SOLARIS DIGITAL USER OFFICE

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Abstract

User Office is needed in any research facility providing services for users. Nowadays each facility uses tools for management of users. Digital User Office is a tool developed with collaboration with ACK Cyofnet AGH, Krakow, Poland. The project was aimed at building system with use of modern technologies, flexible enough to accommodate easily changes requires by rapid development of SOLARIS (new national synchrotron radiation center in Poland). The main features and plans for development will be presented.

SOLARIS DIGITAL USER OFFICE (DUO)

Each facility adopted or developed own system supporting process of users and proposal management. In general user office is a central contact point for users [1]. They can manage their accounts, submit proposals, submit publications and experimental reports. The digital user office allows to prepare statistical information or list of research scientific domains.

The user office typically covers:
- calls for proposals
- management of mailing lists/newsletters
- handling of proposals and experimental reports
- badge requests (access to facility, dosimeters)
- managing publications database

While waiting for first users the concept of SOLARIS DUO was developed. Having in mind that system will evolve with growth of synchrotron and that technology of web portals changes rapidly, the idea to develop Digital User Office from scratch was agreed on. It has given opportunity to tailor solution to SOLARIS needs. The work was done to overview existing synchrotrons in other countries to find best solutions and adapt them to SOLARIS DUO vision at that time.

Registration

Typically user starts with very simple registration process by filling in only basic contact information. Simplified registration form can be seen on Fig.1. After confirmation of user e-mail address one can log into one's DUO account.

The basic dashboard allows to manage user account information and prepare draft proposals. Proposals cannot be submitted until user adds one's affiliation. Affiliation is a link between user and his/hers home institution. It is allowed to have multiple affiliation and specify proposals in context of given affiliation.

The user of the DUO system can have multiple roles. The basic one is a Light User – for whom only basic information about account is registered. Such user can prepare and save draft of proposal. After adding affiliation user can submit proposal when there is Open Call.

In the context of proposal lifecycle there is Main Proposer, Co-proposers role that are recognized for responsible scientist leading the research. When proposal is accepted the Experimentalists role can be granted to persons that come to SOLARIS facility.

The second group of roles are these prepared for staff required for proposal evaluation:
- Radiation Manger
- Safety Manager
- Beamline Manager
- Reviewer

The last one: the User Office Manager is for administration of User Office and overview the whole process.
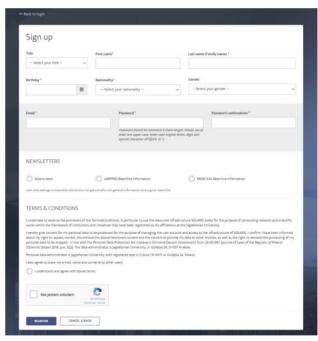

Figure 1: Snapshot of registration form.

Proposal

Preparation of proposal is split into 4 steps.

In first step user gathers general information about proposal (title, keywords, list of proposer and co-proposers, indicates affiliation of the proposal, scientific discipline, chosen beamline for the experiment and number of shifts).

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In scientific part (second step) proposers enter abstract, expected results, experiment description, motivation, references etc.

In third step samples planned for experiment and to be used in SOLARIS facility are defined and safety risk evaluation is performed.

In the last step user accepts regulations (terms and conditions of SOLARIS infrastructure usage) and submits proposal. After submission no changes can be done to proposal. Only in case there are some conditions set by SOLARIS evaluation team, user can decide whether accepts them or not.

Evaluation Process

Every proposal has to be evaluated and reviewed. There are two process run in parallel. Technical evaluation consists of: safety, radiation safety and feasibility is done independently from reviewing scientific goal and methods by reviewers.

Allocation

The operation plan of SOLARIS facility set the framework for detailed operational calendars of beamlines.

After proposal has been accepted, the beamline scientist allocates time for the visit according to preferences indicated in the proposal. The Proposer is then informed about time and dates of his/hers allocation.

Before Experiment

User before coming for experiment has to prepare required documents. They are: user declaration, safety certificate and experiment form in which Main Proposer set experimentalist (person coming to do the experiment on site). Every experimentalist should pass the safety training.

