

Awareness Support in Scientific Event Management with ginkgo

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Awareness Support in Scientific Event Management with *ginkgo*

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ABSTRACT

The management of scientific events is a prestigious job that goes together with many tasks that have to be carried out in a timely and highly parallel fashion. Conference management systems (CMSs) have simplified the process and have given decision-support features to the organizers but still there is room for improvements. With the social media movement of the last decade, computer-mediated social interactions and professional networking have also gained importance for scholars. Those interactions take place outside of CMSs. Thus, a rich source of information is ceded to social networking services that could be used for a better quality of service and more awareness support for all stakeholders in CMSs. In this paper we introduce *ginkgo* as a novel approach to scientific event management that brings together well-known features of classic CMSs with those of common features of social networking sites to make scientific event management more social and awareness supporting.

Categories and Subject Descriptors

H.5.3 [Information Interfaces and Presentation]: Group and Organization Interfaces—*Computer-supported cooperative work, Web-based interaction*; J.7 [Computers in other Systems]: Publishing; H.1.2 [User/Machine Systems]: Human Information Processing

General Terms

Human Factors, Management, Design

Keywords

scientific events, conference management system, social media, research 2.0, awareness, recommender systems

1. INTRODUCTION

The daily work practices of researchers have changed during the last decade. The revolutionary changes in how the Web is used for content creation and consumption, learning and networking have also altered the way scholars communicate and collaborate. Those changes that are typically referred to as being the Web 2.0 are known as Science 2.0 or Research 2.0 in the scientific context [8]. Today, most interactions between scholars is mediated by technology and many of those technologies can be categorized as being Social Media.

Regardless of these upheavals, the way scientific events are organized and the tools to support the organizers of such events do not yet reflect the changed practices of scholars. Conference management systems are still monolithic software that mainly support the organizers and reviewers of scientific events. They do not use existing Research 2.0 possibilities to connect all stakeholders in the event preparation and realization process. Thus, large potential for enriching the whole experience and removing frictions from the process is relinquished. Moreover, the currently available tools lack features to support organizers and reviewers of submitted proposals becoming aware about their content and relation to other submitted or previously published work. Thus, the review process is prone to errors and awareness issues with the organizers.

The paper is divided into five sections: in Section 2 we present a simplified model of the phases and stakeholders involved in the management of scientific events. In Section 3 we discuss strengths and weaknesses of currently available systems for organizing such events and that support participants to network with each other. *ginkgo* is a novel approach to the management of scientific events and brings together common features of conference management systems and those of social networking sites. We introduce *ginkgo* in Section 4. Finally, in Section 5, we summarize the findings of our research and give a short outlook on the

future application of ginkgo in scientific events.

2. MANAGING SCIENTIFIC EVENTS

The organization of a scientific event is a complex and time-consuming task that – depending on the size of the event – involves many people in different roles [2]. Also depending on the type and size of the event, there are different phases of the whole management process. For potential participants of a scientific event, it is important to have access to all needed information in an easy, consistent and timely manner. In this section we introduce an universal model for the phases and roles involved in scientific event management and participation.

2.1 Organization

In general there are at least five discriminable roles with different responsibilities involved in the organization of a scientific event [2, 3, 6]. A selective assignment of these roles and the involved people is often not easily doable as each person may take on several roles in the same event [2].

1) Members of the organization committee or organizers: The organizers take fundamental decisions and are responsible for the general conditions of the event. They coordinate and monitor the whole process [6]. In large-scale events, the organization committee may be split up into several smaller committees with dedicated areas of accountability (e.g. finances, public relations or program).

2) Chairmen of the program committee or program chairs: The duties of the chairmen of the program committee include all the necessary steps to create a good technical event program (TEP). Their tasks include the creation of the Call for Papers (CfP), the management of submissions and reviews, as well as the decision about acceptance or rejection of submissions. Often, the organizers of the event are also the chairmen of the program committee.

3) Members of the program committee or reviewers: The members of the program committee serve as reviewers and evaluate the submitted draft papers based on established criteria. The review is made in writing and is reported back to the chairmen of the program committee. The reviewers are invited to the program committee by the chairmen of the program committee.

4) Attendees: The attendees of an event are all people that have registered for the (on-site) participation in the event. This includes interested people from business and science, and the authors of the accepted publications.

5) Authors: All people that submitted a draft paper to the event are in the role of an author. If the paper is selected for publication at the event, the author or an representative is allowed to present the work at the event.

