended purpose. It contributes to practical utility and is a core aspect of user satisfaction.
			convenience	Convenience is a use value that emphasizes ease of access, use, or integration into daily routines. It enhances user experience by reducing effort and friction.
			usability	Usability is a use value focused on how intuitive and user-friendly a design or service is. It affects how easily users can achieve their goals with minimal learning.
			efficiency	Efficiency is a use value concerned with optimal use of time, resources, or energy. It improves performance by minimizing waste and maximizing outcomes.
		Utility	durability	Durability is a use value that reflects the longevity and resilience of a product. It contributes to perceived quality and reduces the need for frequent replacement.
			time management	Time management is a use value that enables better planning and control over how time is spent. It supports productivity and reduces stress for users.
			accessibility	Accessibility is a use value ensuring that products, services, or environments are usable by people with diverse abilities. It supports inclusivity and equal participation.
			appropriateness	Appropriateness is a use value that refers to how well a solution fits a particular context or user need. It supports relevance and effectiveness.
			compatibility	Compatibility is a use value that indicates how well a product or service integrates with other systems or user preferences. It enhances usability and coherence.
			health	Health is a use value that supports physical and mental well-being. It reflects the capacity of a design or service to contribute to a person's overall vitality.
			comfort	Comfort is a use value reflecting physical and emotional ease. It enhances satisfaction by minimizing discomfort in the use or experience of a product or service.
		Well-being & Development	safety	Safety is a use value focused on reducing risk and preventing harm. It influences user trust and the long-term acceptability of a design or environment.
			growth	Growth is a use value related to personal or professional development. It supports the user's long-term learning, achievement, or capability expansion.
		knowledge development	Knowledge development is a use value centered on acquiring and applying new understanding. It is key in educational, creative, or innovative contexts.	
			expression of identity	Expression of identity is a use value where a product or service enables users to communicate who they are. It supports nersonalization and self-representation

		Symbolic Meaning	signal of social status	Signal of social status is a use value that allows individuals to communicate their social position or aspirations through ownership or association.
			prestige	Prestige is a use value that conveys distinction, reputation, or high regard. It enhances the symbolic value associated with exclusivity or excellence.
			stature	Stature is a use value reflecting the perceived rank or importance of a person or entity. It reinforces legitimacy and influence.
			historic value	Historic value is a use value grounded in the significance or origin of an object or concept. It supports continuity, meaning, and cultural memory.
			brand value	Brand value is a use value that reflects trust, recognition, and emotional connection associated with a specific brand. It shapes perception and loyalty.
			political value	Political value is a use value where a product or act represents political alignment or advocacy. It enables users to express beliefs and engage with civic identity.
			aesthetic value	Aesthetic value is a use value that reflects visual or sensory appeal. It influences emotional response and enhances the desirability of an object or environment.
			fun/joy	Fun/joy is a use value that contributes to emotional upliftment and positive affect. It supports user delight and memorable experiences.
		Emotional Meaning	pleasure_use	Pleasure is a use value focused on the enjoyment derived from interaction or experience. It supports emotional satisfaction and reinforces positive engagement.
			appreciation	Appreciation is a use value that reflects recognition and gratitude toward a design, service, or experience. It supports emotional connection and value perception.
Quality with Worth (People-related)	Social Value		human health	Human health is a social value that reflects the importance of physical and mental well-being across society. It guides actions and policies that prioritize access to healthcare and the prevention of illness.
			safety	Safety is a social value centered on protecting individuals and communities from harm. It informs design, infrastructure, and regulations that reduce risk and foster trust.
		Social Propriety	security_social	Security is a social value that ensures stability and protection from threats. It includes physical, emotional, and systemic safeguards to support public confidence and resilience.
			justice	Justice is a social value that promotes fairness, equal treatment, and legal protection. It shapes systems and institutions that address wrongdoing and uphold ethical standards.
			privacy	Privacy is a social value that ensures individuals have control over their personal information and boundaries. It is critical to autonomy and trust in social and technological systems

