

**Digital service orientation:
unlocking servitization in service operations and service sales**

Supplementary materials

Supplementary material A. Sample characteristics

Service operations			Service sales		
Criterion	Frequency	Percentage	Criterion	Frequency	Percentage
Age			Age		
18-24	4	1.5	18-24	1	0.4
25-34	75	27.8	25-34	58	22.0
35-44	103	38.1	35-44	104	39.4
45-54	62	23.0	45-54	73	27.7
55+	26	9.6	55+	28	10.6
<i>Total</i>	<i>270</i>	<i>100.0</i>	<i>Total</i>	<i>264</i>	<i>100.0</i>
Role			Role		
Field service engineer	238	88.1	Field sales	124	47.0
Service manager	32	11.9	Sales manager	80	30.3
<i>Total</i>	<i>270</i>	<i>100.0</i>	Inside sales	38	14.4
			Divisional manager	22	8.3
			<i>Total</i>	<i>264</i>	<i>100.0</i>
Years in the role			Years in the role		
Under 1 year	17	6.3	Under 1 year	34	12.9
1-3 years	33	12.2	1-3 years	62	23.5
4-7 years	52	19.3	4-7 years	73	27.7
8-15 years	79	29.3	8-15 years	58	22.0
More than 15 years	63	23.3	More than 15 years	34	12.9
Missing	26	9.6	Missing	3	1.1
<i>Total</i>	<i>270</i>	<i>100.0</i>	<i>Total</i>	<i>264</i>	<i>100.0</i>
Years at the firm			Years at the firm		
Under 1 year	29	10.7	Under 1 year	27	10.2
1-3 years	38	14.1	1-3 years	49	18.6
4-7 years	67	24.8	4-7 years	65	24.6
8-15 years	79	29.3	8-15 years	65	24.6
More than 15 years	48	17.8	More than 15 years	58	22.0
Missing	9	3.3	<i>Total</i>	<i>264</i>	<i>100.0</i>
<i>Total</i>	<i>270</i>	<i>100.0</i>			
Source(s): Created by the authors					

Supplementary material B. Reduced truth tables

Service operations									
Tech. fores.	Adaptability	Agility	Problem-solving	Rule-bending	Cust. focus	Number of cases	Raw consistency	PRI	Outcome
1	1	1	1	1	0	4	0.96	0.57	1
1	1	1	1	0	1	5	0.94	0.58	1
1	1	1	1	1	1	31	0.94	0.76	1
1	0	1	1	1	1	5	0.94	0.60	1
1	1	0	1	1	1	7	0.94	0.59	1
1	1	0	0	1	0	4	0.95	0.46	0
1	0	1	1	0	1	3	0.94	0.52	0
1	1	0	1	0	1	4	0.94	0.43	0
1	0	0	1	1	0	3	0.94	0.41	0
1	0	0	0	1	0	3	0.93	0.34	0
1	0	0	1	1	1	6	0.93	0.48	0
1	0	0	0	0	0	6	0.92	0.27	0
0	1	0	1	1	1	4	0.90	0.33	0
0	1	1	1	1	1	7	0.90	0.32	0
0	0	1	0	1	1	3	0.90	0.29	0
0	0	1	1	1	1	7	0.89	0.32	0
0	0	0	1	1	1	6	0.88	0.31	0
0	1	1	1	0	1	14	0.88	0.29	0
0	0	1	0	0	1	7	0.87	0.23	0
0	0	0	0	1	1	10	0.87	0.24	0
0	0	1	1	0	1	11	0.85	0.27	0
0	0	0	0	1	0	12	0.84	0.21	0
0	0	0	1	0	1	11	0.84	0.22	0
0	0	0	0	0	1	11	0.84	0.22	0
0	0	0	1	0	0	7	0.84	0.19	0
0	0	0	0	0	0	57	0.70	0.12	0

Note(s): Tech. fores.—technology foresight. Cust. focus—customer focus. PRI—proportional reduction in inconsistency.

