Improve the quality of your application portfolio

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Who are we?

Jochem Schulenklopper
IT Architect at Xebia for 2.5 years, IT consultant for 10+ years
Enjoys desserts, coffee and snowboarding, and shorter ideation-design-development-delivery projects. Finds opportunities to visualize things.

Gero Vermaas
IT Architect at Xebia for 12 years
Enjoys endurance sports like cycling mountains, ice skating, and longer customer assignments. The latter to benefit (or learn) from the architectural decisions he made earlier.
In today's tutorial

• We’ll alternate between theory and workshops all the time
• You’ll work with the same team in the workshops
• Earlier sessions learned that 3 p. teams is best
• One laptop per team is enough
• Break at 10:30 (for 20 min.)
• End at 12:30
Tutorial goal

At the end of this tutorial you will present an advice on how to improve the IT landscape of an insurance company

During today’s tutorial you will:
• Learn on how to judge an application portfolio
• Assess a company’s application portfolio
• Formulate advice for improving an application portfolio
Case introduction: an insurance merger

AIF (* 1963)
- Stable, large, solid reputation
- Life insurances
- Mostly B2B, ambitions for B2C
- Limited web portal, only for intermediates
- 200 employees, 40 in IT

Insured.nu (* 2009)
- Modern, growing, only online
- Non-life insurances
- Sold via intermediates and direct to end consumers
- Self-service portal
- 40 employees, 10 in IT
Case introduction: handouts (1)

More detail regarding the background of the two companies:

- History
- Merger
- Strategy, current plans
- Size of customer base
Case introduction: handouts (2)

More detail regarding the applications in the IT landscape, like:

• Supplier/ technologies / hosting / size / costs

• No. of users / user satisfaction / #feature requests / #defects / future

• SDLC / release frequency / team size / team performance
Workshop 1: Group discussion

• What would you do to assess the quality of an IT landscape; the collection of applications in a company’s portfolio?

• What are relevant aspects to focus on when assessing the quality of an IT application portfolio?
Everyone wants a landscape such as this...
... but most of us start with this
How to summarize our IT?

• A broad range of application of IT
• Developed with multiple and different sets of technology
• Dispersed knowledge of IT over multiple depts. and people
• Many suppliers, many IT-related departments
• Variety of stakeholders (both in Business and IT)
• Business and IT are strongly entwined
And business owners with IT-related ambitions

- New opportunities that require support by IT
- Renovation of current applications (that some call "legacy")
- Re-use of earlier investments and existing IT capabilities
- Need for effective... and even ’agile’ IT

”Oh, and please use your allocated budget efficiently.”
Improving an IT landscape is similar to renovating buildings
Crux of portfolio management of IT applications

Decisions related to
• What to keep?
• What to re-use?
• What to add?
• What to get rid of?
while taking business and IT strategy into account
How to decide on future IT investments

Fair judgements require:

• honest treatment of complete portfolio of applications
• correct and reliable assessment of every application
• choices that match strategy of business and IT
from a realistic starting position: the current situation
Help is on the way, just in TIME*

*) That’s right, pun intended
All models are wrong but some are useful.

- George Box
Application portfolio management model: TIME

Business Value

MIGRATE

INVEST

ELIMINATE

TOLERATE

IT Quality
Application Portfolio Management w/ TIME

• Determine the list of applications
• Determine what counts as Business Value and IT Quality
• Score all applications in your portfolio on those two axis
• Group the applications in four quadrants with decisions on the future of those applications:
  • Tolerate
  • Invest
  • Migrate
  • Eliminate
What you might expect over time...

- MIGRATE
- ELIMINATE
- INVEST
- TOLERATE

Business Value vs. IT Quality
... but honestly, this is much more common.
Workshop 2:
Assess applications in IT landscape

Assess (quantify) all applications in the IT landscape on two aspects:
• Business Value
• IT Quality

Define Business Value and IT Quality so that things can be compared.

Use PortfolioViz (https://portfolioviz.com/tutorial) to visualize the portfolio
• Give your portfolio visualization a name
• Tag this version with #1

Feedback

How did you quantify:

• Business Value?
• IT Quality?
Challenges in using TIME

• No clear (public) advise in measuring Business Value
  • Except: ”determine Business Value – think of things such as …”

• No publicly accessible instruction for determining IT Quality
  • Except: ”determine Technical Quality – take these things into account: …”

• No clear metric for Application Size / circle radius
  • There’s difference in size sizes, but no clear explanation
Even more challenges for E.T.

This and previous photo: Sony Centre for the Performing Arts, Inc.

E.T. The Extra-Terrestrial is a trademark and copyright of Universal Studios.
Other portfolio management challenges

• How to assess whole portfolio correct and fair?

• Or in other words, which metrics are valid for all?
  • Business Value: regardless history, investments, previous use, expected future
  • IT Quality: regardless technology, construction, architecture, supplier, fit-for-future

• How to make wise decisions on the portfolio, and really execute them?
Other portfolio management requirements

Portfolio management should be linked to business and IT strategy
• Why are you doing application portfolio management?
• What’s the reason, and what are the current goals?

Portfolio management is a continuous responsibility

So, you want to ‘measure’ your portfolio recurringly and ...
quickly – preferable in days, not weeks or months
cheaply – possible without too much (external consultancy) hours
overall – done for the whole portfolio
not too detailed – measuring value and quality isn’t science
All models are wrong, but still, some are slightly better..