			minimize/no labor exploitation	Minimizing or eliminating labor exploitation is a social value that protects workers from abuse and injustice. It supports ethical practices and fair treatment in labor systems.
		Social Wealth	fair living wages	Fair living wages is a social value advocating for adequate compensation that meets basic living standards. It promotes dignity, financial security, and equitable economic participation.
			maximize opportunity for workers	Maximizing opportunity for workers is a social value focused on providing access to jobs, career growth, and professional development. It fosters inclusion and long-term prosperity.
			efficiency_social	Efficiency is a social value that emphasizes effective use of time and resources for collective benefit. It supports public services, organizational performance, and equitable outcomes.
	Economic Value		income	Income is an economic value that represents the monetary earnings received by individuals or organizations. It reflects financial capacity and supports access to goods, services, and opportunities.
		Money	profit	Profit is an economic value indicating the surplus generated after all costs are subtracted from revenue. It drives business sustainability and strategic decision-making.
			wealth	Wealth is an economic value that reflects accumulated financial resources or assets. It supports long-term financial security, influence, and intergenerational opportunity.
			affordability	Affordability is an economic value related to the cost of goods and services in relation to available income. It affects access and equity in the marketplace.
			rents	Rents are an economic value representing regular income derived from property or assets. They contribute to financial planning, investment returns, and passive income.
			economic sustainability	Economic sustainability is a value reflecting the ability to maintain stable financial performance over time. It supports resilience, long-term investment, and responsible resource use.
			reputation	Reputation is an economic value derived from the perceived trustworthiness and credibility of an organization or individual. It influences stakeholder confidence and market positioning.
		Other Economic Value	competitive advantage	Competitive advantage is an economic value based on unique strengths or capabilities that allow an entity to outperform others. It guides strategic positioning and innovation.
		Economic value	innovation	Innovation is an economic value reflecting the development of new ideas, products, or services. It drives growth, differentiation, and long-term viability.
			commercial relationship	Commercial relationship is an economic value built through partnerships and transactions between business entities. It supports mutual gain, strategic alignment, and network expansion.
Quality with Worth (For Planet)	Ecological/ Environmental Value		emission regulations / reduction	Emission regulations and reduction represent ecological values aimed at minimizing harmful emissions to protect air quality and reduce environmental degradation. They support systemic efforts to

	product safety	Product safety, in the ecological context, refers to the design and use of materials that pose no harm to the environment. It supports sustainability through non-toxic, degradable, or recyclable components.
Preservation of the Planet	re-use of existing material	Re-use of existing material is an ecological value focused on minimizing waste and conserving resources. It supports circular design principles and reduces reliance on raw material extraction.
	sustainability	Sustainability is an overarching ecological value centered on maintaining the balance between human activity and planetary health. It promotes responsible resource use and long-term environmental resilience.
	long-lasting neighborhood	Long-lasting neighborhood is an ecological value reflecting the durability and environmental harmony of built environments. It supports community stability through low-impact infrastructure and green planning.

Appendix IVALUE DICTIONARY

To better capture how values are expressed in real-world conversations, I expanded the dataset to include expressive phrases such as slang, idioms, and jargon. For example, when analyzing the value "gratification," the sentence "The grind was real, but that win hit different" was added alongside more formal utterances. As shown in the comparison, incorporating this slang expression led to a significant increase in cosine similarity scores across all three scoring options — with the maximum similarity score rising from 0.15 to 0.34. The heatmap further visualizes this improvement in semantic alignment. This demonstrated that adding informal, naturalistic expressions made the tool more sensitive to how values are conveyed in diverse conversational styles.

EXAMPLE DATASET

EARLIER

"gratification": [

- "I want my work to bring me personal joy and fulfillment.",
- "It's important that I feel emotionally rewarded by what I do.",
- "Enjoying the process matters just as much as the outcome.",
- "Gratification is a core reason why I chose this path."

