

Vision für Menschenzentriertes RE: Werte und Wohlbefinden für adäquatere Software-intensive Systeme



Birgit Penzenstadler birgitp@chalmers.se
Associate Professor Chalmers University, Sweden
Adjunct Professor Lappeenranta University, Finland

GI FG RE
25/11/2022

Why this matters...

“Every line of code has an ethical and moral implication.”

- Grady Booch

We embed our values into the systems we design.



What is a value?

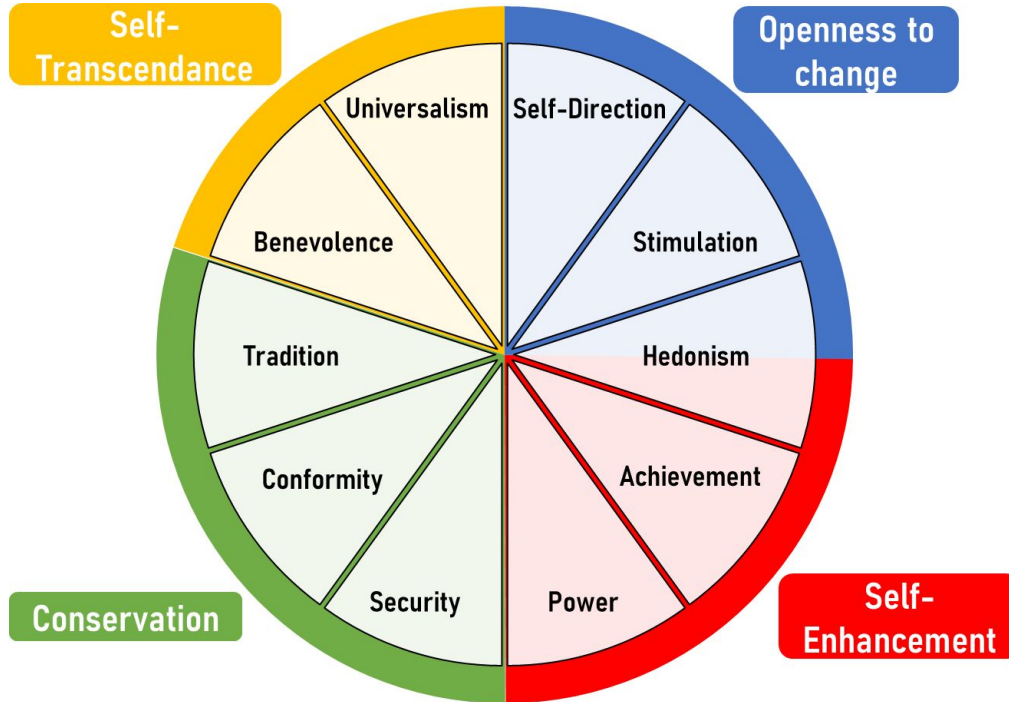
Value

—

A value is a way of being or believing that we hold most important. Living into our values means that we do more than profess our values, we practice them. We walk our talk—we are clear about what we believe and hold important, and we take care that our intentions, words, thoughts, and behaviors align with those beliefs.