A majority of all arising tasks in the management of a scientific event happens prior to the event itself. A general chronology of the continuous phases may not be taken as overlapping phases can exist [2]. In addition, single phases can be extended, repeated or divided into sub-phases [3, 6]. Nevertheless, a general sequence of phases that is valid for many scientific events emerges from [2, 3, 6] in the organi-

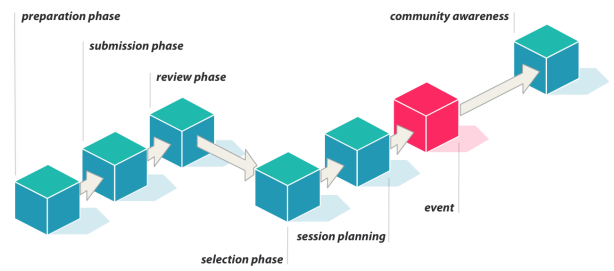


Figure 1: Simplified model of the phases in managing scientific events

zation of a scientific event (cf. Figure 1): in the *preparation phase*, fundamental decisions are taken by the organizers of the event [2]. First and foremost, the theme and scope of the event have to be determined [3]. This may be a specific research area, a special research direction or a new technology. Other decisions like the time and place of the event for example must be made [3, 2]. The event also needs a name; as this is often very long an acronym has to be agreed on. Moreover, in this phase possible sponsors have to be contacted. Institutions like IEEE or ACM, current research projects as well as companies are possible sponsors for scientific events [2, 3]. In addition, all organizers are invited to the organization committee and the responsibilities are allocated amongst them. Depending on the size and type of event, the organizers are now divided into several committees [3]. Following [2], the product of the preparation phase is the Call for Papers. The responsibility for it lies with the chairmen of the program committee [3]. The CfP is intended to motivate authors to write and submit papers to the event [2]. The CfP is mainly made from the results of the preparation phase. It contains the name of the event, the sponsors, the venue and the date as well as the scope of the event. In addition, the CfP holds the necessary information for the authors how to prepare and submit their publications. This includes the format, the maximum extent, the accepted types of publications (abstract, short paper, full paper, demo paper and so on) and a way to submit their draft papers (email address, postal address, URL for file upload or URL to the conference management system) [3, 6]. For all accepted types of publications the CfP provides a submission deadline. The CfP can be published in a variety of ways. Typical examples are the publication on a web page or circulating it via e-mail to interested user groups.

After the publication of the CfP authors can submit their draft papers. They have to pay attention to the required format and the specified deadlines. The organizers have the task to receive the submitted draft papers, archive them and give the authors an acknowledgement of receipt [2]. There are many different forms of a *submission phase*. For example, a multi-stage submission procedure exists where first abstracts of a publication are submitted. After a first review, authors have to submit a full paper, which is subject to another review [6]. In any case, the result of the submission phase is a list of all submissions [2].

After completion of the submission phase the *review phase* can start based on the list of all submission. Following [3],

this is the key phase to develop a good technical event program. The review phase itself can be divided into three phases [2]: 1) First, the submitted publications are assigned to the reviewers. This task is in the responsibility of the chairmen of the program committee [6]. A fitting assignment between the publications and the reviewers is crucial for high-quality reviews and to the quality of the entire technical event program. In order to obtain high-quality reviews there are some factors that should be considered in the assignment between publications and reviewers: First, each reviewer should be assigned the same number of publications to review. In addition, the reviewers should be familiar with the subject area of the assigned publications [3, 6]. As researchers tend to submit publications to events in which they act as reviewers themselves [5], it has to be ensured during the assignment that a publication is not reviewed by one of the publication's authors. Moreover, it can happen that reviewers may have a conflict of interests, because they cannot review certain publications objectively [5]. This can, for example, be the case because they work in the same institution or on the same project as one of the authors or because they have published joint publications in the past. In addition to the above factors, the personal preferences of the reviewers might be taken into account during the assignment of papers. Before beginning the review phase, the reviewers can sometimes specify their review preferences by bidding on publications. Taking into consideration those preferences is left to the chairmen of the program committee. 2) Only when all submissions have been assigned to the reviewers, the actual review phase can begin. The reviewers now evaluate the proposals assigned to them based on established criteria. These criteria are defined by the chairmen of the program committee and have to be communicated to the reviewers beforehand. One possibility for this is the provision of review templates [2]. Furthermore, the reviewers must obtain a copy of each submission assigned to them (e.g. by e-mail or as file download). Regardless of the review process (single blinded, double blinded, open review) the reviewed work must be treated as confidential information during the entire review phase [3]. Prior to the final publishing of all accepted publications, no information about the reviewed proposals may be released to third parties [3]. After creating their reviews, the reviewers submit them to the chairmen of the program committee (e.g. by e-mail or by uploading a file). 3) The chairmen of the program committee archive all reviews and sort them according to specified metrics. One example metric is the average rating of the reviews [2].

