Developing a Framework for Managing Change Requests through Stand-Alone Workflows

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Agenda

1. Motivation
2. Approach
3. Basic Principles
4. Framework Development
5. Pratical Example
6. Evaluation & Conclusion
1. Motivation

- Personal experience in workflow management
- Experienced lack of proper change request management for small IT projects

→ Model CRM through workflows for small software projects with strong customer focus

Partner:
- Robert Bosch Singapore
- Product Manager Workflow Management
- WorkON – 200,000 users, 300 applications
2. Approach

Change request management including traditional & agile approaches
Workflow management

Development of a framework to handle change request management through workflows

Evaluate the framework through its application on a sample project
### 3. Basic Principles

Change Request Management – Reasons for Change Requests

<table>
<thead>
<tr>
<th>Dependent for Requirements Engineering</th>
<th>Independent from Requirements Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Implementation Problems</td>
<td>• Costs / Budget</td>
</tr>
<tr>
<td>• Incorrect Requirements</td>
<td>• Scheduling</td>
</tr>
<tr>
<td>• Ambiguous Requirements</td>
<td>• Strategy (Marketing / Sales)</td>
</tr>
<tr>
<td></td>
<td>• Technical Changes</td>
</tr>
<tr>
<td></td>
<td>• Changes in Business Environment</td>
</tr>
<tr>
<td></td>
<td>• Changes in Laws / Governmental Regulations</td>
</tr>
<tr>
<td></td>
<td>• New Requirements concerning Security</td>
</tr>
</tbody>
</table>
3. Basic Principles

Change Request Management – Change Request Form

<table>
<thead>
<tr>
<th>Change request number:</th>
<th>Request date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requestor name:</td>
<td>Request status</td>
</tr>
<tr>
<td></td>
<td>Accepted date:</td>
</tr>
<tr>
<td></td>
<td>Rejected date:</td>
</tr>
<tr>
<td>Requestor priority:</td>
<td>Processing start date:</td>
</tr>
<tr>
<td>high medium low</td>
<td>Completion date:</td>
</tr>
</tbody>
</table>

Brief change request description:

Areas impacted by the change request:

Estimated effort:  

Inclusion in:

**Traditional vs. Agile**

As a <role>,
I can <activity>,
So that <business value>

3. Basic Principles

Change Request Management – Process

Source: Vliet (2008)
3. Basic Principles

Workflow Management – Characteristics of a Workflow

1. Task-Based
2. Follow a certain order
3. Clear beginning / ending
4. Defined resources
5. Case-Based
6. Make-to-Order
3. Basic Principles

Workflow Management – Workflow Types

Source: Allen (no date), Müller (2005), Zur Mühlen & Hansmann (2005), Mentzas et al. (2001)
3. Basic Principles

Reasons for Change Request Management through Stand-Alone Workflows

The process of change request management is...

- Task-based
- Follow a certain order
- Case-based
- Make-to-order

Partly:
- Clear beginning /ending
- Defined resources
4. Framework Development

Change Request Form

<table>
<thead>
<tr>
<th>Change request no.:</th>
<th>Request date:</th>
</tr>
</thead>
</table>

**As a __________________ I want ____________________________ so that __________________**

**Impact:**

**Effort:**

**Resources:**

**Risk:**

**Evaluation Score:**

**Release:**

**Acceptance Criteria:**

**Acceptance given?**

**Acceptance Date:**

Source: Own figure
4. Framework Development

Change Request Process

- New CR
- Clearing
- Enrichment
- Evaluation
- Consolidation
- Implementation
- Testing
- Acceptance
- Customer
- Product Manager
- Developer

Accepted → Rejected
5. Practical Example

The WorkON Project at Robert Bosch Singapore

- 700 employees at Singapore site
- IT center and provision of Bosch-wide IT operations and services
- Stand-alone approval workflows
- ~ 200,000 users
- Migration of existing applications as well as development of new ones
- Great number of CR’s
- Different approaches for CRM, currently through inside.Track & Release

Source: Own figure
5. Practical Example

Change Request Management for WorkON

- Inside.Track & Release matches categorization of CRM as workflow
- High configuration effort
- Additional costs

Source: Own figure
5. Practical Example

Change Request Management for WorkON

Six Gaps

1. Missing CR ranking
2. Missing information
3. Classification of changes
4. Project does not follow CR-process
5. Tool does not support every process step
6. Tool is not self-explaining / easy-to-use
5. Practical Example

