Communications of the IIMA

Manuscript 1446

Enterprise Architecture in Healthcare Networks: A Systematic Literature Review

Arjen Maris

Stijn Hoppenbrouwers

Jos Van Hillegersberg

Enterprise Architecture in Healthcare Networks: A Systematic Literature Review

Arjen Maris[0009-0007-3068-7391]

HAN University of Applied Sciences, The Netherlands
University of Twente, The Netherlands
Arjen.maris@han.nl

Stijn Hoppenbrouwers[0000-0002-1137-2999]

HAN University of Applied Sciences, The Netherlands
Radboud University, The Netherlands
Stijn.hoppenbrouwers@han.nl

Pascal Ravesteijn[0000-0003-1888-4222]

HU University of Applied Sciences, The Netherlands
Pascal.ravesteijn@hu.nl

Jos van Hillegersberg[0000-0002-3042-1450]

University of Twente, The Netherlands
j.vanhillegersberg@utwente.nl

ABSTRACT

Healthcare organizations collaborate, share knowledge, and need to be accountable to each other. Therefore, healthcare organizations manage a dynamic information system landscape. Enterprise Architecture (EA) is a management tool for aligning these landscapes to the primary information needs that healthcare organizations have. EA is of value in some environments, but it seems to be not well suited to the dynamics of healthcare. Despite the publication of several systematic literature reviews on EA in healthcare, a systematic literature study comparing EA applicability at various levels of cooperation (intra, inter, and network collaboration) is lacking. Therefore, we posed the following research question: To what extent is EA researched within healthcare organizations in the context of intra, inter and network collaboration? A systematic literature review was used to select 94 scientific publications for evaluation. These studies make explicit the EA elements at three levels of collaboration in the context of healthcare. The findings

show that EA is most frequently studied in relation to a single healthcare organization with a wide range of topics. IT governance and EA implementation are the subjects of the majority of EA network level studies (17 out of 94 studies), followed by building/developing EA, EA acceptance, EA issues and root causes, and EA modeling. Although numerous EA frameworks are discussed in studies at the intra- and interorganizational levels, they are rarely referenced in studies at the network level. Additionally, the EA benefits, success factors, and challenges are comparable at high level, but details differ per level.
These findings demonstrate that EA is researched within the healthcare sector context. The majority of knowledge on EA is focused on a single healthcare organization, but little is known about EA in a networked healthcare environment. To learn more about how EA might be used in a healthcare network setting, a research agenda has been set up based on the results.

Keywords: Enterprise Architecture, healthcare, levels of cooperation, systematic literature review

INTRODUCTION

Healthcare is organized through networks of small and large specialized organizations that work together, share information, and hold one another accountable (Grit & Dolfsma, 2002; Oliveira & Nightingale, 2007; Cebul et al., 2008; Ajer, 2018). A network refers to *a multiorganizational arrangement for solving problems that cannot be achieved by a single organization* (Agranoff & McGuire, 2001). A multiorganizational arrangement consists of three or more legally autonomous organizations (Provan & Kenis, 2008) and is a long-term relationship of profit and/or non-profit organizations operating at various levels (global, national, regional, and local) (McGuire & Agranoff, 2011). Wachhaus (2012) asserts that networks differ from traditional organizational hierarchies and collaborative structures like inter-organizational partnerships. Collaboration among healthcare organizations is essential because of the prevalence of multimorbidity and the need for continual scientific modifications (Maris, 2022). To be accountable, it is necessary for healthcare providers to maintain compliance with all applicable laws and regulations of governmental and health-and-safety organizations. This results in a complex multi-information system that must link to this network of healthcare organizations. Initially, each healthcare organization established its own multi-information system (e.g. Misser et al., 2014). However, these standard systems are unable to continue supporting the essential operations (Michel, 2017). Additionally, each organization has to cope with the dynamics of the sector such as a changing budget (Ministry of Finance, 2020), the digital

knowledge and skills of healthcare professionals (Hege et al., 2020; Reixach et al., 2022) and changing laws and regulations (Maris et al., 2021). As a result, Enterprise Architecture has become more prevalent in healthcare (Gorkhali & Xu, 2017; Wichmann & Wißotzki, 2019).

Enterprise Architecture (EA) is a management tool enabling the alignment of the information systems with information needs. It is *the analysis and documentation of an enterprise in its current and future states from an integrated strategy, business, and technology perspective* (Bernard, 2012, p.31). Although EA has become more prevalent in healthcare, it does not seem to integrate well with the described healthcare dynamics. EA is based on a common objective, self-determined strategy, and a systematic approach, whereas networks pursue opposing objectives, barrage each other with rules and contracts, and are required to be capable of reacting ad hoc to the delusion of the day and to acute, urgent situations (Wachhaus, 2012). Lapalme et al. (2016) pointed out a number of issues with EA taking into account network dynamics and dynamics of future alternative organizational forms. For instance, it is unknown (Lapalme et al., 2016):

(1) How to implement a business architecture considering the complexity explosion.
(2) How we can practice Enterprise Architecture when we are unable to see the whole picture or predict the future.
(3) What part EA plays in the creation of unconventional organizations.

Ajer (2019) also mentioned the following difficulties: "Local versus global structures; patient safety against patient privacy; and clinical expertise versus systems knowledge." Since Lapalme and Ajer's studies were conducted several years ago, as is also the case with the studies used in the comprehensive study by Wichmann and Wissotzki, it is not known how EA evolved after that. There is still a shortage of EA research in the sector (Ajer, 2018). Most EA papers lack precise and comprehensive information that could be useful for exchanging best practices (Alencar de Medeiros et al., 2021; da L. Júnior et al., 2020, 2021), and studies aiming at assisting with ongoing development in the long term are especially limited (Wichmann & Wißotzki, 2019).

Even though there is a clear difference between a hierarchical organization and a network, all EA studies we found (appendix A) do not distinguish between different levels of collaboration. A systematic literature review aimed at comparing EA at levels of collaboration (intra-, inter- and network collaboration) is lacking. That is why we conducted a systematic literature review on EA in healthcare with the following research question in mind:

To what extent is EA researched within healthcare organizations in the context of intra, inter, and network collaboration?

In the remainder of this paper, the research method used is discussed followed by the results of our study. In the discussion, the findings are examined in more depth, and limitations are described. The final section presents the conclusions and the research agenda that is drawn up in accordance with them.

METHOD

A systematic literature review is carried out in order to determine the extent to which EA is researched in the healthcare sector. According to Munn et al. (2018), this method aids in locating the existing (international) evidence, validates present procedures, addresses variations, and identifies potential study areas.

As suggested in the PRISMA statement (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Liberati et al., 2009) and the guidelines for systematic literature reviews in management and organizational studies (Denyer & Tranfield, 2009), below we describe the research process (Figure 1), inclusion and exclusion criteria, and how various results are combined in a single story.

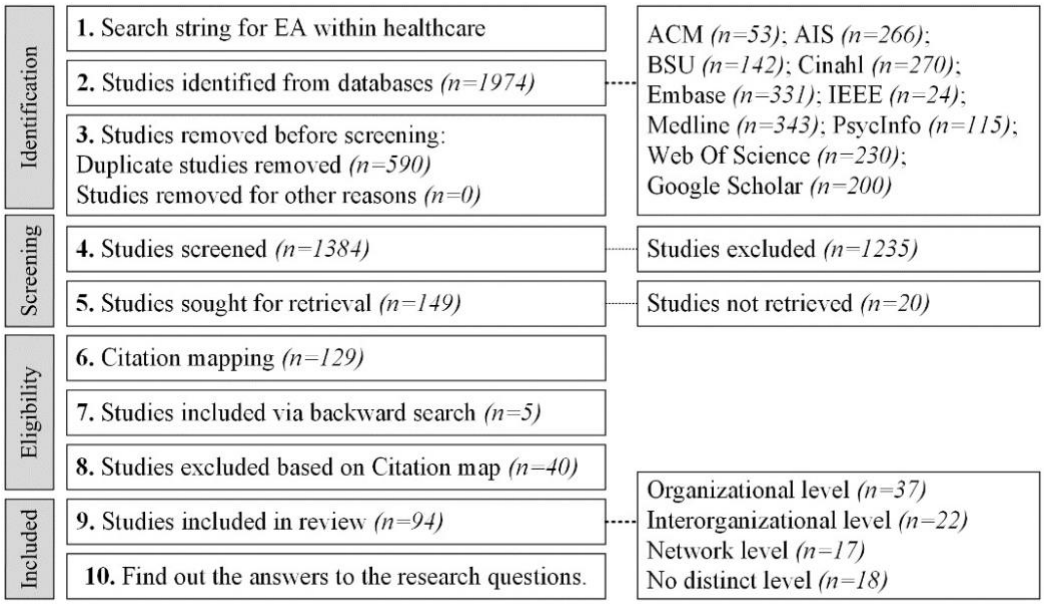


Figure 1: Research Process

Our literature review took place between June 2021 and February 2023. An exploratory study was carried out together with a systematic literature review specialist, and a search string was created for EA in a healthcare setting. From relevant research publications, potential keywords and meta terms were derived and tested. As a result of this exploratory study, the following search string for EA was created and applied to 10 distinct databanks:

S1 TX ((Enterprise N1 Architect) OR Togaf OR Feaf OR Archimate OR (Service N1 oriented N1 Architecture) OR ((Zachman OR Pulkkinen OR Schekkerman) N1 Framework*) OR (((Architect* N1 Framework*) OR (Organisational N1 Architecture)) AND (Health* N1 System*)))*

Three scientific databanks focus on information technology and information systems (ACM, AIS, and IEEE) while six are frequently used in social and medical science. The first 200 hits from Google Scholar were also retrieved to incorporate potentially interesting publications that were not published in the chosen databanks.

