

Accelerating in a world of chaos

by using Enterprise Architecture with the concept Antifragility

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"It is quite perplexing that those from whom we have benefited the most aren't those who have tried to help us (say with "advice") but rather those who have actively tried - but eventually failed - to harm us."

- *Nassim Nicholas Taleb*

"A consistency proof for [any] system can be carried out only by means of modes of inference that are not formalized in the system itself."

- *Kurt Gödel*

"Reality is created by the mind.
We can change our reality by changing our mind."

- *Plato*

"But he who neither thinks for himself nor learns from others, is a failure as a man."

- *Hesiod*

"The only constant is change."

- *Heracitus*

Acknowledgements

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J.R. Blikendaal

Abstract

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Contents

Acknowledgements	i
Abstract	ii
Table of Contents	iii
Glossary of Terms	vii
Abbreviations	viii
1. Introduction	1
1.1. Context	1
1.2. Structure of the thesis	1
1.3. Introduction of the Public Sector Market	2
1.4. Introduction of Independent Software Vendor	2
1.5. Introduction of the concept Enterprise Architecture	2
1.6. Introduction of the concept of Antifragility	2
1.7. Problem statement	2
1.8. Research questions	2
1.8.1. Main research question	2
1.8.2. Sub-questions	2
2. Theoretical background	3
2.1. What is a system?	3
2.2. Organisation	3
2.2.1. Independent Software Vendor	3
2.3. Antifragile	3
2.3.1. Relation between antifragile, fragile, robust, resilient, and agile	3
2.4. VUCA	4
2.5. Enterprise Architecture	4
2.5.1. Steering mechanisms	4
2.6. Public Sector market	4
2.7. What is a stressor?	4
3. Research Methodology	5
3.1. Research Model	5

3.2. Delphi Group	5
3.3. Quality of the Research (old example text)	6
3.4. Used research tooling	7
4. Conclusion	8
5. Discussion	9
5.1. Discussion on research	9
5.2. Discussion on research quality	9
6. Blocks of text that can be used	11
6.1. Validation through an artefact	11
Appendices	12
A. Interview Participants	13
B. Delphi Group Participants	14
C. Literature Selection	15
D. Research Log	16

List of Figures

3.1. Research Model	5
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List of Tables

A.1. Interview Participants	13
B.1. Delphi Group Participants	14

Glossary of Terms

agile The ability to adjust before failure happens. 3

antifragile The ability to strive for and evolve under stress. 1, 3

antifragility The state of being antifragile. 2

fragile The quality of being easily broken or destroyed. 3

resilient The ability to recover from failure. 3

robust The ability to resist failure. 3

Abbreviations

EA Enterprise Architecture. 1, 2

ISV Independent Software Vendor. 1, 2

VUCA Volatility, Uncertainty, Complexity and Ambiguity. 1

1. Introduction

Speed of change
Only constant is change

Volatility, Uncertainty, Complexity and Ambiguity (VUCA)
The challenge

In this thesis, the researcher defines how and with which Enterprise Architecture (EA) concepts EA can be used to steer an Independent Software Vendor (ISV) towards being antifragile in the Public Sector Market.

1.1. Context

The researcher is working as a Chief Architect for an ISV specialised in delivering software and services to the local governments in The Netherlands, such as the municipalities, the provinces, and the regional water authorities. The local governments embraced the digital transformation, and because of this the pace of change is increasing rapidly (**NEEDS REF**).

1.2. Structure of the thesis

In chapter 1 the context of the research is set, the core concepts of EA and antifragility are introduced together with the contextual concepts of ISV and the Public Sector Market. In chapter 2 the theoretical background is given on the research. Chapter 3 explains the used methodology for the research.

1.3. Introduction of the Public Sector Market

1.4. Introduction of Independent Software Vendor

1.5. Introduction of the concept Enterprise Architecture

1.6. Introduction of the concept of Antifragility

1.7. Problem statement

1.8. Research questions

1.8.1. Main research question

What are, for an Independent Software Vendor, the success factors of Enterprise Architecture for antifragility in the public sector market?