Based on the results of the review phase, the program chairs can start with the *selection phase*. The goal of this phase is to make a final selection of publications for the technical event program [5]. The selection phase can also be divided into two phases: in the revision phase the chairmen of the program committee meet to discuss the selection of publications. The procedure of this meeting depends on the outcome of the review phase; there are papers that are accepted or rejected unanimously because their reviews are univocal [2]. Other papers however are discussed controversially because their reviews are very divergent in the ratings or rated as being on the borderline between acceptance and rejection. Sometimes, further reviews are needed to make the final decision and the respective papers are remit to another

review phase [2]. Throughout the whole selection phase it is necessary that the program chairs have unrestricted access to all reviews and their associated information. At the end of the selection phase there has to be final decision on acceptance or rejection for each submission. After the revision phase, the authors are notified about the results of the review in the notification phase [5]. The authors receive the reviews for their draft papers and the decisions based on it [2]. Before releasing the reviews, the chairmen of the program committee has to make sure that any confidential comments from the reviewer are removed. If a paper is accepted for publication, the authors will also receive a deadline for filing the final version of the document (the so-called camera-ready copy). Some larger conferences have a so-called 'rebuttal phase' prior to the final acceptance or rejection of draft papers. The camera-ready copy should incorporate any comments and suggestions that may have been made in the review phase [2].

With the final selection of accepted publications the *session planning* can start. In this phase the accepted publications are associated with blocks in the event program [3]. The grouping is often carried out by the similarity of the publications [6]. The responsibility for the technical event program lies with the chairmen of the program committee. They make decisions regarding the number of program blocks per day or the number of parallel blocks taking place [6]. The product of this phase is the technical event program [2, 3]. The publication of the provisional program is often referred to as the Call for Participation [2].

After the Call for Participation has been published, participants can register for the event. If the participation in the event is subject to a charge, the organizers have to confirm the receipt of payment [2]. After registration, the organizers usually assist participants with special offers to find accommodation [2]. At the latest at the beginning of the event, all participants will receive a written program of the event and a badge [2]. Furthermore, the organizers create a list with all participants at the coalface. In addition, various statistics can be compiled that get evaluated in the follow-up phase of the event. After the event, the organizers of the event have to follow up. This includes the evaluation of statistics, writing summaries, bookkeeping, and preparation of final reports to sponsors and supporting organizations [2]. Depending on the event type and arrangement, the publications are now published online and printed. If single talks or complete program blocks have been recorded during the event, these videos are now edited and published subsequently. Moreover, the participants of the event are periodically informed about latest news and appropriate event in order to raise *community awareness* and nexus.

2.2 Participation

The participants of a scientific event are 1) the authors of the accepted publications, 2) the organizers of the event, and 3) other attendees. Other attendees are interested people from industry and academia and all other visitors, which do not have a dedicated role in the event.

The attendees are motivated by their professional interest in the field of research as well as by the possibilities to maintain and expand their professional network. The participation in

presentations and workshops are excellent training and dissemination opportunities. Through personal contact with other researchers, current research ideas and approaches can be exchanged and discussed with them. Scientific events tend to attract an international audience what provides opportunities for networking with researchers from around the world.

Authors use the event especially for the presentation of current research projects, research approaches, progress, and results that can be discussed with the professional audience. An author's motivation to participate in an event is also influenced by gained reputation: a presentation at a scientific event will not only increase the visibility of their research, but also strengthen their own profile and this of their institution or research project. As part of many events, the best publications are honored with a *Best Paper Award*. Such awards are a figurehead for both authors and institutions.

The participation in a scientific event begins with the registration, which is now typically via the Internet. For multi-day events, participants can register for the entire period or for certain days or sessions only. Usually, the organizers support the participants with finding a suitable accommodation for the event period. For example, they block rooms at selected hotels.