Source(s): Created by the authors

Service sales									
Tech. fores.	Adaptability	Agility	Problem-solving	Rule-bending	Cust. focus	Number of cases	Raw consistency	PRI	Outcome
1	1	1	0	1	1	4	0.96	0.67	1
1	1	0	0	1	1	3	0.95	0.59	1
1	0	1	0	0	1	3	0.95	0.59	1
1	0	1	1	1	1	3	0.94	0.58	1
1	1	0	1	1	1	3	0.94	0.60	1
1	1	1	1	0	1	14	0.93	0.66	1
1	1	1	1	1	1	32	0.93	0.68	1
0	1	0	0	1	1	3	0.94	0.49	0
0	1	1	1	1	1	5	0.94	0.54	0
1	1	0	1	0	1	6	0.93	0.55	0
1	0	0	1	1	1	3	0.93	0.51	0
1	0	1	1	0	1	5	0.93	0.55	0
0	1	0	1	1	1	4	0.93	0.46	0
0	0	1	0	1	1	3	0.93	0.46	0
0	1	1	1	0	1	5	0.92	0.51	0
0	0	1	0	1	0	6	0.92	0.49	0
0	0	1	0	0	1	3	0.91	0.43	0
0	0	1	1	1	1	10	0.91	0.43	0
0	0	1	0	0	0	3	0.90	0.40	0
0	0	0	0	1	1	9	0.90	0.38	0
0	0	0	1	1	1	4	0.90	0.35	0
0	0	1	1	0	1	10	0.88	0.38	0
0	0	0	0	0	1	19	0.88	0.38	0
0	0	0	1	1	0	5	0.88	0.32	0
0	0	0	1	0	1	7	0.88	0.34	0
0	0	0	0	1	0	13	0.87	0.33	0
0	0	0	1	0	0	8	0.86	0.29	0
0	0	0	0	0	0	35	0.80	0.25	0

Note(s): Tech. fores.—technology foresight. Cust. focus—customer focus. PRI—proportional reduction in inconsistency.

Source(s): Created by the authors

Supplementary material C. Additional analyses: absence of digital service orientation

Complementing the main findings with additional analyses allowed by fsQCA, we examine which configurations of the six routine elements are sufficient for the *absence* of digital service orientation. Again, we conduct separate analyses for service operations and service sales, each yielding three configurations (see below). Since the interplay of the six routine elements in our conceptual framework induces digital service orientation, we do not expect their presence also for the latter's absence. The results are in line with this expectation: we find no present routine elements for the absence of digital service orientation (except for problem-solving in one configuration). However, no configuration here is the inverse of any configuration from the main findings (Table 3). For example, *absent* technology foresight is sufficient for the absence of digital service orientation in one configuration, but *present* technology foresight alone is never sufficient for digital service orientation. Moreover, unlike in our main results, we observe no distinct cross-functional patterns. These findings reflect the notion of asymmetry, in that configurations for an outcome's presence do not typically mirror those for its absence. Digital service orientation and its absence are not simply two sides of the same coin. Instead, these distinct, heterogeneous phenomena are induced by non-mirroring configurations of routine elements.

	Configurations					
	Service operations			Service sales		
Routine elements	A1	A2	A3	A4	A5	A6
Technology foresight	⊗			⊗	⊗	⊗
Customer focus			⊗			
Adaptability			⊗	⊗	⊗	⊗
Agility		⊗	⊗	⊗		
Problem-solving					●	
Rule-bending		⊗				⊗
Raw coverage	0.88	0.69	0.64	0.70	0.63	0.68
Unique coverage	0.19	0.01	0.01	0.03	0.02	0.01
Consistency	0.86	0.92	0.92	0.89	0.90	0.88
Solution coverage		0.92			0.78	
Solution consistency		0.85			0.87	
Note(s): Filled circles indicate the presence of routine elements, either as core (large circles) or peripheral (small circles). Crossed circles indicate absence, and blanks indicate irrelevance (can be either present or absent).						
Source(s): Created by the authors						

Supplementary material D. Additional analyses: robustness tests

We conduct robustness tests to evaluate the sensitivity of the main findings to changes in the model parameters and calibration. These tests include alternative cut-off values for raw consistency and frequency, as well as alternative threshold values for full membership and non-membership. The results of these tests (see below) indicate low sensitivity of our main findings to the performed changes: changing the cut-off value for raw consistency results in configurations identical to those in Table 3, whereas changing the cut-off value for frequency indicates differences only in several originally peripheral and irrelevant routine elements. Similarly, setting an alternative threshold value for full non-membership results in only one core routine element turning peripheral (problem-solving in the original Configuration 2). Higher sensitivity is demonstrated only with an alternative threshold value for full membership: the original Configuration 7 no longer appears, while most of the remaining configurations remain similar. The robustness tests indicate that our main findings are substantively unchanged with most of the tested alternative specifications.