EXAMPLE DATASET

AFTER ADDING SLANG

"gratification": [

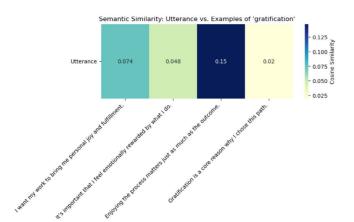
- "I want my work to bring me personal joy and fulfillment.",
- "It's important that I feel emotionally rewarded by what I do.",
- "The grind was real, but that win hit different.",
- "Gratification is a core reason why I chose this path."

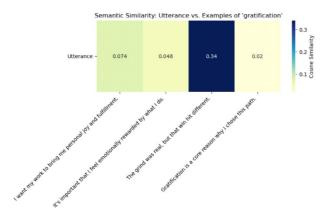
UTTERANCE

"That was straight fire after all that hustle"

Value	Option 01 (avg vec) Op	tion 02 (avg sim) 0	otion 03 (max sim)
gratification	0.0965	0.072	0.1469
independence	0.0282	0.021	0.0809
leadership	0.0631	0.0464	0.0824
creativity	0.0791	0.0561	0.1158
equality	0.0163	0.0124	0.0584
responsibility	0.1241	0.095	0.119
social_power	0.0101	0.0071	0.1033
success	0.0962	0.0724	0.1027
usability	0.0842	0.0536	0.1959
accessibility	-0.0157	-0.0108	0.057
human_health	0.0917	0.0578	0.119
fair_living_wages	0.0228	0.0168	0.0516
efficiency	0.0502	0.0384	0.1043
privacy	-0.0071	-0.0054	0.0332
security	0.071	0.0554	0.105
profit	0.0801	0.0576	0.0986
affordability	0.0355	0.0257	0.0947
innovation	0.0637	0.0494	0.0887
competitive_advantage	0.1161	0.0868	0.1318
cuctainability	0 0031	0 0024 1	0 0201

Value	Option 01 (avg vec) (Ontion 02 (ava sim) 0	ntion A2 (may si
va tue 			PCION 62 (Max 21)
gratification	0.1883	0.1205	0.341
independence	0.0282	0.021	0.0809
leadership	0.0631	0.0464	0.0824
creativity	0.0791	0.0561	0.1158
equality	0.0163	0.0124	0.0584
responsibility	0.1241	0.095	0.119
social_power	0.0101	0.0071	0.1033
success	0.0962	0.0724	0.1027
usability	0.0842	0.0536	0.1959
accessibility	-0.0157	-0.0108	0.057
human_health	0.0917	0.0578	0.119
fair_living_wages	0.0228	0.0168	0.0516
efficiency	0.0502	0.0384	0.1043
privacy	-0.0071	-0.0054	0.0332
security	0.071	0.0554	0.105
profit	0.0801	0.0576	0.0986
affordability	0.0355	0.0257	0.0947
innovation	0.0637	0.0494	0.0887
competitive_advantage	0.1161	0.0868	0.1318
cuctainahility	0 0031	0 0024 1	0 0201





Appendix JCOSINE SIMILARITY

Cosine similarity measures the angle between two vectors in a high-dimensional space — it's a way of quantifying how similar two things (e.g., sentences) are based on their direction, not magnitude.

Formula:

Cosine Similarity =
$$\cos(\theta) = \frac{A \cdot B}{\|A\| \|B\|}$$

- Where $\, heta\,$ is the angle between vectors A and B
- $A \cdot B$ is the dot product
- ||A|| and ||B|| are the magnitudes (lengths) of the vectors

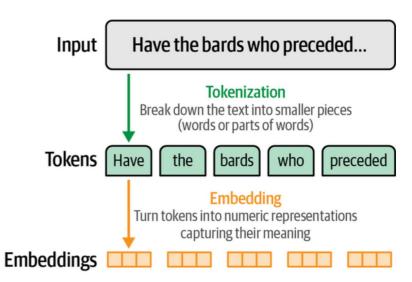
What does the angle mean?

