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Deliverable Number: D 5.1

Deliverable Title: Report on requirements: Survey on existing comparable systems and report on requirements and framework for common data exchange

Delivery date: 31. 01. 2014 [month 24]

Leading beneficiary: HZB

Dissemination level: Report

Status: done

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Project number: 283883

Project acronym: NMI3-II

Project title: Integrated Infrastructure Initiative for Neutron Scattering and Muon Spectroscopy

Starting date: 1<sup>st</sup> of February 2012

Duration: 48 months

Call identifier: FP7-Infrastructures-2010

Funding scheme: Combination of CP & CSA – Integrating Activities

## **WP5 Integrated User Access**

### **Report on requirements: Survey on existing comparable systems and report on requirements and framework for common data exchange**

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For many years it has become a routine for neutron users to prepare and submit proposals for beam time regularly to get access to neutron facilities all over the world. Procedures have become more and more established to handle the amounts of beam time requests based on a qualified scientific review and standardized administrative procedures. Nowadays on-line proposal submission via web based portals to the various user offices has become a standard at most user facilities. Many hundreds of proposals for beam time per year are processed in this way at the large neutron facilities. Local support during the measurements by scientific and technical staff, sample environment equipment and lab services is routine and accommodation is arranged in on-site guest houses. Users receive financial support by national and international access programs to cover their travel costs. A description of the various proposal submission and review system has been compiled in deliverable D5.4 "Requirements for web-based review process" of this WP.

This classical way of access and its administrative procedures has been very successful for quite a long time but in recent years the procedures regarding proposal submission and treatment became more and more a topic under discussion. On the one hand the request for a more direct and fast access to beam time like urgent proposals for 'hot topic experiments' or requests for mail-in services of samples has been raised by the users. On the other hand a more simplified access model for industry performing applied research is claimed, in particular by politicians and funding agencies.

In order to elucidate the current requirements on the existing systems and to find possible future requirements by users of large scale facilities and how access might have to be re-organized at the neutron sources a survey was organized within the NMI3-II WP5 on 'Integrated User Access' involving the users at all participating European neutron sources. This survey delivered insight on the satisfaction and the needs of neutron users in terms of access management. The results are presented in detail in this report.

In addition a second survey was conducted among neutron scientists acting as reviewers in review committees of European neutron facilities rating proposals for beam time by scientific merit. This survey complements the user survey on the existing proposal management system. The results are also presented in detail in this report. Both reports provide the basis to develop the requirements and framework for common data exchange.

## User Survey Proposal Procedures

A survey was conducted among neutron users using the European neutron facilities in their scientific work. According to the Counting Users survey of PanData counting the number of individual active users in the period June 2009 to May 2011 at European photon and neutron facilities there are 8852 unique neutron users in Europe. The survey was held anonymously and received 259 responses, which would represent about 3% of the user community.

Topics tackled by the survey were to evaluate the frequency and activity of the users in asking for beam time, the usage of the facilities by the users and its funding, the response to current proposal procedures and possible future developments or requirements.

The survey shows a high activity of the users. About 50% of all users have submitted between 5 to 20 proposals within a 5 year period. On average each users submits between 2 and 4 proposals each year to the facilities. On the majority they act as main proposer.

The proposal activity also generates a high frequency of visits to the facilities. 37% have 1-4 visits within this period, 23% have 5-9 visits. On average each users has 1-2 visits per year to the facilities. The majority of users (51%) use 2 to 3 facilities in parallel for their research. Methods used in the users research are mainly diffraction methods (36%) and SANS (22%), but a majority of users uses more as one method in their research.

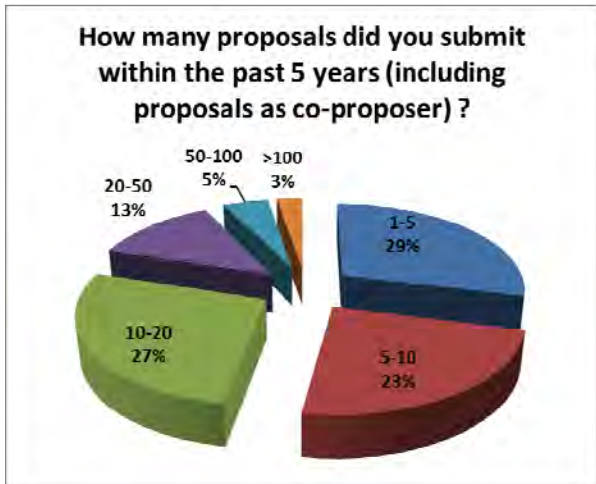
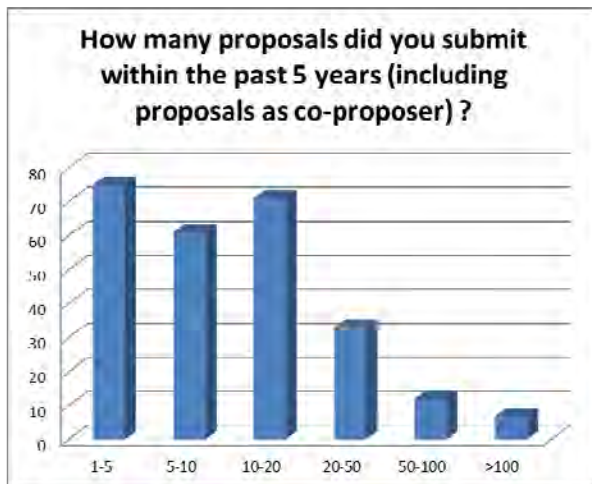
Financial support of the users in their visits and usage if the neutron facilities is with 53% EU access funds and 26% internal resources.

Nearly all proposals are submitted by web based user portals (96%) which are considered as very useful (70% give rating of 8-10), and easy to use (78%) or considered as easy to access (88%). The vast majority also consider current frequency of proposal deadlines as sufficient (74%) with two dates per year (33%). 30% of current users would like to have between 3 and 4 deadlines for proposals per year. The majority of users are not in favor of a continuous proposal submission scheme (52%). Only 27% would consider this as useful. The majority of users favors as time delay between proposal submission and experiment a time span of 2 to 4 months (2 months: 21%, 3 months: 28%, 4 months: 14%).

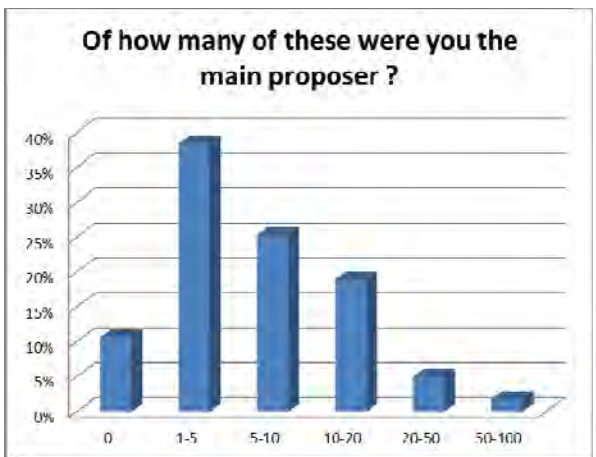
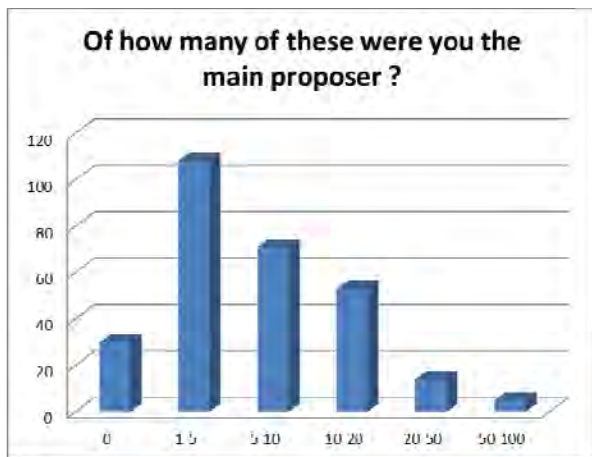
A clear majority of 78% is in favor of a harmonized proposal form and procedure and also favors a unified entry point to get access to the current digital user office platforms (65%). Regarding harmonized proposal deadlines half of the users are in favor (43%), half are not (43%).