After the duplicate studies were eliminated using seven steps suggested by Bramer et al. (2016), 1384 studies were discovered. To reduce potential researcher bias, the studies were uploaded into Rayyan and assigned to at least two senior researchers in the field of business and information management. Rayyan is a cloud-based tool for reviewing literature by several people at the same time. The integrated machine learning algorithms help with this phase by displaying the inclusion probability (Johnson & Phillips, 2018).

To make sure each study was relevant, its keywords, abstract, and title were reviewed. Inclusion criteria were that an article had to have been published in a peer-reviewed journal, conference paper, or dissertation, written in Dutch, English, or German, and that it had to be useful in answering the research question. As a result, 189 studies were identified. The researchers debated 90 of these papers since there was initial dispute over the contribution the studies provided to addressing the research question. Consider, for example, the study of Purnawan and Surendro (2016) as an illustration. Because the study does not explicitly address building EA for a healthcare organization, one of the reviewers decided to exclude it. However, the other reviewer decided to include it because its insights could be very useful in addressing the main question. For each disputed article, consensus was obtained after discussion of these opposing viewpoints. As a result, 149 studies in total emerged from the eligibility phase.

A total of 129 studies resulted after the full paper versions of the studies were retrieved. Using the Python script from Mass and Faler (2020), the connections

between the articles were turned into Gephi-compatible files for Graph Edges and Nodes based on the quotes in the articles, titles, and authors. A backward search was conducted to discover any potentially overlooked relevant items. For this, the publications of the most selected authors and the citations of the studies in the largest citation clusters were scanned. The most common journals and conferences were evaluated as well. Five more studies were added as a result.

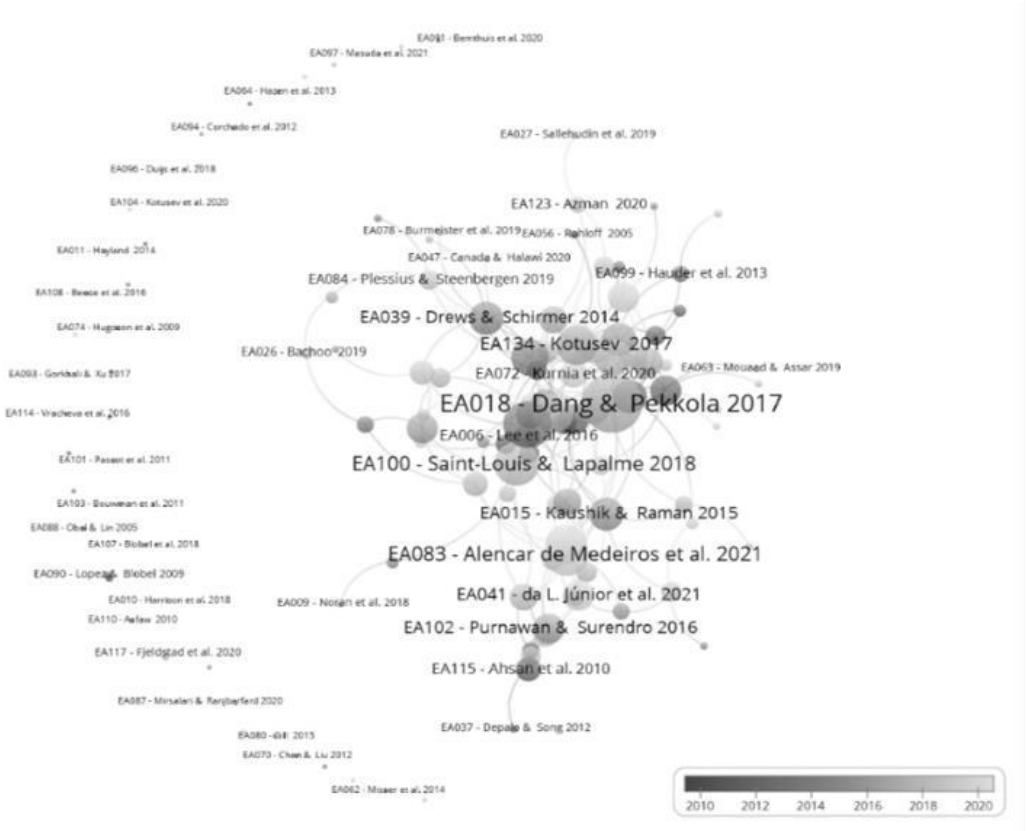


Figure 2: Citation Map

The next step after the backward search was to display the findings in a citation map. Gephi's initial attempts were hard to read. Because of this, the Gephi result was translated to VosViewer using Levallois' web tool (2021). Results are shown in Figure 2. It is evident from the citation map that not all studies are linked. We decided to put our main focus on the studies that cite one another.

In the end, 94 studies (see appendix A) were selected for our study based on the results of the citation map analysis. To learn more about the similarities and variations amongst the studies, the articles were imported into Atlas.ti (version 23.1.2.0), read, and open-coded (Corbin & Strauss, 1990). In this way, the

geographical research area, the topics, the method(-s) used, theoretical perspectives, the cited EA frameworks, the main authors, and the EA elements (Benefits, Success factors and Challenges) were derived from the studies.

In case of the EA elements, all potential benefits, success factors, and challenges were open coded based on the author's writing. For instance, Pattij et al. (2019) noted "EA has claimed to provide several benefits including improving organizational agility". As a result, the benefit "improved agility" was obtained. After the first 25 articles, several parallels were discovered. This resulted in the reuse of existing codes for similar notes or the extension of codes to make them more useable. This step yielded in total 54 benefits, 74 success factors, and 101 challenges. After axial and selective coding, the selected articles revealed 10 EA elements. Axial and selective coding methods were employed to create thematic maps to find the answer to the research question, in accordance with Braun and Clarke's (2006) phases of thematic analysis.

RESULTS

Figure 3 shows the distribution of the number of published studies over the years. This figure shows that up to 2020 there was an upward trend in publications.
2020 shows a decline, which seems to continue in 2021. However, as the search was conducted until mid-2021, the total number for that year would most likely have to be revised upwards.

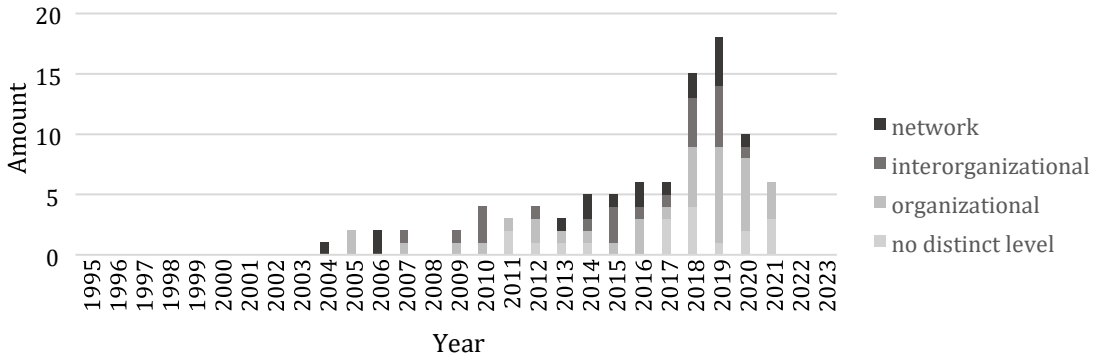


Figure 3: Date of Publication

The studies can be categorized into four collaboration levels based on the content studied.

1. Organizational level (n=37); the study solely focuses on EA within the boundaries of the organization/department.
2. Interorganizational (n=22); the study focuses on EA issues involving organizations that are comparable to one another, like two hospitals.
3. Network (n=17): the study focuses on EA in collaborations with three or more organizations that have various objectives and interests.
4. No distinct level (n=18): the study cannot be classified into any of the categories, either because it has not been labeled or because it lacks an empirical component.

To better understand the content of these selected studies, the geographical research area, the topics, the method(-s) used, theoretical perspectives, the cited EA frameworks, the main authors and the EA elements have been considered.

Geographical Data

The majority of studies took place in Europe (36 studies), followed by Asia (20 studies) and North and South America (18 studies).