Brené Brown

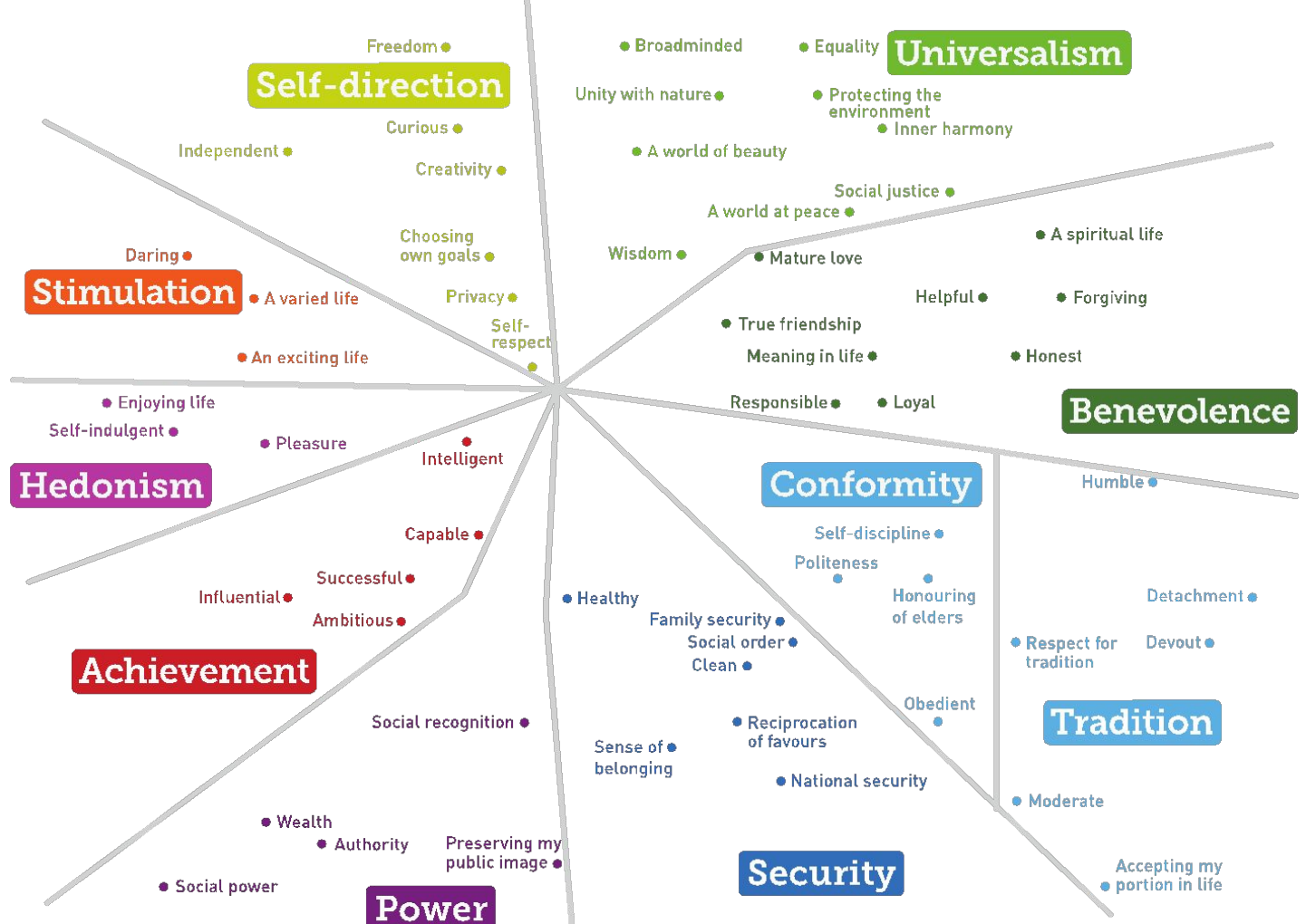
Related Work: Hofstede / Schwartz Taxonomy



Schwartz and colleagues have theorized and shown empirical support for the existence of 10 basic individual values (Schwartz, 1992; Schwartz and Boehnke, 2004).

Benjamin Pastorelli 

Source :
Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25, 1-65.



Dimensional smallest space analysis: individual level value structure average across 68 countries from Schwartz, S. H. (2006). Basic human values: Theory, measurement, and applications. *Review française de sociologie*, 42, 249-288.

Multidimensional scaling analysis called Simple Space Analysis

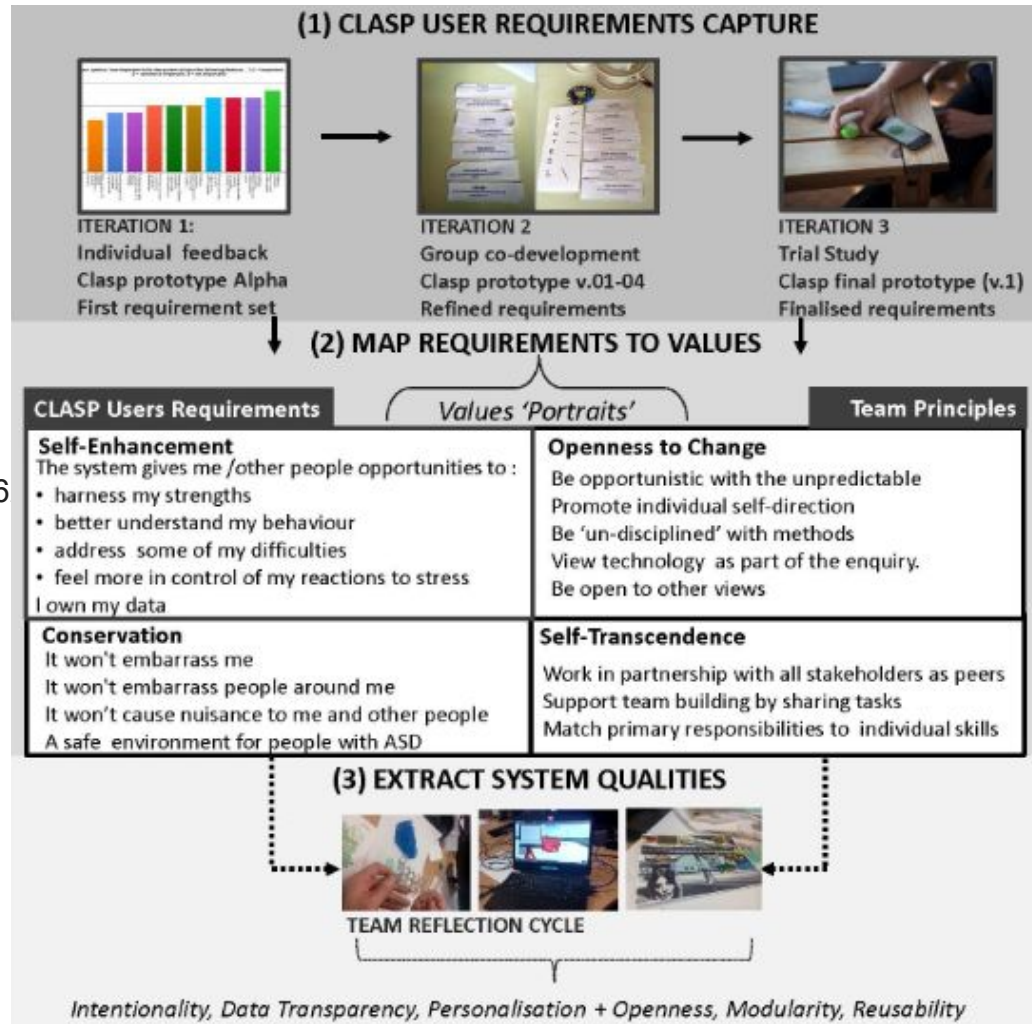
Work others have done: Ferrario et al.