Nearly half of all users (52%) would like to share submitted proposal to several facilities for review or move rejected proposals for review to another facility (58%). The majority of users even would favor an automatic move of rejected proposals due to overload to other facilities (60%). A joined facility review committee is less favored by the users (42% yes, 34% no).

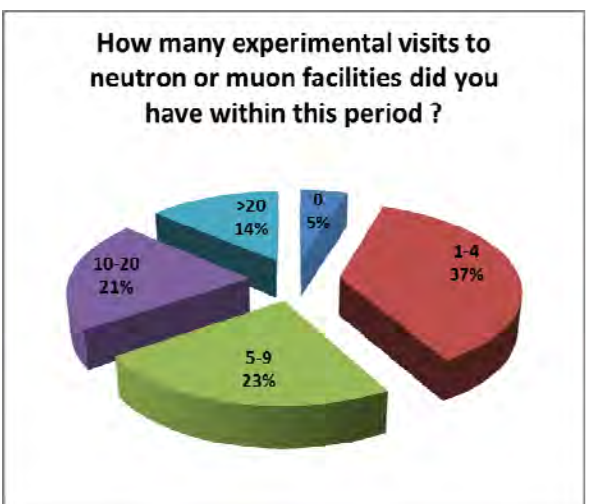
How many proposals did you submit within the past 5 years (including proposals as co-proposer) ?



Of how many of these were you the main proposer ?



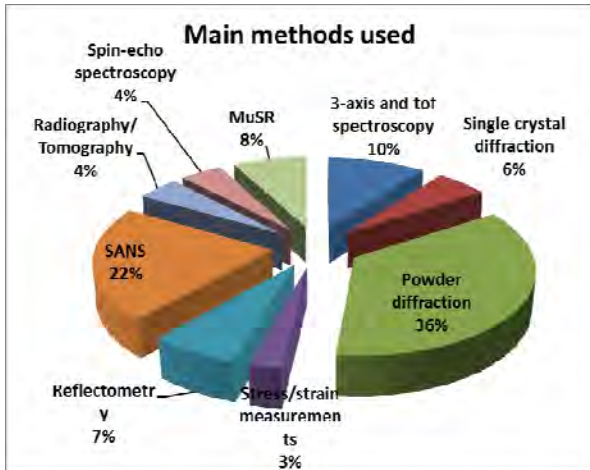
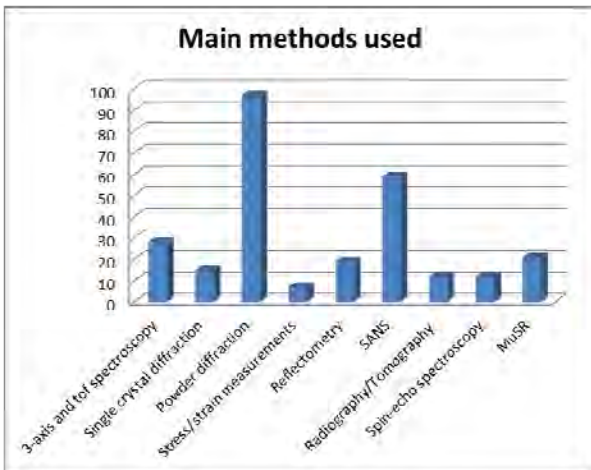
How many experimental visits to neutron or muon facilities did you have within this period ?



How many facilities did you use within this period ?



Main methods used (tick up to 3 with "ctrl")



If "other method", which ?

**Neutron Methods:**

- diffuse scattering
- medium q diffraction
- USANS
- eV spectroscopy
- inelastic neutron scattering
- QENS
- neutron backscattering
- spin echo SANS
- n-capture
- neutron interferometry

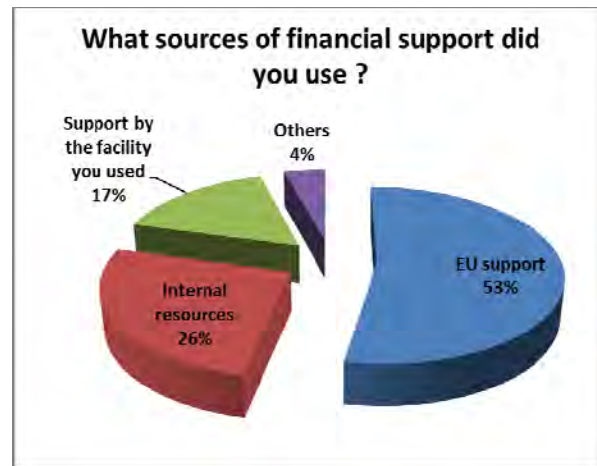
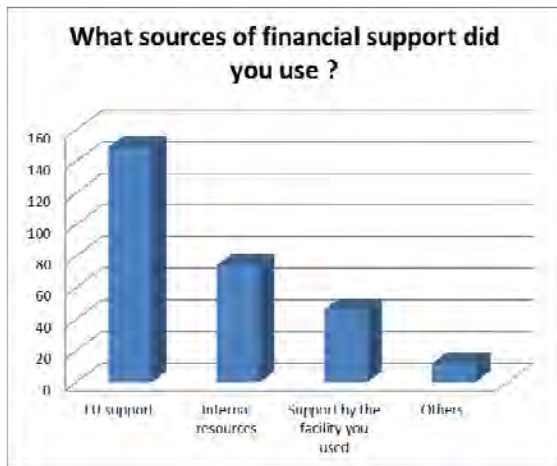
PGAA

- neutron activation analysis
- ultracold neutrons
- very Cold neutron propagation

**Non Neutron Methods:**

- D4C liquids
- deuteration lab
- high-field NMR
- SAX
- soft x-ray resonant scattering

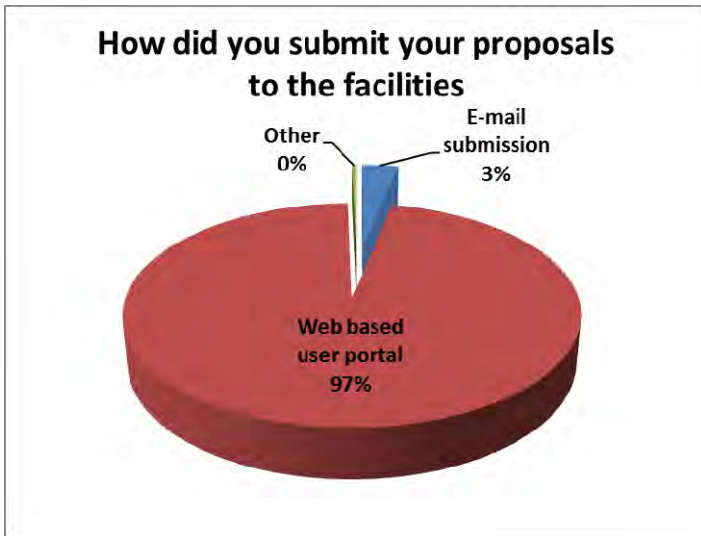
What sources of financial support did you use (tick several if applicable, use "ctrl") ?



