Introducing the Scrum Framework as part of the Development Strategy for the Alba Control System

Guifrè Cuní, Fulvio Becheri, David Fernández-Carreiras, Zbigniew Reszela, Sergi Rubio-Manrique

(Alba Synchrotron, Spain)
3rd gen. Synchrotron Light Facility Located in Spain

Commissioned 2012, 7BLs, phase-II (2 construction)
Introducing the Scrum Framework

ICALEPCS2015 - Melbourne
October 19th, 2015
Introducing the Scrum Framework…

SW development during Construction and Installation

- Controls group size progressively growing (up to 16 people)
- Projects for accelerators, beamlines and labs
- Projects for transversal subsystems
- Wide range of disciplines
- Common tools, and technologies
- Internal libraries and frameworks
- International Collaborations

- Single-developer projects
- Single support group showed important competitive advantages
- Fit activities based on critical path of the whole installation
SW development during Early Operation

- Appears service demand
  - RT system with service, unit, priority
- Maintenance days and shutdown
  - Deploy and commission activities in very restrictive time slots
  - Associated tasks gain priority over new developments
- Bugs and defects, new requests, changes
  - Each developer becomes Service Owner
  - Deep knowledge can not be spread
Controls Contacts – RT’s Units

Introducing the Scrum Framework...

ICALEPCS2015 - Melbourne
October 19th, 2015

RT-UNITS by Controls Contact
Spreading the knowledge

- Single developer approach:
  - bottlenecks
  - conflict of priorities (stress)
  - Stuck in his/her own projects
- What if a developer leaves?
- Newcomer learning curve
- 24/7 support requires transfer of knowledge
- Regular meetings to share new functionalities
- Team knows highlights but not insights
- Brainstorming sessions
Introducing the Scrum Framework…
Introducing the Scrum Framework...

Images from: “Essential Scrum” by Kenneth S. Rubin
Introducing the Scrum Framework…

The Scrum Team

Product owner

Scrum team

Development team

ScrumMaster
Introducing the Scrum Framework...
(MOD3O04)
Embracing Scrum

• End 2013: Three individual projects required internal boost
• Begin 2014: Exercice to evaluate if Scrum would help in organization, execution and coordination activities

• Benefits detected:
  – enforced communication
  – implicit collaboration tasks
  – Teams’ discussions lead to better designs
  – Incremental and interative approach mitigated the cost of change

• Some recommendations:
  – Team size of 4-6 members
  – Two-week sprint length seems good choice
  – 60% in development, 40% in support
Creating the Scrum Teams

- Incrementally change the group organization
- Scrum Master and Product Owner roles assigned first: sharing common vision
- Customers informed about the change
- Mid-2014 beamline controls
- Few sprints later, generic software developments
- End-2014 transversal protection systems
- Beginning-2015 accelerator developments
Introducing the Scrum Framework…

MOD3O04

ICALEPCS2015 - Melbourne

October 19th, 2015

<table>
<thead>
<tr>
<th>Sprint</th>
<th>Tools</th>
<th>State</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprint 23</td>
<td>Release 1</td>
<td>Completed</td>
<td>2013-08-11</td>
<td>Improve the release process to be faster and more efficient.</td>
</tr>
<tr>
<td></td>
<td>Release 2</td>
<td>In progress</td>
<td>2013-08-11</td>
<td>Implement new features in the existing tool.</td>
</tr>
<tr>
<td></td>
<td>Release 3</td>
<td>Completed</td>
<td>2013-08-11</td>
<td>Test and validate the new features.</td>
</tr>
<tr>
<td></td>
<td>Release 4</td>
<td>In progress</td>
<td>2013-08-11</td>
<td>Continue working on the existing tool.</td>
</tr>
<tr>
<td></td>
<td>Release 5</td>
<td>Planned</td>
<td>2013-08-11</td>
<td>Plan the next release.</td>
</tr>
</tbody>
</table>

| Sprint 34 | Product Planning | In progress | 2015-09-20 | Plan the next sprint's tasks. |
|           |                  |             | 2015-09-20 | Review and update the product backlog. |
|           |                  |             | 2015-09-20 | Assign tasks to team members. |

| Sprint 4 |                    | In progress | 2014-07-11 | Work on integrating new features into the existing tool. |
|          |                    |             | 2014-07-11 | Test and validate the new features. |
|          |                    |             | 2014-07-11 | Plan the next sprint. |

| Sprint 5 |                    | Completed | 2014-07-11 | Improve the release process to be faster and more efficient. |
|          |                    |           | 2014-07-11 | Implement new features in the existing tool. |
|          |                    |           | 2014-07-11 | Test and validate the new features. |
|          |                    |           | 2014-07-11 | Continue working on the existing tool. |

| Sprint 6 |                    | In progress | 2014-07-11 | Plan the next sprint. |
|          |                    |             | 2014-07-11 | Assign tasks to team members. |

| Sprint 7 |                    | In progress | 2014-08-11 | Work on integrating new features into the existing tool. |
|          |                    |             | 2014-08-11 | Test and validate the new features. |
|          |                    |             | 2014-08-11 | Plan the next sprint. |

| Sprint 8 |                    | Completed | 2014-08-11 | Improve the release process to be faster and more efficient. |
|          |                    |           | 2014-08-11 | Implement new features in the existing tool. |
|          |                    |           | 2014-08-11 | Test and validate the new features. |
|          |                    |           | 2014-08-11 | Continue working on the existing tool. |

| Sprint 9 |                    | In progress | 2014-08-11 | Plan the next sprint. |
|          |                    |             | 2014-08-11 | Assign tasks to team members. |
|          |                    |             | 2014-08-11 | Review and update the product backlog. |

| Sprint 10 |                    | Completed | 2014-08-11 | Improve the release process to be faster and more efficient. |
|          |                    |           | 2014-08-11 | Implement new features in the existing tool. |
|          |                    |           | 2014-08-11 | Test and validate the new features. |
|          |                    |           | 2014-08-11 | Continue working on the existing tool. |

| Sprint 11 |                    | In progress | 2014-08-11 | Plan the next sprint. |
|          |                    |             | 2014-08-11 | Assign tasks to team members. |
|          |                    |             | 2014-08-11 | Review and update the product backlog. |
Reviews and Retrospectives

• Focus on “Given Value” helps focus
  – Review items with P.O. as soon as ready

• Great opportunity to talk about our internal use of Scrum
  – Daily meetings are useful
  – Software development skills and tools

• Keep track of the products’ increments
  – Based in short-term milestones
  – All the team gets updated (knowledge)
Conclusions

- SM Training
- Resistance to change
- Grooming
- Definition of Done discussions
- Planning (say no)
- Technical Debt
- Team Building
- Individual projects (prototypes/research)

- Explore:
  - ScrumBan and KanBan
  - Serialize Epic Stories
  - Communities of practice

Still in transformation phase, and happy with the results
Thank you!