Topics

After open coding, 28 unique EA topics were identified. Additionally, we came upon Kotusev's (2017) work. He had already identified 11 conceptual EA themes (Actors, Processes, Documentation, Instruments, Organization, EA Practice, Evolution, Specific Management Practices, Specific Technologies, Specific Organizations, and Miscellaneous). These themes covered all of our topics, therefore we used them to organize the subjects of our included studies.

Most studies are focused on one of the themes (67 studies). However, 24 studies cover two themes, and 3 articles cover even three themes. The most common topics (Figure 4) concern EA processes (34 studies) and EA practice (23 studies).

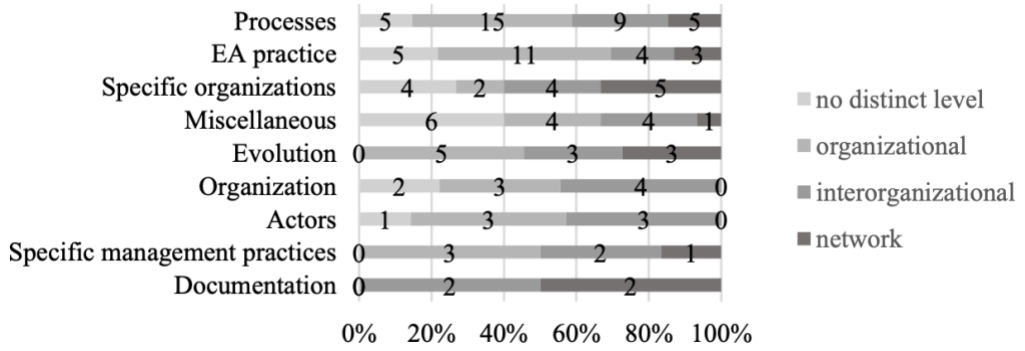


Figure 4: Topics

In case of the specific network articles, the main subjects are related to Processes (Burmeister et al., 2019; Gebre-Mariam & Bygstad, 2016; Hjort-Madsen, 2006; Hjort-Madsen & Burkard, 2006; Valtonen et al., 2018) and Specific organizations (Britto et al., 2018; Hjort-Madsen, 2006; Hjort-madsen & Gøtze, 2004; Nurmi et al., 2019; Trang et al., 2013) followed by EA practice, Evolution, Documentation, Specific management practices, and miscellaneous.

Research Methods

A (multiple) case study (38 studies), a (systematic) literature review (30 studies), and questionnaires (18 studies) are the research approaches most often used (Figure 5). None of the selected EA publications concerned action research. In network level studies, multiple case studies are the most frequently utilized research methodology, followed by single case studies, literature reviews, and design science.

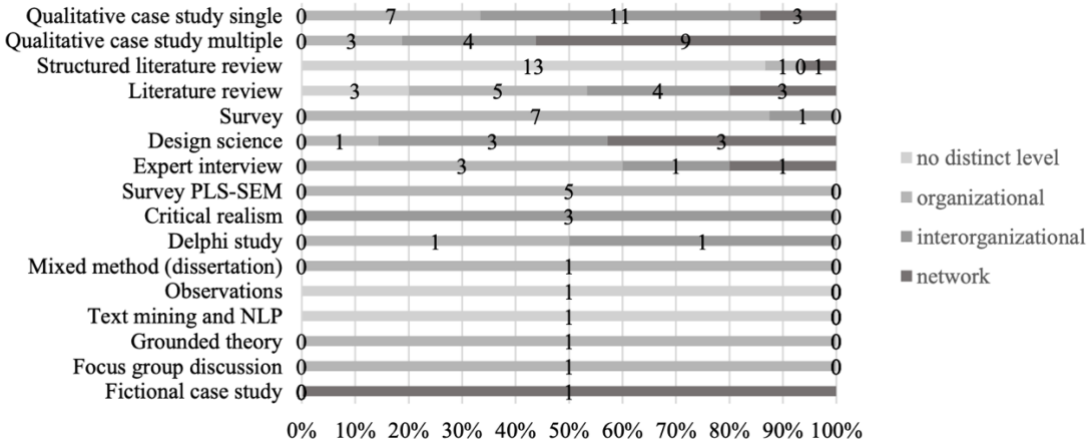


Figure 5: Research Methods

Theoretical Perspectives

Several articles mention the authors' theoretical perspective. The majority of these studies are based on institutional theory (as explicitly mentioned in 14 studies) and system thinking (as explicitly mentioned in 7 studies).

Used Frameworks

In 46 of the 94 studies, frameworks were mentioned 251 times. In relation to EA, 107 different frameworks were discussed or utilized. To provide a notion of which frameworks are mentioned the most, the top 15 most commonly cited frameworks are shown. This concerns the frameworks that have been quoted four times or more (Figure 6). The most cited standard after The Open Group Architecture Framework (TOGAF) - 28 studies, are Zachman - 17 studies, Federal Enterprise Architecture Framework (FEAF) - 13 studies, and Generalised Enterprise Reference Architecture and Methodology (GERAM) - 7 studies.

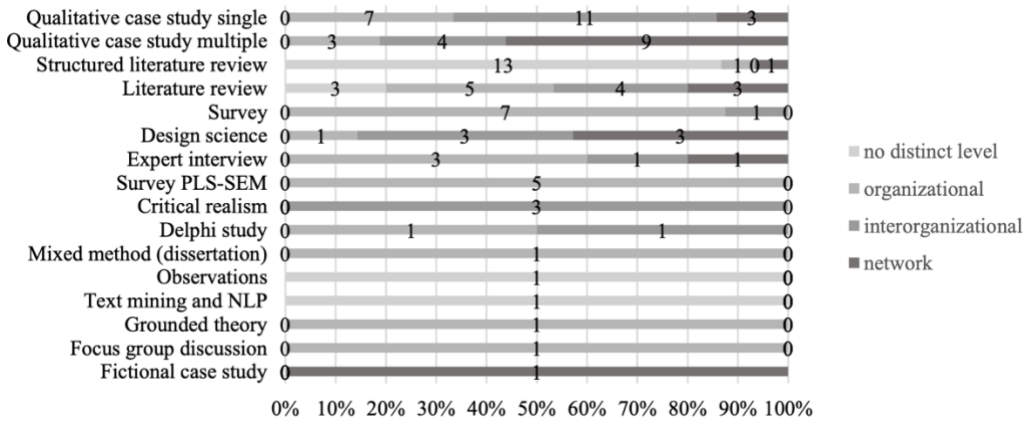


Figure 6: Used Frameworks

In view of the overall number of mentions, 108 mentions of frameworks are attributable to no distinct level studies (of which all studies were systematic literature reviews). The organizational level and the interorganizational level follow with 73 and 53 mentions, respectively. The smallest number of frameworks is referenced in network-level studies (17 mentions), with TOGAF (The Open Group Library, 2018), the European Interoperability Framework (European Commission, 2017), and Gartner Methodology (Bittler & Kreizman, 2005) the most frequently mentioned.

Main Authors

Looking at the main authors in the field of EA, no lead author can be identified from this selection of articles. In general, each author wrote one or two articles. In those cases in which an author has more than two articles in the selection to his/her name, we found that in most cases the extra publications are based on the same research.

EA Elements

Based on the idea that using an EA success factor and reducing the risk of an EA challenge results in a benefit for the use of EA, we merged these three factors into EA elements (Figure 7). The benefit of "providing a holistic view and roadmap", for instance, is paired with the challenge of "providing a roadmap and guidance" and the success factor of "roadmap quality" to form element A, which is the product of EA, a roadmap to achieve the to-be situation.