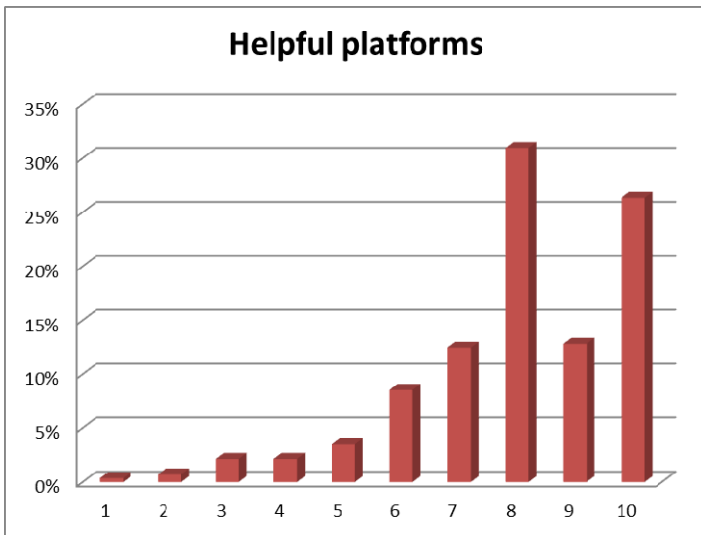
If "other", which ?

- CNR-STFC agreement
- Danscatt
- DFG
- BMBF
- DPG
- EPSRC
- EU support
- facility used and internal resources
- CNR
- FNS
- foreign funding agencies
- Foundation research grants; University funds
- Funding from my govt. agency (US)
- home institution resources
- Industry
- Institute project
- national funding
- NMI3
- personal funds
- Project funding
- Research grants
- self
- sometimes EU via the facilities
- Swiss National Science Foundation
- The DANSCATT organization
- The Swedish Scientific Council
- U.S. DOE
- University Research Funds
- US and EU funding
- US NSF, US DOE

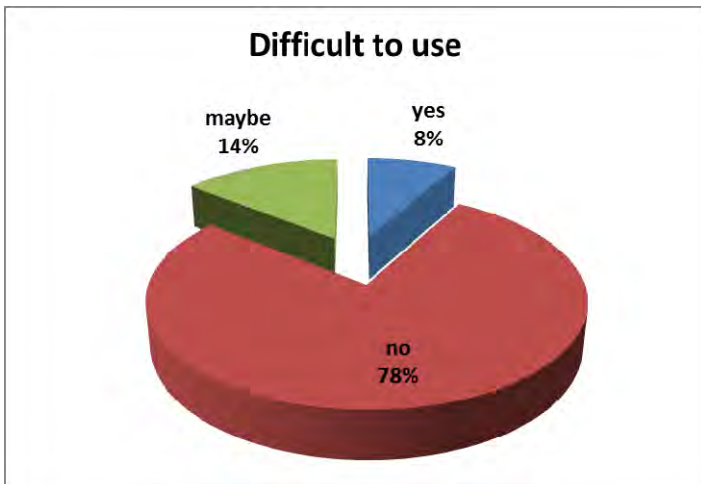
How did you submit your proposals to the facilities (tick several if applicable, use "ctrl") ?



Are digital user offices helpful platforms ? (give grades for 0 (very bad) to 10 (very good))

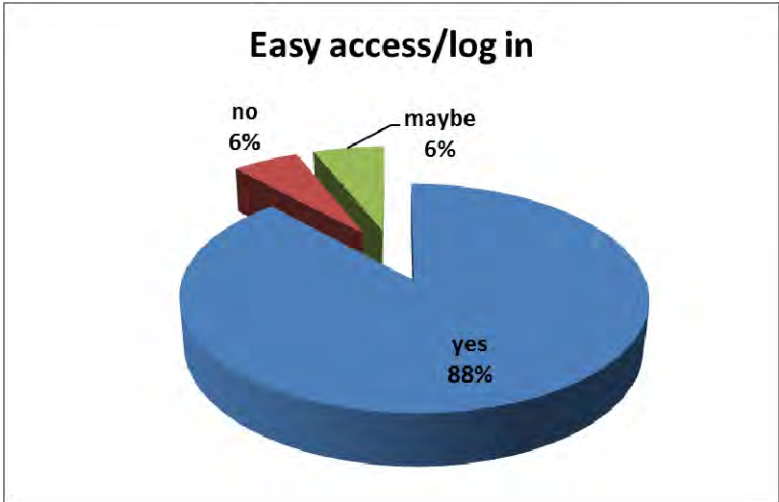


Are digital user offices difficult to use ?

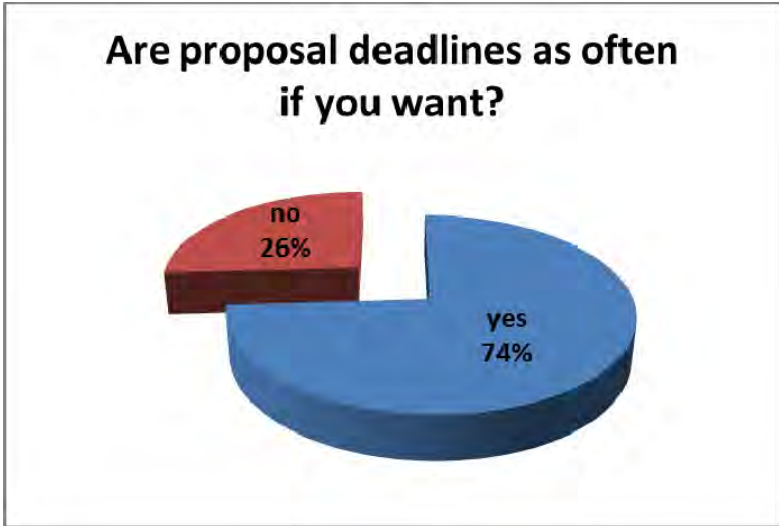




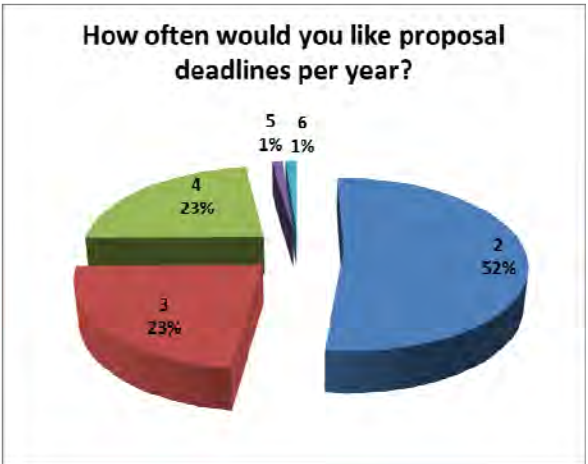
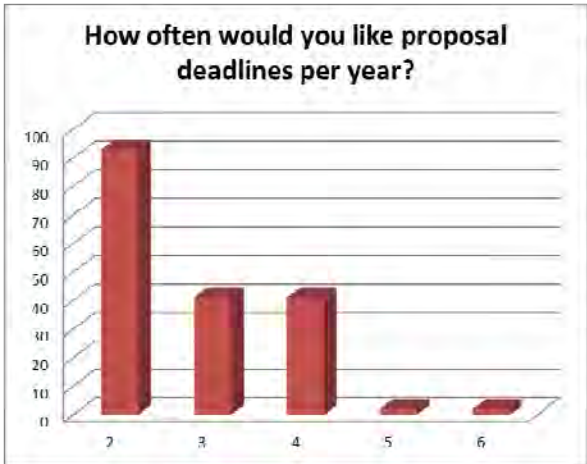
Are digital user offices offer easy access/log in ?