Angle θ	Cosine Similarity	Meaning
0°	1.0	Perfectly similar (same direction)
90°	0.0	Completely unrelated (orthogonal)
180°	- 1.0	Opposite meaning (opposite direction)

Cosine similarity is high when the angle is small, meaning the vectors are pointing in similar directions - i.e., the meaning of the sentences is similar.

Appendix K TOKEN

A token is the smallest unit of text a language model reads — which could be a word, part of a word, or punctuation, depending on the model.



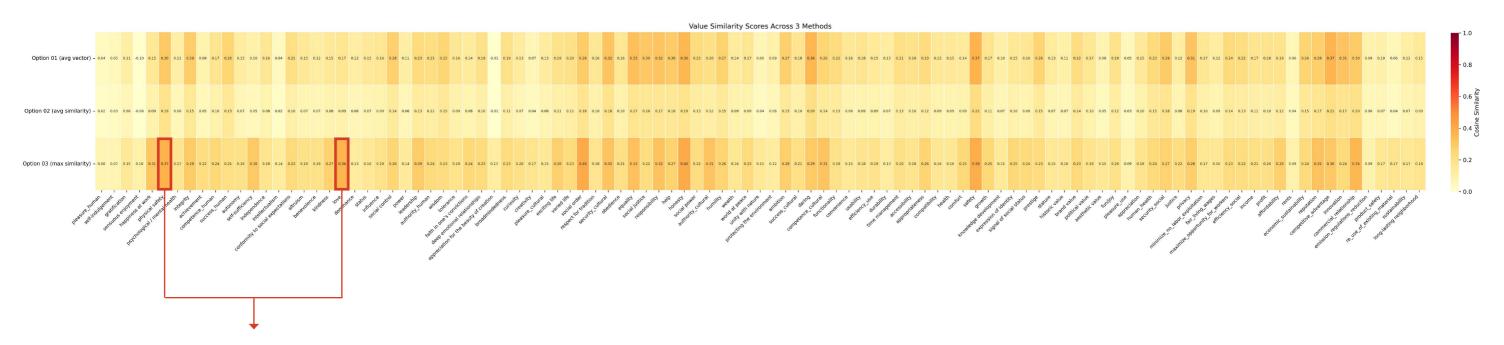
Appendix L

OUTLIER DETECTION IN MAXIMUM SIMILARITY APPROACH

Example case:

Utterance:

"Honestly, I'm less worried about the numbers and more about whether people trust it. That's what makes or breaks adoption in teams like this."



In option 03 (maximum similarity), both the values love and physical safety have a relatively high score.

Outlier Examples - Physical Safety and Love

In the evaluation of the maximum similarity method (Option 03), certain values surfaced with unexpectedly high confidence, despite being contextually misaligned with the original utterance. To understand why, a heatmap was generated to show the similarity between the utterance and each individual example associated with those values.

Physical Safety:

The value physical safety ranked highly due to a strong match with one specific example:

"We build environments where safety is the foundation of trust."

This match was likely triggered by the shared use of the word trust, which also appears prominently in the original utterance. As a result, the sentence was incorrectly pulled toward the physical safety category, despite the absence of physical risk in the context. This illustrates how single-word overlap can produce outliers under the maximum similarity approach (see heatmap in Figure X).

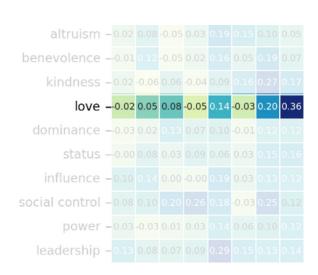
pleasure_human	-								
self-indulgement	-								
gratification	-								
sensuous enjoyment	-						0.04		
happiness at work	-								
physical safety	-	0.13	0.25	0.12	0.14	-0.04	0.19	0.20	0.54
logical / mental health	-		0.06				0.08		0.23
integrity	-								
achievement	-								
competence_human	-								
success_human	-								

Love:

A similar pattern was observed with the value love, which was primarily activated by the example:

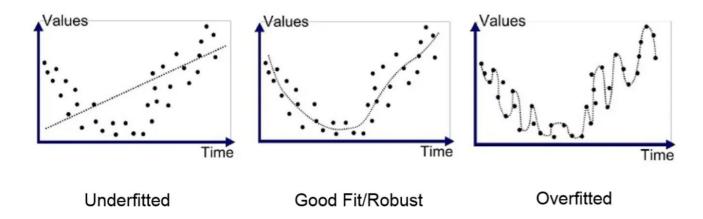
"We believe love—real, deep connection—belongs in how we build teams too."

Here, the thematic similarity around team building and adoption in teams likely contributed to the false positive. Although the underlying sentiment may align on a broader level, the value love was not directly relevant to the intent of the utterance, making it another outlier driven by isolated similarity to a single example (see heatmap in Figure X).



These cases highlight a key limitation of the maximum similarity approach: it is highly sensitive to individual matches, which can skew results when certain examples contain language that coincidentally overlaps with the target sentence.

Appendix MLEARNING TRADE-OFFS — UNDERFITTING, ROBUSTNESS, AND OVERFITTING



This image illustrates the classic trade-off in machine learning and model generalization, which also guided the decision-making in selecting the appropriate value elicitation strategy:

- **Underfitted:** The model is too simple to capture the complexity of the data, resulting in vague or overly generalized outputs.
- Good Fit / Robust: The model captures underlying patterns without reacting to noise, offering a balance between accuracy and flexibility.
- Overfitted: The model is too sensitive to the input data, capturing noise or irrelevant patterns, which may lead to false positives or unstable results.

In this project, Option 02 was selected for its robust performance — offering enough flexibility to handle conversational nuance without overreacting to linguistic quirks.

Appendix NSYNTHETIC CONVERSATION GENERATION

The synthetic conversation used in Section 7.1 was generated using OpenAl's ChatGPT. To ensure realism and relevance, a real-world panel discussion on YouTube was transcribed and used as inspiration. The transcript, along with a custom prompt, was provided to the model to guide the tone, structure, and thematic focus of the generated dialogue.

Panel Discussion On Putting Artificial Intelligence Unable to display

To Work visualization

Get inspired and create a conversation between 3 people. Imagine they are having a discussion about a project where they implicitly mention the values that might be important to them individually, or a group or the organisation. but don't make the values obvious

Here's an example of a **natural**, **multi-party conversation** between three team members — Maya, Alex, and Jordan — during a project meeting. The dialogue subtly reflects **underlying values** like **sustainability**, **innovation**, **efficiency**, **social responsibility**, and **success**, but they're never named directly.

Transcript Excerpt: Project Strategy Meeting

Maya:

We've been prototyping the tool for three weeks now. I think the biggest concern is not performance, but whether it's actually changing how people make decisions. We can't just deliver something shiny.

Alex:

Right. I've been talking to ops — if it makes them slow down, even a little, they'll ditch it. But if we can streamline their work *without them noticing*, it'll stick.

Jordan:

That's why I pushed for that ambient feedback system. People shouldn't need a manual to figure out how it fits into their day.

Maya:

Agreed. Also, the pilot team mentioned something interesting — they felt like the tool helped them *pause* before rushing into decisions. That's not in the metrics, but... maybe it should be?

Alex:

Honestly, I'm less worried about the numbers and more about *whether people trust it*. That's what makes or breaks adoption in teams like this.

Jordan

I mean, trust is earned, right? We can't just tell them it's better — we need to show that it learns, adapts, and doesn't just throw generic insights at them.

Appendix O PROJECT BRIEF





IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:

- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress

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	name Vidhi		(date of approval)			
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nd mentor					why.	
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city:		courti y.			mentor is pr	
optional	Marina's research on values and S	•	outer-supported tools and visual			vation letter.
optional comments		Senthil's expertise in complementary knowledge base	e that aligns well with the project'	s !	CV and moti	vation letter.