The exact details about the registration procedure are usually released by the organizers on the event website. Most events now have a website that is used as the primary channel of communication between organizers and the participants. The detailed registration procedure will be published together with information about the organizers of the event, the venue and the event program. Here, authors will also find the *Call for Papers* with information and deadlines for submission of their proposals.

The event program is usually released before the event. It is, however, in most cases only a preliminary version and consists of several program points and a realistic agenda [3]. In most cases, the exact contents of the program blocks are not provided but only the titles of the publications, the authors and other organizational information such as time and place are announced. The attendees of the event should make their own schedule before the event using the preliminary program. No later than immediately prior to the single program blocks – most of the time being held in parallel – they have to decide for and against individual talks.

Besides the interest in the event program itself, it is the possible networking with other participants that motivates attendees for their participation. It is quite conceivable that participants in their decision whether to attend the event or not, make them dependent on their social network. If several personal contacts of a potential participant have already committed to participate in the given event, this can positively influence his decision to participate as well.

3. STATE OF THE ART IN SCIENTIFIC EVENT MANagements SYSTEMS

In this section we discuss the state of the art in tool support for scientific events. The tools can be discerned in such for managing submissions and participants and such that

support the social interaction between participants.

3.1 Conference Management Systems

Traditional scientific event management is based on many manual operations [4]. The exact processes and structures as well as related problems have been introduced and analyzed in the previous section. Until recently, scientific publications and their reviews have often been spread using emails [4]. Although the use of emails has facilitated the work of the organizers of scientific events compared to analog communication, many of the organizational problems discussed in Section 2 still exist. To address these problems, various web-based Conference Management Systems (CMSs) have been developed in recent years. These systems assist the organizers in the processing of submissions and reviews [4]. The use of such systems is essential for the preparation of a technical event program. The systems speed up the process and ensure reliability and security of important processes. Following, the web-based event management systems EasyChair¹, ConfTool², and Confious³ are presented and compared by their features. In addition to the mentioned systems, there are numerous other that are not discussed here because of space limitations. Examples are OpenConf⁴, EDAS⁵ or PaperDyne⁶.

With more than 3,000 events organized in 2010, *EasyChair* is an often-employed event management systems in the scientific context. Besides conferences and workshops, it is also used for book projects, journals or other scientific projects with multiple submissions. EasyChair is a hosted solution; in order to use the software for an event one must apply for a free installation. The installation is then on the servers of EasyChair. The software was developed to support the program committee in preparing the technical event program, what is also reflected in the functionality of the software: EasyChair only supports phases and roles that are essential in preparing the technical event program. The organizers can manage the members of the different committees and assign individual permissions for them. Authors may submit their publications using a form. EasyChair also offers a very good support for the review phase; the assignment of reviewers to the publications can be based on preferences of the reviewers. The reviews may be submitted using an online form or using a downloadable review template that can be sent to the chairmen of the program committee via email.

ConfTool is a flexible web-based event management system for the organization of conferences, meetings, workshops and conferences and is being developed by Harald Weinreich since 2003. Unlike EasyChair ConfTool offers a free version for installation on a local web server. The professional version of ConfTool extends the standard version in features and is offered as a hosted solution by ConfTool. Another distinguishing feature of ConfTool is the support of the additional role of a participant of an event. Users can register

¹<http://www.easychair.org/>

²<http://www.conftool.net/>

³<http://www.confious.com/>

⁴<http://www.openconf.com/>

⁵<http://www.edas.info/>

⁶<http://www.paperdyne.com/>

for an event and ConfTool does the management of registrations as well as the billing. Moreover, ConfTool supports the submission and review phase, planning the technical event program and the management of user roles. A detailed list of the features of ConfTool is on their website⁷.

Confious has been constantly developed since 2004 and is a hosted solution like EasyChair. The software helps the organizers in preparing the technical event program and supports the roles of the organizers, authors as well as the different roles of the program committee. Confious supports the organizers during the submission phase, the review phase and the selection phase of an event. The software's unique selling proposition is the automatic assignment of publications to reviewers. Confious uses algorithms, which can determine possible conflicts of interest in the assignment [5]. Other features are dynamically configurable review forms and the possibility to communicate directly with of specific user groups (organizers, reviewers, etc.). Additional features and a detailed description of the system is provided on the website of Confious⁸.