Are proposal deadlines as often if you want?

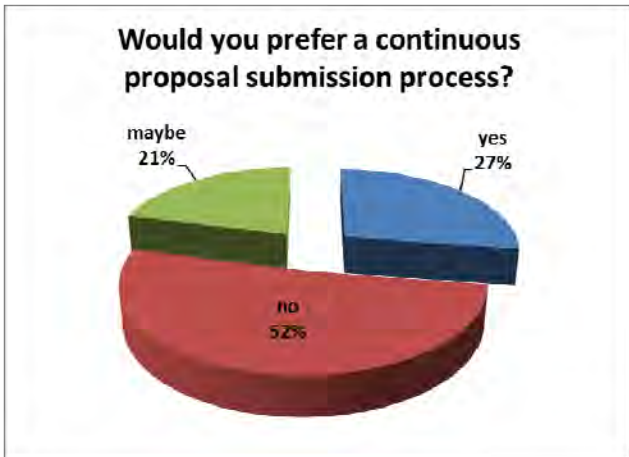


How often would you like proposal deadlines per year?

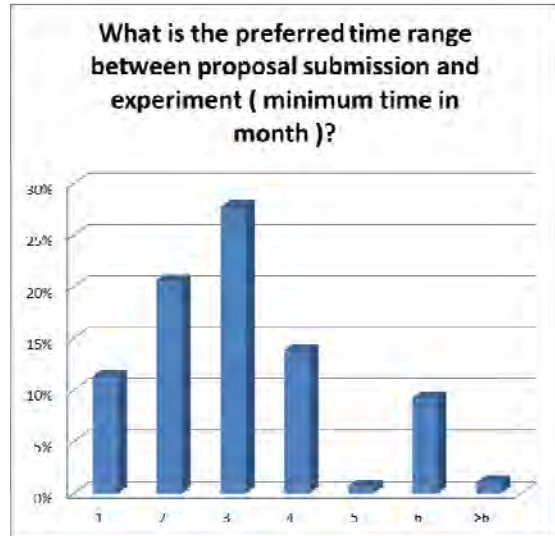
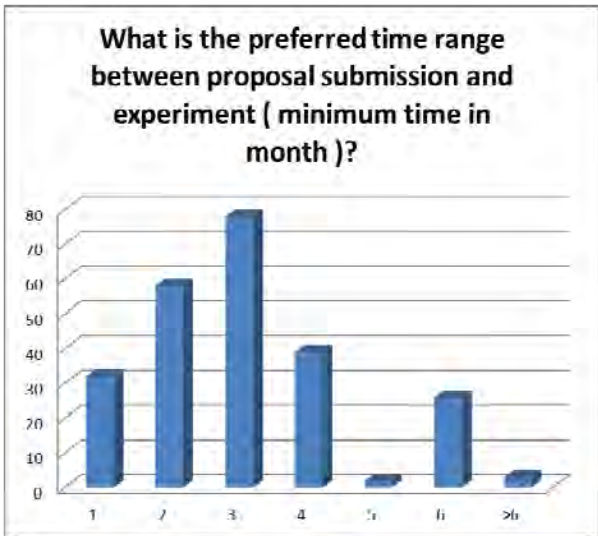




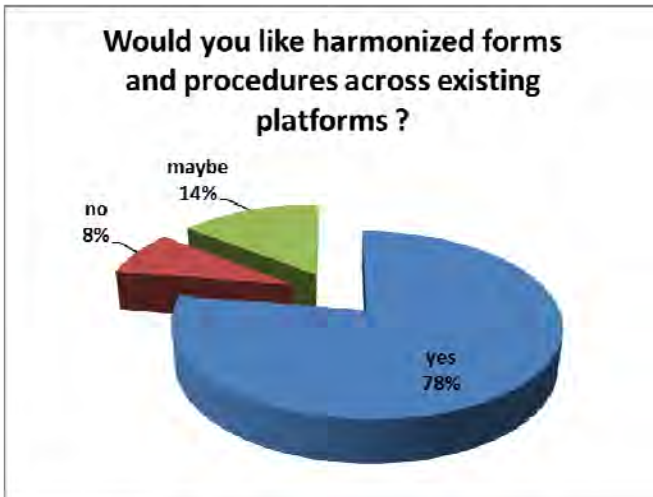
Would you prefer a continuous proposal submission process?



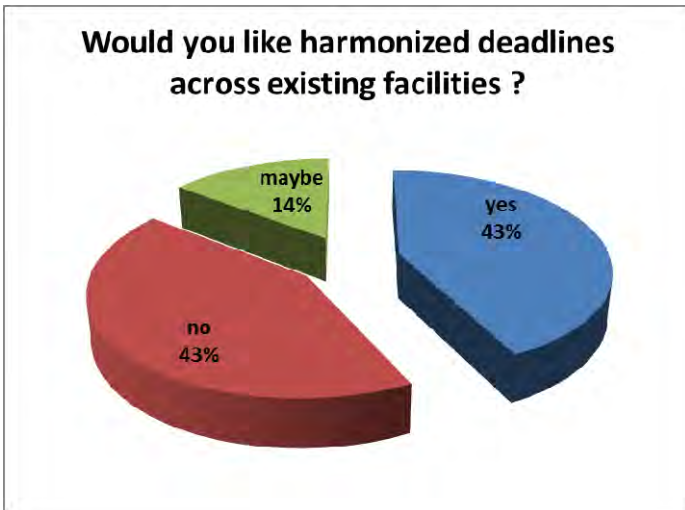
What is the preferred time range between proposal submission and experiment (give a minimum and maximum time values in months like 4,6 )?



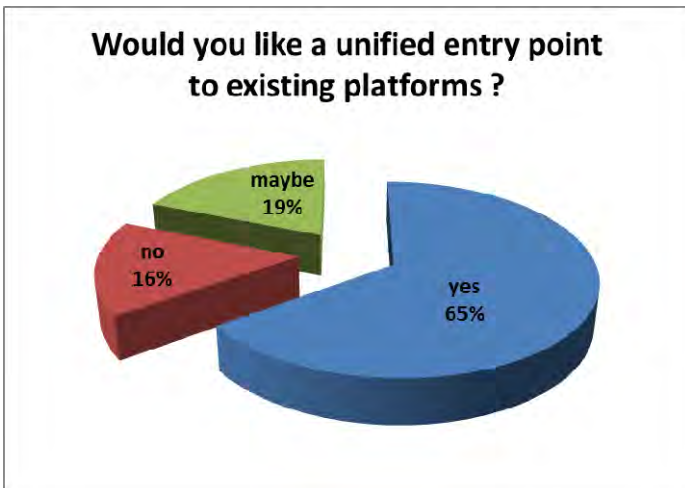
Assuming that each facility operates its own web based user platform, would you like harmonized forms and procedures across existing platforms?