CHECK ON STUDY PROGRESS

To be filled in **by SSC E&SA** (Shared Service Centre, Education & Student Affairs), after approval of the project brief by the chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total	EC	YES	all 1st year master courses passed	
Of which, taking conditional requirements into account, can be part of the exam programme	EC	NO	missing 1 st year courses	
		Comments:		
Sign for approval (SSC E&SA)				
Name	Date		Signature	
APPROVAL OF BOARD OF EXAMINERS ID	DE on SUPERVISOR	Y TEAM -> to be check	sed and filled in by IDE's Board of Exam	iners
Does the composition of the Supervisory Team comply with regulations?		Comments:		
YES Supervisory Team approved				
NO Supervisory Team not appro	oved			
Based on study progress, students is		Comments:		
ALLOWED to start the gradu				
NOT allowed to start the gra	duation project			
Sign for approval (BoEx)				
C				





Personal Project Brief - IDE Master Graduation Project

Name student Vidhi Chopra	Student number

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT

Complete all fields, keep information clear, specific and concise

Project title Developing a Computational Framework to Capture , Analyze and Visualize Value Shifts in Conversations	
--	--

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

Every possible conversation is many possible conversations. Decisions are shaped by evolving values and priorities during discussions. Whether in strategic meetings, stakeholder alignment sessions, or high-profile conferences, values shift subtly, often hidden within language and framing, yet they shape decisions in profound ways.

Deliberation, the process of collective discussion, reasoning, and reflection, plays a key role in this evolution. It allows individuals and groups to evaluate, negotiate, and adapt their values over time, influencing what communities consider important (Pahl-Wostl, 2006). As a core mechanism of social learning, exposure to diverse perspectives leads to shifts in priorities and decision-making processes. This iterative process fosters knowledge co-production, where individuals collectively construct meaning and refine shared values (Slater & Robinson, 2020). Understanding these shifts is crucial for decision-makers, policymakers, researchers, and designers who rely on discussion to align interests and shape strategy. However, these values are rarely captured, leaving valuable insights lost once the conversation ends.

This project introduces a computational framework to track and analyze these shifts, capturing both explicit and implicit value trade-offs in discussions. It provides insights onto how perspectives evolve over time. This aligns with Value Sensitive Design (Friedman et al., 2013), emphasizing the systematic integration of values into decision-making.

Beyond analysis, this research opens new possibilities for nudging decision-making conversations, whether in corporate strategy, policy alignment, or stakeholder negotiations. Additionally, it expands computational analysis opportunities in the realm of design strategies. Collaborating with the INSEAD Alumni Forum, this project will test its framework in a real-world setting.

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introduction (continued): space for images

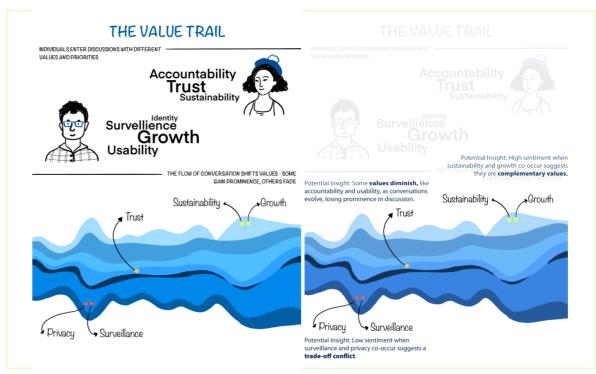


image / figure 1 The project tracks how values emerge, compete, and transform in real-time dialogues.