- @gerove,
  @jschulenklopper
Some adjustments to the TIME model

1. Simple process for determining Business Value
2. Modern metric for IT Quality
3. Explanation for Application Size

plus...
4. Better terms for decisions about applications
5. Some broad directions on how to improve your portfolio
6. Make it quick, cheap, broad, generic... so worthwhile to do regularly
0. Portfolio management starts with strategy

Goal of portfolio management depends on situation, goals and plans

- Follow-up on merger ← *today’s case*
- Pursue new market, develop new service
- Seek cost savings
- Prepare for company sale
- Anticipate declining market
1. Determining *Business Value*

Biggest challenges:

• What is our interpretation of "value for business"?

• How to get consensus over *Business Value* over many applications, many stakeholders, many stakes?

• How to balance current situation, strategy and future (value)?
<table>
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<th>Application</th>
<th>Start</th>
<th>Hand in</th>
<th>Claim</th>
<th>Distribute</th>
<th>End score</th>
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<td>***+</td>
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<td>0</td>
<td>8</td>
<td>(8)</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
A process for "ranking applications"

• Make a list of the applications in your portfolio
• Award three ‘stars’ to all applications
• Application business owners hand in (!) stars
  + express need / claim for more starts
• Collected stars are being distributed over claims
• Iron out the last wrinkles (unmatched stars, unmet claims)
2. Determining *IT Quality*

Challenges (since applications are measured on same scale):

- one metric that holds for all types of applications
  - developed in-house, or by external supplier
  - standard solution, but with custom-made adaptations
  - Commercial of the Shelf (COTS) solution
  - some Software-as-a-Service solution
- a metric that is determined reasonably easy and quick
Quality in an agile IT landscape

Speed* with which an organization can transform
- new feature requests
- changes requirements
- bug fixes
from "idea" (or: agreed upon) to "live in production"

Quality ≈ low Time-to-Market

*) or energy or costs
$1/\Delta t_{\text{change}}$ as metric for IT Quality

+ Reasonable easy and quick to determine
+ Valid for all (types of) applications
+ Interpretation is similar across whole portfolio
+ It’s technology-neutral

plus

+ It includes organization, team, process and context
+ Accounts for speed and decisiveness, lack of "waste" in processes
+ It’s a modern metric, fitting an era in with businesses strive for agility
3. Determine Application Size

Crux: size of circle as indicator of *effort* required to improve application

Examples:
- size code base or database, # FP’s
- number of integrations, external interfaces
- hours / costs (already invested, budget)
- size of user group, development team
4. Better terms for portfolio decisions

<table>
<thead>
<tr>
<th>Tolerate</th>
<th>Accept</th>
<th>[more positive, respectful term]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invest</td>
<td>Maintain</td>
<td>[investing isn’t certain yet]</td>
</tr>
<tr>
<td>Migrate</td>
<td>Improve</td>
<td>[improving could be more efficient than migrating to alternative]</td>
</tr>
<tr>
<td>Eliminate</td>
<td>Phase-out</td>
<td>[suggests phased, gradual approach]</td>
</tr>
</tbody>
</table>
Workshop 3: Quantify Business Value and IT Quality

For each application in the IT landscape, quantify:
• Business Value
• IT Quality
• Application size
using the methods explained earlier

Again, visualize the portfolio in PortfolioViz
• Tag with #2

Feedback

Think about this:

• Have you been able to assign Business Value and IT Quality values?

• What metric did you use for application size?
Three classes of portfolio improvements
Improving (applications in) a portfolio

• Increase *Business Value*
  • more efficient / effective use of existing IT, leveraging IT quality
  • ’digital transformation’ of business through IT

• Improve *IT Quality*
  • improve quality while keeping functionality
  • ’renovation’ of applications

• Reduce *Application Size*
  • divide application in more, but smaller parts
  • not a direct improvement, but it’s a preparation for more efficient and effective future improvements
  • business-originating argument for ’refactoring monolith’ into smaller services
5. Improving IT Quality

If

\[ \text{quality} = \frac{1}{\Delta t_{\text{change}}} \]

then

\[ \text{higher quality} = \text{lower } \Delta t_{\text{change}} \]
What influences $\Delta t_{\text{change}}$?
What influences $\Delta t_{\text{change}}$?

Technology of application:
- Software architecture
- Application platform
- Software code
- Infrastructure
- Documentation
... but there’s much more that takes time
... but there’s much more contributing to time

- Organization / processes around determining requirements
  - Indecisiveness, tardiness, complexity
- Processes of IT analysis and design
  - Capacity, analysis paralysis, domain knowledge, interdependencies
- Processes and support of IT development
  - Velocity of coding – testing – deployments – release
- Knowledge, skills, capabilities, motivation of teams
Determine the steps that take most time*…

Make Value Stream Map from "idea" to "production"

Lead time* is determined by
- organization, teams, people
- processes
- architecture
- software
- infrastructure
- documentation
- …
... and advice on improvements after analysis

a. Where’s the biggest factor of lead time?
b. Where can the biggest gain be found?
c. How can that gain be realized ’most easy / cheaply’?

Especially so for applications with
• High Business Value
• Inappropriately low IT Quality
and where the proposed changes match business and IT strategy
Workshop 4: Improve application portfolio

What approach would you apply for which applications:
• Increase *Business Value*, or
• Improve *IT Quality*, or
• Reduce *Application Size*

Illustrate the new portfolio with on flip-over sheet
• Mention improvement projects
• Be ready to present it to the group
Example flipover sheet (template)

Improvements:

a) ...
   ...

b) ...
   ...

c) ...
   ...

Business Value

IT Quality
Present your advice (3 minutes) per group

How should the insurance company improve its IT landscape?
• Where and how can Business Value be increased?
• Where and how can IT Quality be improved?
• Which applications should be decomposed?
• And in what sequence should this be done?

Important: link improvements to business strategy and IT strategy
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