Abstract

This module addresses the presentation of architectural issues to higher management teams.
Abstract

This document explains how simple financial estimates can be made by system architects. These simplistic estimates are useful for an architect to perform sanity checks on proposals and to obtain understanding of the financial impact of proposals. Note that architects will never have full fledged financial controller know how and skills. These estimates are zero order models, but real business decisions will have to be founded on more substantial financial proposals.
Product Margin = Sales Price - Cost

Margin per product. The margin over the sales volume, must cover the fixed costs, and generate profit.

cost price

Cost per product, excluding fixed costs

material

labour

miscellaneous

margin

retailer margin and costs

street price

sales price

purchase price of components may cover development cost of supplier

transportation, insurance, royalties per product, ...

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January 19, 2015
SFCmargin
Profit as function of sales volume

- \$ income
- \$ expenses
- \$ fixed costs
- \$ variable
- break even point
- sales volume in units
- expected sales volume

Simplistic Financial Computations for System Architects.
Gerrit Muller
version: 1.3
January 19, 2015
SFCprofitAndSalesVolume
<table>
<thead>
<tr>
<th>Investments, more than R&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>financing</td>
</tr>
<tr>
<td>marketing, sales</td>
</tr>
<tr>
<td>training sales&amp;service</td>
</tr>
<tr>
<td>NRE: outsourcing, royalties</td>
</tr>
<tr>
<td>research and development</td>
</tr>
</tbody>
</table>

- **business dependent**: pharmaceutics industry sales cost >> R&D cost
- **strategic choice**: NRE or per product
  - including: staff, training, tools, housing materials, prototypes overhead certification
  - often a standard staffing rate is used that covers most costs above:
    - R&D investment = Effort * rate
Income, more than product sales only

\[
\sum_{\text{services}} \text{income}_{\text{service}}
\]

\[
\sum_{\text{options}} \text{sales price}_{\text{option}} \cdot \text{volume}_{\text{option}}
\]

\[
\text{sales price}_{\text{product}} \cdot \text{volume}_{\text{product}}
\]
The Time Dimension

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>investments</td>
<td>100k$</td>
<td>400k$</td>
<td>500k$</td>
<td>100k$</td>
<td>100k$</td>
<td>60k$</td>
<td>20k$</td>
</tr>
<tr>
<td>sales volume (units)</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>material &amp; labour costs</td>
<td>-</td>
<td>-</td>
<td>40k$</td>
<td>200k$</td>
<td>400k$</td>
<td>600k$</td>
<td>600k$</td>
</tr>
<tr>
<td>income</td>
<td>-</td>
<td>-</td>
<td>100k$</td>
<td>500k$</td>
<td>1000k$</td>
<td>1500k$</td>
<td>1500k$</td>
</tr>
<tr>
<td>quarter profit (loss)</td>
<td>(100k$)</td>
<td>(400k$)</td>
<td>(440k$)</td>
<td>200k$</td>
<td>500k$</td>
<td>840k$</td>
<td>880k$</td>
</tr>
<tr>
<td>cumulative profit</td>
<td>(100k$)</td>
<td>(500k$)</td>
<td>(940k$)</td>
<td>(740k$)</td>
<td>(240k$)</td>
<td>600k$</td>
<td>1480k$</td>
</tr>
</tbody>
</table>

* cost price / unit = 20k$
* sales price / unit = 50k$

variable cost = sales volume * cost price / unit
income = sales volume * sales price / unit
quarter profit = income - (investments + variable costs)
The “Hockey” Stick

Simplistic Financial Computations for System Architects.

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SFHockeyStick
What if ...?

- Profit: $1M$
- Loss: $-0.5M$
- Time: Delay of 3 months

Early more expensive product + follow-on.

Delay of 3 months.

Original model.
Stacking Multiple Developments

The graph illustrates the cumulative financial computations over time for four different developments. Each line represents a different cumulative total, with the cumulative total line showing the sum of all previous cumulative totals.