Both EasyChair, ConfTool and Confious provide good support for the organizers in preparing the technical event program. ConfTool also offers features for the registration of participants and the billing. Hereinafter, we compare these systems in order to make their respective strengths and weaknesses more precisely. The focus is on the comparison of the functionality; criteria such as ease of use, the user interface, the security of the systems and other system properties are not considered. The framework used for the comparison is based on [4]. For the comparison of systems and tools used in scientific event management (cf. Table 1) we divided the functions in two categories: general functions that are not attributable to the event management as such are referred to as *system features*. Functions that are essential part of event management are called *event management features*. As Table 1 shows, the three systems EasyChair, ConfTool, and Confious support the basic and most important functions in the context of scientific event management. ConfTool has the unique feature to support the registration and billing of participants. The automatic assignment of publications to the reviewers and consideration of potential conflicts of interest separates Confious from the other two. A disadvantage of all the presented solutions is that scientific events are separated from each other through stand-alone installations. There is no cross-event platform available. Moreover, the presented systems only focus on the process of organizing scientific events. They are mainly designed for use by the organizers, the program committee and the reviewers as well as the authors. The role of the participant of an event is – apart from the registration and payment feature in ConfTool – not supported. Not least for this reason there are no opportunities for the event participants to network with each other, get to know more about their fellow participants and learn about other events that might be of interest for them. This aspect is covered by other platforms that focus on networking among event participants, researchers and social networking in general.

⁷<http://www.conftool.net/en/features.html>

⁸<http://www.confious.com/index.php?p=features>

3.2 Social Networking around scientific events

The participants of scientific events can network in general purpose social networking sites like Twitter⁹ or Facebook¹⁰, in dedicated social networks for researchers like Mendeley¹¹ as well in social networks tailored to scientific events like Lanyrd¹² or CrowdVine¹³. Following, those frequently used services are explained, compared and their value in the context of scientific events is analyzed. There are many other solutions which participants can use to network around scientific events that are not taken into consideration here. Examples are LinkedIn¹⁴, ResearchGATE¹⁵, Academia.edu¹⁶. Those are not discussed here.

Twitter is the most popular micro-blogging service, enabling its users to post messages (tweets) with a maximum length of 140 characters. Each user has an individual timeline where all tweets from users that the user follows appear in chronological order. By following another user one expresses an interest in the published content from that user. The followed user can then decide whether to follow the user as well. In addition to the public tweets, users can exchange direct messages privately. Twitter was originally asking its users *What are you doing?* to motivate them to report about details from their private life. More recently, they changed the question to *What's happening?* in order to have users reporting about more general topics like events they're attending or world-shaking events as well [1]. A particularly interesting feature of Twitter is the use of so-called *hashtags*. These are keywords that start out with an hash. Using hashtags, a tweet can be marked as belonging to a certain community, discussion or event. At scientific events the used hashtags usually originate from the acronym of the event [7]. Twitter is often used before, during and after a scientific event and both organizer and attendees take advantage of the service [7]. However, there are significant differences in the way the use the medium: The organizers use Twitter primarily for announcements and organizational information. The participants are using Twitter before the event to plan their journey and to share information about accommodation or the travel to the event. During the event they use Twitter to report about the event and to comment on the program, to discuss and ask questions [7]. After the event, participants often share links to blog entries, which relate to the event and remain in contact with the community from the event.

Facebook is currently the most widely used online social network. Registered users can manage a user profile on Facebook, add other users to their friends and exchange messages with each other. With their *news feed* Facebook has an own microblogging approach. Users can post short messages that appear in the news feed of their friends. Unlike Twitter, Facebook also allows the direct attachment of images and videos of these messages. *Facebook pages* are an interesting feature in the context of scientific events. A Facebook

⁹<http://twitter.com>

¹⁰<http://facebook.com>

¹¹<http://mendeley.com>

¹²<http://lanyrd.com>

¹³<http://crowdvine.com/>

¹⁴<http://linkedin.com>

¹⁵<http://researchgate.net>

¹⁶<http://academia.edu>

Table 1: Feature comparison of systems used in scientific event management (partially based on [4])

