STREAMLINING SUPPORT AND DEVELOPMENT ACTIVITIES ACROSS THE DISTINCT SUPPORT GROUPS OF THE ALBA SYNCHROTRON WITH THE IMPLEMENTATION OF A NEW SERVICE MANAGEMENT SYSTEM

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Abstract

The MIS section in the Computing & Controls division at ALBA Synchrotron designs and supports management information systems. This paper describes the streamlining of the support and development work of twelve support teams into a single customer portal and issue management system.

Prior to the change, ALBA was using five different ticket systems. To improve coordination, MIS researched tools able to support ITIL Service Management, as well as PRINCE2 and Agile Project Management. Within market solutions, JIRA, with its agile boards, calendars, SLAs and service desks, was the only solution with a seamless integration of both.

Support teams took the opportunity to redesign their service portfolio and management processes. Through the UX design, JIRA has proved to be a flexible solution to customize forms, workflows, permissions and notifications on the fly, creating a virtuous cycle of rapid improvements, a rewarding co-design experience which results in highly fitting solutions and fast adoption.

Team, project and service managers now use a single system to track support and development in a timely manner, view trends, and get a consolidated view of efforts invested in the different beamlines and accelerators.

PROBLEM: SILO MANAGEMENT SYSTEMS FOR SERVICE SUPPORT AND DEVELOPMENT

Prior to the change, ALBA was using five different ticketing systems:

- **Request Tracker**: an open source ticket system customized to handle **Service Desk** requests (service requests, changes, incidents, problems) as well as maintenances and small projects; first used by **Control Systems, Electronics, IT Systems and MIS**, then **Infrastructure**, **Vacuum**, **Alignment**, **Floor Coordinators** and **Beamline Technicians**.
- **Redmine**: an open source **software project** management system used by **Control Systems** and **MIS**, used with an agile project management plugin for backlog prioritization, sprint planning and tracking.
- **Safety Ticket**: a home-made web application used by **Health & Safety** for the prevention of occupational hazards and radiation protection.
- **Internal Order**: a home-made web application used by **Engineering Workshop** to manage **production orders**.
- **Manipulation Order**: another home-made web application used by **Engineering Workshop** to manage **transport and installation** orders.

In ALBA Computing division, Control Systems and MIS were using two distinct management systems, Request Tracker and Redmine, for service requests and for software projects, which resulted in a **lack of integration between support and development**. For instance, problems or new needs reported via the Service Desk in Request Tracker would be duplicated in Redmine for them to be addressed in the right Agile development team, generating cumbersome double tracking.

Similarly, having different service management systems for different teams did not facilitate **cross functional collaboration**. For example, every shielding movement would be handled both in Safety Ticket by the Radiation Protection team and in Manipulation Order by the Engineering division, without communication between the two systems.

In addition, the five systems from before 2007 were becoming **difficult to maintain** with outdated technologies and business processes. In particular, Health & Safety had revamped their management processes and Safety Ticket was no longer fit for purpose.

SOLUTION: USE JIRA AND CONFLUENCE AS A UNIQUE TOOLSET FOR SERVICE SUPPORT AND DEVELOPMENT

Based on a pressing need to coordinate service support and development tasks better, MIS investigated tools able to handle management processes based on **ITIL** service management best practices [1] and **PRINCE2** [2] and **Agile** [3] project management methodologies. Within available market solutions, JIRA was the only solution supporting both.

JIRA Software and JIRA Service Desk [4] have proved to be extremely versatile and flexible solutions to manage different **Service Desk teams** accessed through a **unique Customer Portal**, configure highly customized Request Forms using dynamic Custom Fields [6], and design complex Workflows, without any programming involved.

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Permissions and Notifications are easily configured for each project or service desk based on users' Project Roles.

Changes are done on the fly, allowing extremely short iterations of improvements during prototyping, pilot, introduction and support phases. This virtuous cycle of rapid improvements creates a very **rewarding co-design experience** which fosters teams' collaboration and results in custom fit solutions that are quickly embraced.