1.8.2. Sub-questions

1. Sub-question 1
2. Sub-question 2

2. Theoretical background

2.1. What is a system?

2.2. Organisation

2.2.1. Independent Software Vendor

2.3. Antifragile

- Randomness
- Variability
- Hormesis / Mithridatisation (by taleb) / Antidotum Mithridatium

2.3.1. Relation between antifragile, fragile, robust, resilient, and agile

antifragile with fragile, robust, resilient, and agile.

2.4. VUCA

2.5. Enterprise Architecture

2.5.1. Steering mechanisms

2.6. Public Sector market

2.7. What is a stressor?

3. Research Methodology

3.1. Research Model

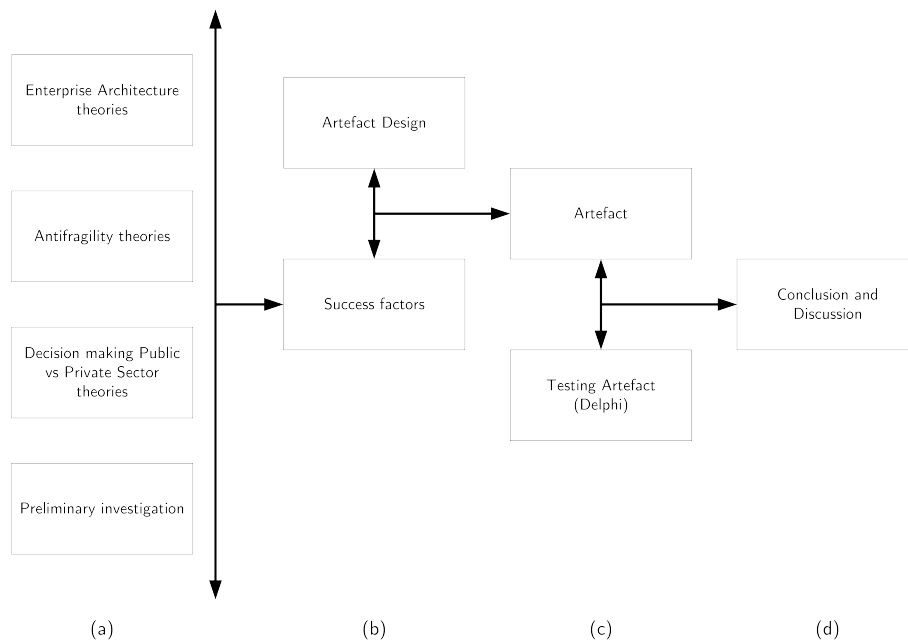


Figure 3.1.: Research Model

3.2. Delphi Group

For the Delphi Group participants see appendix B

What about the sample size? Normally Delphi is about 100+. What about this research. How large should the sample size be for a qualitative result?

3.3. Quality of the Research (old example text)

The research was qualitative. The information is based on qualitative information gathered by the researcher from employees of the organisation. However, with the research approach and transparency, the research can be validated, can be repeated, so it is reliable and reducible. With the use of managerial models and methods like Lean, Value Stream Mapping with supporting tools like NEN-ISO/IEC 25011 and ServQual got a nonbiased result.

- **The validity** of the research is dependent on the right use of the right models and the right methods. The researcher conducted research on which models, frameworks and tools to use. The results and the rationales around the choice of theories, models, frameworks and tools are stated in chapter 4. The sources used for determining the theories, models, frameworks and tools are from scientific and expert sources.
- **The reliability** is about the influence of possible errors. For the research, the researcher used methods like triangulation, and sources from scientific reports and expert literature. The number of interviews was too small for the right statistical outcome. To enlarge the reliability of the interviews, the researcher used the same framework of themes for his semi-structured interviews. The transcriptions are placed in the appendixes for transparency. The information gathered with the interviewees is compared with the other interviewees.
- **The repeatability** is about getting the same results when the research is conducted again. The researcher uses his research design and research approach, as stated. All the steps taken are put into the research design. If this research design is followed, the same results should follow.
- **The reducibility** is about the outcome of the research can be deducted step by step. By using the research model, and the structure of the thesis, every step is reducible.
- Think about Replication
- Recker types
- OpenScience
- Howto falsify?
- Rigourness

