

Whitepaper “EA goes agile”

- Summary -

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If Albert Einstein was already of the opinion that "Planning replaces coincidence by error" at the beginning of the 20th century, then we need to ask ourselves today what significance planning actually has. Einstein lived in a slow world in comparison to our present situation. Our everyday life is increasingly determined by rapid change, ambiguity, increasing complexity and levels of uncertainty. It's about time that Enterprise Architecture Management also responds to the challenges posed by the changed framework conditions. This presentation addresses the possibilities that exist and how companies can set themselves up in an architecturally agile manner.

Contents

1. Motivation
2. Mission
3. Measures
4. Summary

The Cross Business Architecture Lab organizes its projects into workstreams that are attended by members interested in the topic. In way of support, external experts are invited to assist with the procurement and preparation of information, as well as the selection of tools. This collaboration results in the compilation of studies, guides and even white papers such as this one.

VUCA World and IT of Multiple Speeds

- Rapid changes, uncertainty, increasing complexity and ambiguity: we live in a VUCA world (Volatility, **U**ncertainty, **C**omplexity, **A**mbiguity).
- At the same time, we are faced with increasingly shorter innovation cycles, quick growth among new players in the market, as well as rapid progress in terms of globalisation and digitalisation: the IT of Multiple Speed is a reality.



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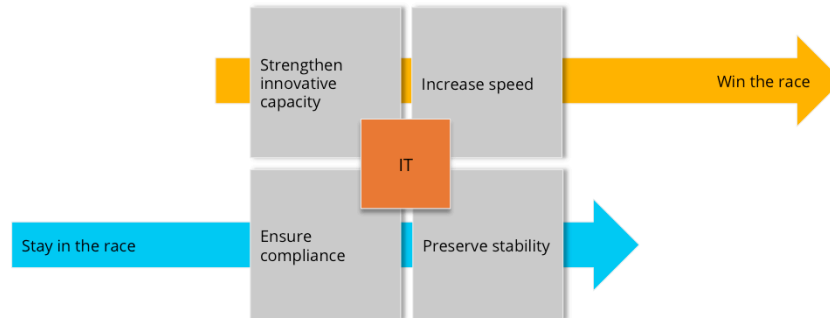


We live in a VUCA world (Harvard Business Review 2016), i.e. a world that is characterized by Volatility, Uncertainty, Complexity and Ambiguity. Enterprise Architecture Management is changing its role within this VUCA world – a role that is less associated with control and geared more towards advice and support.

Life punishes those who come too late

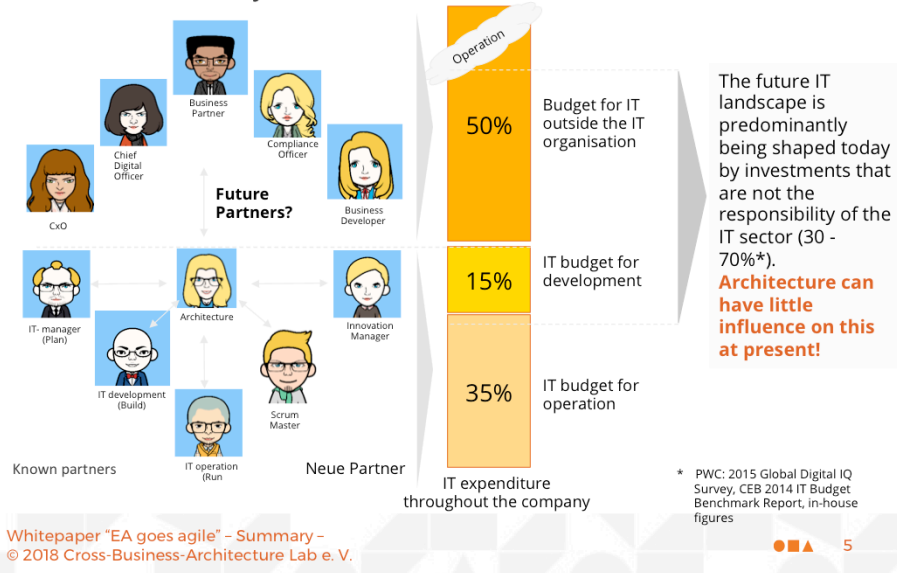
Speed and innovative capacity as a challenge for IT

- Simply ensuring the stability of the IT landscape and its compliance with regulatory requirements is no longer sufficient.
- Instead, the IT sector needs to gather speed, become an innovative “think tank” and the enabler of a digital transformation.