To make the most of JIRA solution, we also decided to use Confluence [4]. ALBA intranet had organically grown into a sedimentary information structure of partially updated contents, used 12 year old outdated Plone and Python technologies, and was difficult to search and maintain.

Confluence provides **highly searchable collaborative spaces** for teams, projects and service knowledge bases, and is a natural companion to JIRA:

- New needs identified in a Confluence page such as a meeting note or product requirements in a project space can be sent as new issues to the corresponding JIRA project, with the JIRA issue status automatically shown and updated in the original Confluence page.
- JIRA Service Desk agents can create how-to and troubleshooting articles in the corresponding Confluence knowledge base.
- When a user raises a new request in ALBA Customer Portal, a list of self-help articles is automatically displayed based on the words used in the request form, potentially deflecting the request and helping the user to solve his/her problem more quickly.
- Service or project reports in Confluence can be generated automatically using templates and functions such as JIRA issues filters or graphs.

To make ALBA new intranet easier to search and navigate, spaces have been organized and structured around three main **usage categories**:

- **Organizational spaces** where users can find *who is doing what in ALBA*, and where teams typically describe who they are and what they do: mission, objectives, roles & responsibilities, service portfolio (operating + in development), etc.
- **Collaborative space**s where temporary or cross functional teams share *short term collaborative information*: project objectives, requirements, meeting notes, milestones, reports, etc.
- **Service spaces** where end users and support teams can find *long term service information*, service catalogue and service descriptions with how-to or troubleshooting articles, and how to get help.

RESULTS

A Single Point of Access To All Support Teams

Now, ALBA staff and collaborators use a unique Customer Portal to raise service requests, report problems or just ask for help **to any ALBA service support team**

(figure 1). Besides the teams previously using a service management system (Health & Safety, Floor Coordinators, Beamline Technicians, Control Systems, Electronics, Electronic Technicians, IT Systems Support, MIS, Telephony, Infrastructure, Engineering Workshop, Vacuum, Alignment), other service support teams have joined and introduced their own service desk: 3D Printing, Transparency Portal, Continuous Service Improvement, Communication & Outreach soon, and possibly Administration.
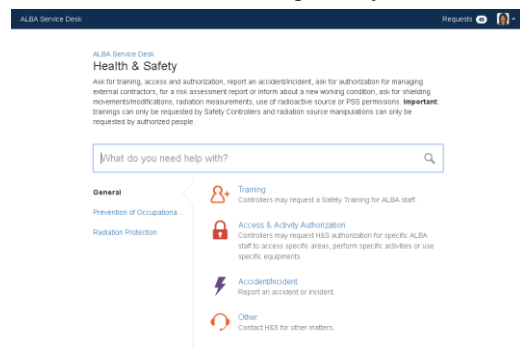
Figure 1: H&S Service Desk in ALBA Customer Portal.

Service Level Management

Time To First Response and Time To Resolve objectives are now measured, tracked and reported in all Computing Service Desks.

More Agile Service Design

Controls Systems and MIS software development many projects have been migrated from Redmine to a few consolidated JIRA Software projects.
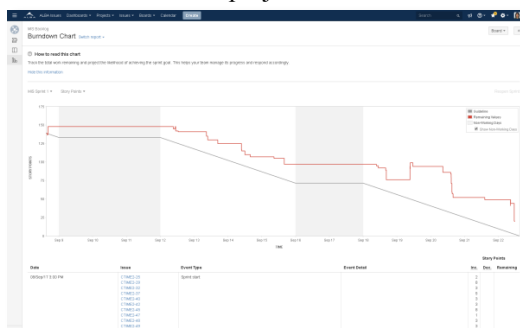
Figure 2: MIS backlog sprint burndown chart including issues coming from support and development.

The leap in web technology generation results in a huge improvement in terms of usability, performance and reporting capabilities. **Backlog prioritization**, **sprint planning** and tracking in **SCRUM or Kanban boards** are incomparably more flexible (figure 2), easier and faster. New reports such as **burndown charts** (figure 2), **sprint reports** or **velocity charts** provide a more accurate measure of progress, work done and team capacity for future planning.

