

# Distributed Imprecise Design Knowledge on the Semantic Web

---

**Julian R. Eichhoff**<sup>1</sup> and **Univ.-Prof. Dr.-Ing. Wolfgang Maass**<sup>2</sup>

---

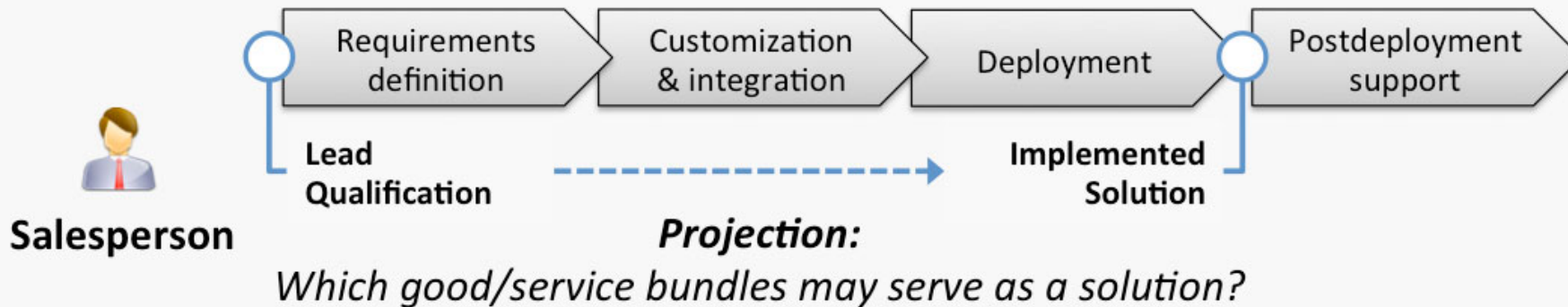
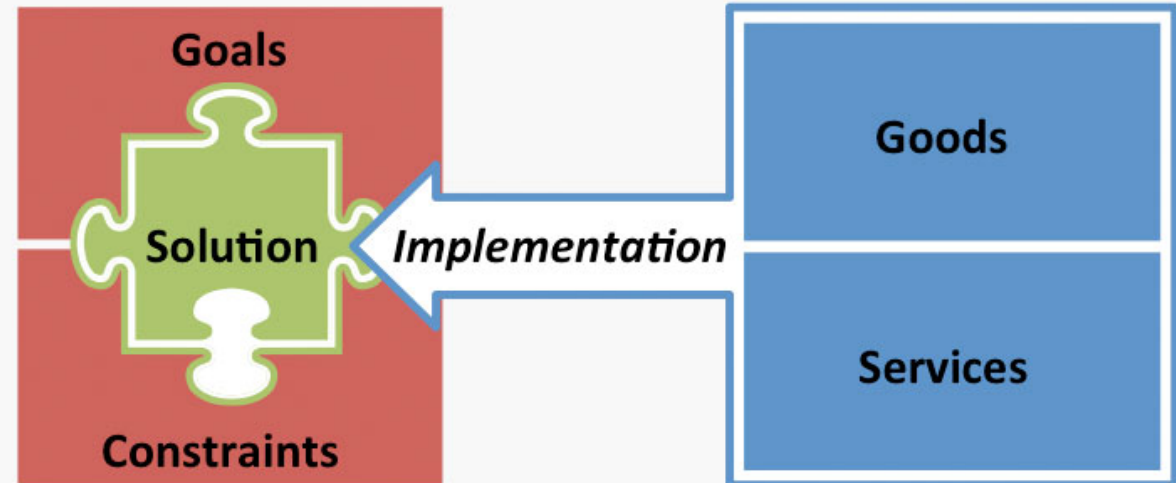
<sup>1</sup> Furtwangen University, Furtwangen, Germany  
[julian.eichhoff@hs-furtwangen.de](mailto:julian.eichhoff@hs-furtwangen.de)

