

Future Funding under the EPSRC MNA Programme

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Programme URL : <http://www.dci.clrc.ac.uk/Activity.asp?MNA>

EPSRC Long-term Research Grant Proposals

The TOP and UP committees which advise EPSRC have asked all programme managers including Deborah Miller (DPM1@epsrc.ac.uk) who manages the Communications and Distributed Systems Programme (CDS) that incorporates the Multimedia Networking Applications (MNA) programme to increase the proportion of long term or basic research funded. The EPSRC would like to fund more long term research and sees the main place for research that it funds in this area (see Figure 1), but it does not do so there are not enough good proposals, and since the referees who assess the proposals reject them as unsafe.

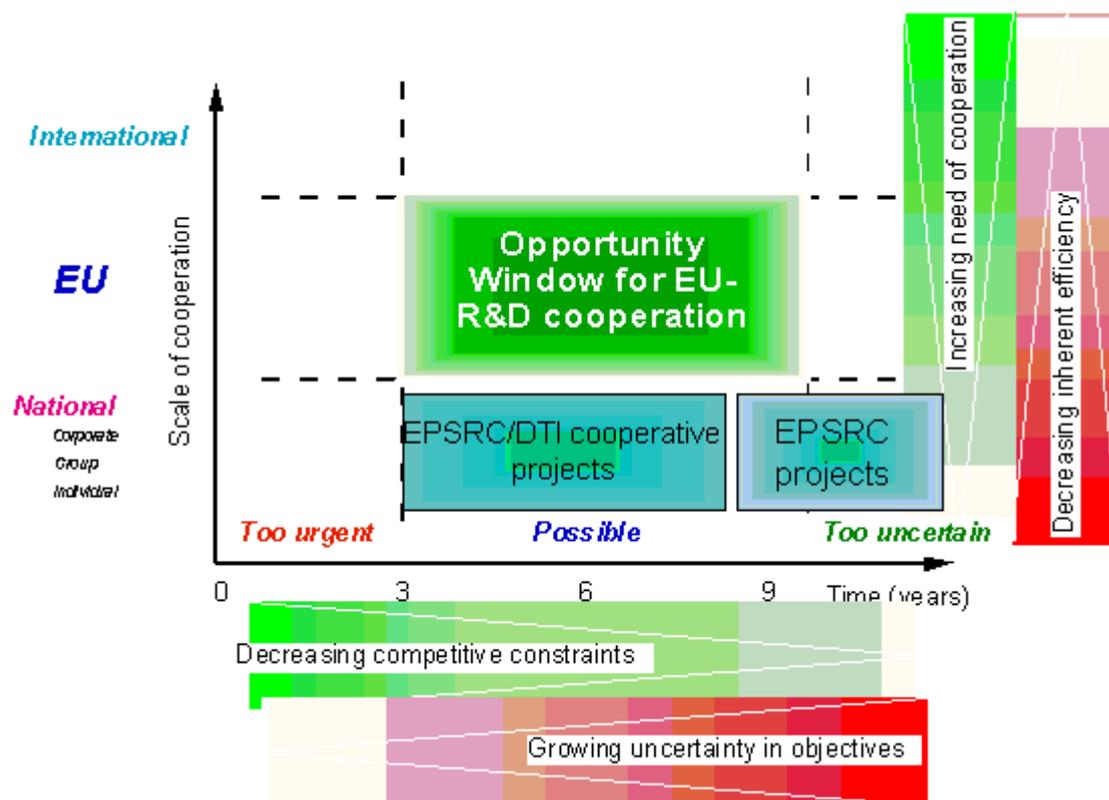


Figure 1: The context of EPSRC research projects

Referees are requested to consider the merits of long term research and not to reject it as unsafe purely because it is long term. It has been said that the referees who are most likely to reject long term research proposals are those from industry, and since all proposals are allocated at least one industrial referee, this enforces rejection. The major reason that industrial referees reject long term engineering research proposals is that they do not see the intended application of the research in the proposal (science proposals which are trying to answer a fundamental question are assessed by different criteria). To overcome this, proposers should ensure that two paragraphs are included near the top of their case for support describing the technology road map to the proposed research and its role in the value chain of application.

The technology road map paragraph should state the current technology A and the proposed technology Z and describe the likely route from the current technology to that target through B,C,D .. etc.. giving likely time scales. Most industrial research laboratories guide their research strategy by such road maps as do many funding bodies, and these are often available on the web (e.g. BT's at <http://www.labs.bt.com/people/pearsonid/papers/Cal97.doc>). Reference to other road maps can shorten this argument and support your judgement with that of others. If your judgement widely differs from the received view of other road maps you will clearly have to justify it at greater length. Road maps are bound to be wrong, in that the time scales may expand or contract, and technological directions may be followed which were unexpected. But that is the risk of long term research, and it is that risk which the referees are evaluating. Unless they are provided with the information, they cannot assess the risk.

