

Inter-organizational Enterprise Architecture Management in Associations of Organizations

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Motivation

Research Approach

Literature Review

Case Study

Conclusion

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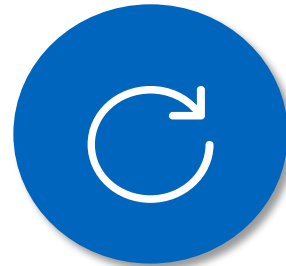
Case Study

Conclusion



Collaboration

Collaboration becomes increasingly important for companies



Changing Business

Shift from competition to coevolution with others

(Moore, 1996)



EAM

EAM supports the alignment of IT and business

(Matthes, Buckl, Leitel, & Schweda, 2008)



Cross-organizational EAM

„[...] companies today are to an increasing degree intertwined with their business partners in collaborative networks and act in complex business ecosystems.“

(Drews & Schirmer, 2014)



Research Gap:

Observation the collaboration across organizations in the area of EAM

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PART 01

RQ 1



Which types of inter-organizational cooperation between companies exist in literature?

RQ 2



What are the characteristics of the identified inter-organizational cooperation?

based on

based on



Literature review

(Webster & Watson, 2002;
Vom Brocke et al., 2009)

classification of case study partner

PART 02

RQ 3



How and to which extent does collaboration between enterprise architects take place within associations of organizations?

- Why do Enterprise Architects from different companies work together?
- How is the collaboration process between Enterprise Architects structured?
- Which EA Artifacts are developed or used together?
- How does the collaboration affect the traditional role of Enterprise Architects?

applied



Case study

(Yin, 2014; Runeson &
Höst, 2009)

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Results of Literature Review – Types of cooperation

Types of Cooperation	# Docs	References
Joint Venture	14	(Hagenhoff, 2004; Eckert, 2009; Killich, 2011; Männel, 1996; Rief, 2009; Hess, 2002; Teusler, 2008; Morschett, 2003; Kaschny & Nolden, 2018; Becker, Ulrich, Botzkowski, Fibitz, & Stradtman, 2018; Sydow, 1991; Sydow, 1992; Osiecka, 2006; Jagdev & Thoben, 2001)
Enterprise Network	13	(Hagenhoff, 2004; Wolff, 1998; Eckert, 2009; Männel, 1996; Rief, 2009; Hess, 2002; Fischer, 2006; Morschett, 2003; Kaschny & Nolden, 2018; Sydow, 1991; Sydow, 1992; Jagdev & Thoben, 2001; Mildenerberger, 1998)
Strategic Alliance	12	(Hagenhoff, 2004; Wolff, 1998; Eckert, 2009; Killich, 2011; Männel, 1996; Rief, 2009; Hess, 2002; Morschett, 2003; Kaschny & Nolden, 2018; Becker, Ulrich, Botzkowski, Fibitz, & Stradtman, 2018; Sydow, 1991; Sydow, 1992)
Virtual Enterprise	11	(Hagenhoff, 2004; Eckert, 2009; Killich, 2011; Rief, 2009; Hess, 2002; Becker, Ulrich, Botzkowski, Fibitz, & Stradtman, 2018; Jagdev & Thoben, 2001; Cravens, Piercy, & Shipp, 1996; Riemer & Vehring, 2012; Pires, Bremer, De Santa Eulalia, & Goulart, 2001; Bititci, Martinez, Albores, & Parung, 2004)
Strategic Network	10	(Hagenhoff, 2004; Wolff, 1998; Männel, 1996; Rief, 2009; Hess, 2002; Morschett, 2003; Sydow, 1991; Sydow, 1992; Osiecka, 2006; Jarillo, 1988)
Consortium / Working Group	8	(Eckert, 2009; Killich, 2011; Männel, 1996; Morschett, 2003; Becker, Ulrich, Botzkowski, Fibitz, & Stradtman, 2018; Sydow, 1991; Sydow, 1992; Osiecka, 2006)
Franchising	7	(Eckert, 2009; Killich, 2011; Teusler, 2008; Morschett, 2003; Becker, Ulrich, Botzkowski, Fibitz, & Stradtman, 2018; Osiecka, 2006; Jagdev & Thoben, 2001)
Supply Chain	7	(Hagenhoff, 2004; Eckert, 2009; Killich, 2011; Hess, 2002; Jagdev & Thoben, 2001; Pires, Bremer, De Santa Eulalia, & Goulart, 2001; Bititci, Martinez, Albores, & Parung, 2004)
Value-adding partnership	6	(Hagenhoff, 2004; Männel, 1996; Hess, 2002; Sydow, 1991; Sydow, 1992; Johnston & Lawrence, 1991)
R&D	5	(Hagenhoff, 2004; Kaschny & Nolden, 2018; Rotering, 1990; Backes-Gellner, Maass, & Werner, 2005; Fritsch & Lukas, 2001)