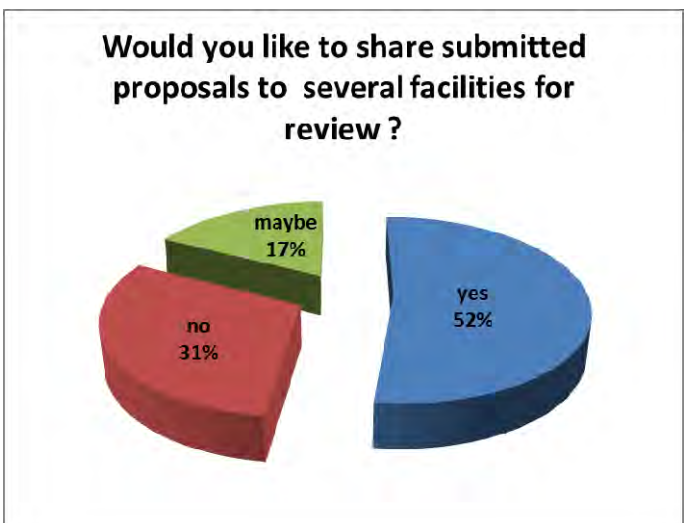
Would you like harmonized deadlines across existing facilities ?



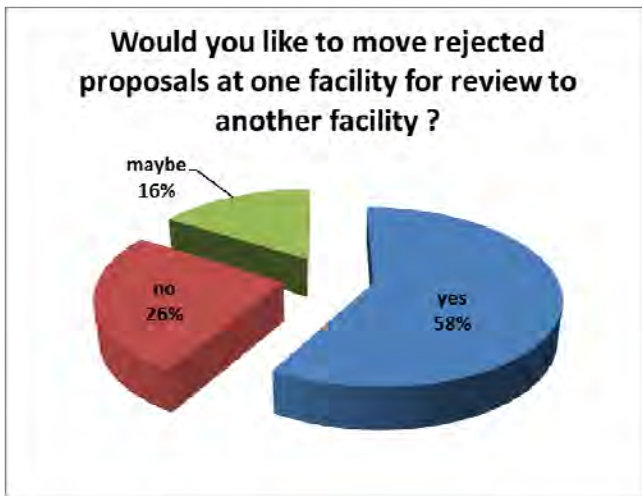
Would you like a unified entry point to existing platforms ?



Would you like to share submitted proposals to several facilities for review ?



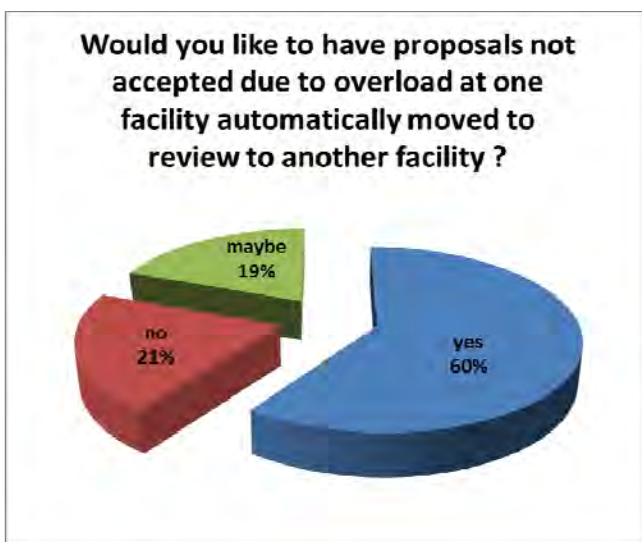
Would you like to move rejected proposals at one facility for review to another facility ?



Would you like to have your proposal reviewed by a joined facility review committee ?



Would you like to have proposals not accepted due to overload at one facility automatically moved to review to another facility ?



## General comments:

- A fast mail-in proposal as it is provided at the 11BM synchrotron beamline in Argonne would be perfect
- A pool of proposals for all EU facilities would be interesting, as some proposals accepted at low flux sources would really benefit from a high flux, and vice versa. Having identical sample environments and sharing rarely used sample-env. would also be nice.
- Additional suggestions for facility selection due to respective expertise of instrument scientists (e.g. regarding material under investigation).
- Any measure that helps to maintain the pace of experimental program without unnecessary duplication of paperwork would be welcome.
- As to the unified entry point to existing platforms, the proposer should have the possibility to choose his/her preferred facility/instrument and, in to propose suitable alternative instrument/facilities in case of overloading.
- Beamlines are different, and some are more suitable for certain projects than others. At FRM-II in Munich, we've been bumped twice from an oversubscribed, useful machine to one that's utterly useless but undersubscribed. All data had to be retaken the first time, and this time if we even show up it will be to check alignment. It might be convenient not to have to apply more than once, but I'd like to be able to veto some options.
- Big problem for industrial users to have proposals moved to other facilities is that we have to have separate user agreements or contracts in place with any facility we will take data at. These contracts are difficult and take a long time to negotiate with each separate facility.
- Clearly, reviewers decision to grant beam time can not be 100% objective. A good proposal may receive no beam time because reviewers \*think\* it is not good enough/makes no sense etc. In case when every facility has a separate review committee, the same proposal/idea has a chance to get beam time elsewhere. Joined facility review committee is really , really, bad idea. New things in science often come unexpected. Joined facility review committee may lead to stagnation.
- Common proposal system would be great. However in that case we need minimum 4 deadlines per year or continuous evaluation. Currently the asynchronous deadlines reduce the time between idea and proposal. We simply apply to the facility with the closest deadline.
- Cross facility shifting would require the specification of acceptable instruments in the proposal, adaption of time requests and request of other equipment
- Current system is optimum and has been fine tuned over many years. Joint proposal for different instruments (X-ray & neutron) at the same facility may be appropriate. Experiments are normally designed for a specific instrument at a given facility with a unique capability. Experimental design part of a proposal normally would need changing if a proposal is to move/submitted to another facility, to take into account the source and instrument performance at that particular facility.
- Current system works ok for me.

- Different muSR facilities have their own specificities regarding ranges of different observables, so they are to some extent complementary.
- Experiments at central facilities come in two flavours (i) part of an established programme where the current system works reasonably well (ii) new ideas where one or two days of exploration would be very valuable - the current system seems to handle this less well
- Great ideas these last 4 points!
- Harmonized procedures sounds like a good idea but I worry a little about joint committees and continuous submission. I worry they might put onerous demands on the time of the facility scientists. It would be a shame to raise their administration time to science time ratio.
- I am strongly dependent on external travel and expenses support, so automatic movement of the proposal to another facility should be done only if it is under the same financial conditions.
- I have one question concerning last 4 questions. Do you like 'Chinese' style for work? Well... Let's do it. Hope, this comment will not affect my further proposals.
- I think it is preferable to make the decisions about different facilities for oneself. Recommendations or suggestions regarding other facilities may be more helpful.
- I would like to receive more information about the review process after I submit - e.g., the date when I will be noticed about the outcome of my proposal.
- I'm satisfied by the following european facilities of which I've been a user: LLB ILL ESRF
- If a proposal is rejected a brief motivation should be given, which could be useful for future proposals
- If possible, it would be nice to see if we could 'rank' suggested facilities for a given proposal, i.e., if our proposal for our first choice specific beamline at a specific facility is rejected, then it would be considered at our second choice, etc. But it could be left at the discretion of the review committee as to which facility ultimately is chosen if the proposal does not score highly enough at the first choice.
- In a web based system, proposal deadlines should not be necessary at all. See e.g. ESMI
- In general each facility has two proposal deadlines per year. That is OK. But not all facilities should have the same date for the deadline otherwise the time in between two deadlines is too long (6 months). Would be nice to have the deadline harmonized such every three months there are deadlines: e.g. half of the facilities have the deadlines in January and July; the second half of facilities has the deadlines in April and October.
- In some cases, it would be useful to have proposals rejected at one facility moved to another. But in other cases, the experiments are very specific, and each facility has different experiment resources (for instance, rheo-SANS in a real rheometer) that can be more suitable for that experiment, and so, moving it to another facility would not be suitable anymore... So, the answer, is 'Maybe';... depends on the experiments.  
The ideal would be to have the possibility to select a number of instruments/facilities where

the experiments could be run, with an order of preference. And if the slot was fully booked on the preferred instrument, it would go automatically to the second instrument on the list, and so on. This would be good because users would not need to write multiple applications.