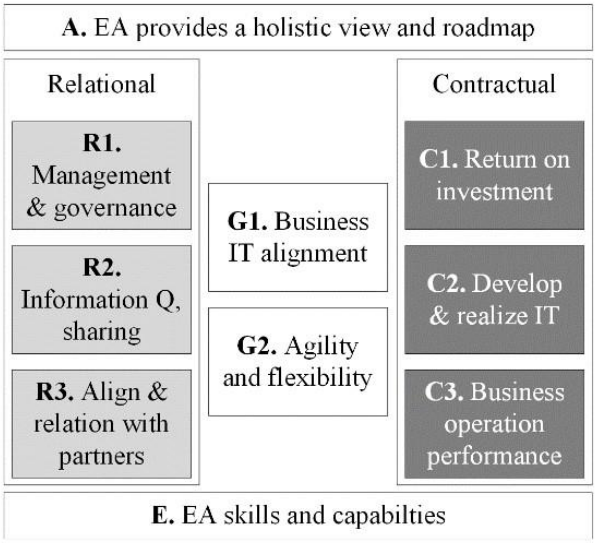


Figure 7: EA Elements

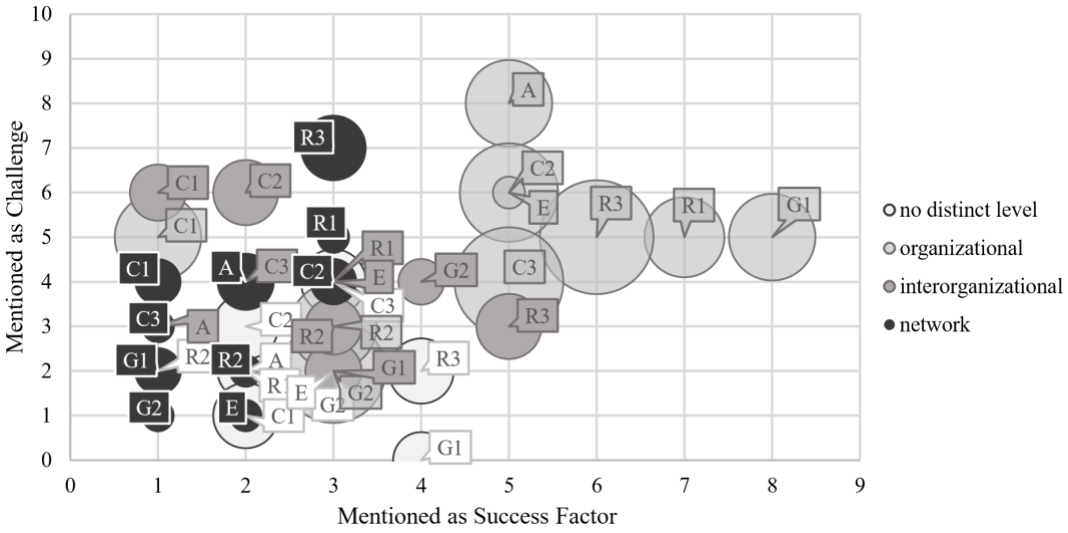
With the holistic view and the roadmap the enterprise should be able to improve its:

1. relational assets, such as maturity of management and governance (R1), information quality, sharing and documentation (R2), and alignment and relationship with partners (R3).

2. more contractual assets, such as return on investments, profitability and market value (C1), development, utilization and benefit realization of IT (C2), and business operations, processes and performance (C3).

The main goals of EA are positioned in the center. The first goal of EA is to help improve the alignment of IT to organization strategy (G1). The second goal of EA is for organizations to be agile and become flexible (G2). And yet, all these improvements are only attainable if the organization has (E) the appropriate 'capabilities and skills'.

The EA elements are also compared for each level (Figure 8). The number of studies mentioning a certain success factor is represented on the horizontal axis, and the number of research mentioning a given challenge factor is represented on the vertical axis. The number of studies that cited the beneficial factor is shown by the size of the bubbles.



Benefits per Level	A	G1	G2	R1	R2	R3	C1	C2	C3	E
No distinct level	2	2	1	2	1	3	3	3	3	0
Organizational	6	6	9	5	6	11	6	8	10	0
Interorganizational	0	2	1	1	2	3	2	3	2	0
Network	2	1	0	0	0	3	1	1	0	0

Figure 8: Mentioned EA Elements

The EA element A at network level consists, for instance, of 2 success factor citations, 4 challenge citations, and 2 benefit citations (Table 1).

	Study	Quotation Content		
Benefit	(Drews & Schirmer, 2014)	"The function of enterprise architecture management is supposed to acquire the data needed to document the as-is architecture as an important input for strategic as well as for operative decisions in the company. Furthermore, it should gather information and plan a tobe architecture of the company in the future and the transformation steps leading to the new status (roadmap)"	B_provide a holistic view and roadmap	A. EA provides a holistic view and roadmap
	(Virkanen & Mykkänen, 2014)	"EA (Enterprise Architecture) has been proposed as an essential mechanism to support holistic planning and alignment of business and IT in organizations and networks"		
Challenges	(Dang & Pekkola, 2016)	"Our objectives for doing EA and using EA products are unclear in the sense that the agencies cannot or are limited to use those products in their business."	C_provide a roadmap and guidance	
	(Drews & Schirmer, 2014)	"In the category of (meta-)modeling, we identified the challenge of extending meta-models by including entities from partners, customers, and other relevant actors throughout the layers of the enterprise architecture."		
Challenges	(Valtonen et al., 2018)	"(1) challenges regarding the (meta-)modelling of EEA and BEA"	C_provide a roadmap and guidance	
		"Challenges concerning modelling include inter-organizational interfaces on all layers, finding the right level of abstraction and identifying shared business objects"		
	(Nurmi et al., 2019)	"In practice, this means combining two perspectives: modeling the state of, e.g. the infrastructure and data of the organization (complicated problem) as well as managing social phenomena in the midst of ecosystemic environment (complex problem)."		
		"The presented challenges are classified into four groups: (1) challenges regarding the (meta-)modeling of EEA and BEA"		
Success factor	(Dang & Pekkola, 2016)	"EA provides a comprehensive view of an organization's business objectives and processes, data resources"	S_roadmap quality	
	(Nurmi et al., 2019)	"Government ecosystem architecture should, at its highest level of abstraction (to-be complex level), be simple; yet thrive to capture asis complicated architecture accurately and unambiguously, harnessing latest technological achievements"		

Table 1: EA Element A on Network Level

We discovered that all EA elements are detected across the different tiers based on this visualization (Figure 8). At the organizational level, the EA components are examined the most extensively, and at the network level, the least thoroughly. This is especially accurate when considering the benefits of EA.

DISCUSSION AND LIMITATIONS

Our findings indicate that EA is mainly applied to the organizational level, thus within healthcare organizations. According to the findings of this literature study, EA is becoming more significant in the healthcare sector and can be a resource for architects who are interested in learning more about the benefits, success factors, and possible challenges that can occur within an enterprise. The 'enterprise' cannot be generalized, though. We can observe that EA is most frequently used and investigated within the boundaries of a single organization and least frequently within networks. EA elements' applicability appears to vary depending on the context. The EA elements are commonly addressed in an organizational context but are hardly ever expressed in the context of a healthcare network.

As was stated in the beginning of this paper, networks are not the same thing as organizations. For example, organizations are typically empowered to choose their own objectives and the strategy they use to achieve those. Organizations can join networks for a number of motivational reasons, such as an obligation to one or more network parties, a specific event taking place, such as a pandemic, or their own goals and agenda, which may not be shared by the other network parties. Additionally, because the network parties or the network's lead member decide on some appropriate course of action, individual organizations typically have little influence over the strategy that will be executed.

Eight studies that were part of our selection (Britto et al., 2018; Burmeister et al., 2019; Fjeldstad et al., 2020; Hjort-Madsen, 2006; Hjort-Madsen & Burkard, 2006; Schooley et al., 2010; Trang et al., 2013; van de Wetering & Dijkman, 2021) demonstrate that a network differs from an organization in terms of its characteristics. A basic representation of these characteristics was created based on these articles (Figure 9).

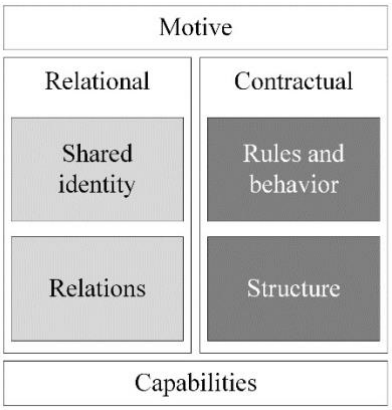


Figure 9: Network Characteristics

At the top is the motive. For example, this could be a mutually agreed-upon objective or an occasion that calls for cooperation amongst several organizations. On the relational side (light gray), issues include the search for a shared identity that all organizations can identify with as well as developing a relation where features such as trust need to be considered. On the contractual side (dark gray), issues include deciding on a certain organizational structure and the corresponding rules, responsibilities, and behavior. To tackle these problems, one needs to possess a variety of capabilities, such as network, business, and technical capabilities.

Although the results are based on numerous articles and saturation occurred generally after coding around 75% of the selected articles, it is crucial to note that the selection of articles only includes English-language publications. The screening process finally resulted in the rejection of articles written in German and Dutch for other reasons than language. Papers written in other languages, such as Spanish and Chinese, were excluded since we were unable to read those. Additionally, we did not consider any studies that did not have citations connecting them to other articles. It is uncertain if including these articles would have led to any novel findings.

CONCLUSION AND RESEARCH AGENDA

The extent to which EA is researched in a healthcare organization when there is intra, inter, and network collaboration was the central topic of this study. A systematic literature search identified 94 papers that were selected. Inter-, intra-, network, and no distinct organizational level are the four categories into which the studies are divided. The findings demonstrate that EA is frequently used to address

problems that are contained within one healthcare organization. Studies rarely concern the application of EA to situations that call for cooperation between different organizations (intra organizational and network issues).

A main conclusion that can be drawn from this analysis is that EA is context sensitive. In contrast to a network, different EA success factors and challenges apply within an organization. Based on this, it can be said, though with some caution, that the concept of EA is not entirely appropriate for a healthcare network setting, or healthcare organizations are not yet mature enough to apply inter-organizational EA. To better advise how EA might be utilized in this setting, more research into the context of healthcare networks is required.