Top 10

In total 43 different types of inter-organizational cooperation

Results of Literature Review – Characteristics of cooperation types

- Characterization of cooperation types is hardly possible, because of the complexity and multidimensional nature of the cooperation forms (Rupprecht-Däullary, 1994)
- In total 30 characteristics are identified from the literature

Outlook

Characteristics	Possible specification			
Direction of cooperation	horizontal		vertical	
Number of cooperation partners	2		> 2	
Interdependence of partners	low		high	
Time limit	limited		unlimited	
Objective limitation	limited		unlimited	
Aim of the cooperation	synergy potential	know-how transfer	economies of scale	market entry
Voluntariness of formation	obligation, law, market, coercion		voluntary	
Management	distributed		centralized	
Time frequency	unique	sporadic	regular	permanent
Space of cooperation	local	regional	national	international
...	...			

Results of Literature Review – Characteristics of cooperation types

Working group

Characteristics	Possible specification			
Direction of cooperation	horizontal	vertical		diagonal/lateral
Number of cooperation partners	2		> 2	
Interdependence of partners	low		high	
Time limit	limited		unlimited	
Objective limitation	limited		unlimited	
Aim of the cooperation	synergy potential	know-how transfer	economies of scale	market entry

GerWG – EAM initiative 1

Characteristics	Possible specification			
Direction of cooperation	horizontal	vertical		diagonal/lateral
Number of cooperation partners	2		> 2	
Interdependence of partners	low		high	
Time limit	limited		unlimited	
Objective limitation	limited		unlimited	
Aim of the cooperation	synergy potential	know-how transfer	economies of scale	market entry
Voluntariness of formation	obligation, law, market, coercion		voluntary	
Management	distributed		centralized	
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Results of Literature Review – Characteristics of cooperation types

Working group

Characteristics	Possible specification			
Direction of cooperation	horizontal	vertical		diagonal/lateral
Number of cooperation partners	2		> 2	
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Time limit	limited		unlimited	
Objective limitation	limited		unlimited	
Aim of the cooperation	synergy potential	know-how transfer	economies of scale	market entry

InterWG – EAM initiative 2

Characteristics	Possible specification			
Direction of cooperation	horizontal	vertical		diagonal/lateral
Number of cooperation partners	2		> 2	
Interdependence of partners	low		high	
Time limit	limited		unlimited	
Objective limitation	limited		unlimited	
Aim of the cooperation	synergy potential	know-how transfer	economies of scale	market entry
Voluntariness of formation	obligation, law, market, coercion		voluntary	
Management	distributed		centralized	
Time frequency	unique	sporadic	regular	permanent
Space of cooperation	local	regional	national	international



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Case Study – Multiple Case Study

ID	Organization	Role	Experience in EAM	Duration
I1	O1	Enterprise Architect	6 - 10 Years	2h 2min
I2	O2	Enterprise Architect	3 - 5 Years	1h 11min
I3	O3	System Architect / Enterprise Architect	1 - 2 Years	1h 32min
I4	O4	Head of Department for Planning & Software Development	1 - 2 Years	0h 46min
I5	O5	Project Manager	1 - 2 Years	0h 40min
I6	O6	Enterprise Architect	3 - 5 Years	1h 16min
I7	O6	Enterprise Architect	1 - 2 Years	0h 48min
I8	O7	Head of Studio & Media Technology	1 - 2 Years	0h 37min
I9	O8	Lead Broadcast Architect Enterprise	>10 Years	1h 10min
I10	O9	Portfolio Manager	3 - 5 Years	1h 00min
I11	O9	Portfolio Manager	1 - 2 Years	
I12	O10	Enterprise Architect	6 - 10 Years	0h 38min
I13	O11	Enterprise Architect	6 - 10 Years	1h 22min

GerWG (EAM initiative 1):