Agile beyond IT teams

In addition, for the first time in ALBA, **Agile project management methodologies are used by non IT teams**

for Health and Safety projects, Radiation Protection activities, Optics Lab activities and new beamline construction projects.

Usage Based Structured Intranet

ALBA new intranet is growing quickly around a neat **usage-based information structure** (figure 3), helped by a **thorough catalogue of templates** for team, project and service management. Teams quickly picked on the interest of spaces to efficiently share information, meeting notes and centralize action item tracking. Templates offer an easy-start structure to showcase teams and projects, and articulate them seamlessly around ITIL, PRINCE2 or Agile concepts. The comparison with other implementations in other institutions shows that structure and templates are fundamental to growing organized, thorough, attractive and easy to read contents. Knowledge bases have been longer to develop, taking weeks to migrate from existing user documentation, and months to review, update and restructure. IT Systems user documentation was ready first with abundant articles feeding ALBA Customer Portal self-help. MIS, Accelerators Operations and Beamline Support knowledge bases were close behind. And now Health & Safety, Beamlines, Communication & Outreach, Control Systems and Electronics are following.


Figure 3: Intranet with a usage base information structure.

BENEFITS

Improved Integration between Support and Development

Support and development activities are more integrated and tracked more agilely than ever through service management queues, agile boards, calendars and ad-hoc management dashboards. Any problem, new need or improvement arising in a Service Desk can now be moved to the most relevant Agile development team/project, where it will be reviewed, prioritized, planned, tracked and re-injected in Service Operation as a change, new feature or new service component.

Improved Cross-Team Collaboration

Collaboration between teams is more effective as issues can be linked across service desks or projects. Back to Health & Safety example, any risk notification, such as a problem with the stairs for instance, can be linked to the corresponding intervention request in Infrastructure Service Desk. H&S will be notified with Infrastructure intervention status change and the information will appear as a comment in the original risk notification. Conversely, Infrastructure will be notified when the risk notification is closed and this information will appear as a comment in the corresponding infrastructure intervention.

As another example of easier collaboration, now a Beamline Responsible can collect requirements and ac-

tion items in a Confluence meeting note and then send them to a JIRA agile project or service desk where they will be managed by the corresponding support or development teams.

Easier Change and Maintenance

Any change in the service catalogue, custom fields, management workflow, permissions or notifications is managed on the fly as a standard change in a project configuration. Atlassian maintenance plan guarantees that the systems won't fall behind in terms of technology for the coming years.

Agile Service Operation

As a pollination of Agile Service Design best practices, most Service Desks (figure 4) also use **SCRUM or KANBAN boards to prioritize and plan Service Operation work**. For instance, application changes are managed using SCRUM (figure 2); the 3D printing pipeline is visualized in a Kanban board (figure 5) where print job processing is tracked from "To be revised", "To Do", "On Queue", "Printing", "Curing", to "Waiting for Customer Verification" and "Done". Electronics Technicians' tasks are scheduled in online **calendar** [5] (figure 6) where tasks can easily be distributed and balanced between technicians.

Figure 4: 3D printing service management queue.

Figure 5: 3D printing service management queue.

Figure 6: Agile Electronic Technicians Planning.