- In the last questions, I feel that the answers depend on the reason for the rejection. If it's only a matter of overload, then it's nice to have the proposal automatically reviewed in another facility. If the problem arises from a poorly written proposal, it would be better if only one facility saw it before the authors submit a corrected version, so as not to leave a bad impression everywhere at once (especially if there is a joined committee). In any case, the users should be asked for permission to transfer the proposal.
- Keep review panel at high professional level, i.e., judging the proposal strictly on scientific merit, is important for the health of the neutron scattering field and the status of the facility among its peers in the world. This is easier to say than to follow.
- Moving proposals between facilities is not straightforward for all techniques as some features of one facility are not available at others. If proposals are transferred across directly the experiments will not be designed optimally for the subsequent facility. A proposal is a statement of an experiment's design and methodology and should be based on the tools/instrument that will be used. Otherwise it will waste a lot more expensive time at the facility than is wasted by rewriting proposals for resubmission.
- Multiple review of the same proposal is more work for panel members. I wouldn't recommend shifting too much as users often apply for a specific instrument. If harmonized means 'distributed over the year', then I would answer yes to that question. Preferred time range 3 to 6 months (not accepted by webform).
- No to 'hamonised'; deadlines as long as there is no unified entry point because this would delay a 'second chance' at another facility. Maybe to joined committee because this may reduce topic diversity. No to automatical move because experiments may be transferred to inadequate instruments (as already happens IN6- IN4 at ILL).
- One joint system will be really great!
- Some web based user portals are very good, some are rather mediocre. Therefore, it is hard to answer the general question. Best web based user portal is found at the ORNL at the moment.
- The BAG system which I am using is very practical
- The platforms vary across facilities from impossible to use to excellent. Hence 5 is a mean score. Peer review is an excellent and fair system
- The present system works fairly well, improvements are possible but of limited extent.
- The proposed exchange among facilities is not feasible to my point of view mainly because instruments have not the same characteristics in all the facilities
- The system mostly works well as it is. Don't fix what isn't broken.
- The system seems to work reasonably well at present, although some simple improvements are possible

- The volume of proposals would be too great for a combined facility review committee so the review panel would have to be made extremely specialised to allow them to read all the proposals and then the overview/balance would be lost (or would have to be the responsibility of some higher committee - more admin, less time for us to do experiments!)
- The way the user program runs is archaic, it worked in the past, but now we need to find a new way to give access to users. I would like to have an open access process, more instruments following the ISIS example.
- The weak financial support complicates the research work of users / researchers came from the small centers / universities.
- There are pros and cons for a joined facility review process. Finally we will depend on the available number of persons who are willing and able to work as referees. Sending rejected proposals due to overload would be good for the users but increase the number of proposals to be read by the referees... This should be managed by harmonized deadlines.
- We'd like to measure the probability of an inelastic scattering of cold and very cold neutrons on our impurity gel samples of heavy water and deuterium in He-II in a wide range of energies (from a few micro eV up to a few meV), but we could win the strong competition in ILL. And we'd like to clear if it is possible to distinguish between the ferroelectric and nonferroelectric clusters of the heavy water forming the backbone of our heavy water gel samples in superfluid He-II and if so, to observe the phase transitions from the clusters of the ice X (ferroelectric phase) to cubic ice and next to usual hexagonal ice grains on heating the sample from 1.5 K to 200 K, for example.
- Why limit to only neutron and muon sources and not also synchrotron (photon) sources?

## Reviewer Survey Proposal Procedures

A survey was conducted among neutron scientists acting as reviewers in review committees of European neutron facilities rating proposals for beam time by scientific merit. Topics tackled by the survey were to evaluate the frequency, activity and work load of the reviewers, their comment on the organization of the review and their point of view regarding harmonization of proposal structures and review process. The survey was held anonymous and 29 responses were received. Estimating a number of 200 individual scientists acting as reviewers in current European review panels the survey reflects the opinion of at least 15% of the reviewer community of the European neutron facilities.

The survey shows that a single reviewer usually is active in 1 or 2 committees (69 %). The majority is active between 2 and 3 years in the committees (41 %) but nearly 1/3 is active more as 5 years (31 %). Within a year most reviewers review between 30-50 proposals (31 %) or more (50-100 proposals, 28 %). On average they invest between 0.5 (28%) and 1 (34%) hour time to review a single proposal.

The majority of the proposals to review is distributed to the reviewer as printed document (24 % and 34 % with additional web based access). 28% receive the proposals as pdf document. The reviewers prefer in their majority printed documents (56 %). Most reviews are submitted electronically (83 %) which is also the preferred option of the reviewers (68 %) but a large fraction also votes for personal

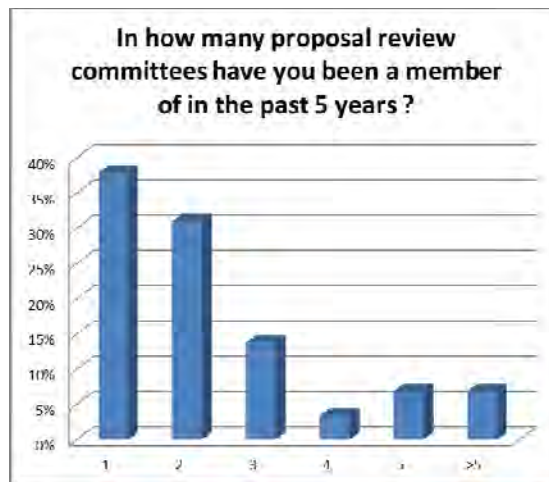
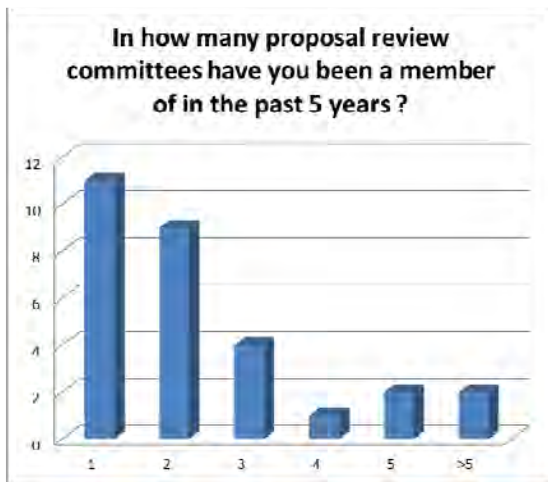


meetings (56 %). There is also a clear preference to meet in person and have panel meetings (83 % rate this as important, rate 8-10). Video conferences are clearly not in favor (45 % no).