- Working group of **7 public service companies** from Germany + **2 associated members** from Germany, Switzerland
- **11 semi-structured interviews**
- Top-IT Management as principal

InterWG (EAM initiative 2):

- Working group of **4 public service companies** from Germany, Switzerland, Belgium, England
- **2 semi-structured interviews**
- Volunteered knowledge exchange

13

Total hours

185

Total pages

4

Units of analysis

Case Study – MAXQDA

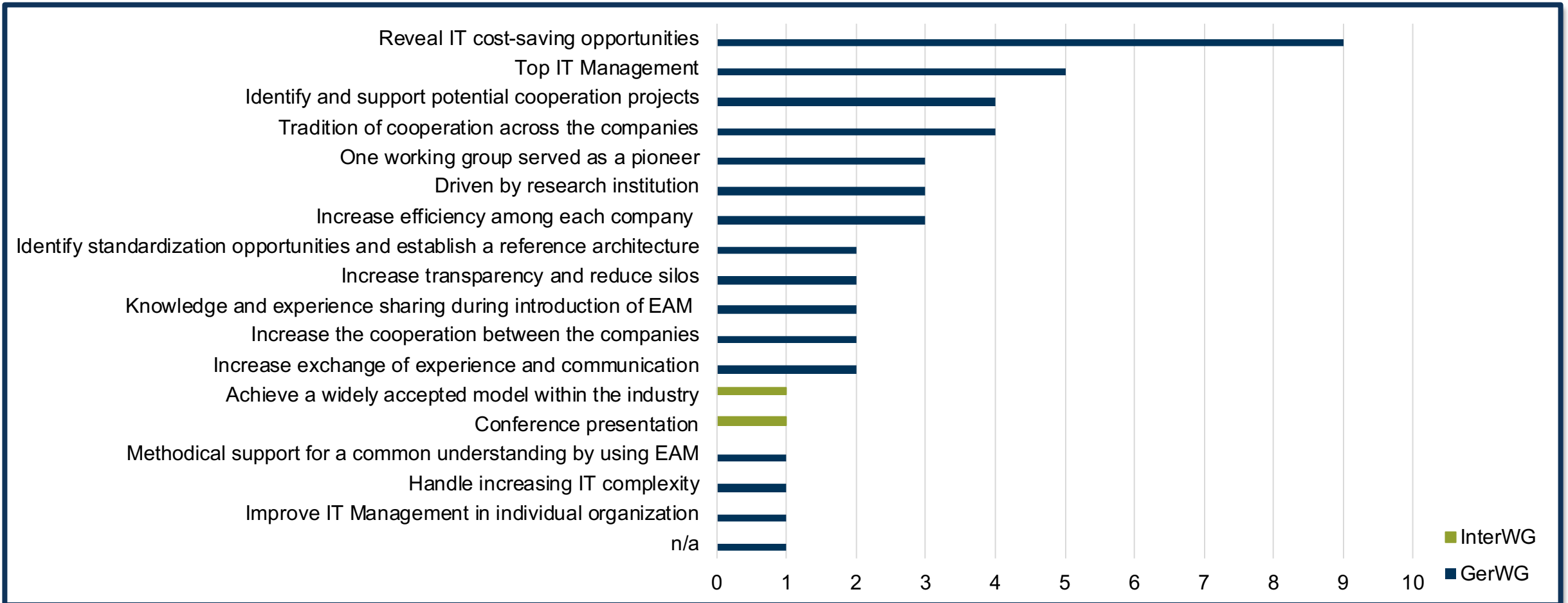
The screenshot displays the MAXQDA software interface with the following components:

- Top Menu Bar:** Start, Import, Codes, Variablen, Analyse, Mixed Methods, Visual Tools, Reports, Stats, MAXDictio.
- Toolbar:** Includes icons for creating a new project, opening a project, listing documents, listing codes, document browser, list of codings, logbook, teamwork, saving projects, anonymizing projects, opening exchange files, exporting exchange files, and external files.
- Liste der Dokumente (Left Panel):**
 - Dokumente: 1.082
 - InterWG: 151
 - GerWG: 931
 - I1: 130
 - I2: 93
 - I3: 98
 - I4: 81
 - I5: 79
 - I6: 126
 - I7: 97
 - I8: 74
 - I10/I11: 85
 - I12: 68
 - Sets: 0
- Liste der Codes (Bottom Left Panel):**
 - Start date of the initiative: 11
 - Topics in the meetings: 39
 - Expected Outcomes of the Meetings: 35
 - Meetings: 63
 - EA Layer: 20
 - Challenges: 23
 - Benefits: 29
 - Principal: 19
 - Relationship to the cooperating comp...: 20
 - Aim: 31
 - Driving Forces and Triggers for Colla...: 55
- Dokument-Browser: I1 (Middle Panel):**
 - Document: Driving Forces and Triggers for Collaboration
 - Visual representation of the document content with a vertical timeline.
- Codings (Right Panel):**
 - Code: Driving Forces and Triggers for Collaboration
 - 55 Codings aus 11 Dokumenten und 2 Dokumentgruppen
 - Table with columns: Komm..., Dokumentgru..., Dok..., Code, Anfang, Ende, Gew..., Vorschau, Autor, Erstellt am, Fläche, Abdec...