- **Cumulative 1**
- **Cumulative 2**
- **Cumulative 3**
- **Cumulative 4**
- **Cumulative Total**

The y-axis represents the financial computations in million €, and the x-axis represents the quarters from 1 to 14. The graph shows how the financial computations grow over time for each development, with the cumulative total line showing the overall progression.
Fashionable financial yardsticks

Return On Investments (ROI)

Net Present Value

Return On Net Assets (RONA) leasing reduces assets, improves RONA

turnover / fte outsourcing reduces headcount, improves this ratio

market ranking (share, growth) "only numbers 1, 2 and 3 will be profitable"

R&D investment / sales in high tech segments 10% or more

cash-flow fast growing companies combine profits with negative cash-flow, risk of bankruptcy
How to present architecture issues to higher management

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Abstract

Architects struggle with their visibility at higher management echelons. The introvert nature of architects is a severe handicap. Participation of architects in management teams is important for balanced technical sound decisions and strategy. Improved managerial communication skills of architects are required. This article describes how to give a more effective presentation to higher management teams. Subjects discussed are the preparation, content and form, do and don’t advise.

Distribution

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How to present architecture issues to higher management

version: 0.1
January 19, 2015

AMI introduction
Characteristics of managers in higher management teams

**common characteristics**

+ action-oriented
+ solution rather than problem
+ impatient, busy
+ want facts not beliefs
+ operate in a political context
+ bottom-line oriented: profit, return on investment, market share, etc.

**highly variable characteristics**

? technology knowledge from extensive to shallow
? style from power play to inspirational leadership
How to prepare

Always prepare with small team!

content  mutual interaction  understand audience

+ gather facts
+ perform analysis
+ identify goal and message
+ make presentation
+ polish presentation form

70% of effort

30% of effort

+ gather audience background
+ analysis audience interests
+ identify expected responses
+ simulate audience, exercise presentation

How to present architecture issues to higher management

version: 0.1
January 19, 2015
AMIpreparation
Recommended content

- clear problem statement (what, why)
- solution exploration (how)
- options, recommendations
- expected actions or decisions

supported by facts and figures
mention the red information only
Form is important

poor form can easily distract from purpose and content

presentation material
+ professional
+ moderate use of color and animations
+ readable
+ use demos and show artifacts

presenter's appearance
+ well dressed
+ self confident but open

but stay yourself, stay authentic
Don’t force your opinion, understand the audience

**do not**

- preach beliefs
- underestimate technology knowledge of managers
- tell them what they did wrong
- oversell

**do**

+ quantify, show figures and facts
+ create faith in your knowledge
+ focus on objectives
+ manage expectations
**How to cope with managerial dominance**

**do not**
- let one of the managers hijack the meeting
- build up tensions by withholding facts or solutions
- be lost or panic at unexpected inputs or alternatives

**do**
+ maintain the lead
+ be to the point and direct
+ acknowledge input, indicate consequences (facts based)
Exercise presentation to higher management

+ Bring a clear architecture message to
+ a Management team at least 2 hierarchical levels higher
+ with 10 minutes for presentation including discussion
  (no limitation on number of slides)

* architecture message =
  technology options in relation with market/product

* address the concerns of the management stakeholders:
  translation required from technology issues into
  business consequences (months, fte's, turnover, profit, investments)
Exercise schedule

- 13:30: Prepare in team of 4
- 14:00: Present and discuss
- 15:00: Feedback
- 16:00: Prepare in team of 4
- 17:00: Present and discuss

How to present architecture issues to higher management

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January 19, 2015
AMIexerciseSchedule
Simplistic Financial Computations

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development cost of supplier

Margin per product

Profit as function of sales volume

Hockey stick and scenarios

early more expensive product + follow-on
delay of 3 months
original model
Managerial Viewpoints

Prepare Content, Understand Audience

Always prepare with small team!

content
- gather facts
- perform analysis
- identify goal and message
- make presentation
- polish presentation

understand audience
- gather audience background
- perform analysis
- identify expected responses
- simulate audience, exercise presentation

Prepare Content, Understand Audience

content
- gather facts
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understand audience
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- identify expected responses
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Show underlying info

Presentation to Management

Form, do and do not

poor form can easily distract from purpose and content

presentation material
- professional
- moderate use of color and animations
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presenter's appearance
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