Even the orderly world of IT is in motion due to globalization and digitalization. Companies fulfill the requirements of short innovation cycles with agile approaches, not only in terms of software development but also in terms of their business and architecture. Individual responsibility and feedback within short cycles form the basis for these approaches. In this context, it is no longer sufficient to merely ensure the stability of the evolved IT landscape and its compliance with various regulatory requirements. Instead, the IT sector needs to gather speed, become an innovative “think tank” and the enabler of a digital transformation. These requirements also need to be satisfied by the Enterprise Architecture. It, too, needs to become faster and more agile.

IT as a commodity – A new role for architecture



In many companies, 30 to 70% of their total IT spend is decided outside the IT organization (68% according to PWC, 2015). More than 70% of the organizations surveyed by the American management consultancy, CEB, stated that their internal IT department is only involved when a decision regarding "Software as a Service" has already been made (CEB, 2014). The IT of Multiple Speed is at least real where we don't restrict our focus to the internal IT department. This brings together architects and new contacts within the company, some of whom have little IT experience and even less understanding of the architecture.

Image, self-conception, values and mandate of the architecture

- The self-conception and values of the architecture, however, are often incompatible with those of future partners.
 - The company demands and promotes initiative, dynamism, creativity and innovation.
 - The architecture mandate frequently stands for structure, stability, standards and methods.
- The architect, as a guardian of the standards, and the compliance officer should not think, per se, of testing or prototyping new or unconventional solutions.



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At the same time, enterprise architecture is rarely seen as a team player. In particular, the architect's potential customers, who are involved in shaping the future of the company outside the internal IT department, often confront the architect with prejudice/judgment. The causes are frequently profound: The self-conception and values of the architect are often incompatible with those of the customers. While the company demands and promotes initiative, dynamism, creativity and innovation, important factors for the architect include structure, stability, standards and methods – not least because of his current mandate.

This mandate and the associated values often no longer match the expectations of customers. The architect, as a guardian of the standards, and the compliance officer should not think, per se, of testing or prototyping new or unconventional solutions.

Is enterprise architecture therefore passé, obsolete and outdated? Or does it have to reinvent itself in order to realize its strengths?

Contents

1. Motivation
2. Mission
3. Measures
4. Summary

Architecture in the VUCA world

Architecture helps us to construct temporary stable platforms in a VUCA world, which are characterised by VUCA antipodes:

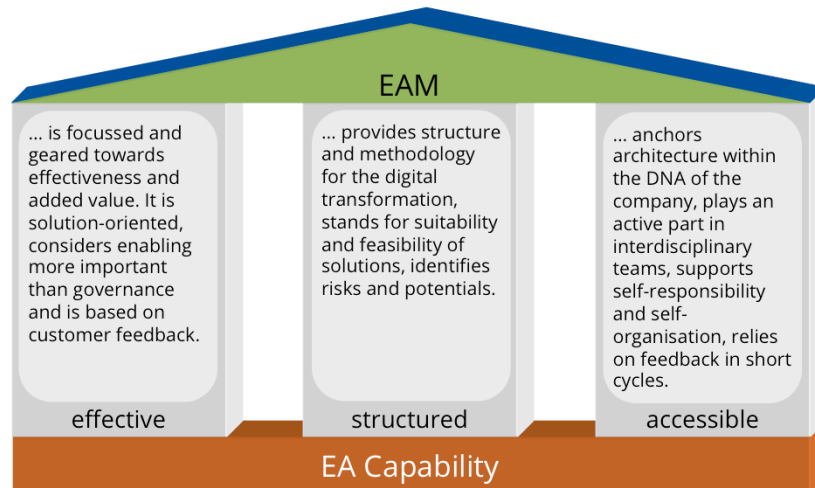
- Volatility ↔ Vision
- Uncertainty ↔ Understanding
- Complexity ↔ Clarity
- Ambiguity ↔ Agility