Case Study – Reason for Collaboration

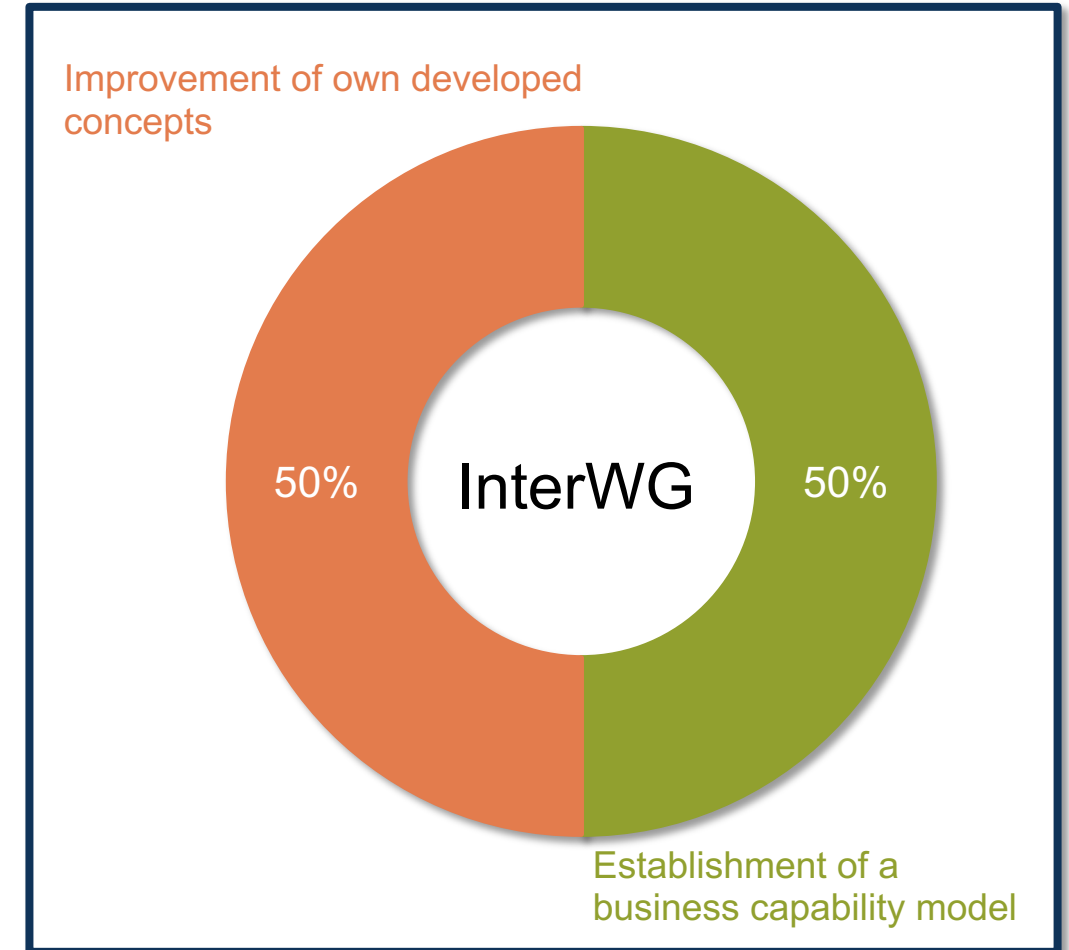
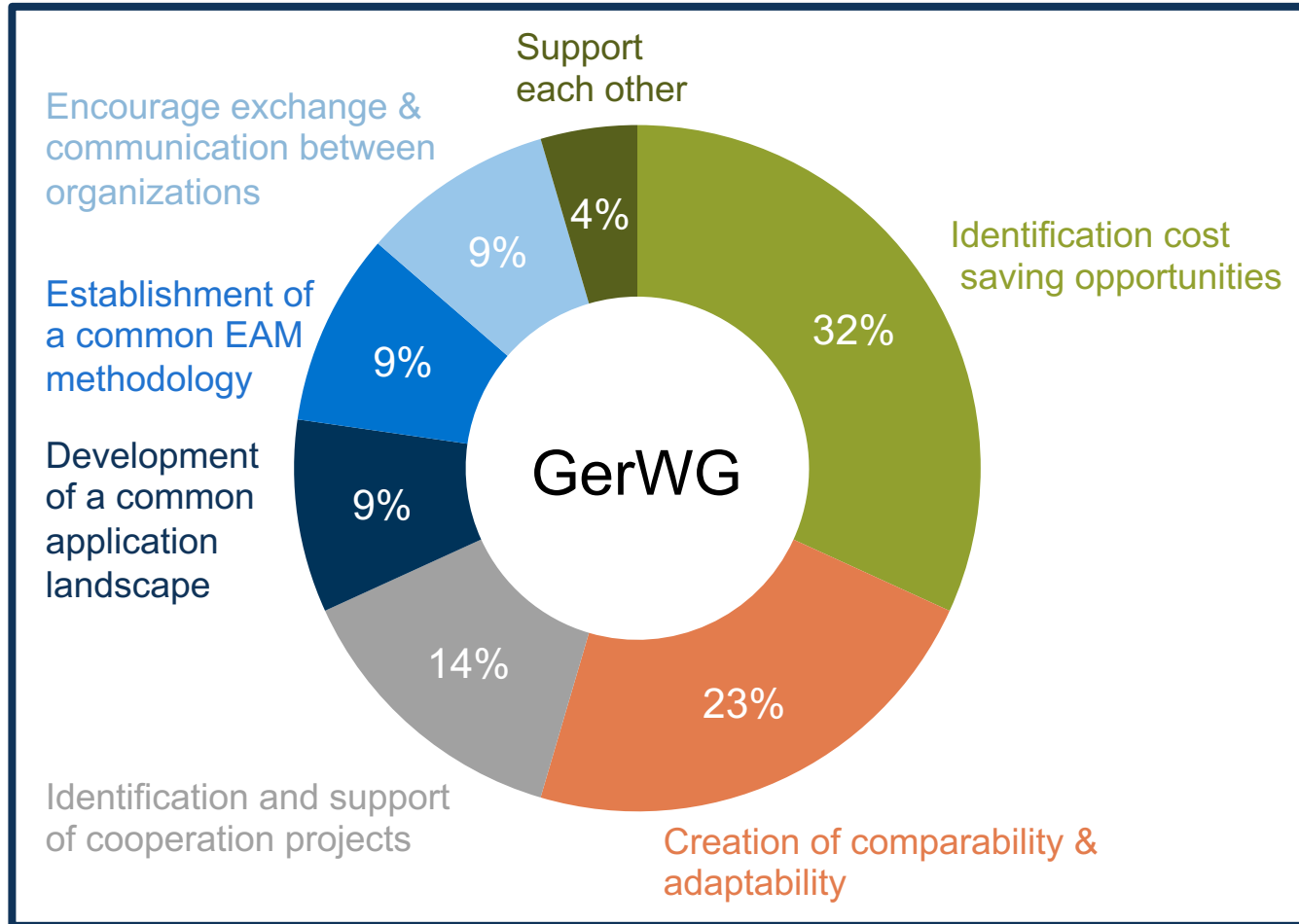
”**Two** heads are better than one.
Two think more than one. **Four** ears hear more than two.”