References

Bos-de Vos, M. (2020). A framework for designing for divergent values. In S. Boess, M. Cheung, & R. Cain (Eds.), Synergy – DRS International Conference 2020, 11-14 August, Held online. Design Research Society. https://doi.org/10.21606/drs.2020.374

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Slater, K., & Robinson, J. (2020). Social learning and transdisciplinary co-production: A social practice approach. Sustainability, 12(18), 7511. https://doi.org/10.3390/su12187511

image / figure 2 References





Personal Project Brief – IDE Master Graduation Project

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice. (max 200 words)

In high-stakes discussion, whether in corporate strategy, policymaking, or stakeholder negotiations, value shifts occur but often go unnoticed once the conversation ends. This project addresses the challenge of capturing and analyzing these shifts through a computational framework that systematically extracts insights from conversations. The focus is on developing the framework, with little emphasis on validating its effectiveness through visualisation of the results.

Over 100 days, the goal is to build a framework integrating various computational techniques. Sentence embedding will not only help to identify explicit but also implicit values and the context in which they appear, for example recognizing nuanced expressions of the same value ("sustainability is a business priority" vs. "going green improves brand reputation").

Occurrence-based methods can track value prominence changes, while sentiment analysis will reveal emotional framing and linguistic markers such as tentativeness could be explored to identify opportunity for change in conversations.

Tested using data from the INSEAD Alumni Forum, the framework will undergo real-world refinement. This research offers decision-makers a tool to better understand value dynamics in discussions, enhancing their ability to align projects and strategies with evolving values and spotting opportunities. By making value shifts visible, they can improve stakeholder alignment, negotiation outcomes, and long-term decision making processes.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for.

Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence)

As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Create a computational framework that integrates value-based tools, literature, and existing computational methods to capture and analyse value shifts from conversations. This strategic framework will support decision-makers and designers by providing insights into how values evolve in business discussions and strategic meetings, enabling better alignment and informed decision-making.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

The project will follow an iterative approach:

- 1. Understanding Value and Value Shifts: Conduct a literature review to explore how values evolve in discussions and define methods to track them, using Bos-de Vos' Framework for Designing for Divergent Values to establish a preset of values.
- 2. Experimentation at the INSEAD Alumni Forum: Kickstarting with a pre-survey to develop a baseline and then capture value shifts across tracks using occurences through sentence embeddings and sentiment analysis, analyzing which values dominate discussions, how they change, and their associated sentiment using an open-source python environment.
- 3. Post-Conference Thesis Research: Investigate value shifts within a single conversation to understand trade-offs, tensions, and evolving priorities, using sentenve embedding, sentiment analysis, tentativeness and other analysis methods to detect value shifts.
- 4. Framework Refinement: Combining literature analysis, value-based tools, and computational methods to establish the foundation for Al-driven real-time insights into value dynamics.

Project planning and key moments

To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a kick-off meeting, mid-term evaluation meeting, green light meeting and graduation ceremony. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).

Make sure to attach the full plan to this project brief. The four key moment dates must be filled in below

Kick off meeting 11 Mar 2025

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time

For how many project weeks

Number of project days per week

Comments:

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.

(200 words max)

My motivation for this project began from personal experience in brainstorming and decision-making sessions, where valuable mid-conversation insights were often lost, and only the final conclusion remained. During my Exploring Design Intelligence elective, I explored computational tools for analyzing discussions, which presented a solution to this challenge. This project excited me because it allows me to strategize and determine which computational method best aligns with different research questions, ensuring a tailored approach to capturing value shifts. Moreover, it contributes to the ongoing debate on how AI and human intelligence can collaborate for optimal results. If designers can structure the training data framework effectively, AI can produce more strategic and meaningful insights, reinforcing the role of design thinking in AI-driven analysis.

Personal Ambtions:

- 1. Bridge the Knowledge Gap: Develop a structured way to capture and analyze value shifts in conversations.
- 2. Strengthen Computational and Al Skills: Enhance my understanding of Al tools and computational analysis for decision-making
- 3. Apply Design Thinking to Data Analysis: Merge qualitative design methodologies with data-driven insights.
- 4. Develop a Scalable Framework: Lay the foundation for a tool that can be expanded for real-time Al-driven insights.
- 5. Experiment with Prompt Engineering: Explore how prompt engineering can refine Al-generated outputs for value shift detection.