In a network context, we should perhaps not just be concerned about the EA elements indicated in Figure 7. Additionally, or perhaps even primarily, this concerns issues with the network attributes depicted in Figure 9. However, it is unclear whether these overviews of EA elements and network features are complete, or which network issues and EA-related elements should come first. As a result, we recommend the following topics for further research:

1. A literature review on the subject of network characteristics to complete the overview of network characteristics. With the results, verify the network characteristics (Figure 9), compare them to those of healthcare organizations, and determine whether or not identification of a broad range of "enterprise" characteristics is feasible.
2. To complete the overview of EA elements in the context of healthcare networks, it is suggested to investigate to what extent the network characteristics determine the extent to which the EA elements reoccur in practice.
3. Determine the extent of EA's applicability inside healthcare networks and what adjustments to EA management or processes (in terms of maturity) may be required to make EA more appropriate in the context of healthcare networks.

Acknowledgements:
We would like to acknowledge Pelgrim, T., Tamrouti, R., and Bijsterveld, H. for their commitment and contribution to this research project.

REFERENCES

Abu Bakar, N. A., Yaacob, S., Hussein, S. S., Nordin, A., & Sallehuddin, H. (2019). Dynamic Metamodel Approach for Government Enterprise Architecture Model Management. *Procedia Computer Science*, *161*, 894–902. https://doi.org/10.1016/j.procs.2019.11.197

Adenuga, O. A., Kekwaletswe, R. M., & Coleman, A. (2015). eHealth integration and interoperability issues: Towards a solution through enterprise architecture. *Health Information Science and Systems*, *3*, 1. https://doi.org/10.1186/s13755-015-0009-7

Agranoff, R., & McGuire, M. (2001). Big Questions in Public Network Management Research. *Journal of Public Administration Research and Theory*, *11*(3), 295–326. https://doi.org/10.1093/oxfordjournals.jpart.a003504

Ahmad, H., Ahmad, A., & Hafaz, N. H. N. A. (2015). *Conceptual Knowledge Relationship Model of Enterprise Architecture and Top Management Roles*. Australasian Conference on Information Systems 2015, Adelaide. http://arxiv.org/abs/1606.01449

Ahmad, N. A., Drus, S. Mohd., & Kasim, H. (2020). Factors That Influence the Adoption of Enterprise Architecture by Public Sector Organizations: An Empirical Study. *IEEE Access*, *8*, 98847–98873. https://doi.org/10.1109/ACCESS.2020.2996584

Ahsan, K., Shah, H., & Kingston, P. (2010). Healthcare Modelling through Enterprise Architecture: A Hospital Case. *2010 Seventh International Conference on Information Technology: New Generations*, 460–465. https://doi.org/10.1109/ITNG.2010.190

Ajer, A. K., Hustada, E., & Vassilakopouloua, P. (2019). *Enterprise Architecture in Hospitals: Resolving Incongruence Issues*. *264*, 659–663. https://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=148538142&site= ehost-live

Ajer, A. K., & Olsen, D. (2018). *Enterprise architecture challenges: A case study of three Norwegian public sectors*. *26*, 17.

Ajer, A. K. S. (2018). *Enterprise Architecture in Healthcare and Underlying Institutional Logics: A Systematic Literature Review of IS Research*. Twenty-Second Pacific Asia Conference on Information Systems, Japan. https://uia.brage.unit.no/uiaxmlui/handle/11250/2598432

Ajer, A. K. S., Hustad, E., & Vassilakopoulou, P. (2018). Enterprise Architects' Logics across Organizational Levels: A Case Study in the Norwegian Hospital Sector. *MCIS 2018 Proceedings*, 16.

Ajer, A. K. S., Hustad, E., & Vassilakopoulou, P. (2021). Enterprise architecture operationalization and institutional pluralism: The case of the Norwegian Hospital sector. *Information Systems Journal*, *31*(4), 610–645. https://doi.org/10.1111/isj.12324

Ajer, A. K. S., & Olsen, D. H. (2019). Enterprise Architecture Implementation Is a Bumpy Ride: A Case Study in the Norwegian Public Sector. *Electronic Journal of E-Government*, *17*(2), Article 2. https://doi.org/10.34190/EJEG.17.2.002

Alencar de Medeiros, F., Júnior, S., Silva, F., Albuquerque, G., & Lira, H. (2021). A Survey on the Application of Enterprise Architecture in Healthcare Systems: Challenges, Positive Impacts, and Success Factors. *International Journal of Enterprise Information Systems*, *17*(3), 1–15. https://doi.org/10.4018/IJEIS.2021070101

Al-Kharusi, H., Miskon, S., & Bahari, M. (2018). Enterprise Architecture Development Approach in the Public Sector. *International Journal of Enterprise Information Systems*, *14*, 124–141. https://doi.org/10.4018/IJEIS.2018100109

Andersen, P., & Carugati, A. (2014). Enterprise architecture evaluation: A systematic literature review. *MCIS 2014 Proceedings*. https://aisel-aisnet-org.hu.idm.oclc.org/mcis2014/41/

Ansyori, R., Qodarsih, N., & Soewito, B. (2018). A systematic literature review: Critical Success Factors to Implement Enterprise Architecture. *Procedia Computer Science*, *135*, 43–51. https://doi.org/10.1016/j.procs.2018.08.148

Azman, S. R. M. (2020). *The Roles and Benefits of Enterprise Architecture in Healthcare Organization*. https://doi.org/10.13140/RG.2.2.31780.42885

Bachoo, A. (2019). On the Yellow Brick Road, A Path to Enterprise Architecture Maturity. *African Journal of Information Systems*, *11*(4), 337–351.

Bernard, S. A. (2012). *An Introduction to Enterprise Architecture: Third Edition*. AuthorHouse.

Bernus, P., Noran, O., & Molina, A. (2014). Enterprise Architecture: Twenty Years of the GERAM Framework. *IFAC Proceedings Volumes*, *47*(3), 3300–3308. https://doi.org/10.3182/20140824-6-ZA-1003.01401

Bittler, R. S., & Kreizman, G. (2005). *Gartner Enterprise Architecture Framework: Evolution 2005*. https://www.gartner.com/en/documents/486565

Blobel, B., & Oemig, F. (2009). Ontology-Driven Health Information Systems Architectures. *Medical Informatics in a United and Healthy Europe*, 195–199. https://doi.org/10.3233/978-1-60750-044-5-195

Bourmpoulias, S., & Tarabanis, K. (2020). A systematic mapping study on Enterprise Architecture for the Education domain: Approaches and Challenges. *2020 IEEE 22nd Conference on Business Informatics (CBI)*, *2*, 30–39. https://doi.org/10.1109/CBI49978.2020.10055

Bradley, R., Pratt, R., Byrd, T., & Simmons, L. (2011). The Role of Enterprise Architecture in the Quest for IT Value. *MIS Quarterly Executive*, *10*(2), 73–80.

Bradley, R. V., Pratt, R. M. E., Byrd, T. A., Outlay, C. N., & Wynn, Jr., Donald E. (2012). Enterprise architecture, IT effectiveness and the mediating role of IT alignment in US hospitals. *Information Systems Journal*, *22*(2), 97–127. https://doi.org/10.1111/j.13652575.2011.00379.x

Bramer, W. M., Giustini, D., Jonge, G. B. de, Holland, L., & Bekhuis, T. (2016). De-duplication of database search results for systematic reviews in EndNote. *Journal of the Medical Library Association : JMLA*, *104*(3), 240–243. https://doi.org/10.3163/15365050.104.3.014

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Britto, M. T., Fuller, S. C., Kaplan, H. C., Kotagal, U., Lannon, C., Margolis, P. A., Muething, S. E., Schoettker, P. J., & Seid, M. (2018). Using a network organisational architecture to support the development of Learning Healthcare Systems. *BMJ Quality & Safety*, 27(11), 937–946. https://doi.org/10.1136/bmjqs-2017-007219

Burmeister, F., Drews, P., & Schirmer, I. (2019). *An Ecosystem Architecture Meta-Model for Supporting Ultra-Large Scale Digital Transformations*. *25*. https://aisel-aisnetorg.hu.idm.oclc.org/amcis2019/enterprise_systems/enterprise_systems/3/

Bygstad, B., Hanseth, O., & Le, D. T. (2015). From IT Silos to Integrated Solutions. A Study in E-Health Complexity. *ECIS 2015 Completed Research Papers*, *23*, 1–15. https://aisel-aisnet-org.hu.idm.oclc.org/ecis2015_cr/23/

Canada, T., & Halawi, L. (2020). Enterprise Architecture Transformation Process from a Federal Government Perspective. *Information Systems & Computing Academic Professionals*, *13*, 10.