(I10, Portfolio Manager, O9)



Case Study – Reason for Collaboration

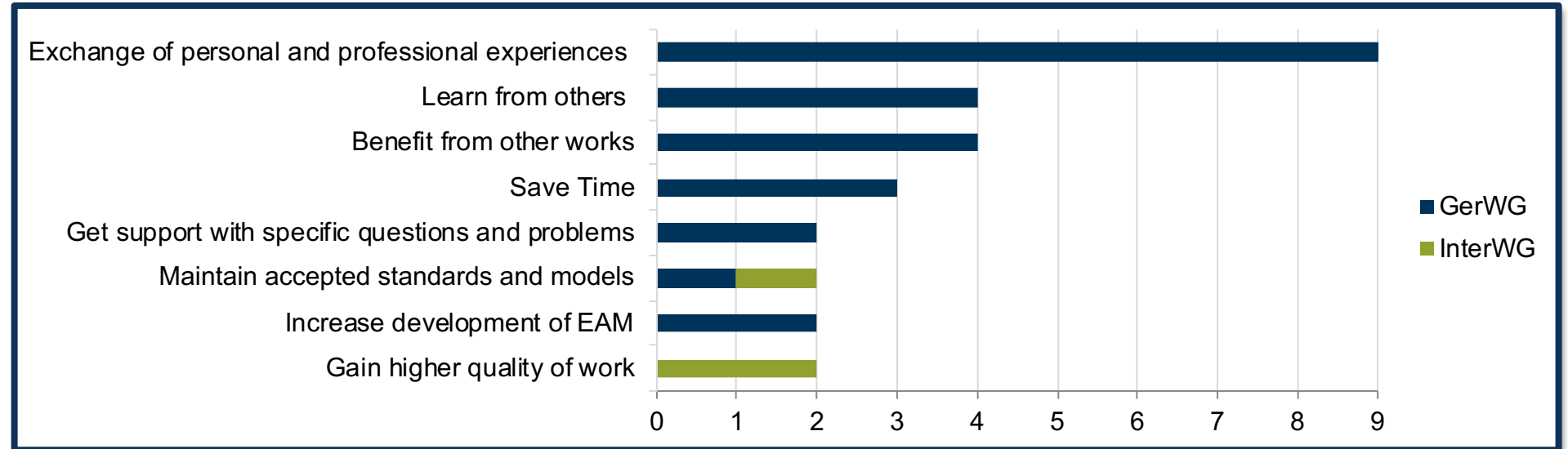
Aim of Collaboration



Case Study – Collaboration Process

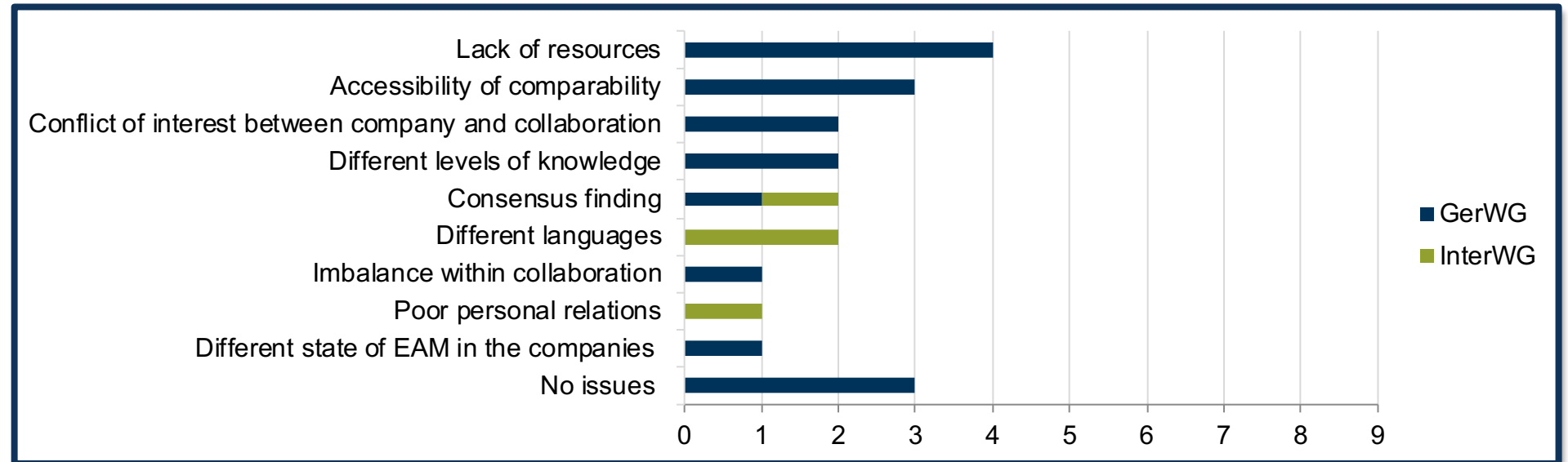
Benefits

- 8 benefits are identified from the interviews



Challenges

- 9 challenges are identified from the interviews

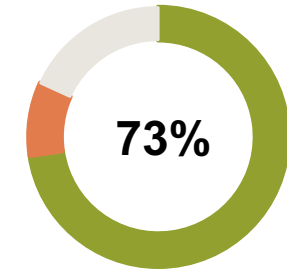


Case Study – EAM

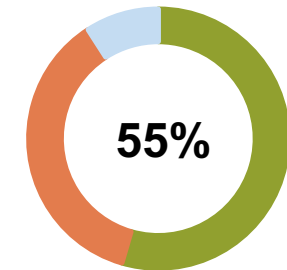
	EAM Artifacts ¹								Other	
	IT-Strategy	Business Capability Model (BCM)	Roadmaps	Value Chains	As-is architecture	To-be architecture	Application Portfolio	Landscape Diagrams	Technology portfolio	Domain Model
O1	n/a	X	n/a	n/a	✓,▲	n/a	✓,▲	✓,▲	✓,▲	
O2	✓	✓	✓	X	X	✓	✓	✓		
O3	✓	X	✓	n/a	✓	X	X	✓		
O4	X	✓,▲	✓	✓	✓(partly)	✓(partly)	✓,▲	X		
O5	n/a	X	n/a	X	X	✓(partly)	✓	X		
O6	✓	○	✓	X	✓,▲	✓(partly)	✓,▲	✓,▲		✓
O7	✓,▲	X	✓(partly)	X	✓	✓(partly)	X	✓		
O8	✓	✓,▲	n/a	✓	n/a	n/a	✓	✓		