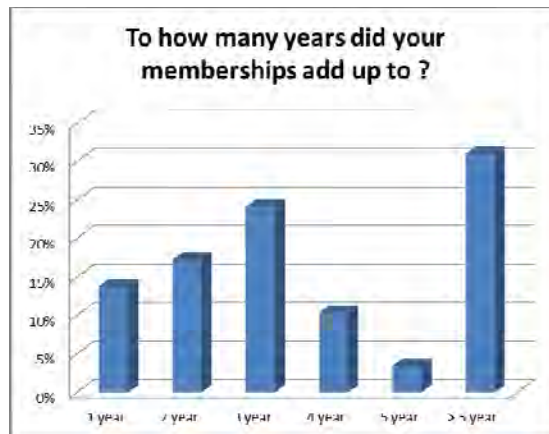
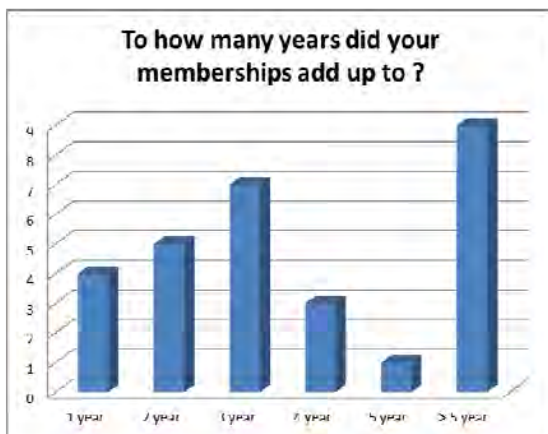
Most reviewers consider current existing web base user office systems as helpful (62 %). Only a minority considers them as “too complicated” (14 %). A clear majority is in favor of harmonized forms or procedures to review proposals across individual facilities (48 %). On the other only a minority considers a centralized review process or review panel across the facilities as useful (24 %), the majority is uncertain (maybe, 48 %).

**Individual results**

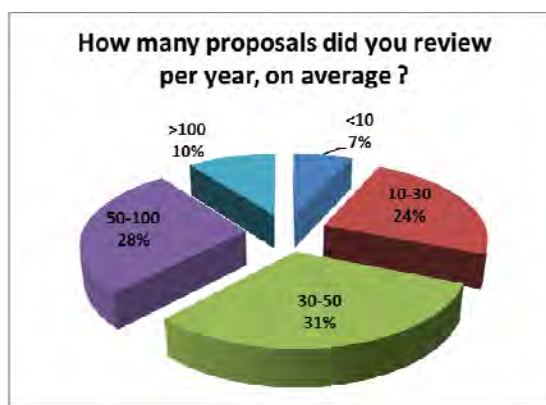
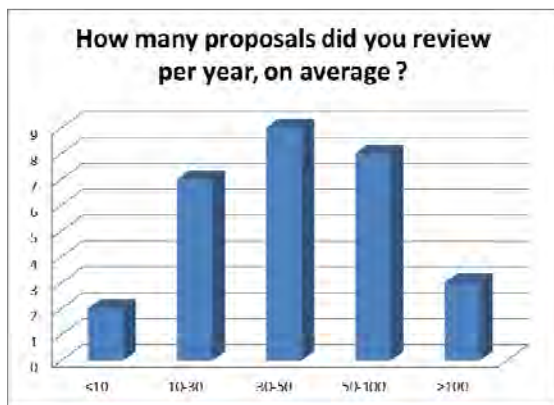
**In how many proposal review committees have you been a member of in the past 5 years?**



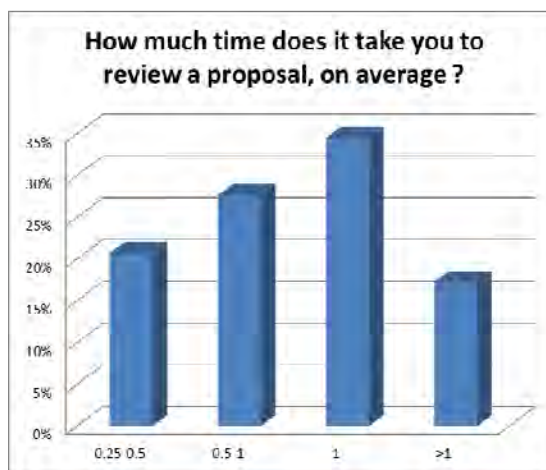
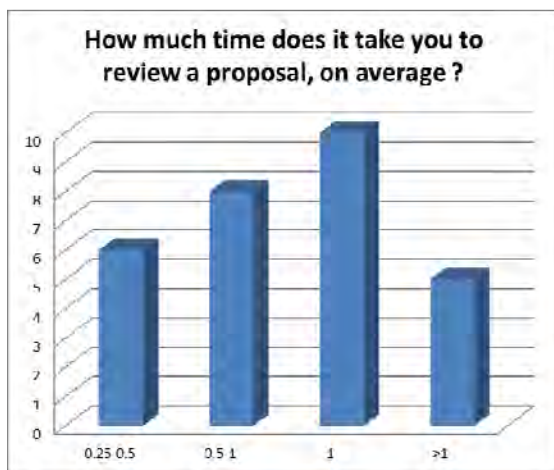
**To how many years did your memberships add up to (possibly >>10)?**



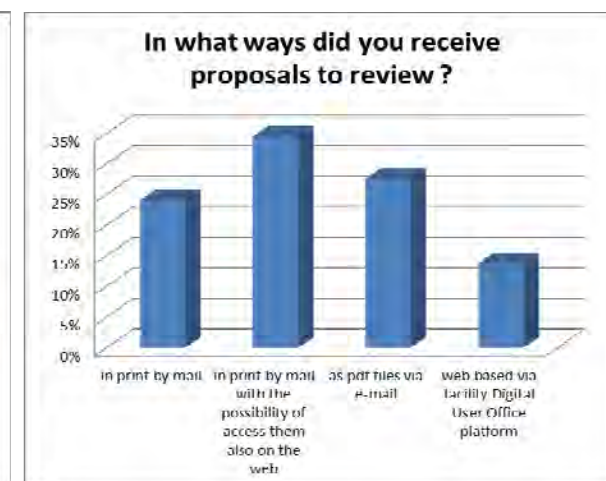
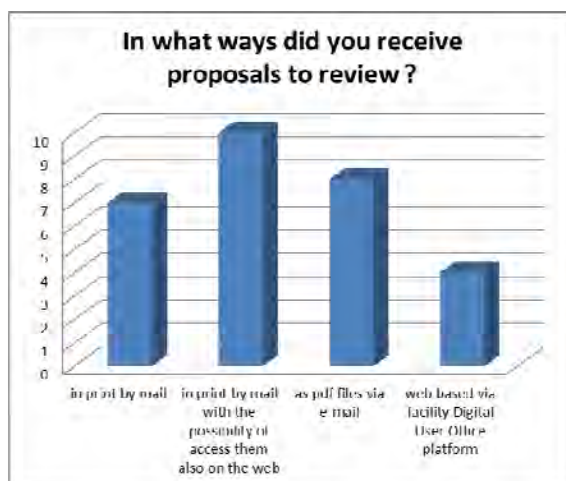
How many proposals did you review per year, on average?



