Communicating via CAFCR; illustrated by security example

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Abstract

One of the main bottlenecks of developing complex products is communication between the many involved stakeholders. The "CAFCR" model is explained as one of the means to help communicating. The views of the "CAFCR" model are integrated amongst others by many qualities. This is illustrated by means of a mobile infotainment product and zooming in on the quality security.

The bilateral communication is analyzed and the importance of interaction for fruitful communication is explained

Distribution

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Example product: mobile infotainment

users

infotainment appliance
watch video
browse photo's
calendar
and much more...

Home Server  Network Providers  Service Providers  Content Providers

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CVCproductChain
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Stakeholders and concerns

- operators
- economics
- accessibility
- reliability
- infrastructure
- maintenance
- crew
- consumers
- content providers
- network providers
- content creators
- infrastructure
- maintenance crew
- retailers
- logistics
- management
- government
- operators
- economics
- accessibility
- reliability
- entertainment
- ease of use
- privacy
- culture
- preservation
- liability
- maximizing use
- pay for use
- security
- stakeholders

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Internal stakeholders

- **customer**
  - (purchaser, decision maker, user, operator, maintainer,..)

- **company**

  - **policy and planning**
    - (business, marketing, operational managers)

  - **customer oriented process**
    - (sales, service, production, logistics)

  - **PCP**
    - (project leader, product manager, engineers, suppliers)

  - **people and technology management process**
    - (capability managers, technology suppliers)

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The “CAFCR” model

- **Customer What**: Customer objectives
- **Customer How**: Application
- **Product What**: Functional
- **Product How**: Conceptual
- **Realization**: Realization

**What** does Customer need in Product and **Why**?

- Drives, justifies, needs
- Enables, supports

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CAFCRannotated
Integrating CAFCR

**What** does Customer need in Product and **Why**?

Customer **What**
- Customer objectives

Customer **How**
- Application

Product **What**
- Functional

Product **How**
- Conceptual

Realization
- Objective driven
- Knowledge based
- Constraint awareness
- Opportunities
- Intention
- Context understanding

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MSintegratingCAFCR
The abstracted customer

Who is the customer?

- CFO
- CIO
- CMO
- CEO
- CTO
- Purchaser
- Department head
- User
- Maintainer
- Operator
- Chain of retailers
- Content provider
- Network provider
- System integrator

CEO: Chief Executive Officer
CFO: Chief Financial Officer
CIO: Chief Information Officer
CMO: Chief Marketing Officer
CTO: Chief Technology Officer

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CVCwhoIsTheCustomer
Quality needles as generic integrating concepts

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QNneedles
Security as example through all views

<table>
<thead>
<tr>
<th>Customer objectives</th>
<th>Application</th>
<th>Functional</th>
<th>Conceptual</th>
<th>Realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>sensitive information</td>
<td>selection, classification, people information, authentication badges, passwords, locks / walls, guards, administrators</td>
<td>functions for administration, authentication, intrusion detection, logging, quantification</td>
<td>cryptography, firewall, security zones, authentication, registry, logging</td>
<td>specific algorithms, interfaces, libraries, servers, storage protocols</td>
</tr>
</tbody>
</table>

desired characteristics, specifications & mechanisms

| not trusted | social contacts, open passwords, blackmail, burglary, fraud, unworkable procedures | missing functionality, wrong quantification | holes between concepts | bugs (buffer overflow, non encrypted storage, poor exception handling) |

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QNsecurityExample
Role of the views

Customer objectives
Application
Functional
Conceptual
Realisation

right decisions
context
understanding
insight

right questions
process
and design
competence

sensitive
information

selection
classification

functions for
quantification

cryptography
firewall
security zones

cryptography
firewall
security zones

specific
algorithms
interfaces
libraries

servers

selection
classification

functions for
quantification

not trusted

not trusted

not trusted

social contacts
open passwords
blackmail
burglary
fraud
unworkable procedures

missing
functionality

wrong
quantification

missing
functionality

wrong
quantification

bugs
buffer overflow
non encrypted
storage
poor exception
handling

right decisions
context
understanding
insight

right questions
process
and design
competence

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QNsecurityExampleAnnotated
Active listening: the art of the receiver to decode the message

from: "Listening and communicating" by Lia Charité, www.liacharite.nl
Intense interaction needed for mutual understanding

to calibrate:
repeat many times with different examples, illustrations, and explanations

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CVCcodingCalibration
Mutual understanding as function of time

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Story telling method

What does Customer need in Product and Why?

Customer
What

Customer
How

Product
What

Product
How

Customer objectives

Application

Functional

Conceptual

Realization

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SHTfromStoryToDesign
## How do these stakeholders communicate?

<table>
<thead>
<tr>
<th>stakeholder</th>
<th>primary thought</th>
<th>threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>consumer</td>
<td>privacy</td>
<td>kill usability</td>
</tr>
<tr>
<td>content provider</td>
<td>DRM, consumer == pirate</td>
<td>kill usability</td>
</tr>
<tr>
<td>chief financial officer</td>
<td>how to stay in control</td>
<td>kill usability</td>
</tr>
<tr>
<td>operational manager</td>
<td>result in time, accessibility</td>
<td>security</td>
</tr>
<tr>
<td>web engineer</td>
<td>PHP only supports alphanumerical password</td>
<td>poor password protection</td>
</tr>
<tr>
<td>crypto engineer</td>
<td>128 bit keys</td>
<td>no attention for key handling process</td>
</tr>
</tbody>
</table>
What does Customer need in Product and Why?

Customer
What

Customer
How

Product
What

Product
How

Customer objectives

Application

Functional

Conceptual

Realization

CAFCR, as shared reference, enables:
+ Positioning of concerns, problems and solutions
+ Checklists per view
+ Reasoning top down and bottom up

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CVCsummary