Agile Service Portfolio Management

Computing Service Strategy Management is now more agile (figure 7). With all development and support issues in the same management system categorized by customer unit and service component, managers can review the current needs of our internal **customers** (ex: a particular beamline) by **service** (ex: hardware installation, control software development, IT infrastructures, communication management systems, etc.) and **dimension Computing service capabilities** (people, skills, processes, technologies, service levels) based on demand trends and future objectives (ex: new beamline).
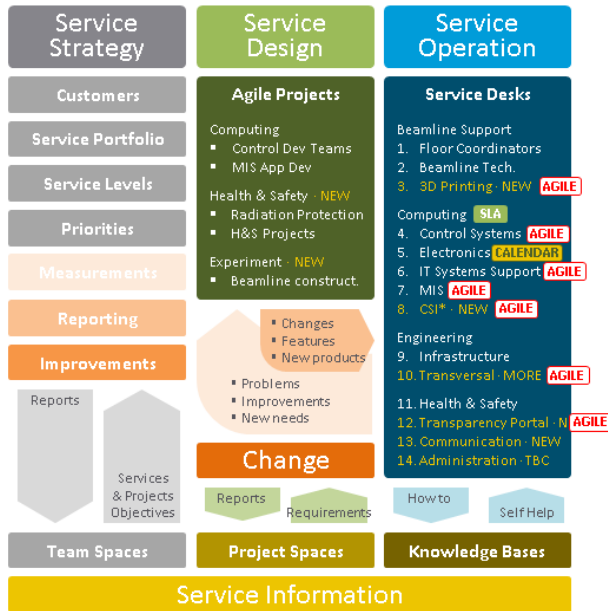

Figure 7: ALBA Agile Service Portfolio Management using JIRA and Confluence.

LEARNING FROM THE EXPERIENCE

Stage Effort of ~2000 Hours over 18 Months

The implementation was staged by group and based on user experience design techniques: observations, interviews, mock-ups, iterative prototyping, user testing, and pilot periods. Two people were involved, one for system administration and one for change management. JIRA and Confluence setups in ALBA are quite standard except for CAS single sign on, which needs to be reconfigured with every major application upgrade once or twice a year. Users and groups come from ALBA LDAP user directory, a handy way to automate access and license management. MIS developed a script to migrate issues from Request Tracker to JIRA so that all Computing Service Desks could keep their ticket history and statistics. The use of add-ons was limited to the minimum as the value added of extra features has to be balanced with the support risk involved with every major application upgrade. This risk was mitigated by installing only the add-ons with a large installed base from providers with broad and well rated add-on portfolios.

90% Change Management

With changes and new features handled trough project configuration and product add-ons, 90% of the project effort is about understanding business processes, listening to suggestions and concerns, refining processes, and proposing creative solutions that result in real life improvements, as solving a user's ache is probably the most effective key to turning reluctance into enthusiasm.

User Experience Design Techniques to Boost Adoption

For each Service Desk team, existing service management processes and information were examined and objectives discussed with service managers. Based on these first inputs, new service management processes were specified and a first Service Desk prototype built. The prototype was reviewed with the team in order to collect additional feedback and improvement ideas and generate a possible second or third prototype. Then support teams would go through training and pilot periods, during which new feedbacks and suggestions are collected and implemented whenever possible. Then the new Service Desk would be opened to all users, whenever the Service Desk team and management felt ready with their custom fit solution.

Sharp Training to Smoothen Introductions

As Service Desk were introduced one after the other, the experience was capitalized in how-to and troubleshooting pages in a knowledge base, and re-injected as known points of friction in the user training that all new service desk agents would have to experiment. As a result, agents were well prepared to manage their service desk and introductions went smoothly.

Low Control on Team Timelines

Given the simplicity of setting up a new Service Desk team in JIRA, our original schedule was, after the setup phase, to introduce a new Service Desk every month, a reasonable pace given MIS bandwidth. The reality is that we've had very little control over the introduction schedule of each Service Desk as it depended very much on teams' availability to discuss their needs, review prototypes and go through trainings. Attitude toward change and operational constraints were major factors. Some simple Service Desks were introduced in less than a week including definition, prototyping and user training. Others took more than a year. Bigger teams tended to want longer pilot periods to smoothen the edges. For some teams, shutdowns were too-busy periods, when for others, they were the right moment for changes. Summer is always a wrong time, but the end of the year usually spurs teams to transition and start the year on fresh grounds.