Carter, B. (2016). *Systems Theory Based Architecture Framework for Complex System Governance* [Old Dominion University Libraries]. https://doi.org/10.25777/EAJ5-SJ38

Cebul, R. D., Rebitzer, J. B., Taylor, L. J., & Votruba, M. E. (2008). Organizational Fragmentation and Care Quality in the U.S. Healthcare System. *Journal of Economic Perspectives*, 22(4), 93–113. https://doi.org/10.1257/jep.22.4.93

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, *13*(1), 3–21. https://doi.org/10.1007/BF00988593

da L. Júnior, S. H., Silva, F., Albuquerque, G., Medeiros, F., & Lira, H. (2020). Enterprise Architecture in Healthcare Systems: A systematic literature review. *Computer Science, Cornell University*. https://arxiv.org/ftp/arxiv/papers/2007/2007.06767.pdf

da L. Júnior, S. H., Silva, F. Í. C., Albuquerque, G. S. G., de Medeiros, F. P. A., & Lira, H. B. (2021). Frameworks, Methodologies and Specification Tools for the Enterprise Architecture Application in Healthcare Systems: A Systematic Literature Review. *International Conference on E-Health Networking, Application Services*, 1–7. https://doi.org/10.1109/HEALTHCOM49281.2021.9398916

Dang, D. D. (2019). Institutional Logics and Their Influence on Enterprise Architecture Adoption. *Journal of Computer Information Systems*, *61*(1), 42–52. https://doi.org/10.1080/08874417.2018.1564632

Dang, D. D., & Pekkola, S. (2016). Root Causes of Enterprise Architecture Problems in the Public Sector. *PACIS 2016 Proceedings.*, *287*. http://aisel.aisnet.org/pacis2016/287

Dang, D. D., & Pekkola, S. (2017a). Problems of Enterprise Architecture Adoption in the Public Sector: Root Causes and Some Solutions. In L. Rusu & G. Viscusi (Eds.), *Information Technology Governance in Public Organizations: Theory and Practice* (pp. 177–198). Springer International Publishing. https://doi.org/10.1007/978-3-319-58978-7_8

Dang, D. D., & Pekkola, S. (2017b). Systematic literature review on enterprise architecture in the public sector. *The Electronic Journal of E-Government*, *15*(2), 132–154.

Dang, D. D., Vartiainen, T., & Pekkola, S. (2019). *Patterns of enterprise architecture adoption in the public sector: A resource-based perspective*. *27*. https://aisel.aisnet.org/ecis2019_rp/53/

Denyer, D., & Tranfield, D. (2009). Producing a systematic review. In *The Sage handbook of organizational research methods* (pp. 671–689). Sage Publications Ltd.

Depalo, P., & Song, Y. (2012). *Healthcare interoperability through enterprise architecture*. https://doi.org/10.1145/2184751.2184837

Drews, P., & Schirmer, I. (2014). From enterprise architecture to business ecosystem architecture: Stages and challenges for extending architectures beyond organizational boundaries. *2014 IEEE 18th International Enterprise Distributed Object Computing Conference Workshops and Demonstrations*, 13–22. https://doi.org/10.1109/EDOCW.2014.12

European Commission. (2017). *New European interoperability framework: Promoting seamless services and data flows for European public administrations.* Publications Office. https://data.europa.eu/doi/10.2799/78681

Fjeldstad, Ø. D., Johnson, J. K., Margolis, P. A., Seid, M., Höglund, P., & Batalden, P. B. (2020). Networked health care: Rethinking value creation in learning health care systems. *Learning Health Systems*, *4*(2), 1–9. https://doi.org/10.1002/lrh2.10212

Gampfer, F., Jürgens, A., Müller, M., & Buchkremer, R. (2018). Past, current and future trends in enterprise architecture—A view beyond the horizon. *Computers in Industry*, *100*, 70– 84. https://doi.org/10.1016/j.compind.2018.03.006

Gebre-Mariam, M., & Bygstad, B. (2016). The organizational ripple effect of IT architecture in healthcare. *Research Papers*, *24*. https://aisel-aisnetorg.hu.idm.oclc.org/ecis2016_rp/30/

Girsang, A. S., & Abimanyu, A. (2021). Development of an Enterprise Architecture for Healthcare using TOGAF ADM. *Emerging Science Journal*, *5*(3), Article 3. https://doi.org/10.28991/esj-2021-01278

Gorkhali, A., & Xu, L. D. (2017). Enterprise Architecture: A Literature Review. *Journal of Industrial Integration and Management*, 02(02),1750009 1-50. https://doi.org/10.1142/S2424862217500099

Grit, K., & Dolfsma, W. (2002). The Dynamics of the Dutch Health Care System—A Discourse Analysis. *Review of Social Economy*, *60*(3), 377–401.

Guo, H., Li, J., & Gao, S. (2019). Understanding Challenges of Applying Enterprise Architecture in Public Sectors: A Technology Acceptance Perspective. *2019 IEEE 23rd International Enterprise Distributed Object Computing Workshop (EDOCW)*, 38–43. https://doi.org/10.1109/EDOCW.2019.00020

Haghighathoseini, A., Bobarshad, H., Saghafi, F., Rezaei, M. S., & Bagherzadeh, N. (2018). Hospital enterprise Architecture Framework (Study of Iranian University Hospital Organization). *International Journal of Medical Informatics*, *114*, 88–100. https://doi.org/10.1016/j.ijmedinf.2018.03.009

Haki, M. K., Legner, C., & Ahlemann, F. (2012). *Beyond EA frameworks: Towards an understanding of the adoption of enterprise architecture management*. 13. https://aisel.aisnet.org/ecis2012/241/

Hauder, M., Roth, S., Schulz, C., & Matthes, F. (2013). An Examination Of Organizational Factors Influencing Enterprise Architecture Management Challenges. *ECIS 2013 Completed Research*. https://aisel-aisnet-org.hu.idm.oclc.org/ecis2013_cr/175/

Hege, I., Tolks, D., Kuhn, S., & Shiozawa, T. (2020). Digital skills in healthcare [Text/html]. *GMS Journal for Medical Education*; 37(6): Doc63. https://doi.org/10.3205/ZMA001356

Higman, S., Dwivedi, V., Nsaghurwe, A., Busiga, M., Sotter Rulagirwa, H., Smith, D., Wright, C., Nyinondi, S., & Nyella, E. (2019). Designing interoperable health information systems using Enterprise Architecture approach in resource-limited countries: A literature review. *The International Journal of Health Planning and Management*, *34*(1), 85–99. https://doi.org/10.1002/hpm.2634

Hjort-Madsen, K. (2006). Enterprise architecture implementation and management: A case study on interoperability. *Proceedings of the 39th Hawaii International Conference on System Sciences - 2006* HICCS, Hawaii. https://ieeexplore.ieee.org/abstract/document/1579432/

Hjort-Madsen, K., & Burkard, J. (2006). When enterprise architecture meets government: An institutional case study analysis. *Journal of Enterprise Architecture*, 11–25.

Hjort-madsen, K., & Gøtze, J. (2004). Enterprise Architecture in Government – Towards a multilevel framework for managing. *4th European Conference on E-Government*, 365–374. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.593.2893&rep=rep1&type= pdf

Johnson, N., & Phillips, M. (2018). Rayyan for systematic reviews. *Journal of Electronic Resources Librarianship*, 30(1), 46–48. https://doi.org/10.1080/1941126X.2018.1444339

Jonnagaddala, J., Guo, G. N., Batongbacal, S., Marcelo, A., & Liaw, S.-T. (2020). Adoption of enterprise architecture for healthcare in AeHIN member countries. *BMJ Health & Care Informatics*, *27*(1), e100136. https://doi.org/10.1136/bmjhci-2020-100136

Jusuf, M. B., & Kurnia, S. (2017, January 4). *Understanding the Benefits and Success Factors of Enterprise Architecture*. https://doi.org/10.24251/HICSS.2017.593

Kaisler, S., & Armour, F. (2017). 15 Years of Enterprise Architecting at HICSS: Revisiting the Critical Problems. *Hawaii International Conference on System Sciences*. http://hdl.handle.net/10125/41747

Kar, S., & Thakurta, R. (2018). Planning for Digital Transformation: Implications for Institutional Enterprise Architecture. *PACIS 2018 Proceedings*, 9. https://aisel.aisnet.org/pacis2018/331

Katuu, S. (2018a). The Utility of Enterprise Architecture to Records and Archives Specialists. *2018 IEEE International Conference on Big Data (Big Data)*, 2702–2710. https://doi.org/10.1109/BigData.2018.8622467

Katuu, S. (2018b). Using Enterprise Architecture as a means of understanding institution technology ecosystems. *Proceedings of the ICMLG 2018*. 16th International Conference of Management Leadership and Governance (ICMLG), Bangkok, Thailand.