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Architecture is not passé. It helps us to gain temporary clarity and understanding, even in a VUCA world, and thus to develop visions and become capable of acting in agile processes. This will only ever be a temporary state, because we cannot change the framework conditions of the VUCA world. However, architecture needs to adapt its self-understanding, value system and objectives to the digital and agile environment.

The new architecture management model



Contents

1. Motivation
2. Mission
3. Measures
 1. Define self-conception and mandate of the architect in a contemporary manner
 2. Anchor architecture within the company's DNA
 3. Develop services and methods of the Business Architecture
 4. Develop Architecture Engineering
4. Summary

The complexity of IT is increasingly due to the complexity of the business architecture. The IT sector must face up to the demands of new business models, as well as to the modification or discontinuation of existing models. The enterprise architect is now required to align the enterprise architecture – and thus the combination of business and IT architecture – with the characteristics of a VUCA world.

Flexibility and agility vs. stability and sustainability

The VUCA world requires a significant focus on action, values and results. By “driving by sight”, objectives such as flexibility and agility are brought more into focus. Nevertheless, values such as sustainability are still embedded in the culture, or are even more strongly embedded than in the past.

Provision of new services and methods for architectural work in reduced intervals:

- Enhance communication skills.
- Command methods of the agile approach.
- Actively approach stakeholders.
- Participate in new projects at an early stage as a contact and moderator.
- Increase efficiency and speed while simultaneously ensuring stability and sustainability.



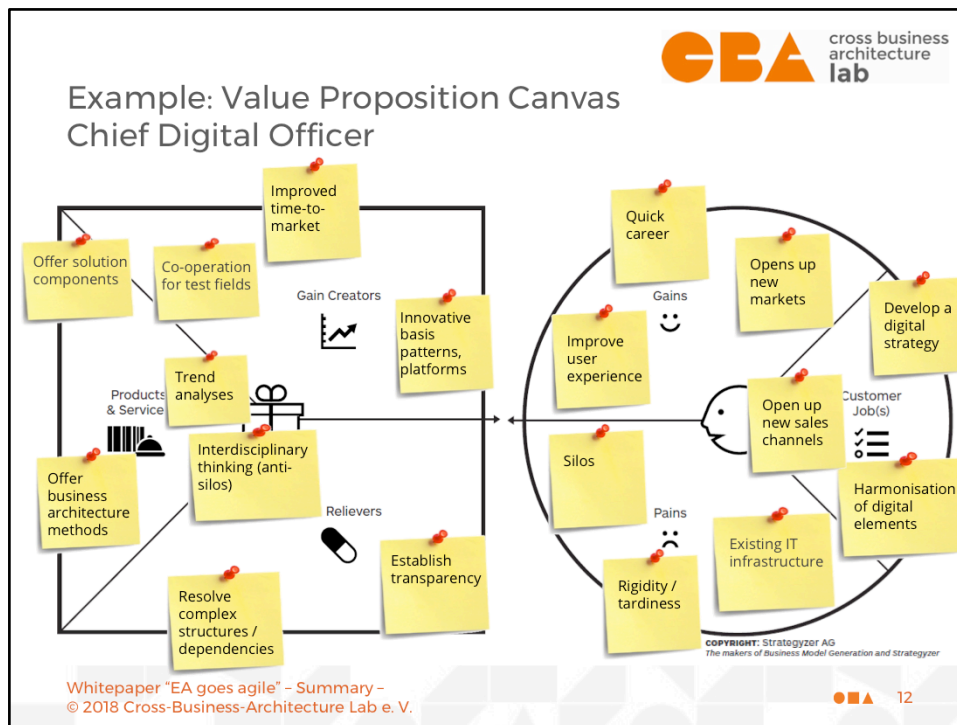
Speed climbing on “The Nose” (approx. 1000 metre long climbing route on El Capitan in the Yosemite Valley in California)

