Controlling the Fitness of Your Software Architecture!

July 16, 2021

In their book "Building Evolutionary Architectures", N. Ford, R. Parsons and P. Kua introduce a new way to look at software architecture where changes to requirements become part of the business as usual. These concepts were already set in motion by Agile, DevOps and CI/CD but the authors add a refreshing concept to the mix.

How are we going to measure the suitability of our architecture compared to the every changing requirements?

The proposed solution lays in measuring how far or how close the characteristic of the current architecture are from the ideal or expected characteristics. The solution was inspired by statistical models were we want to fit a curve to a set of data points by fitting a function. An expression of the suitability of the curve's function is called the fitness of such a function.

The same concept can be applied to software architectures. Required architectural characteristics a.k.a. as the technical *-abilities can be measured by **fitness functions**. When the architecture changes the impact is measured by these fitness functions and as a result the changes become quantifiable and controllable.

An architectural fitness function provides an objective integrity assessment of some architectural characteristic. Combining the outcomes of the collection of fitness functions gives a view on the overall architecture.

Making architecture capable of evolving requires 3 things:

- An architecture that supports incremental change
- An architecture that can be measured so the changes can be guided
- An architecture with the appropriate level of coupling to allow for an optimal change process

More details on the topic can be found in:

Overview Presentation and Book SummaryDownload

Enterprise Architecture as Strategy

<u>Jul</u>y 16, 2021

Enterprise Architecture (EA) as Strategy by Ross, Weill and Robertson was written some time ago in 2006 but still has valuable insights to offer.

The book rightfully underlines that EA is not an IT problem but a business problem to solve. Hence EA as strategy since business should be in the driving seat.

Further it explains EA is based on three components:

- 1. An Operating Model
- 2. EA Maturity Model
- 3. An IT Engagement Model

The operating models are evaluated in a two-dimensional quadrant: one axis is the level of process integration (read shared data) and the other axis is the process standardization across the enterprise. This results in four flavors of operation models:

- Diversification: low standardization low integration
- Coordination: low standardization high integration
- Replication: how standardization low integration
- Unification: high standardization high integration

The EA evolution over time is expressed in four levels of maturity:

- 1. Business Silo Architecture
- 2. Standardized Technology Architecture
- 3. Optimized Core Architecture
- 4. Business Modularity Architecture

In a final chapter a fifth level of maturity is added i.e. Dynamic Venturing which can be seen as an specialization of Business Modularity Architecture

IT Engagement is detailed based on companywide IT Governance liaised with Project Management using a linking mechanism. The overall governance aims to:

- Reduce IT costs
- Increase IT responsiveness
- Reduce risk
- Increase managerial satisfaction
- Realize business outcomes

A summary presentation with some more details on the book can be found here:

Cloud Target Operating Models are a perquisite to drive Cloud Adoption!

July 16, 2021

We often see companies moving to the cloud for the sake of not losing to the competition reversing the question "technology searches problem to solve" in stead of "business problem searches technology to be supported".

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Cloud computing can be an answer to a business question and has a lot of advantageable properties if it is aligned with a digital transformation vision. Hence Business-ICT alignment is key to make this happen. So the logical steps would be:

- 1. Come with a Digital Strategy first.
- 2. Translate the strategy into an Target Operating Model (TOM) for your business.
- 3. Deduce a Cloud Strategy from the Digital Strategy
- 4. Translate the Cloud Strategy into a Cloud Target Operating Model (CTOM)

Doing some literature research and looking into the publications of Enamul Haque, I created an overview slide deck with a focus on Business-ICT alignment for cloud computing.

You can download the deck here:

Cloud Transformation and GovernanceDownload

The content first focusses on where cloud computing fits within a digital transformation. Digital transformation is driven by a customer focus and on allowing continuous business changes. Next the following questions are answered: 1. What technologies and prediction are fitting with these drivers? 2. What are key success factors and challenges of a digital transformation? Finally the reasons behind a digital strategy are discussed.

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In a second part the focus is on cloud computing. We start with the business drivers and technology drivers and next discus some benefits and challenges. In order to fit cloud as a technology within any company it must be supported by a cloud adoption framework in order to live up to its full protentional.

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The final part of the slide deck focuses on the CTOM where the adoption is initiated by a Cloud Center of Expertise (CCoE) delivering the processes for Cloud Service Management and Cloud Operations Management regulated through Cloud Governance.

Cloud Target Operating Model is based on four processes:

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- Plan: Strategy to Portfolio (S2P)
- Build: Requirement to Deploy (R2S)
- Fulfil: Request to Fulfil (release/delivery) (R2F)
- Run: Detect to Correct (R2D)

Cloud Computing and the Internal Audit Function!

July 16, 2021

Discover why organizations move to the cloud and how this can have an impact on the internal audit function.

I presented a webinar on cloud computing:

https://home.kpmg/be/en/home/insights/2020/10/adv-cloud-computing-and-its-impact-on-the-internal-audit-func tion.html

Linked to that webinar an article was published, that first defines cloud computing based on four axes:

- Service provision model
- Service access
- Service resources
- Service characteristics

Secondly, on why cloud computing is important:

- Need for more ICT flexibility
- Need to increase ICT speed
- Need to reduce ICT costs
- Need to reduce ICT risks

Next it presents benefits and risks, to conclude on the internal audit challenges:

- Definition of scope
- Dependencies on third parties
- Skills and expertise
- Access to data

You can read the article on the KPMG webiste:

https://home.kpmg/be/en/home/insights/2020/11/ta-cloud-computing-and-the-internal-audit-function.html

Summary cloud computing - the internal audit functionDownload

How to Quantify the Effects of Innovation?

July 16, 2021

An Adapted Valuation Model for Innovation! Innovation in IT Consultancy Services.

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Working in the IT Consultancy Services Industry for a bit over 20 years, innovation projects have been a major part of my job. Innovation is my passion but I often see innovation projects being approached as an art-form and not as a science. This is often due to limitations of traditional project management techniques and project valuation methods.

The drive to create a new innovation valuation model was triggered by three key questions:

- Innovation is important but can it be managed?
- Is innovation radically different compared to existing business processes?
- Does innovation require special management techniques?

During the research I first defined what innovation is, next I defined a new innovation process model and finally I created a quantification model to put a value on innovation projects.

The innovation process model is based on 5 dimensions and 4 diamonds.

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The 5 D's

- 1. Discovery
- 2. Define
- 3. Develop
- 4. Deliver
- 5. Dispose

The 4 Diamonds

- 1. Search & Source Select & Approve
- 2. Research Synthesis

- 3. Ideation Implementation
- 4. Market Introduction Market Renovation & Exit

The new model is a extension of a classic NPV model to create the Commercial Risk and Risk Adjusted NPV or CR-NPV

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New concepts that were added to the NPV model to enable innovation ROI calculations are:

- CIR = Cashflow Incurrence Risk
- COR = Cashflow Occurrence Risk
- MPR = Market Penetration Risk or Commercial Revenue Risk
- Failure Avoidance Premium
- Technology Obsolescence Correction for Opportunity Costs

In the study the concepts were put to the test in a case study and validated through peer reviews. These confirmed the usefulness of the model. All the model's concepts were considered viable and the acceptance rated from average to fully accepted.

An overview presentation of the research can be downloaded:

CR-NPV Innovation ValuationDownload Research Gate DOI