<i>System features</i>	<i>EasyChair</i>	<i>ConfTool</i>	<i>Confious</i>	<i>Twitter</i>	<i>Facebook</i>	<i>CrowdVine</i>	<i>Lanyrd</i>	<i>ginkgo</i>
Register with the system	✓	✓	✓	✓	✓	✓	✓	✓
Create a user profile	✓	✓	✓	✓	✓	✓	✓	✓
Enrich user profile with picture	–	–	–	✓	✓	✓	✓	✓
Enrich user profile with research interests	–	–	–	–	–	✓	✓	✓
Network with other users	–	–	–	✓	✓	✓	✓	✓
Express interest in an event	–	–	–	–	✓	–	✓	✓
Send messages to other users	–	–	–	✓	✓	✓	✓	✓
Rate events, sessions, talks	–	–	–	–	–	✓	–	✓
View the event schedule	–	–	–	–	–	✓	✓	✓
Create an individual event schedule	–	–	–	–	–	✓	–	✓
Schedule meetings with other users	–	–	–	–	–	✓	–	✓
Receive recommendations for new events	–	–	–	–	✓	–	✓	✓
<i>Event management features</i>	<i>EasyChair</i>	<i>ConfTool</i>	<i>Confious</i>	<i>Twitter</i>	<i>Facebook</i>	<i>CrowdVine</i>	<i>Lanyrd</i>	<i>ginkgo</i>
Create an event	✓	✓	✓	–	✓	✓	✓	✓
Classify an event	–	–	–	–	–	–	✓	✓
Define dates and deadlines	✓	✓	✓	–	–	–	✓	✓
Define roles for users	✓	✓	✓	–	✓	✓	✓	✓
Reminders for deadlines	–	✓	✓	–	–	–	–	✓
Registration of participants	–	✓	–	–	–	–	–	✓
Billing	–	✓	–	–	–	–	–	✓
Communication with special user groups	✓	✓	–	–	–	✓	–	✓
Support of multiple events	✓	✓	✓	–	–	–	–	✓
Submit proposals	✓	✓	✓	–	–	–	–	✓
Edit proposals until deadline	✓	✓	✓	–	–	–	–	✓
Create reviews	✓	✓	✓	–	–	–	–	✓
Edit reviews	✓	✓	✓	–	–	–	–	✓
Recommendations for reviewers	–	–	–	–	–	–	–	✓
Recommendations for assignment	–	–	–	–	–	–	–	✓
Automatic assignment of reviewers	–	–	✓	–	–	–	–	✓
Automatic solution of conflicts of interest	–	–	✓	–	–	–	–	✓
Dynamic review form	✓	✓	✓	–	–	–	–	✓
Paper bidding	✓	✓	✓	–	–	–	–	✓

page looks like the profile of a user and behaves as such¹⁷. However, it is not assigned to a specific users but represents an artist, a brand, an organization, or an event. Administrators of Facebook pages can update the news feed like regular users. Friends of Facebook pages are called fans. Any Facebook user can become fan of a page by clicking the *like button*. From then on, the updates of the Facebook page appear in the news feed of the user. The organizers of a scientific event may submit organizational information and announcements directly to event participants on the Facebook page. They can also share pictures from the event and contact the event participants before, during and after the event. As an example, the conference *Computer Supported Cooperative Work 2011* used a Facebook Page for engaging their participants¹⁸. Facebook also offers the possibility to create a scientific event as an *event* on Facebook. Facebook users have the option to make their RSVP to the event. All of their friends will see the users decision to attend an event in their news feed.

Mendeley is a free service for reference management and a social network for scientists. In *Mendeley*, researchers are able to network, exchange messages and collaborate in groups with fellow researchers. Users can also upload their own publications or other publications and collect them in their digital libraries¹⁹. Bibliographic metadata is automatically examined from these publications. Furthermore, publications can be cooperatively annotated, grouped and tagged.

Even if *Mendeley* recently added the feature that users can announce which events their going to attend, *Mendeley* does not directly support scientific events. Nevertheless, publications from an event can be provided in a dedicated collection or tagged with the event's hashtag.

CrowdVine helps the organizers of an event building a community around it. Participants can register at an event-specific page, create their profile page and network with each other. They can exchange messages and specify the relationship to someone else. Users can be mutual friends or fans if the relation is single-edged. Each user can express his will to meet any other user at the event; the requested and agreed meetings can be managed in a dedicated *want-to-meet-list*. Additionally, *CrowdVine* offers many event-specific functionalities: participants can create their own event schedule by adding talks or sessions from the overall event program. Moreover, participants can rate single talks, whole sessions or even the whole event. This way, speakers and organizers of the event can monitor the success of their presentation or the entire event. *CrowdVine*'s free package is only of limited use for events. An overview of the available packages and prices is on their website²⁰.