<sup>2</sup> Saarland University, Saarbrücken, Germany  
[wolfgang.maass@iss.uni-saarland.de](mailto:wolfgang.maass@iss.uni-saarland.de)

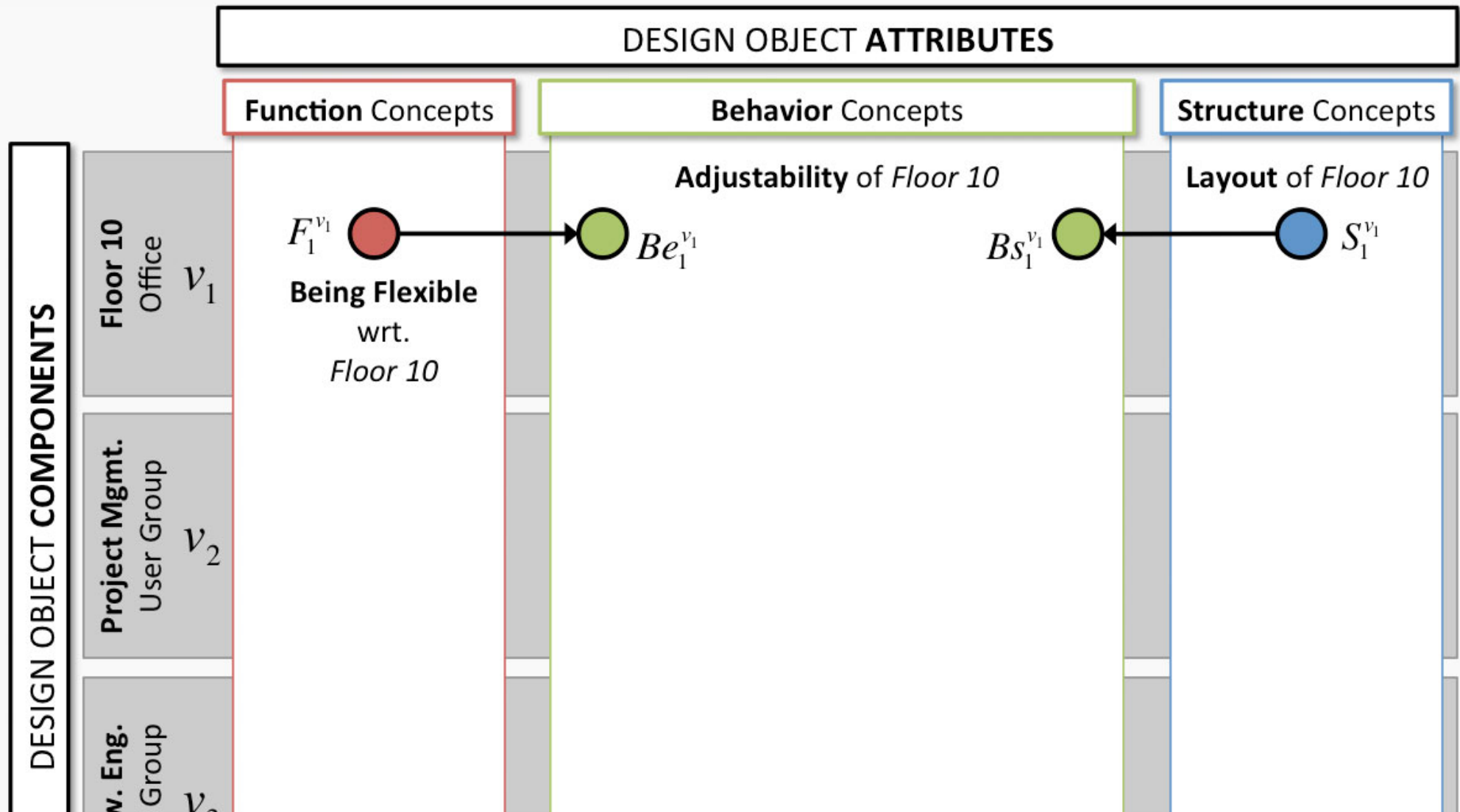