Kaushik, A., & Raman, A. (2015). The new data-driven enterprise architecture for e-healthcare: Lessons from the Indian public sector. *Government Information Quarterly*, *32*(1), 63–74. https://doi.org/10.1016/j.giq.2014.11.002

Kotusev, S. (2017). Enterprise Architecture: What Did We Study? International *Journal of Cooperative Information Systems*, 26(04), 1730002. https://doi.org/10.1142/S0218843017300029

Kurnia, S., Kotusev, S., Taylor, P., & Dilnutt, R. (2020, January 7). *Artifacts, Activities, Benefits and Blockers: Exploring Enterprise Architecture Practice in Depth*. https://doi.org/10.24251/HICSS.2020.687

Lapalme, J. (2012). Three Schools of Thought on Enterprise Architecture. *IT Professional*, *14*(6), 37–43. https://doi.org/10.1109/MITP.2011.109

Lapalme, J., Gerber, A., Van der Merwe, A., Zachman, J., Vries, M. D., & Hinkelmann, K. (2016). Exploring the future of enterprise architecture: A Zachman perspective. *Computers in Industry*, *79*, 103–113. https://doi.org/10.1016/j.compind.2015.06.010

Lee, S., Oh, S. W., & Nam, K. (2016). Transformational and transactional factors for the successful implementation of enterprise architecture in public sector. *Sustainability*, *8*(5), Article 5. https://doi.org/10.3390/su8050456

Levallois, C. (2021). *Network format: From gexf (Gephi) to VOSViewer json format*. Nocode Functions. https://nocodefunctions.com/networkconverter/network_format_converter.html

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: Explanation and elaboration. *BMJ (Clinical Research Ed.)*, *339*, b2700. https://doi.org/10.1136/bmj.b2700

Lopez, D., & Blobel, B. (2009). A development framework for semantically interoperable health information systems. *International Journal of Medical Informatics*, *78*(2), 83–103. https://doi.org/10.1016/j.ijmedinf.2008.05.009

Lu, X., Duan, H., Li, H., Zhao, C., & An, J. (2005). The architecture of enterprise hospital information system. *Proceedings of the 2005 IEEE Engineering in Medicine and Biology 27th Annual Conference , September 1-4, 2005, 2005*, 6957–6960. https://doi.org/10.1109/IEMBS.2005.1616106

Lumor, T., Hirvonen, A., & Pulkkinen, M. (2021). *The Role of Enterprise Architecture in Building and Sustaining Information Technology – Enabled Organizational Agility*. Hawaii International Conference on System Sciences. https://doi.org/10.24251/HICSS.2021.732

Maris, A. (2022). *Enterprise Architecture for network organizations: A research design to investigate what elements of EA help to reduce administrative burdens in Healthcare*. 718–731. https://doi.org/10.18690/um.fov.4.2022.47

Maris, A., Buwalda, V. J. A., Leermakers, J., & Bouwman, R. (2021). *The Impact of a Legislative Amendment on Administration Burden in Dutch Mental Healthcare*. 17th ECMLG, Valletta, Malta.

Mass, J., & Faler, J. (2020). *Create a Citation Graph based on Simplistic Text Analysis* [Python]. https://github.com/jaks6/citation_map

Masuda, Y., Shirasaka, S., Yamamoto, S., & Hardjono, T. (2018). Architecture Board Practices in Adaptive Enterprise Architecture with Digital Platform: A Case of Global Healthcare Enterprise. *International Journal of Enterprise Information Systems (IJEIS)*, *14*(1), 1–20. https://doi.org/10.4018/ijeis.2018010101

McGuire, M., & Agranoff, R. (2011). The Limitations of Public Management Networks. *Public Administration*, *89*(2), 265–284. https://doi.org/10.1111/j.1467-9299.2011.01917.x

Michel, L. (2017). *Into the black box of a nursing burden, a comparative analysis of administrative tasks in French and American hospitals*. https://tel.archivesouvertes.fr/tel-01762491/document

Ministry of Finance. (2020). *Naar een toekomstbestendig zorgstelsel: Brede maatschappelijke heroverweging*. Rijksoverheid. https://www.rijksfinancien.nl/bmh/bmh-2-naar-eentoekomstbestendig-zorgstelsel.pdf

Misser, N. S., Versendaal, J., Methorst, M., & Stork, B. (2014). Dutch Healthcare: An Overview and Application. *BLED 2014 Proceedings*, *3*.

Motoc, B. (2017). An Enterprise Architecture Perspective to Electronic Health Record Based Care Governance. *Studies in Health Technology and Informatics*, *234*, 243–248.

Mouaad, H., & Assar, S. (2019). Does enterprise architecture support the digital transformation endeavors ? Questioning the old concepts in light of new findings. *MCIS 2019 : 13th Mediterranean Conference on Information Systems*, *13*, 12. https://hal.archivesouvertes.fr/hal-02386287

Munn, Z., Stern, C., Aromataris, E., Lockwood, C., & Jordan, Z. (2018). What kind of systematic review should I conduct? A proposed typology and guidance for systematic reviewers in the medical and health sciences. *BMC Medical Research Methodology*, *18*(1), 5. https://doi.org/10.1186/s12874-017-0468-4

Mykhashchuk, M., Buckl, S., Dierl, T., & Schweda, C. M. (2011). *Charting the landscape of enterprise architecture management*. *10*, 570–577. https://www.zora.uzh.ch/id/eprint/60505/1/20120227114120_merlinid_2353.pdf#page=592

Niemi, E., & Pekkola, S. (2020). The benefits of enterprise architecture in organizational transformation. *Business & Information Systems Engineering*, *62*(6), 585–597. https://doi.org/10.1007/s12599-019-00605-3

Noran, O. (2015). Towards collaborative health information systems: A pluralistic approach. *International Journal of Biomedical Engineering and Technology*, *17*(2), 127–147. https://doi.org/10.1504/IJBET.2015.068050

Noran, O., Turner, P., & Bernus, P. (2018). Towards a Light-weight Enterprise Architecture Approach for Building Transformational Preparedness. *International Conference on Information Systems Development (ISD)*. https://aisel.aisnet.org/isd2014/proceedings2018/General/11

Nurmi, J., Seppänen, V., & Valtonen, M. K. (2019). Ecosystem Architecture Management in the Public Sector – From Problems to Solutions. *Complex Systems Informatics and Modeling Quarterly*, *19*, 1–18. https://doi.org/10.7250/csimq.2019-19.01

Oliveira, J., & Nightingale, D. (2007). *Adaptable Enterprise Architecture and Long Term Value Added Partnerships in Healthcare*. 13.

Pasaribu, F. A., Hakiki Sipahutar, J., Situmorang, B. P., Sfenrianto, S., & Kaburuan, E. R. (2019). Designing enterprise architecture in hospitals group. *2019 International Conference on Information and Communications Technology (ICOIACT)*, 862–867. https://doi.org/10.1109/ICOIACT46704.2019.8938526

Pattij, M., van de Wetering, R., & Kusters, R. (2019). From Enterprise Architecture Management to Organizational Agility: The Mediating Role of IT Capabilities. *Bled eConference Humanizing Technology for a Sustainable Society*, *32*, 561–578. https://doi.org/10.18690/978-961-286-280-0.30

Pattij, M., van de Wetering, R., & Kusters, R. (2020). Improving Agility Through Enterprise Architecture Management: The Mediating Role of Aligning Business and IT. *AMCIS 2020 Proceedings*. https://aisel.aisnet.org/amcis2020/digital_agility/digital_agility/3

Plessius, H., & Steenbergen, M. van. (2019). A Study Into The Classification Of Enterprise Architecture Benefits. *MCIS 2019 Proceedings*, 14. https://aisel-aisnetorg.hu.idm.oclc.org/mcis2019/33/

Plessius, H., Steenbergen, M. van, & Slot, R. (2014). *Perceived benefits from Enterprise Architecture*. 15.

Provan, K. G., & Kenis, P. (2008). Modes of network governance: Structure, management, and effectiveness. *Journal of Public Administration Research and Theory*, *18*(2), 229–252. https://doi.org/10.1093/jopart/mum015

Purnawan, D. A., & Surendro, K. (2016). Building enterprise architecture for hospital information system. *2016 4th International Conference on Information and Communication Technology (ICoICT)*, 1–6. https://doi.org/10.1109/ICoICT.2016.7571907

Radeke, F. (2011). Toward Understanding Enterprise Architecture Management's Role in Strategic Change: Antecedents, Processes, Outcomes. *10th International Conference on Wirtschaftsinformatik, 16th - 18th February 2011, Zurich, Switzerland*, 497–507.

Reixach, E., Andrés, E., Ribes, J. S., Gea-Sánchez, M., López, A. À., Cruañas, B., Abad, A. G., Faura, R., Guitert, M., Romeu, T., Hernández-Encuentra, E., Bravo-Ramirez, S., & Saigí-Rubió, F. (2022). Measuring the Digital Skills of Catalan Health Care Professionals as a Key Step Toward a Strategic Training Plan: Digital Competence Test Validation Study. *Journal of Medical Internet Research*, *24*(11), e38347. https://doi.org/10.2196/38347

Rohloff, M. (2005). *Enterprise Architecture—Framework and Methodology for the Design of Architectures in the Large*. 15. https://aisel-aisnet-org.hu.idm.oclc.org/cgi/viewcontent.cgi?article=1145&context=ecis2005

Rurua, N., Eshuis, R., & Razavian, M. (2019). Representing Variability in Enterprise Architecture: A Case Study. *Business & Information Systems Engineering*, 61(2), 215–227. https://doi.org/10.1007/s12599-017-0511-3

Saint-Louis, P., & Lapalme, J. (2018). An exploration of the many ways to approach the discipline of enterprise architecture. *International Journal of Engineering Business Management*, *10*, 1847979018807383. https://doi.org/10.1177/1847979018807383

Sallehudin, H., Mohd Satar, N., Abu Bakar, N. A., Baker, R., Yahya, F., & Fadzil, A. (2019). Modelling the Enterprise Architecture Implementation in the Public Sector using HOTFit Framework. *International Journal of Advanced Computer Science and Applications*, *10*, 191–198. https://doi.org/10.14569/IJACSA.2019.0100825

Schooley, B., Horan, T., & Marich, M. (2010). Managing It Collaboration in MultiOrganizational Time-Critical Services. *MIS Quarterly Executive*, *9*(3), 147–161.