Ferrario, M. A., Simm, W., Forshaw, S., Gradinar, A., Smith, M. T., & Smith, I. (2016, May).

[Values-first SE: research principles in practice.](#)

In 2016 IEEE/ACM 38th International Conference on Software Engineering Companion (ICSE-C) (pp. 553-56 IEEE).

- Values-first process model
- Participatory design of the CLASP bracelet



Work others have done: Winter et al.

Winter, E., Forshaw, S., & Ferrario, M. A. (2018, October). [Measuring human values in software engineering](#). In *Proceedings of the 12th ACM/IEEE international symposium on empirical software engineering and measurement* (pp. 1-4).

- System level, personal level, instantiation level
- Empirical evaluation: Values Q-sort
- Result: **3 prototypes**
 - **The Intrinsically-driven, Socially-concerned Software Engineer**
 - **The Autonomous, Nonconforming Risk-taker**
 - **The Fun-loving, Extrinsicly-driven Software Engineer**

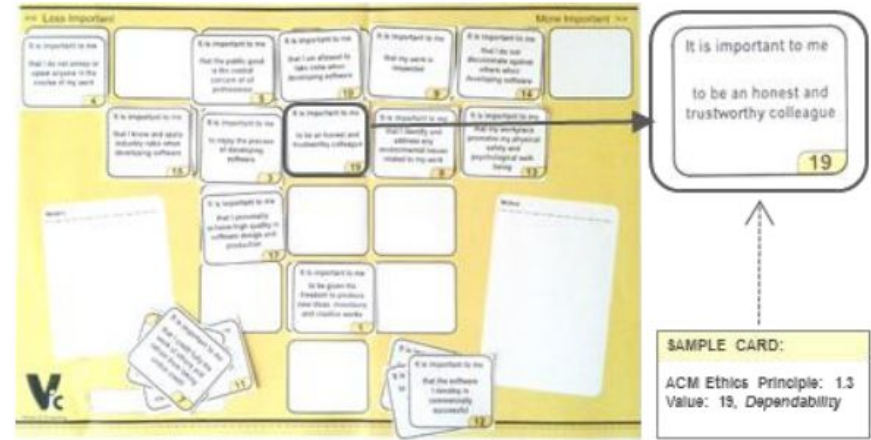


Figure 2. Sample VQ-S; participants order the statements on the grid according to their importance. [16].

Work that others have done: Whittle et al.

Whittle, J., Ferrario, M. A., Simm, W., & Hussain, W. (2019).

[A case for human values in software engineering.](#)

IEEE Software, 38(1), 106-113.