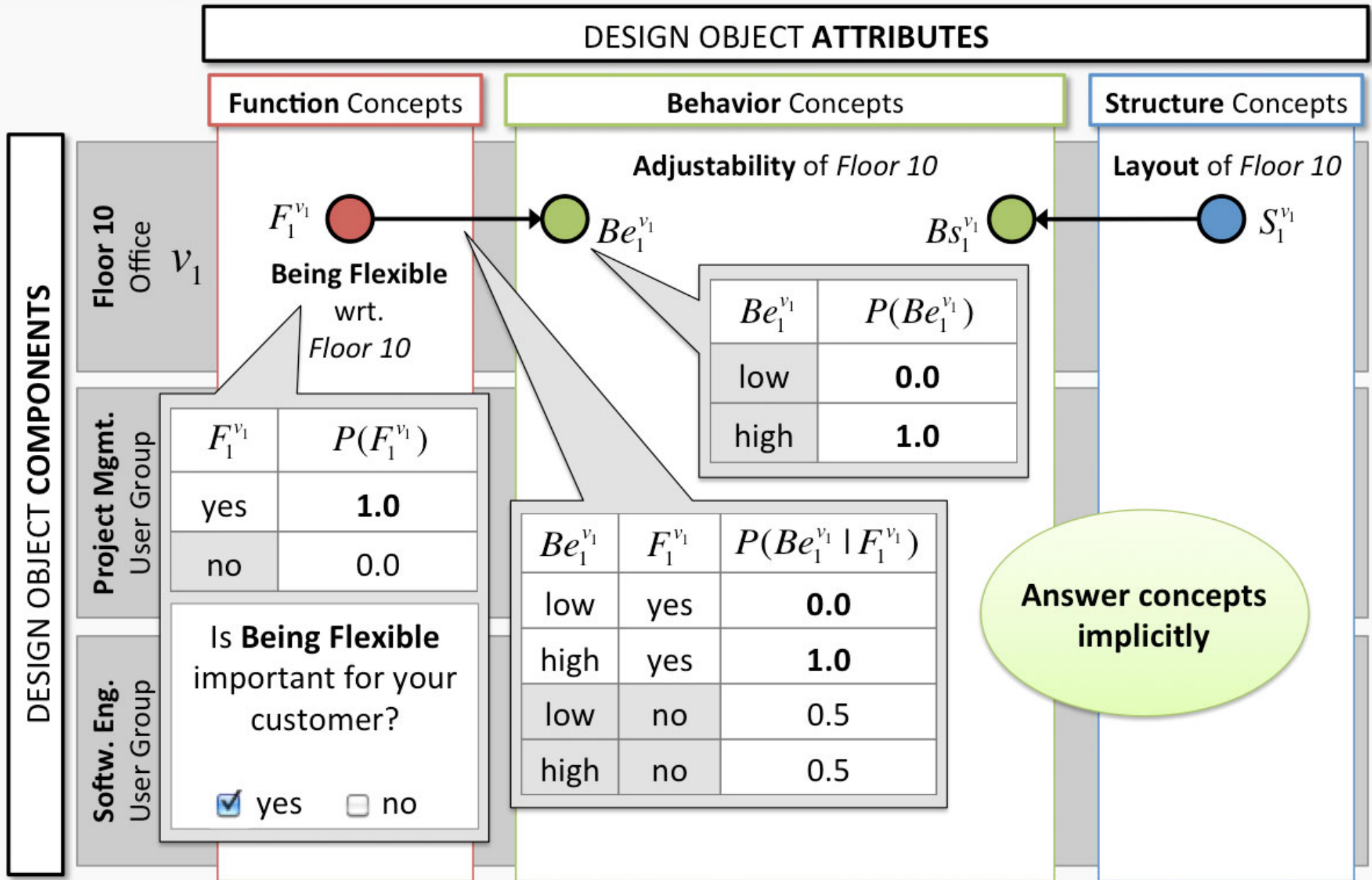
**Solution Selling:**  
offer **customized** products and services, which meet customer's **individual** business needs