Health & Safety was probably the team with the heaviest service management revamp, most complex workflows, and most constraining compliance framework [7]. Their final prototype was ready in six months, after four prototype reviews, but it took another seven months for

the new processes and tool to be approved at all levels. The team was eager to go live and is now very satisfied with their new management system. They've presented their new Service Desk to the H&S community, with excellent feedbacks, and possible followers in other research institutions.

Relative Maintenance Cost and Change Responsiveness

JIRA and Confluence license acquisition is expansive [4], even with the 50% discount for academic customers. The cost of maintenance licenses including support and upgrades the following years is still half the cost of acquisition, a very high price in an organization that lives and breathes open source. Besides, ALBA is a small customer for Atlassian and has little influence over their feature roadmap. We have yet to see a low priority bug reported by ALBA be fixed. Is that a wrong thing?

In our experience, JIRA changes the ratio of requirement gathering effort vs implementation effort from 1/20 to 20/1. Quality is not an issue as the solution supports changes done on the fly with very low risk on functionality, performance or reliability. Developing ALBA Customer Portal as it exists now would have taken years with a lower quality and lower capacity to adapt to business changes, and the technology would have been obsolete by the time we'd finished. Although we have a very minor say in Atlassian roadmap through open suggestions and features voted by their customer community, new features delivered usually hit the mark as changes we had wanted. In a way, limiting changes to the ones approved by a large community of users protects us from the less rational change requests, while we take advantage of the regular release of solutions to widespread problems to continuously improve our service management system with state-of-the-art functionalities. Bottom line, JIRA and Confluence maintenance cost is balanced by the quality of the products and the gain in capacity to adapt to business changes quickly, and it is an insurance that ALBA service management system won't fall behind in terms of features or technology for the coming years.

NEXT STEPS

Our objective now is to push ALBA service management system integration with other ALBA applications one step further and to become even more agile in our service portfolio management.

The next step is to meld ALBA Confluence intranet with Alfresco document management system, so that documents controlled in the DMS can be searched, displayed, attached or browsed in any Confluence page.

At the moment, JIRA information is only partially incorporated into ALBA reporting system. This integration should be completed by the end of 2017.

As a getaway from "traditional" business intelligence with cumbersome exports to Excel pivot tables, MIS will also explore new options to enable "agile" business intelligence, or how to empower managers and users to generate in-app reports customized on the fly to explore live data.

Seeking for further ways to make our service portfolio management more agile, Computing & Controls division will also take a more systematic look at DevOps as a means to unify development and operation with automation and monitoring at all steps of the software life cycle, from integration, testing, releasing to deployment and infrastructure management.

CONCLUSION

Atlassian products – JIRA Software, JIRA Service Desk and Confluence collaborative spaces – are efficient solutions to implement Agile Service Portfolio Management and extend the use of ITIL Service Management best practices as well as PRINCE2 and Agile project management methodologies well beyond traditional IT groups. The cost of acquisition and maintenance is balanced by the quality of the products, the gained responsiveness in adapting to business changes, and the guarantee that ALBA service management system will remain cutting edge in the coming years.

JIRA Service Desk enables the rapid creation of a unique Customer Portal where users can raise requests to multiple Service Desk Teams, with uniquely customized forms, complex workflows, and controlled service levels in terms time-to-first-response and time-to-resolve.

JIRA Software allows the use of agile management methodologies both for Service Design and Service Operation. Any pool of activities can be reviewed, prioritized, planned, tracked and reported using backlogs, Kanban or SCRUM boards, sprints, calendars, releases and ad-hoc reports.

Confluence is an effective option to manage teams, projects and services information if provided with sensible structure and ad-hoc management templates.

User Experience Design techniques are a powerful way to engage teams, collect feedback and address concerns. The iterative co-design process guarantees that the final implementation is custom fit and boosts adoption.

The use of a single management system for all teams and all core processes facilitates cross team collaboration and the integration of support and development activities. The fact that all activities are categorized by customer and service component enables Computing Service Strategy objective to dimension its service capabilities – people, skills, processes, technologies, service levels – based on quantitative demand trends and future objectives.

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