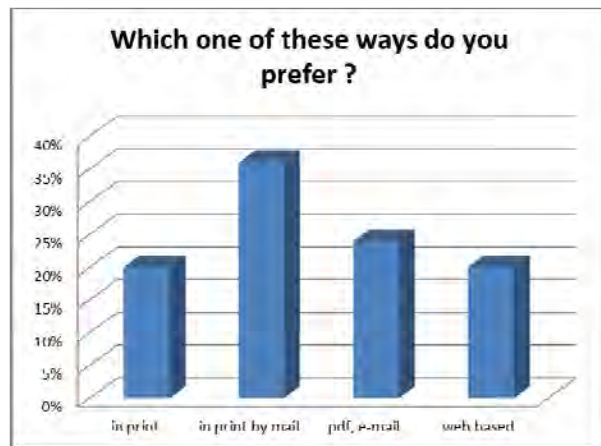
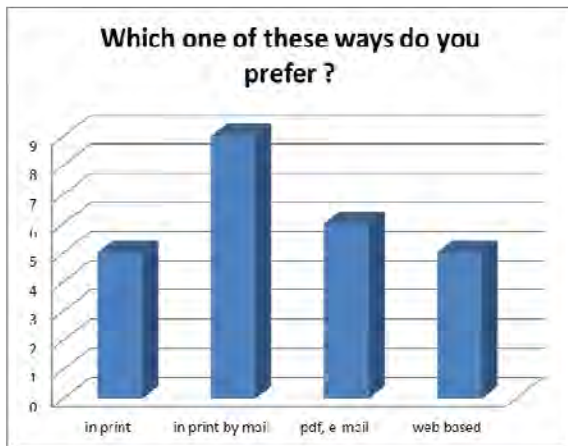
How much time does it take you to review a proposal, on average (Please estimate in hours)?



In what ways did you receive proposals to review?



Which one of these ways do you prefer?



In what way have you submitted your reviews?



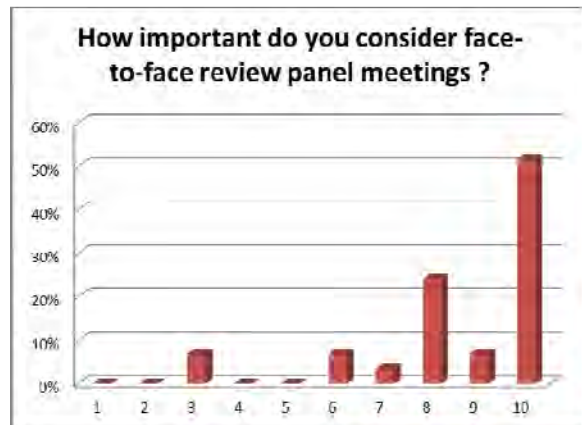
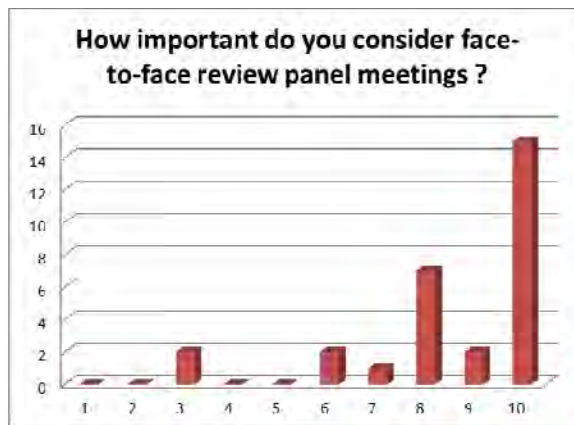
Which one of these ways do you prefer?





**How important do you consider face-to-face review panel meetings?**

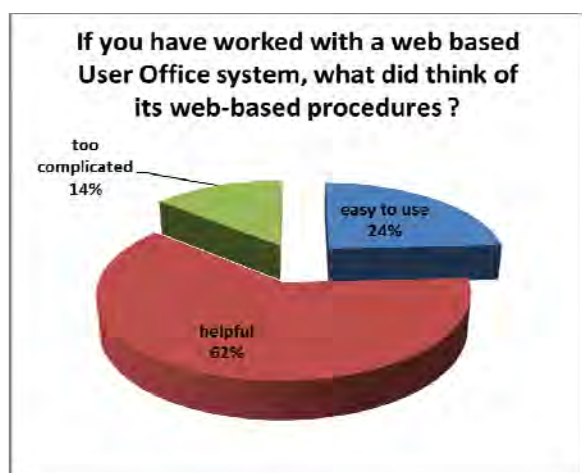
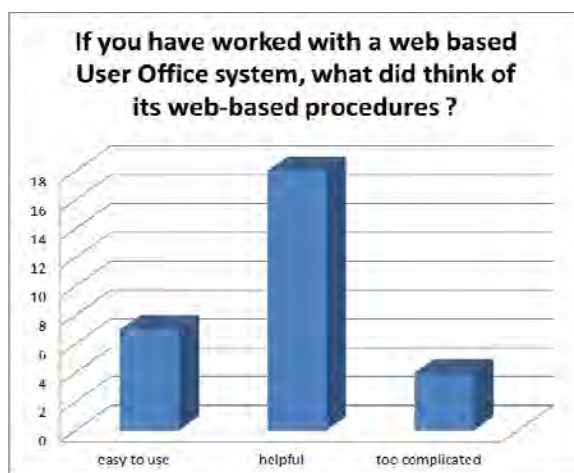
(give grades for 0 (unimportant) to 10 (very important))



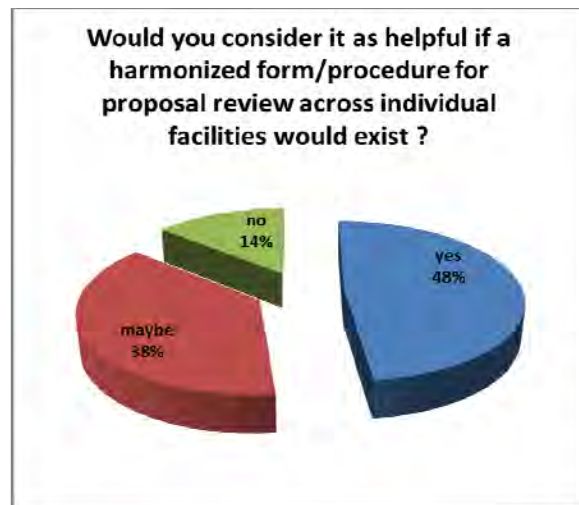
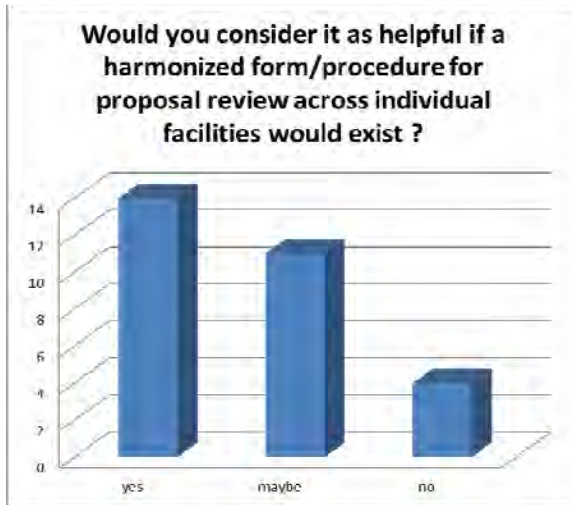
**Are skype or video conferences useful alternatives for face-to-face reviewer meetings?**



**If you have worked with a web based User Office system, what did you think of its web-based procedures?**



Would you consider it as helpful if a harmonized form/procedure for proposal submission across individual facilities would exist?



Would you consider it as helpful if a centralized review process/panel across individual facilities would exist?