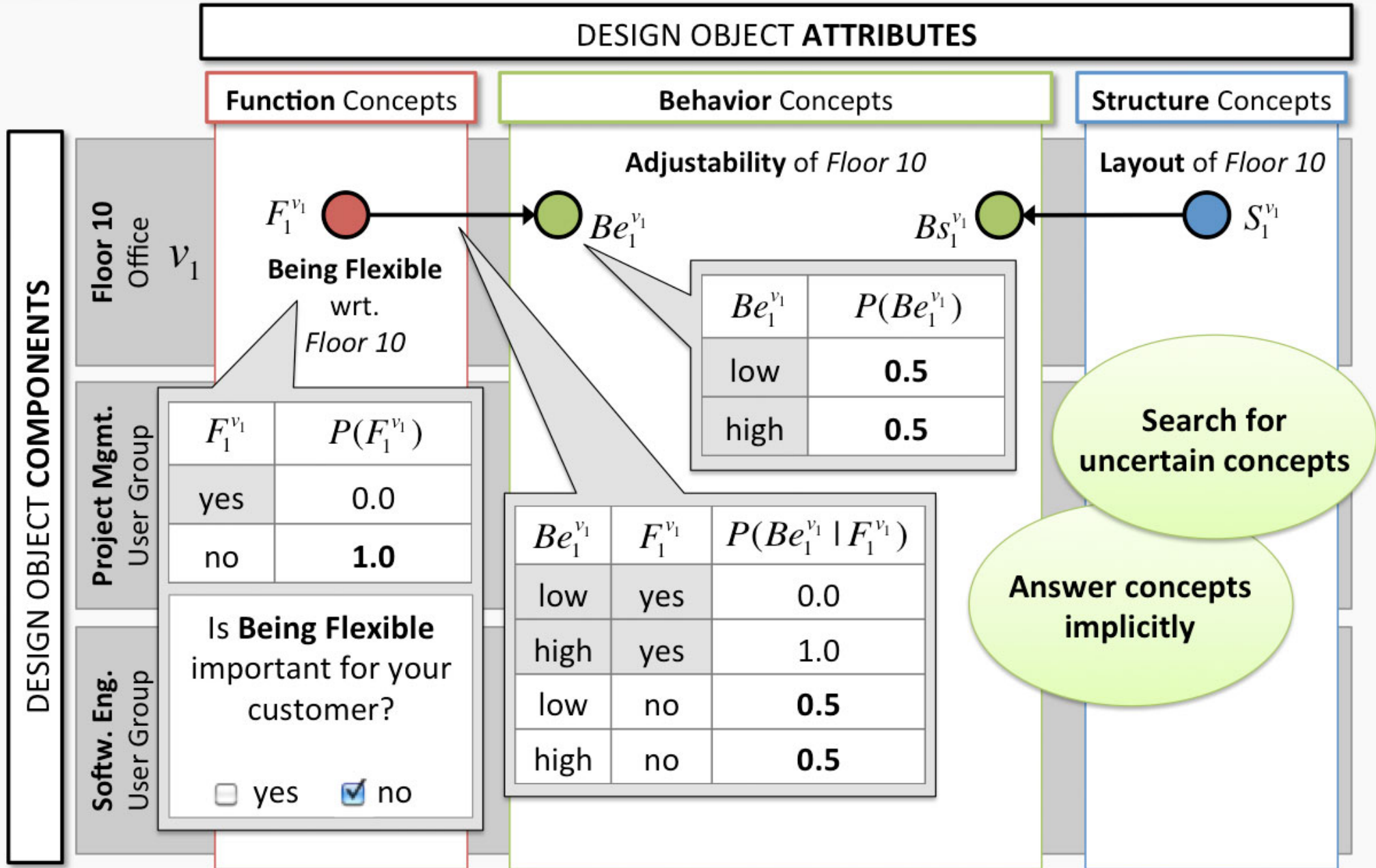


cf. Tuli, K.R., Kohli, A.K., Bharadwaj, S.G.: Rethinking Customer Solutions:  
From Product Bundles to Relational Processes. J. Market. 71(3), pp. 1-17 (2007)