Change Request Management for WorkON – Tool Setup

Excel file

Sheet „CR-List“
Sheet „Release planning“
Sheet „Master data“

Presentation & Data layer

Module A
Module C
Userform A

Module B
Module D
Userform B

Business Logic

Source: Own figure
5. Practical Example

Change Request Management for WorkON – Assignment of New Tasks

Source: Own figure
5. Practical Example

Change Request Management for WorkON – New Project Schedule

<table>
<thead>
<tr>
<th>Activity</th>
<th>11-25</th>
<th>12-30</th>
<th>02-03</th>
<th>03-10</th>
<th>04-14</th>
<th>05-19</th>
<th>06-23</th>
<th>07-28</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Submit CR's</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Clear CR's</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>3 Evaluation &amp;</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consolidation</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>16 Release Q1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>17 Freeze Q1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Implementation Q1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Testing Q1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>20 Acceptance Q2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>21 Go Live Q1</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>22 Stabilization Q1</td>
<td></td>
<td></td>
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<tr>
<td>23 Release Q2</td>
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<tr>
<td>30 Release Q3</td>
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<td></td>
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<tr>
<td>34 Acceptance Q3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>35 Go Live Q3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 Stabilization Q3</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
6. Evaluation & Conclusion

Benefits

1. Tool supports process
2. Easier decision-making
3. Ranking available
4. Improved reporting
5. Reduced processing time
6. Less user administration
7. Reduced costs
8. Better process documentation
9. Less familiarization time

Six Gaps

1. Missing CR ranking
2. Missing information
3. Classification of changes
4. Project does not follow CR-process
5. Tool does not support every process step
6. Tool is not self-explaining / easy-to-use
6. Evaluation & Conclusion

- Framework proved applicableness

- Two additional use cases
  - Requirements Engineering
  - Bug-Fixing

- In future, implementation through different tool?
Thank you! Any Questions?
Back Up
New Change Request

### Change Request No. 10

<table>
<thead>
<tr>
<th>Role</th>
<th>Activity</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>process owner of the WorkON masterdata request</td>
<td>transfer new vendor masterdata directly to SAP ERP</td>
<td>I don’t have to copy+paste; no mistakes possible, saves time</td>
</tr>
</tbody>
</table>

**As**
- process owner of the WorkON masterdata request

**I want to**
- transfer new vendor masterdata directly to SAP ERP

**so that**
- I don’t have to copy+paste; no mistakes possible, saves time
Decline Request

<table>
<thead>
<tr>
<th>Date</th>
<th>Evaluation Score</th>
<th>Role</th>
<th>Activity</th>
<th>Impact</th>
<th>Effort</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-01-08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14-01-08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14-01-08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14-01-08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14-01-08</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>14-01-08</td>
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</tr>
<tr>
<td>14-01-08</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>14-01-08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Feedback

Please explain why change request is declined

CR's requires too much implementation: calendar, team
Excel Tool

Enrichment

User Story

As process owner of the WorkON masterdata
I want to transfer new vendor masterdata directly to
so that mistakes possibly, saves time
Role
Activity
Benefit

Estimation

Impact
Profile
Archive
Project-Specific

Effort
< 2
2 to 5
6 to 10

Resources

Risk

Acceptance Criteria

Add Acceptance Criteria

Save Changes
Start Evaluation

Microsoft Excel

Please enter a value for the following mandatory fields: Impact; Effort; Resources; Risk

OK
Excel Tool

Evaluation

Enter Evaluation Score

23

Warning

Score is less than minimum value.
Minimum Score: 40

Continue with this score
Enter a new score
## Release / Release Planning

<table>
<thead>
<tr>
<th></th>
<th>Release</th>
<th>Release date</th>
<th>Freeze date</th>
<th>Capacity in MD</th>
<th>Remaining Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13-4</td>
<td>20-11-13</td>
<td>20-9-13</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>2</td>
<td>14-1</td>
<td>20-2-14</td>
<td>20-12-13</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>3</td>
<td>14-2</td>
<td>20-5-14</td>
<td>20-3-14</td>
<td>67</td>
<td>67</td>
</tr>
<tr>
<td>4</td>
<td>14-3</td>
<td>20-8-14</td>
<td>20-6-14</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>14-4</td>
<td>20-11-14</td>
<td>20-9-14</td>
<td>53</td>
<td>53</td>
</tr>
</tbody>
</table>

![Excel Tool](image)

Add to release dialog:

Choose a release for CR-7

- 13-4
- 14-1
- 14-2
- 14-3

Add to this release | Cancel
## Master Data

<table>
<thead>
<tr>
<th>A Variable</th>
<th>B Value (one value per cell)</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Impact</td>
<td>Profile</td>
<td>Archive</td>
<td>Project-Specific</td>
<td>Platform</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Effort</td>
<td>&lt; 2</td>
<td>2 to 5</td>
<td>6 to 10</td>
<td>&gt; 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Product manager</td>
<td>ahoi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Column Names</td>
<td>Nummer</td>
<td>Type</td>
<td>CreationDate</td>
<td>Submitter</td>
<td>Status</td>
<td>LastChange</td>
</tr>
<tr>
<td>6 Notification New CR</td>
<td>New Change Request</td>
<td>Dear all, there has been a new change request added. Please see corresponding excel file</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Notification declined</td>
<td>Change Request</td>
<td>Dear Customer, the following change request has been declined</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Notification send back</td>
<td>Please review</td>
<td>Dear Customer, please review the following change request</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Notification Release</td>
<td>will be included in</td>
<td>The following change request will be included in release</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Status</td>
<td>New CR</td>
<td>Clearing</td>
<td>Enrichment</td>
<td>Evaluation</td>
<td>Consolidation</td>
<td>Ready for implement</td>
</tr>
<tr>
<td>11 Minimum Evaluation Score</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Maximum Evaluation Score</td>
<td>140</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Resolution</td>
<td>Declined</td>
<td>Declined &gt; Roll b</td>
<td>Accepted &gt; Implemented</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Notification Test</td>
<td>Your change request is ready for testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Notification resubmit</td>
<td>Change Request</td>
<td>The following change request has been reviewed by the submitter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Notification roll back</td>
<td>Change Request</td>
<td>The following change request has been rolled back</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CR-List

<table>
<thead>
<tr>
<th>Nummer</th>
<th>CreationDate</th>
<th>State</th>
<th>Status</th>
<th>LastChange</th>
<th>Role</th>
<th>Activity</th>
<th>Benefit</th>
<th>Impact</th>
<th>Effort</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR-1</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Enrichment</td>
<td>2014-01-08</td>
<td>requestor</td>
<td>more than 5 attachments at a time</td>
<td>I can save time</td>
<td>Platform;</td>
<td>&gt; 6;</td>
<td>platform developers</td>
</tr>
<tr>
<td>CR-2</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Clearing</td>
<td>2014-01-08</td>
<td>user</td>
<td>application from one central point</td>
<td>I don't have to open a search per application</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR-3</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Clearing</td>
<td>2014-01-08</td>
<td>user</td>
<td>have a mouse-over help on certain fields</td>
<td>It is easier to fill out the form</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR-4</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Enrichment</td>
<td>2014-01-08</td>
<td>process owner</td>
<td>change drop down entries</td>
<td>the application can stay up to date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR-5</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Clearing</td>
<td>2014-01-08</td>
<td>supervisor</td>
<td>absence request incl every team members holiday</td>
<td>I can see if I can approve a request holiday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR-6</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Consolidation</td>
<td>2014-01-08</td>
<td>process manager of the internal order form</td>
<td>restrict access to the application</td>
<td>only people from FIN can raise requests</td>
<td>Profile;</td>
<td>2 to 5</td>
<td>java developer</td>
</tr>
<tr>
<td>CR-7</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Implemented</td>
<td>2014-01-08</td>
<td>process manager of the internal order form</td>
<td>restrict access to the application</td>
<td>only people from FIN can raise requests</td>
<td>Profile;</td>
<td>4</td>
<td>java developer</td>
</tr>
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<td>CR-8</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Enrichment</td>
<td>2014-01-08</td>
<td>approver</td>
<td>send the request back to applicant for a review</td>
<td>start the workflow again from 1st position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR-9</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Clearing</td>
<td>2014-01-08</td>
<td>applicant</td>
<td>to raise the priority of a request</td>
<td>approve score urgency of my request and process is faster</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR-10</td>
<td>2014-01-08</td>
<td>ahoi</td>
<td>Consolidation</td>
<td>2014-01-08</td>
<td>process owner of the WorkON masterdata request</td>
<td>transfer new vendor masterdata directly to SAP ERP</td>
<td>copy-paste; no mistakes possible, saves time</td>
<td>Project-Specific;</td>
<td>6 to 10</td>
<td>WorkON vendor</td>
</tr>
</tbody>
</table>