*“Agile and pursuing new routes,
while always thinking about
stability and security.”*

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The enterprise architect in the VUCA world actively approaches and obtains orders from his/her stakeholders. He/she no longer waits for these to be brought in or to be integrated in process models. His/her active role allows them to participate in decision-making processes or new projects at an early stage and to be perceived as a contact person and/or moderator.

The enterprise architect ensures stability and sustainability through his/her work, thereby creating a basis for enhancing both the efficiency and speed of the entire enterprise. He/she establishes a clear benefit as a result. However, while the fundamental values of stability and sustainability remain valid, they need to be adapted to the new requirements, such as short innovation cycles for technologies and business models.



One method of the agile approach, for example, is the Business Model Canvas method according to Osterwalder & Pigneur, from which the "Value proposition" chart arises. The necessary capabilities and benefits of a particular approach can be quickly developed with the BMC method. In this case, it is the "installation" of a Chief Digital Officer. Further information about the Business Canvas Method can be found here: <http://www.startplatz.de/startup-wiki/business-model-canvas/>

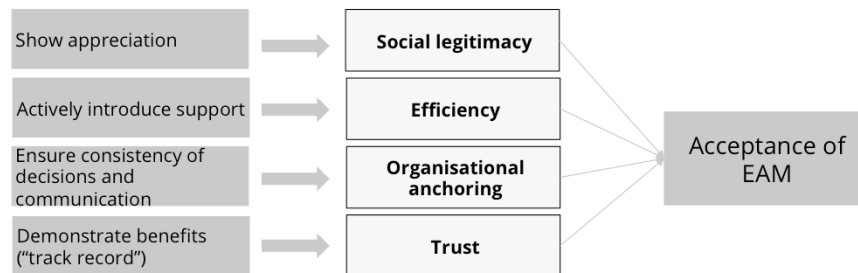
Contents

1. Motivation
2. Mission
3. Measures
 1. Define self-conception and mandate of the architect in a contemporary manner
 2. Anchor architecture within the company's DNA
 3. Develop services and methods of the Business Architecture
 4. Develop Architecture Engineering
4. Summary

An approach that also fulfills the requirements for the agile understanding of self-determination is to establish a broad architectural understanding within the company, to involve the driving projects in the architectural task and to enable architectural decisions to be made and/or the critical nature of design decisions to be evaluated in order to bring in architects in a purposeful manner. The "architectural thinking" approach was discussed and implementation impulses were developed with Prof. S. Aier (HSG) here in line with this workstream. "Architectural thinking" is not yet a fully elaborated method, but is in the development and/or academic planning stage.

Architectural thinking creates prerequisites,

- ... so that the organisation recognises and values compliance with rules and standards (**social legitimacy**).
- ... so that compliance with rules and standards becomes more efficient (**efficiency**).
- ... so that the architecture is anchored within the values of the organisation in terms of influencing the strategy definition, support for top management or positioning within the hierarchy (**organisational anchoring**)
- ... so that there is trust in the organisation that architecture is doing the right things (**trust**).



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14

The aim of architectural thinking is to provide decision makers, such as those decision makers involved in process design, organizational development and business model development, with a common understanding or sense of a "purposeful" architecture. The areas of a company that are concerned with driving innovation should be able to make independent architectural decisions/evaluations within the framework of their projects. These decisions, however, must be compatible with the architectural framework (i.e. the "big picture").

This requires a collective understanding of the enterprise architecture.

The architectural thinking method is concerned with this collective understanding of "good" or "purposeful" architectural work. Architectural thinking is a lightweight (non-formalized), benefit-focused approach that aims to support non-architects and employees outside the IT organization in analyzing, understanding, implementing and communicating basic structures in order to create holistic, long-term decision-making bases.