cf. Eichhoff, J.R., Maass, W.: Representation and Reuse of Design Knowledge: An Application for Sales Call Support. In: König, A., Dengel, A., Hinkelmann, K., Kise, K., Howlett, R.J., Jain, L.C. (eds.) KES 2011, Part I. LNAI, vol. 6881, pp. 387–396. Springer, Heidelberg (2005)







DESIGN OBJECT ATTRIBUTES

Function Concepts

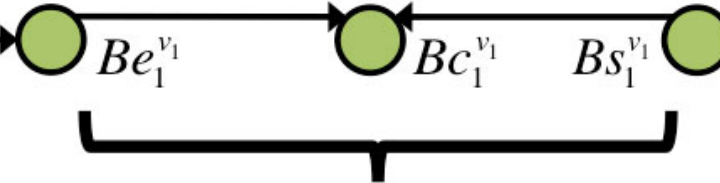
Behavior Concepts

Structure Concepts

Floor 10 Office  $v_1$

$F_1^{v_1}$  Being Flexible wrt. Floor 10

Adjustability of Floor 10



Layout of Floor 10

$S_1^{v_1}$

DESIGN OBJECT COMPONENTS

Project Mgmt. User Group  $v_2$

Softw. Eng. User Group  $v_3$

Assess problem/solution space

$Bc_1^{v_1}$	$Be_1^{v_1}$	$Bs_1^{v_1}$	$P(Bc_1^{v_1}   Be_1^{v_1}, Bs_1^{v_1})$
mismatch	low	low	0.0
mismatch	low	high	0.0
mismatch	high	low	0.0
mismatch	high	high	0.0
<b>match</b>	<b>low</b>	<b>low</b>	<b>1.0</b>
match	low	high	0.0
match	high	low	0.0
<b>match</b>	<b>high</b>	<b>high</b>	<b>1.0</b>



Evidence Propagation

Evidence Propagation

Match of  $Be_1^{v_1}$  and  $Bs_1^{v_1}$ ? ( $P(Bc_1^{v_1})$ )

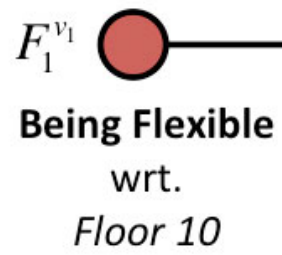
Function Concepts

Behavior Concepts

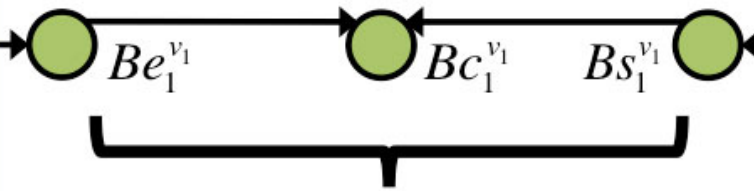
Structure Concepts

DESIGN OBJECT COMPONENTS

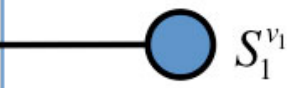
Floor 10 Office  $v_1$   
Mgmt. Up  
Softw. Eng. Up