Configuration chart for robustness test No. 1: Consistency cut-off at 0.75

	Configurations						
	Service operations			Service sales			
Routine elements	1	2	3	4	5	6	7
Technology foresight	●	●	●	●	●	●	●
Customer focus		●	●	●	●	●	●
Adaptability	●	●		●	●		
Agility	●		●	●		●	●
Problem-solving	●	●	●			●	⊗
Rule-bending		●	●		●	●	⊗
Raw coverage	0.68	0.64	0.64	0.65	0.59	0.57	0.47
Unique coverage	0.07	0.02	0.02	0.04	0.03	0.01	0.01
Consistency	0.93	0.93	0.93	0.90	0.90	0.92	0.95
Solution coverage	0.73			0.71			
Solution consistency	0.91			0.88			

Notes(s): Filled circles indicate the presence of routine elements, either as core (large circles) or peripheral (small circles). Crossed circles indicate absence, and blanks indicate irrelevance (can be either present or absent).

Source(s): Created by the authors

Configuration chart for robustness test No. 2: Consistency cut-off at 0.89

	Configurations						
	Service operations			Service sales			
Routine elements	1	2	3	4	5	6	7
Technology foresight	•	•	•	•	•	•	•
Customer focus		•	•	•	•	•	•
Adaptability	•	•		•	•		
Agility	•		•	•		•	•
Problem-solving	•	•	•			•	⊗
Rule-bending		•	•		•	•	⊗
Raw coverage	0.68	0.64	0.64	0.65	0.59	0.57	0.47
Unique coverage	0.07	0.02	0.02	0.04	0.03	0.01	0.01
Consistency	0.93	0.93	0.93	0.90	0.90	0.92	0.95
Solution coverage	0.73			0.71			
Solution consistency	0.91			0.88			

Notes(s): Filled circles indicate the presence of routine elements, either as core (large circles) or peripheral (small circles). Crossed circles indicate absence, and blanks indicate irrelevance (can be either present or absent).

Source(s): Created by the authors

Configuration chart for robustness test No. 3: Frequency cut-off at two cases

	Configurations						
	Service operations			Service sales			
Routine elements	1	2	3	4	5	6	7
Technology foresight	•	•	•	•	•	•	•
Customer focus	•	•	•		•	•	•
Adaptability	•	•		•	•		
Agility	•		•	•		•	•
Problem-solving		•	•	•			⊗
Rule-bending		•	•		•	•	
Raw coverage	0.68	0.64	0.64	0.64	0.59	0.59	0.51
Unique coverage	0.06	0.02	0.02	0.04	0.03	0.01	0.01
Consistency	0.93	0.93	0.93	0.90	0.90	0.91	0.94
Solution coverage	0.73			0.72			
Solution consistency	0.91			0.88			

Notes(s): Filled circles indicate the presence of routine elements, either as core (large circles) or peripheral (small circles). Crossed circles indicate absence, and blanks indicate irrelevance (can be either present or absent).

Source(s): Created by the authors

Configuration chart for robustness test No. 4: Cut-off for full non-membership at 1.1

	Configurations						
	Service operations			Service sales			
Routine elements	1	2	3	4	5	6	7
Technology foresight	•	•	•	•	•	•	•
Customer focus	•	•	•	•	•	•	•
Adaptability	•	•		•	•		
Agility	•		•	•		•	•
Problem-solving	•	•	•			•	⊗
Rule-bending		•	•		•	•	⊗
Raw coverage	0.67	0.63	0.63	0.64	0.58	0.57	0.47
Unique coverage	0.06	0.03	0.02	0.04	0.03	0.01	0.02
Consistency	0.93	0.93	0.93	0.90	0.90	0.91	0.94
Solution coverage		0.71			0.71		
Solution consistency		0.91			0.88		

Notes(s): Filled circles indicate the presence of routine elements, either as core (large circles) or peripheral (small circles). Crossed circles indicate absence, and blanks indicate irrelevance (can be either present or absent).

Source(s): Created by the authors

Configuration chart for robustness test No. 5: Cut-off for full membership at 4.9

	Configurations						
	Service operations			Service sales			
Routine elements	1	2	3	4	5	6	7
Technology foresight	•	•	•	•		•	-
Customer focus		•	•	•	•	•	-
Adaptability	•	•		•	•		-
Agility	•		•		•	•	-
Problem-solving	•	•	•		•	•	-
Rule-bending		•	•		•		-
Raw coverage	0.68	0.64	0.63	0.68	0.57	0.67	-
Unique coverage	0.07	0.02	0.02	0.04	0.03	0.01	-
Consistency	0.93	0.93	0.93	0.87	0.91	0.90	-
Solution coverage	0.73			0.75			
Solution consistency	0.91			0.86			

Notes(s): Filled circles indicate the presence of routine elements, either as core (large circles) or peripheral (small circles). Crossed circles indicate absence, and blanks indicate irrelevance (can be either present or absent).

Source(s): Created by the authors