Key themes for developing architectural thinking (workshop results)

Architectural thinking in the organisation	Bridge for decentralised architectural work	Tools and services
<ul style="list-style-type: none"> Form communities Offer training Speak the language of our customers Hold a discussion of values 	<ul style="list-style-type: none"> Offers that are appropriate for stakeholders and the situation at hand Co-creation of architecture (retrospectives) Live&let live (open spaces and appreciation) Designate and prioritise your own topics ("Choose your Battles") 	<ul style="list-style-type: none"> Provide information/toolbox Coaching relevant for the situation and stakeholder Support decisions/provide encouragement Create common images (artefacts)

Prioritisation from the WS: **bold**

Enterprise architecture in the sense of architectural thinking must permit, promote and support architecturally-relevant decisions on the one hand and, on the other, define a solution space ("barriers") within which a solution architecture should be located.

The three key themes above were defined and starting points developed as part of the workstream (chart).

The following four starting points were of particular importance for the participants here: "Hold a discussion of values", "Coaching", "Create common images" and "Designate and prioritize your own topics" ("Choose your Battles").

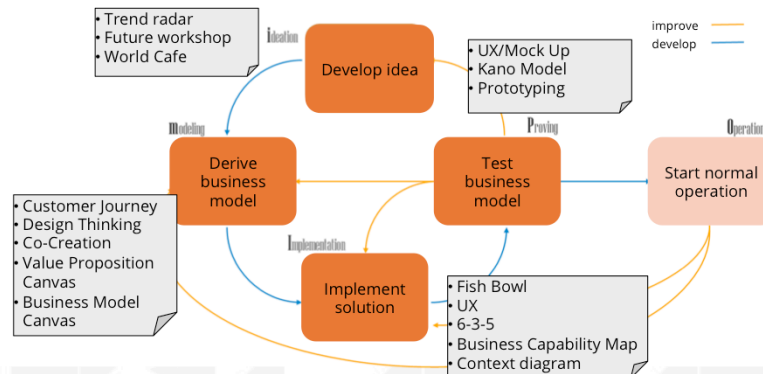
Another essential success factor for establishing architectural thinking is the corporate culture. It determines, in the context of architectural thinking, the willingness to act according to corporate values.

Contents

1. Motivation
2. Mission
3. Measures
 1. Define self-conception and mandate of the architect in a contemporary manner
 2. Anchor architecture within the company's DNA
 3. Develop services and methods of the Business Architecture
 4. Develop Architecture Engineering
4. Summary

Architecture supports early stages of initiatives

- In order to bring temporary clarity, structure and understanding into the VUCA world, we can use the method set for the Business Architecture as an instrument in the early stages of initiatives and projects.
- This requires close co-operation with others, as well as with new partners outside the IT organisation, such as the Business Development sector.



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The new enterprise architecture management team should have these services and methods (gray boxes) on offer in order to ensure the success of the cycle "Ideation, Modeling, Proving, Implementation and Operation" (*im*IPO cycle) in collaboration with other sectors. This results in the following **recommended actions for the business architecture:**

- Establish a methodological toolbox around the *im*IPO cycle and provide the necessary training.
- Define and market architectural services for the *im*IPO cycle.
- Enhance moderation and communication skills in architecture management.

Example: The Business Model Canvas

- Visionary idea for a new, digitally supported service for processing workshop visits.
- The all-round service should include a damage report, deadline agreement, collection of the vehicle, rectification of the damage, return of the vehicle and warranty.



- Architect:
- Present structure of the canvas, give definitions and examples.
 - Promote idea generation along the canvas by using applicable leading questions.
 - Ensure consistency; highlight any contradictions, gaps and discrepancies in the degree of abstraction

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The Business Model Canvas is only an example of the various methods and structures that architects can use to accelerate and simultaneously stabilize the brainstorming and experimentation phases.