O9	✓	✓	X	X	✓	✓	✓,▲	X		
O10	✓	✓	✓	✓	✓	✓	✓	✓		
O11	✓	✓,▲	✓	✓	✓(partly)	✓	✓	○,✓		
GerWG	X	✓	✓	X	✓	X	✓	✓		
InterWG	X	✓	n/a	X	X	X	X	X		

X = does not exist, ✓ = exists, ✓(partly) = in progress, ○ = planned, ▲ = shared with working group

¹ based on (Winter & Fischer, 2006; Kotusev, 2016, 2017, 2019)



Have defined an IT Strategy



Have developed a BCM



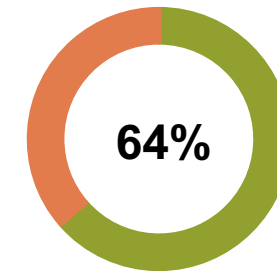
Both working group develop a collaboratively BCM

	Architectural Principals	Modeling Guidelines
O1	✓	✓
O2	X	✓(used own)
O3	✓	✓
O4	✓	✓
O5	✓	✓
O6	✓	✓
O7	✓	X
O8	X	n/a
O9	X	X
O10	X	✓(used own)
O11	✓(used own)	✓(used own)
GerWG	✓	✓
InterWG	X	X

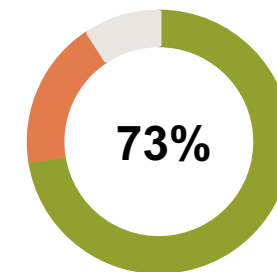
X = does not exist ✓ = exists, ✓(used own) = used the own guidelines/architectural principles from the organization



Only GerWG developed collaboratively architectural principals and modelling guidelines