Lanyrd is a free service that allows its users to find and track interesting scientific events. *Lanyrd* can only be used with an authentication via Twitter. The *follower / following* relations are transferred from Twitter to *Lanyrd* so that a user is linked to all his Twitter contacts in *Lanyrd* as well, given that they use the service as well. Users have access to

¹⁷<http://www.facebook.com/pages/learn.php>

¹⁸<http://www.facebook.com/cscw2011>

¹⁹<http://www.mendeley.com/#features>

²⁰<http://www.crowdvine.com/pages/packages>

an event calendar that holds events that any of their contacts attends, speaks at or follows. Users can follow an event in Lanyrd and any news from that event will appear in their timeline. In a wiki-like approach, events at Lanyrd are not only created by their organizers, but any user can create and edit events, Anyone can add artefacts such as photos, videos, links to events.

Table 1 shows that the presented tools are supporting social networking around scientific events very well. They lack however the functionalities to support the first phases of the event management process. With *ginkgo* we present a novel approach to bring together those two worlds.

4. GINKGO'S APPROACH TO SCIENTIFIC EVENT MANAGEMENT

*ginkgo*²¹ is an innovative approach to scientific event management that incorporates the best of two, up to now, separated worlds: conference management systems and social networking sites. The goal of *ginkgo* is to enhance researchers' awareness about ongoing activities in their Research Networks that are directly associated with scientific events. Beyond, *ginkgo* aims at removing frictions from both the organization process and the participation of scientific events by offering an integrated platform for scientific events that complements existing approaches like Twitter, Mendeley and Facebook instead of competing with them. Being part of a Research 2.0 landscape, *ginkgo* supports new practices of researchers that make use of new tools and technologies to supplement well-established ones. Shneiderman points out that this way Research 2.0 "increase[s] collaboration through these [new] socio-technical systems" [8]. While there seems to be some controversy about whether scholarly communities are driven by new practices or new technologies and the relation between those two concepts, we take the position that new tools reshape existing practices. At the same time, the usage of new tools and technologies always creates new practices that have not been foreseen in the design.

ginkgo offers the common features of a conference management system and supports all phases of the **organization** of a scientific event. This includes the invitation of co-organizers and reviewers to the respective committees, the submission of proposals to the event, the review of those submissions as well as the decision about their acceptance. Moreover, *ginkgo* allows the registration for managed events and supports the organizers with the accounting. The chairmen of the program committee can use *ginkgo* for the session planning and publication of the technical event program. During the whole process, the organizers have the possibility to contact any involved party with system-wide messages or emails. To support collaborative filtering techniques afterwards, each event and submission must be categorized using Mendeley's research disciplines. Furthermore, both organizers and participants of an event can tag the event and accepted publications.

Subsidiary to those features, *ginkgo* offers a broad range of **social networking** features. Each user has a dedicated **user profile** within *ginkgo*. The profile page holds relevant information about the user including his name and affilia-

²¹<http://ginkgosem.com>

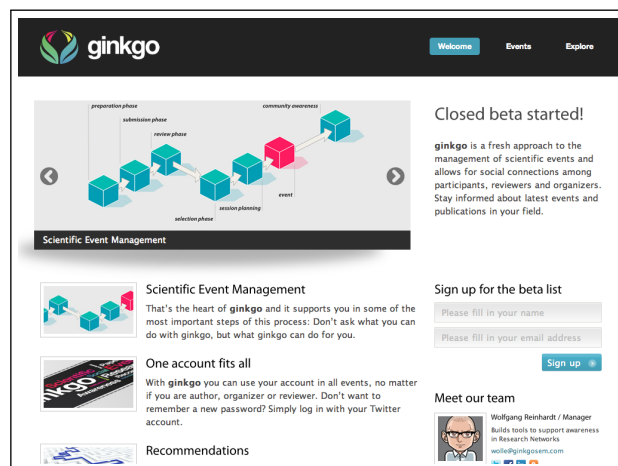


Figure 2: Screenshot of *ginkgo*'s closed beta page

tion, a picture, links to other social media services he uses as well as a list of events he was involved with. The profile also lists information about the user's research interests and shows his activity stream. Visitors of a user profile can see the user's followers and followings and can become a follower of the user himself. Moreover, each visitor can send a private message to any other user. Those **conversations** can take place between two or more users and are an essential communication support for all users of *ginkgo*. Each event has an own **event profile** as well. On it users can find all relevant information about the event: the Call for Papers and the respective deadlines, the members of the committees and a link to the submission of a publication. Users can express their plan to attend the event, register for the event or follow it. The event profile also shows the **activity stream** of the event where all relevant updates to the event are aggregated. Interested users will find latest news from the organizers, changed deadlines as well as information about new users interested in the event in this stream. If the organizers choose to feed data from other social media into the activity stream, those data is also incorporated in this condensed feed.