Contents

1. Motivation
2. Mission
3. Measures
 1. Define self-conception and mandate of the architect in a contemporary manner
 2. Anchor architecture within the company's DNA
 3. Develop services and methods of the Business Architecture
 4. Develop Architecture Engineering
4. Summary

Architecture management of the future must be solution-oriented and bridge the gap between strategic planning and operational implementation. Most of the instruments used by Enterprise Architecture Management today come from strategic architecture management. However, 80% of architectural performance is provided in operational architecture management and it is often scarcely supported by suitable instruments. This deficit becomes extremely clear when agile "speedboat projects" are used to exploit new opportunities. Suitable tools are then required.

Architecture engineering concerns the construction of IT architectures based on the principles of engineering technology: Process the application-related results from basic research, empirical knowledge and findings from experiments and make a lightweight, practical instrument for developing the "Minimum Viable Architecture".

The Minimum Viable Architecture is analogous to the concept of the Minimum Viable Product and is based on the concept of the Last Responsible Moment (LRM). Architecture is adapted to the Minimum Viable Product and architectural decisions are made at the last responsible moment (see "Test

Architecture Engineering

Design of IT architectures, interdisciplinary, iterative and feedback-based (learning, harvesting) methods:

- Identify requirements:
 - Clarity with regard to architecturally-defining requirements
 - Focus on the Minimum Viable Architecture.
- Use empirical values:
 - Empirical values for the benefit of the standard are at the heart of the discussion
 - Which requirements can be best fulfilled with which solution?
- Test approaches:
 - Architectural decisions are made at the latest, reasonable moment.
- Develop solutions
 - If there are no empirical values (or corresponding standards) present, the architect has the mandate to develop new solutions together with his/her customer.



Architecture engineering requires a regulatory framework and a set of interlocking, iteratively applicable methods that are based on feedback (learning, harvesting) as shown in the chart.

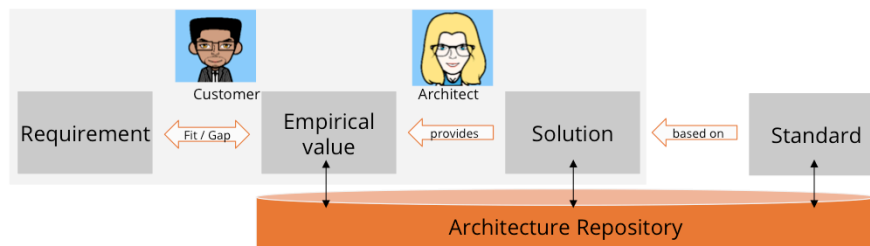
Example: Using empirical values

Empirical values take centre stage in consultation with the customer:

- Assistance in the structuring of requirements,
- Provision of empirical values for the best possible fulfilment of these requirements.
- Recommendations for approaches through comparison with existing empirical values. Approaches based on standards derived from earlier projects

The relationship between the real existing solution, the derived standard and related empirical values is represented in the Architecture Repository.

The standard thereby becomes an internal tool for the architects: the most valuable part of a standard is not its definition, but the associated empirical value.



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21

Architects that want to build solutions for tomorrow with yesterday's standards cannot find acceptance in a world that is characterized by constant change. Our handling of standards must adapt to the framework conditions of the VUCA world. This also means gathering, documenting and using various experiences (chart). Ultimately, each project provides experiences that are worth keeping. Experiences in this sense are statements regarding the degree of fulfillment of architecture-defining requirements: What level of scalability, what performance, what stability and what range of functions was created with a solution at what price, at what risk and in what time? When we ascertain architecture-defining requirements in terms of quality and functionality, deadlines, resources and risks, and then, upon completion of a project or iteration, ask ourselves, using exactly the same terms, what requirements have actually been fulfilled and to what extent, then the path is clear to actively use these empirical values.