CLASP and PATCHWORKS projects



Self-enhancement	Conservation	Openness to change	Self-transcendence
<p>The system gives me/other people opportunities to</p> <ul style="list-style-type: none">▪ harness my/our strengths▪ better understand my/our behavior▪ address some of my/our difficulties▪ feel more in control of my/our reactions to stress.	<p>The system won't</p> <ul style="list-style-type: none">• embarrass me• embarrass people around me• be a nuisance to me and other people.	<p>The team will</p> <ul style="list-style-type: none">• be opportunistic with the unpredictable• promote individual self-direction• be "undisciplined" with methods• view technology as only part of the solution• be open to other views.	<p>The project will</p> <ul style="list-style-type: none">▪ enable team members to work in partnership with all stakeholders as peers▪ support team building by sharing tasks▪ match primary responsibilities to individual skills.

Four key insights

1. Eliciting Human Values and Making Them More Tangible
2. Documenting Values as the Rationale in Requirements
3. Considering Values Throughout a Participatory, Agile Process
4. Considering the Whole and Values Conflicts

Vision: Primer for requirements elicitation

How to use values in requirements engineering?

Imagine the following ...

1. Session start
2. Value/mission recap
3. Derive requirements
4. Rationale clear
5. Values embedded



Guess what? Let's go!

Theme of REFSQ this upcoming edition (<https://2023.refsq.org/>)

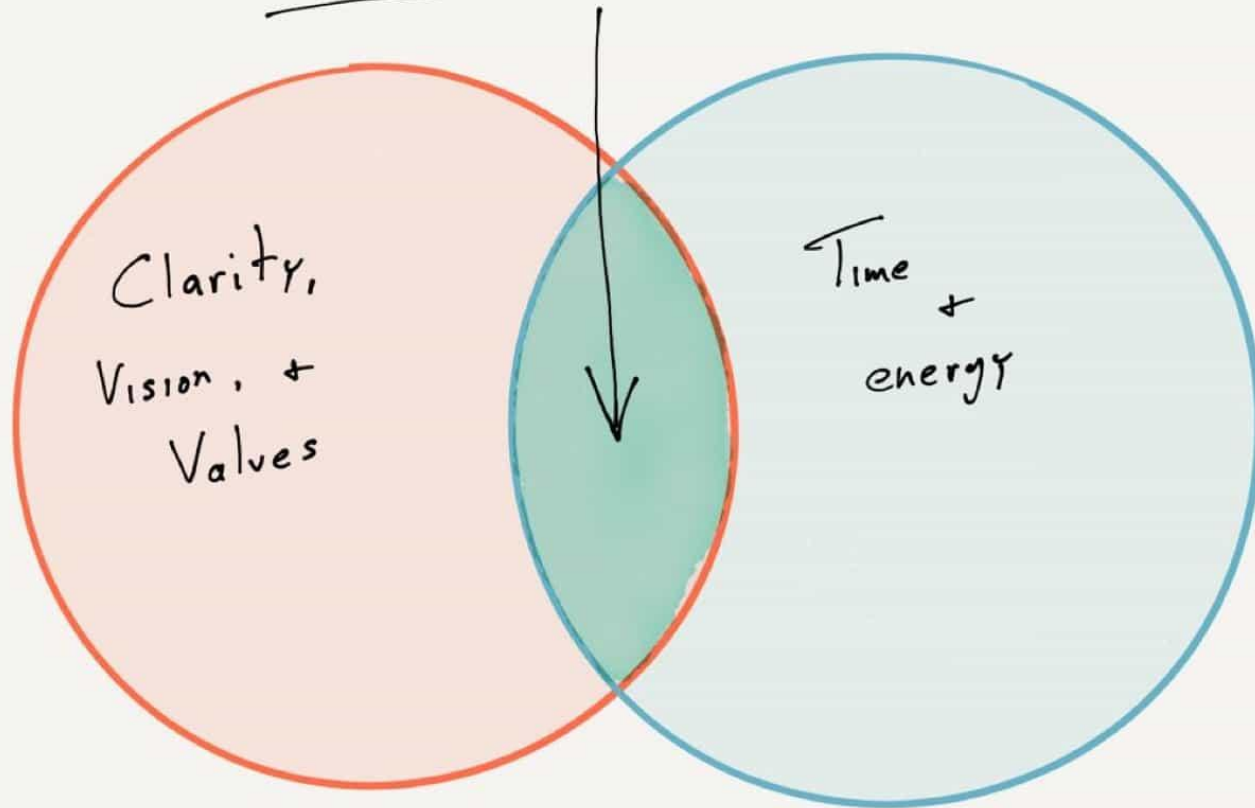
[“Human Values in Requirements Engineering”](#)

REFSQ workshop “ViVa RE!: Virtues and Values in Requirements Engineering”

Alexander Rachmann and Jens Gulden

Submission by February 10th 2023

THE RARE SWEET SPOT



Birgit Penzenstadler
Chalmers Univ. of Tech.
Lappeenranta Univ. of Tech.
birgitp@chalmers.se