ginkgo puts high emphasis on the **awareness support** for all stakeholders in the organization and participation in scientific events. As different stakeholders are facing differing awareness issues in this context, the support functions are varying for different user groups. The organizers of an event are supported with an aggregated overview about the progress in the overall process and timely notifications about necessary actions. The chairmen of the program committee are supported with **recommendations** of relevant reviewers for an event, based on their former publications and review activities. Moreover, *ginkgo* offers a sophisticated mechanism for assigning reviewers to publications and vice versa. At each point of the review phase, *ginkgo* makes the chairmen aware about the current state of the review and trends in the ratings of the publications. Reviewers of submitted publications are supported with a number of built-in visualization capabilities that allow **visual analytics** of the content. Examples of such visual representations are networks of semantic similarity, clustering visualizations, word cloud visualizations of a publication's contents and, for that

matter, co-authorship and other bibliometrics visualizations. Our analysis of the proceedings of a conference series in the domain of Technology Enhanced Learning reveals that such awareness support features are necessary in both the review and selection phase for all members of the program committee in order to spot conspicuities in the submitted publications [?]. Those visual representations are also available to all users for all publications after they have been accepted at events managed with ginkgo.

ginkgo not only provides an up to date **schedule** of the event, it also allows users to create their own event schedule by adding single talks or entire program blocks from the event program to their distinct schedule. Users can also **schedule meetings** with other participants of the event that are then added to the respective schedules of the users. To support interested authors in not missing relevant deadlines, reminders about imminent deadlines are placed at the top of their personal activity stream. Moreover, a weekly email informs all users of ginkgo about individual tasks, such as missing reviews or forthcoming deadlines.

ginkgo also uses different **recommendation** techniques to support users with various tasks. First, ginkgo builds up a user model from the users' interactions with the system, which is later used for recommendations of new events the user might be interested in. Second, based on the metadata of the submitted publications, ginkgo is able to recommend publications that cite similar work, have been written by the same authors or whose content is similar. Finally, ginkgo recommends users that another user should follow. This recommendations might be created because the users are followers on Twitter or because they are interested in similar events or publications.

The organizers of an event can decide whether the accepted publications are made available on ginkgo in an **Open Access** way. Doing this, all accepted publications of that event would be made freely available for any visitor of ginkgo. The access to the publications would be tracked by ginkgo and visualized in a purposeful way. The analysis of the access data would also be used for recommendations of related papers in a later stage. Moreover, organizers can opt for transferring the metadata of the accepted publications to a dedicated collection on Mendeley. This way, the visibility of the event would be increased and chances for receiving more citations are exalted.

ginkgo also offers an open **API** that allows the development of mobile applications, widgets and other third-party tools. Currently, a mobile version of ginkgo is developed that will make use of the API and further enhances the ubiquitous access to data in ginkgo and awareness of researchers. ginkgo is developed as web-based application using Ruby on Rails²² in an agile development process. A summary of all features can be found in the last column of Table 1.

5. CONCLUSION AND OUTLOOK

In this paper we presented a simplified model of the scientific event management process and discussed important phases and roles in this process. We have introduced and compared

existing conference management systems as well as common Social Media applications that are used by the different stakeholders in this process for management and networking. Moreover we have introduced ginkgo, a novel approach to scientific event management that integrates the most important features from those two system classes. ginkgo supports all phases of the management and participation process introduced in Section 2 as well as all roles of the stakeholders involved in this process.

ginkgo is currently in a closed beta phase and will be used as management system for the first events starting in July 2011²³. The real-world tests will help making the system more stable and usable in a larger context. The public beta phase of ginkgo is intended to start in the Autumn of 2011. Before this can happen, we need to define policies for data collection and data sharing with third parties and take into consideration copyright as well as legal protection rights as users of ginkgo might want to obtain or delete data that is used for recommending event, people and publications.

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²²<http://rubyonrails.org>

²³<http://gkgo.me/arnets11>