After Experiment

After finishing the experiment user should send experimental report and has possibility to send feedback.

TECHNICAL DETAILS

The main purpose of DUO is to allow users' management and coordination of the whole proposal evaluation process.

The user management component allows user registration and user affiliation management.

The proposal submission component facilitate filling proposal form, indicating co-proposers and experimentalist.

The review component supports process of decision making: there are views dedicated for different roles that include various functionalities for Beamline Manager, Safety Manager, Radiation Safety Manager and Reviewer.

The DUO also supports the Review Meeting event and grading proposals process. Apart of managing the main processes, the application provides an additional functionalities (e.g. experimental reports, trainings, feedbacks).

DUO was designed as an open platform to face the challenges related to continually changing SOLARIS facility. Therefore, the business logic is described as an easily maintainable rule-based specification. If any changes in procedures are introduced, they are automatically transferred into changes in functionalities available for the system users.
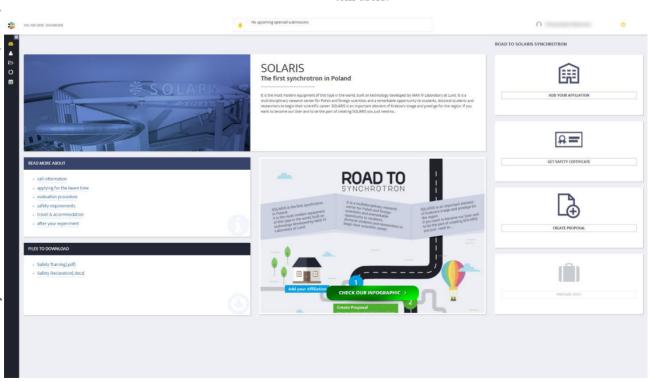

Figure 2: Snapshot of the user dashboard with left menu collapsed.

To achieve good user experience modern web technologies were used including: Angular for the front-end part and Java Spring for server.

Digital User Office is a system implemented in Java with use of *Spring Boot* framework. *Maven* is used to build executable archive .jar from source with Apache Tomcat container. Besides of Java Runtime Environment platform it has no other requirements for operating system. Application uses two databases.

MySQL is responsible for storage of information with complex relationships like: user profile data, affiliations, user roles, user groups, beam time allocation.

MongoDB is used for storage of data that has document type structure, e.g. proposal form, review form or experiment form data.

Graphical User Interface

The Digital User Office portal was designed with help of User Experience specialist to make it user friendly at the very beginning of operation.

The registration page (see Fig. 1) gathers only basic information about user.

After first log in, user can see the user dashboard (see Fig. 2) with basic menu on the left (see Fig. 3). It is possible to hide this menu, that is useful for mobile or tablet.
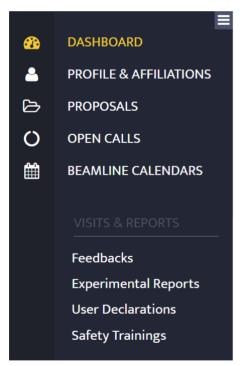

Figure 3: Snapshot of the basic left menu.

For staff involved in proposal evaluation or user management, the special roles are granted and menu extends. There are a few steps that require user attention, then the automated e-mail notifications are sent to user. It confers natty layout without long and illegible links.

CONCLUSION

The SOLARIS Digital User Office portal started at 12th National Synchrotron Radiation Symposium in Gdansk, Poland in September 2017.

The development of DUO portal is foreseen, however it should be done in back-end of the system. For the end user system should look the same. Only some processes will be facilitated. The important feature missing is (due to lacking of e-mail transfer in Umbrella API) integration with Umbrella, so the local accounts are used.

The integration with WayForLight [2] is possible, however for the time being it is possible to prepare form on WayForLight portal, save it in XML and then download proposal in SOLARIS DUO. Then user must only fill in additional data in proposal form specific and required by SOLARIS.

ACKNOWLEDGEMENT

REFERENCES

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[2] Initiative WayForLight, http://www.wayforlight.eu