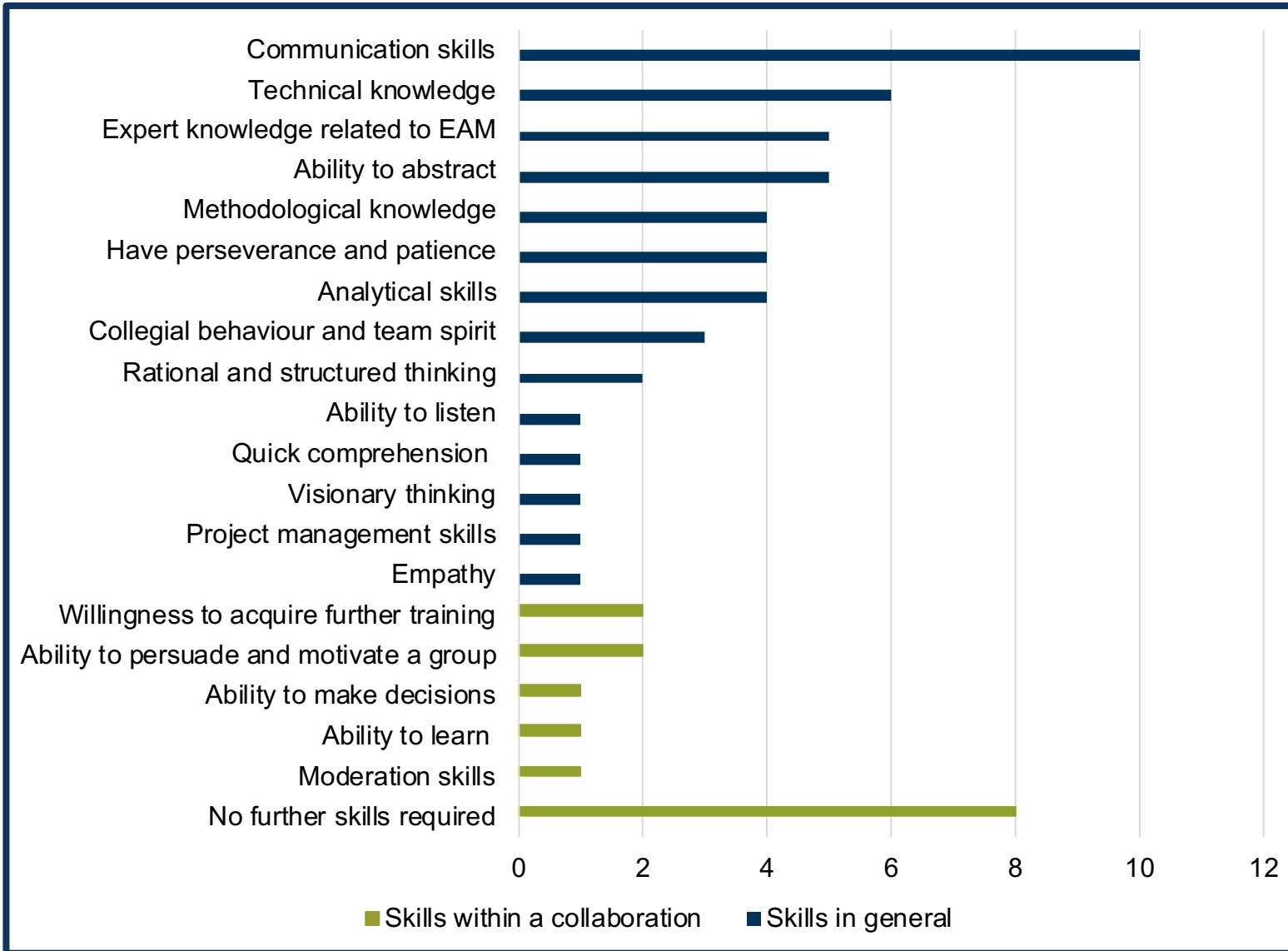


Use architectural principals



Use modelling guidelines

Case Study – Role of Enterprise Architect



An enterprise architect is

” a **communicator, driver, knowledge mediator, systematizer and transparency maker**, who has a systematic in his head and **gives** others who are looking for order and sorting in this confusing IT landscape a sense of **stability and security** ”

(I10, Portfolio Manager, O9; I11, Portfolio Manager, O9)

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Key Findings



- Main reason for collaboration is focused on **exchange of knowledge and experience**
- Aim of both collaboration is to provide **key models/architectures for the media industry**
- **No hierarchy** in both collaboration and meetings, there is only one coordinator
- In the organizations of the **GerWG** the EAM initiative is still in its **initial phase**, while in the organizations **InterWG** an **advanced EAM initiative** exists
- Both working groups collaborate mainly on the **Business, Organization and application layer**
- Collaboration has **little to no impact** on the responsibilities and skills of the traditional role of an enterprise architect

Future Work



- Take each results of the case study and compare it with findings from the literature
- Focus on the development of a business capability model
- Conduct interviews in same collaboration in the end phase, in order to identify changes and provide best practices and recommendations
- Conduct interviews in similar collaboration initiatives from other industry and across different industries (competitor)

QUESTIONS?
THANK YOU!

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