Contents

1. Motivation
2. Mission
3. Measures
4. Summary

Recommendations for action (1)

Recommended action: **Role and mandate of the enterprise architect**

- Sustainability and stability remain important values for the enterprise architect.
- In this role, the architect must approach his/her stakeholders more proactively and thus become more of an “active enabler”.
- Strengthen communication skills with new methods.
- Focus on results as a guiding theme.

Recommended action: **Architectural Thinking**

Implement each of the following approaches in a cultural context while establishing a balance with the company's values:

- **Hold a discussion of values**
Use company values that have already been communicated to position the EAM, identify the value contribution of the EAM and determine the external perception
- **Coaching**
Support for urgent, general queries by the EAM, establishment of collective architectural skills
- **Create common images**
Development plan, Capability Maps, Roadmaps, etc.
- **Designate and prioritise your own topics (“Choose your Battles”)**

Recommendations for action (2)

Recommended action: **Business Architecture**

- Establish set of methods around the imIPO cycle and provide training
- Define and market architectural services for the imIPO cycle
- Strengthen moderation and communication skills in architecture management

Recommended action: **Architecture Engineering**

- Establish set of methods for the collection of architecturally-defining requirements and provide training. Establish short-term structural procedures, supplement heuristic procedures in the medium-term.
- Structure architecturally-defining requirements (e.g. QFRTR).
- Gather empirical values (establish harvesting). Establish referencing between empirical value, solution and standard.
- Change handling of standards: from empirical value to solution proposal (based on the standard)
- Establish the concept of Minimum Viable Architecture and the principle of the Last Responsible Moment.
- Establish set of methods for the development of solution scenarios and provide training.
- Adapt the architect's mandate where necessary: developing and testing solution scenarios are part of the assignment; harvesting and sustainable acquisition of empirical knowledge is mandatory.

Summary

<p>Motivation</p>	<p>The VUCA world influences the position and structure of IT within the company:</p> <ul style="list-style-type: none"> • The IT landscape of the future is already predominantly shaped by investments, for which the central, internal IT sector is not responsible. • The IT of Multiple Speeds is not only a reality for this reason. • The companies respond to the requirements with “agile approaches”
<p>Mission</p>	<p>The architectural management of the future is effective, structured and broadly accessible:</p> <ul style="list-style-type: none"> • It is solution-oriented, considers enabling more important than governance and is always based on customer feedback. • It provides structure and methodology for the digital transformation, stands for suitability and feasibility of solutions, identifies risks and potentials. • It anchors Architectural Thinking in the organisation, supports self-responsibility and self-organisation, works in interdisciplinary teams.
<p>Measures</p>	<ul style="list-style-type: none"> • Define self-conception and mandate of the architect in a contemporary manner. • Anchor architecture within the DNA of the company with the help of Architectural Thinking. • Develop services and methods of the Business Architecture. • Make the toolbox of Architecture Engineering generally available

EAM as a stability programme

- An ESP enables everyone, even the inexperienced driver, to get underway in a much safer, quicker and agile manner.
- Architecture helps us to find the necessary structure and orientation in the VUCA world.

“Bring security and stability to your digital transformation, use EAM as an ESP!”



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26

Architecture management of the future

We are moving at high speed into an unknown, ever-changing, complex world with an uncertain future. Brief moments of stability that provide orientation, understanding and clarity are required to keep one's feet on the ground. A stability program can help us and stability (firmitas) is already anchored in the fundamental values of the architecture. With an ESP, anyone, even an inexperienced driver, can be significantly safer, faster and more agile. Architecture helps us to find the necessary structure and orientation in the VUCA world.

Bring security and stability to your digital transformation and use EAM as your ESP!

The **Cross Business Architecture Lab** is an association of users for users.
The CBA Lab works with and for its members to develop innovative "building blocks" for digital transformation, which shape and organize the architecture. Best practices that have been tried and tested in the field are shared and further refined into leading-edge results that are reliable and ready for immediate use.
The Cross Business Architecture Lab is open to include further corporate users.
Further information can be found at www.cba-lab.de.

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