Simon, D., Fischbach, K., & Schoder, D. (2013). An Exploration of Enterprise Architecture Research. *Communications of the Association for Information Systems*, *32*. https://doi.org/10.17705/1CAIS.03201

The Open Group Library. (2018). *The TOGAF® Standard*. https://www.opengroup.org/togaf

Trang, S. T., Opitz, N., & Kolbe, L. M. (2013). IT Governance in a Network Context: Literature Review and Agenda for Research. *AMCIS 2013 Proceedings*.

https://aisel.aisnet.org/amcis2013/GlobalIssues/GeneralPresentations/2

Valtonen, M. K., Nurmi, J., & Seppänen, V. (2018). *Envisioning Information Systems Support for Business Ecosystem Architecture Management in Public Sector*. *17*, 150–159. van de Wetering, R., & Dijkman, J. (2021). Enhancing digital platform capabilities and networking capability with EA-driven dynamic capabilities. *AMCIS 2021 Proceedings*. https://aisel-aisnet-org.hu.idm.oclc.org/amcis2021/strategic_is/strategic_is/16/

Venkatesh, V., & Bala, H. (2010). Transitioning to a Modular Enterprise Architecture: Drivers, Constraints, and Actions. *MIS Quarterly Executive*, *9*(2), 83–94.

Venkatesh, V., Bala, H., Venkatraman, S., & Bates, J. (2007). Enterprise Architecture Maturity: The Story of the Veterans Health Administration. *MIS Quarterly Executive*, *6*(2), 79– 90.

Virkanen, H., & Mykkänen, J. (2014). Analysis of Central Enterprise Architecture Elements in Models of Six eHealth Projects. *Studies in Health Technology & Informatics*, *205*, 141–145. https://doi.org/10.3233/978-1-61499-432-9-141

Wachhaus, T. A. (2012). Anarchy as a model for network governance. *Public Administration Review*, *72*(1), 33–42. https://doi.org/10.1111/j.1540-6210.2011.02481.x

Wichmann, J., & Wißotzki, M. (2019). *An Exploration of Enterprise Architecture Research in Hospitals*. 89–100. https://doi.org/10.1007/978-3-030-36691-9_8

Winter, K., Buckl, S., Matthes, F., & Schweda, C. (2010, September 12). *Investigating the State-of-the-Art in Enterprise Architecture Management Methods in literature and Practice*. 5th Mediterranean Conference on Information Systems, MCIS 2010, Tel Aviv, Israel.

Ylinen, M., & Pekkola, S. (2019). A Process Model for Public Sector It Management to Answer the Needs of Digital Transformation. *Hawaii International Conference on System Sciences 2019 (HICSS-52)*, *52*, 6219–6228.

APPENDIX A

ID	Document	Level	Literature Review
EA001	(Bourmpoulias & Tarabanis, 2020)		x
EA004	(Jusuf & Kurnia, 2017)	Organizational	
EA005	(Guo et al., 2019)	Organizational	
EA006	(Lee et al., 2016)	Organizational	
EA007	(Noran, 2015)	Network	
EA009	(Noran et al., 2018)	Organizational	
EA012	(Bradley et al., 2011)	Orga nizational	
EA013	(Lumor et al., 2021)		x
EA014	(Gebre-Mariam & Bygstad, 2016)	Network	
EA015	(Kaushik & Raman, 2015)	Inter-organizational	
EA017	(Niemi & Pekkola, 2020)	Organizational	
EA018	(Dang & Pekkola, 2017b)		x
EA020	(Dang & Pekkola, 2016)	Network	
EA021	(Rurua et al., 2019)	Inter-organizational	
EA022	(Dang & Pekkola, 2017a)	Network	
EA024	(Dang et al., 2019)	Network	
EA025	(Gampfer et al., 2018)		x
EA026	(Bachoo, 2019)	Inter-organizational	
EA027	(Sallehudin et al., 2019)	Organizational	
EA029	(Schooley et al., 2010)	Inter-organizational	
EA032	(Trang et al., 2013)	Network	x
EA034	(Dang, 2019)	Network	
EA035	(Pattij et al., 2020)	Organizational	
EA037	(Depalo & Song, 2012)	Inter-organizational	
EA038	(Bygstad et al., 2015)	Inter-organizational	
EA039	(Drews & Schirmer, 2014)	Network	
EA040	(Pattij et al., 2019)	Organizational	

EA041	(Júnior et al., 2021)		x
EA042	(Ahmad et al., 2020)	Organizational	
EA043	(Valtonen et al., 2018)	Network	
EA045	(Bernus et al., 2014)	Inter-organizational	
EA046	(Bradley et al., 2012)	Organizational	
EA047	(Canada & Halawi, 2020)	Inter-organizational	
EA048	(Ajer et al., 2021)	Organizational	
EA049	(Venkatesh et al., 2007)	Inter -organizational	
EA050	(Júnior et al., 2020)		x
EA051	(Ajer, 2018)		x
EA052	(Ajer & Olsen, 2019)	Organizational	
EA053	(Andersen & Carugati, 2014)		x
EA054	(Al-Kharusi et al., 2018)	Inter-organizational	
EA055	(Ajer & Olsen, 2018)	Inter-organizational	
EA056	(Rohloff, 2005)	Organizational	
EA057	(Ajer et al., 2018)	Inter-organizational	
EA059	(van de Wetering & Dijkman, 2021)	Organizational	
EA060	(Nurmi et al., 2019)	Network	
EA061	(Abu Bakar et al., 2019)	Inter-organizational	
EA063	(Mouaad & Assar, 2019)	Organizational	
EA065	(Girsang & Abimanyu, 2021)	Organizational	
EA066	(Higman et al., 2019)	Organizational	x
EA067	(Pasaribu et al., 2019)	Organizational	
EA069	(Mykhashchuk et al., 2011)		x
EA071	(Haki et al., 2012)	Organizational	
EA072	(Kurnia et al., 2020)	Organizational	
EA073	(Masuda et al., 2018)	Organizational	
EA075	(Virkanen & Mykkänen, 2014)	Network	

EA076	(Wichmann & Wißotzki, 2019)		x
EA077	(Simon et al., 2013)		x
EA078	(Burmeister et al., 2019)	Network	
EA079	(Jonnagaddala et al., 2020)	Organizational	
EA082	(Ansyori et al., 2018)		x
EA083	(Alencar de Medeiros et al., 2021)		x
EA084	(Plessius & Steenbergen, 2019)	Organizational	
EA085	(Ylinen & Pekkola, 2019)	Inter-organizational	
EA090	(Lopez & Blobel, 2009)	Inter -organizational	
EA092	(Kaisler & Armour, 2017)		x
EA095	(Oliveira & Nightingale, 2007)	Organizational	
EA098	(Motoc, 2017)	Inter-organizational	
EA099	(Hauder et al., 2013)	Organizational	
EA100	(Saint-Louis & Lapalme, 2018)		x
EA102	(Purnawan & Surendro, 2016)	Inter-organizational	
EA105	(Ahmad et al., 2015)	Organizational	
EA109	(Adenuga et al., 2015)	Inter-organizational	
EA111	(Hjort-Madsen, 2006)	Network	
EA112	(Hjort-madsen & Gøtze, 2004)	Network	
EA113	(Ajer et al., 2019)	Inter-organizational	
EA115	(Ahsan et al., 2010)	Inter-organizational	
EA116	(Haghighathoseini et al., 2018)	Inter-organizational	
EA117	(Fjeldstad et al., 2020)	Network	
EA118	(Blobel & Oemig, 2009)	Organizational	
EA119	(Plessius et al., 2014)	Organizational	
EA120	(Kar & Thakurta, 2018)	Organizational	
EA121	(Carter, 2016)	Organizational	
EA122	(Lu et al., 2005)	Organizational	
EA123	(Azman, 2020)	Organizational	
EA124	(Katuu, 2018a)	Organiz ational	
EA125	(Radeke, 2011)		x

EA126	(Venkatesh & Bala, 2010)	Inter-organizational	
EA127	(Britto et al., 2018)	Network	
EA128	(Katuu, 2018b)	Organizational	
EA129	(Hjort-Madsen & Burkard, 2006)	Network	
EA131	(Winter et al., 2010)	Organizational	
EA132	(Lapalme et al., 2016)	Organizational	
EA133	(Lapalme, 2012)		x
EA134	(Kotusev, 2017)		x