Adjustability of Floor 10



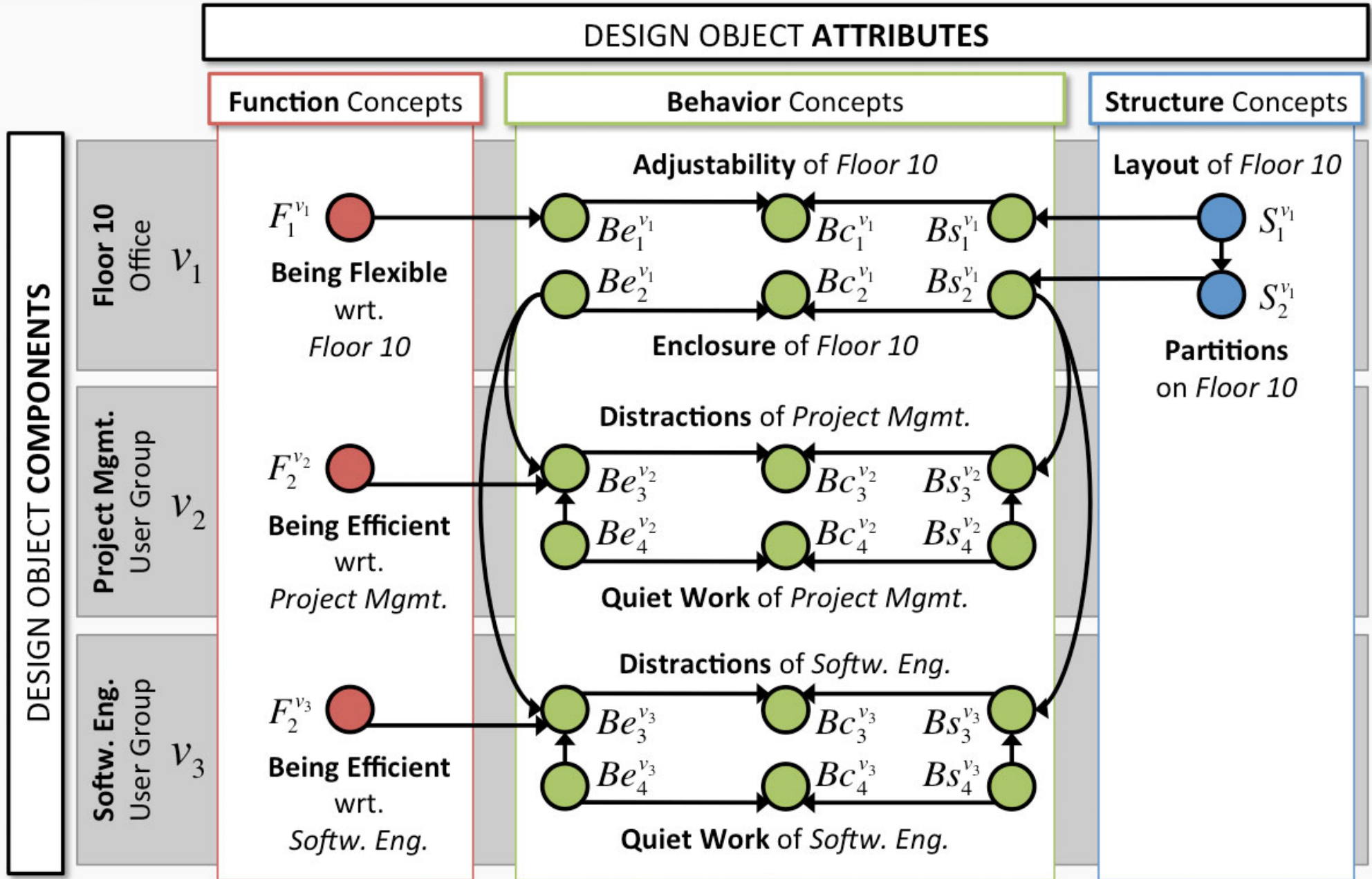
Layout of Floor 10



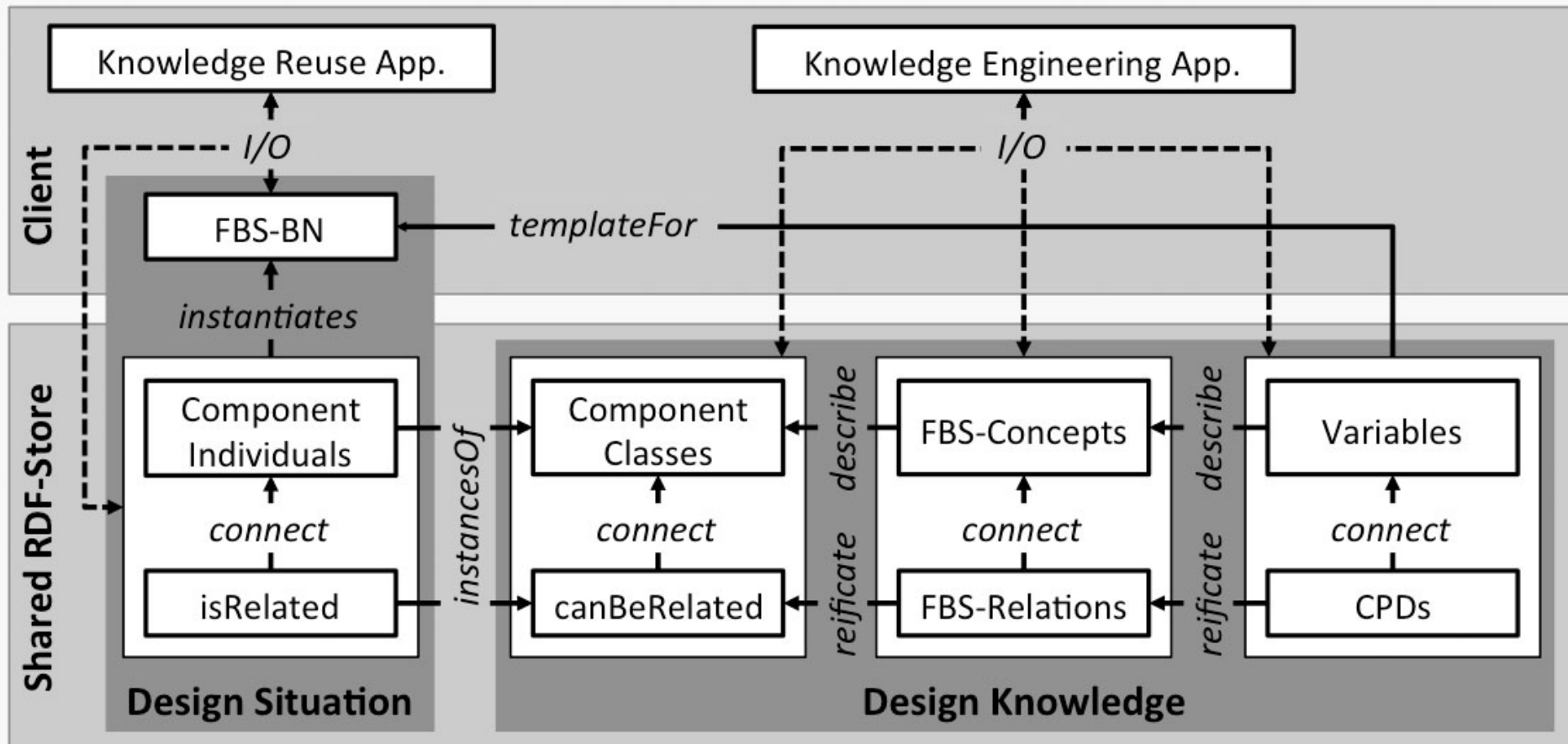
Evaluate different solutions

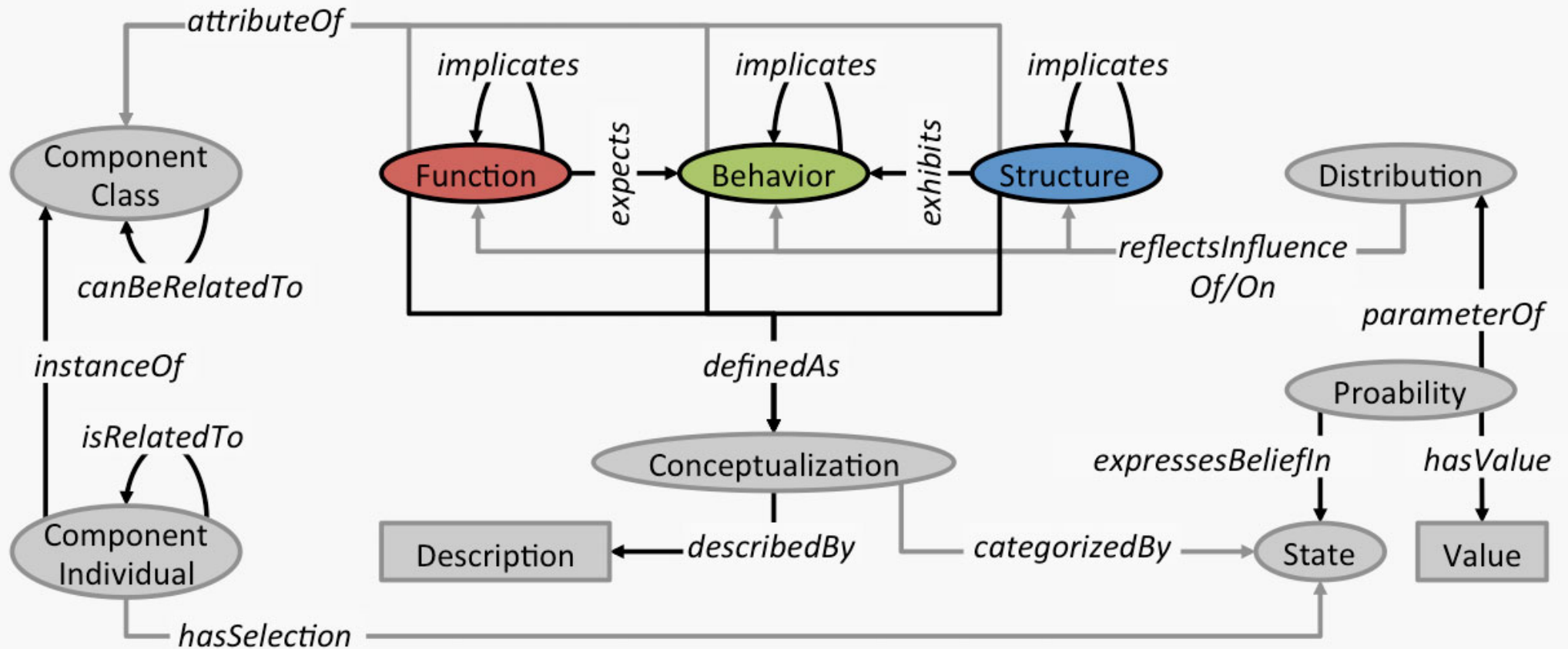
Assess problem/solution space

$Bc_1^{v_1}$	$Be_1^{v_1}$	$Bs_1^{v_1}$	$P(Bc_1^{v_1}   Be_1^{v_1}, Bs_1^{v_1})$
mismatch	low	low	0.0
mismatch	low	high	1.0
mismatch	high	low	1.0
mismatch	high	high	0.0
match	low	low	1.0
match	low	high	0.0
match	high	low	0.0
match	high	high	1.0











- Evaluate prototypes empirically
- Test large scale network inference
- Apply model in different sales settings
- Integrate machine-learning
- Conceptualize and implement module for explanation of inference results

# Questions?



[julian.eichhoff@hs-furtwangen.de](mailto:julian.eichhoff@hs-furtwangen.de)

<http://iss.uni-saarland.de>