3.4. Used research tooling

L^AT_EX with the KOMA-Script Report template

TeXstudio¹

TeX Live²

Dropbox³

GitHub⁴ (2 repositories)

Master Thesis Repository⁵

Master Thesis Administration Repository⁶

GitHub Desktop⁷

JabRef⁸ as a reference manager including integration with web browsers

PaperPanda⁹ for finding hard to find resources

Grammarly¹⁰

Microsoft Excel

Microsoft Powerpoint

Microsoft Visio

Sparx Enterprise Architect

Researchgate

Web of Science

Google Scholar

Meetingwizard¹¹

Hardware

Dell Windows PC with Windows 10

Amazon Kindle Oasis

leuchtturm1917 notebooks

¹<https://www.texstudio.org/>

²<https://tug.org/texlive/>

³<https://www.dropbox.com/>

⁴<https://github.com/>

⁵<https://github.com/JRBliekendaal/master-thesis>

⁶<https://github.com/JRBliekendaal/master-thesis-administration>

⁷<https://desktop.github.com/>

⁸<https://www.jabref.org/>

⁹<https://paperpanda.app/>

¹⁰<https://www.grammarly.com/>

¹¹<https://www.meetingwizard.nl/>

4. Conclusion

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5. Discussion

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5.1. Discussion on research

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5.2. Discussion on research quality

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nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

6. Blocks of text that can be used

6.1. Validation through an artefact

Because there is not much known on the applicability of antifragile on Enterprise Architecture, the success factors need to be validated to be true. To validate, the researcher will create an artefact. The Delphi Research Method is used to validate the artefact. By validating the artefact, the researcher can ensure that the success factors are valid with some degree of certainty.

Appendices

A. Interview Participants

Who	Role	From
Christiaan Konstapel	Lead Enterprise Architect	Mileway
Y	2	tbd
Y	2	tbd

Table A.1.: Interview Participants

B. Delphi Group Participants

Who	Role	From
Jan Ploeg	Enterprise Architect	Centric Netherlands B.V. (ISV)
Y	2	Other ISV
Y	2	Municipality
Y	2	VNG-Realisatie
Y	2	Logius
Z	0	Academic

Table B.1.: Delphi Group Participants

C. Literature Selection

D. Research Log

Date	What
24/11/20	Initial research subject proposal to AMS
25/11/20	Initial research subject proposal sent to Hans Mulder & Yuri Bobbert
30/11/20	First meeting with Hans Mulder to explore the subject
12/02/21	AMS Master Project Coaching
10/03/21	Second meeting with Hans Mulder. Definitive Area of Research selected. The success factors of EA for Business Agility/Resilience/antifragility
11/03/21	Elaborated with COO on antifragility
14/03/21	Started research on the concept of antifragility
03/04/21	One Pager on the concepts Enterprise Architecture, Public Sector, Independent Software Vendor, and Antifragility
04/04/21	Deskresearch on concepts
10/04/21	Reading Taleb
25/05/21	Third meeting with Hans Mulder
20/06/21	Creating 5 pager
20/06/21	Sent 5 pager presentation for review to Hans Mulder
20/06/21	Sent 5 pager presentation for review to Dienneke Schouten (COO) and Maarten Hillenaar (CEO)
20/06/21	Promotor suggestion Roland Ettema, Martin Op 't Land, Bas van Gils or Hans Mulder
20/06/21	Suggestion of Hans Mulder as promotor with Edzo Botjes as co-promotor
21/06/21	Requested Maarten Hillenaar as Sponsor, Dienneke Schouten as Second Reader, Jan Ploeg as participant in Delphi, Christiaan Konstapel as interviewee
24/06/21	Presentation of Five Pager at Master Project Coaching AMS
29/06/21	Created thesis LaTeX skeleton
06/07/21	Meeting with Edzo Botjes to get acquainted
06/07/21	Edzo Botjes accepted co-promotorship
date	what
date	what
date	what
enddate	final version