The Value Chain paragraph should describe how the proposed technology will be used in an application when it is part of a product. This may be 15 years away down the technology road map, but you should still be able to foresee some use for the technology. For example, if it is to be used to improve the performance or throughput of information communication switches, then the technology may be used by the developers of such switches. The chain would then include the sale of those switches to Communications providers who sell a service to end users in all sectors of business, public service and domestic users who use the communication services. The performance of the service will be made more effective, reliable or efficient by some amount, reducing its cost or increasing its range of applications. This is the form of a description of the value chain of business in which the technology would be used, and the types of benefits to individuals in that value chain. Once you have identified the business roles on the value chain, if you can identify existing companies who may fill those 'user' roles, and who would support your analysis and proposal, by a letter of agreement, by expressing a desire to exploit the results, or by actually contributing with effort or equipment to your proposal, that would of course add weight to your argument. A referee could then argue that in the time frame considered, the technology road map is wrong, since the whole communications network by that date would use a non-switching technology, so improvements resulting from the proposal would not be required. Alternatively, they could argue that a proposal to improve error correction to the end user by placing enormous buffers at the routers would not be adopted since it is not in the business interests of the communications providers at that point in the business chain to offer this service, which should be provided down stream in the chain by an application service provider; therefore the proposal is rejected. Alternatively, they may be convinced that both the technology road map and the value chain and the expected benefits are reasonable, and that the proposal should be funded. Again, unless the value chain and benefit information is provided referees cannot necessarily make this judgement.

Both referees and proposers are asked to consider these issues in submitting and evaluating long term research proposals to increase the number of long term research proposals funded by the EPSRC in the CDS area.

Background to the MNA Programme

The Multimedia and Networking Applications Programme as part of the CDS programme within the IT&CS programme of the EPSRC issued its first call in 1994 with a 1995 deadline. This was the first of 5 planned calls with an overall budget of £5M within a managed programme which was established according to the following rationale :

- a) the need to address basic research and systems integration issues in the area of multimedia and networking applications;
- b) the applications pull from all sectors of UK industry, including leisure, business, commercial and manufacturing and other areas such as education and health care (including how MNA could be made accessible to these sectors, and to the developers of high performance networks);
- c) the recent availability of cost-effective and appropriate techniques and technologies.

The first point indicates that research results do not need to become products in the market place immediately after the project, but should envisage a time scale up to 15 years hence. The path for research turning into products could be by the academic researchers taking the results through further research projects under UK or European funding (as shown in Figure 2), or by a company taking the results immediately from the project and making the investment themselves to incorporate the results into products following similar stages.

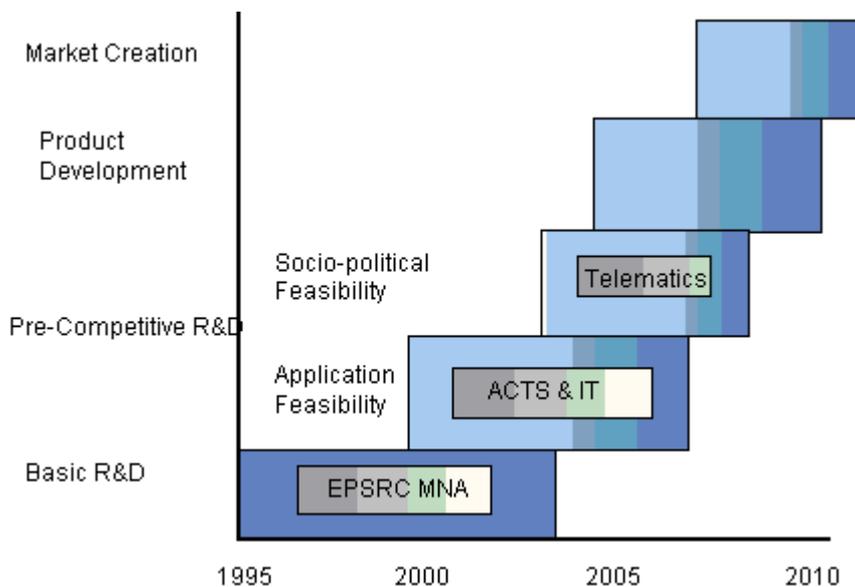


Figure 2: The expected timescale for exploitation of MNA project results

The second point asks for applications pull from UK industry. This does not require substantial financial investment from a company. This requires that you do identify companies who accept your value chain analysis, and technology roadmap enough to see themselves as beneficiaries of your research. The argument that they see a benefit for themselves is, of course, strengthened by any investment they make in the proposed project. If at a panel meeting assessing proposals, your proposal is borderline for funding and it has more industrial support than another, then it will have an advantage. However, financial industrial support is not required. The programme as a whole must show that it has industrial support, and 94% of funded projects have some industrial support, but this varies from £382,000 down to as little as £2000. Projects without financial industrial support can be funded. However, proposals which do not even have a company agreeing with the value chain analysis and the expected benefits are unlikely to receive funding.

Research Topics for Funding under the MNA Programme

The MNA programme addresses five major research topics each of which is further subdivided - see table 1. Of these five topics, Systems Integration was the focus of the 1995 call, Network and Mobility Issues for Multimedia was the call focus for the 1996 call, and Human Factors Issues was the focus for the 1997 call. In each case proposals over the whole range of topics were requested, and it was stated that about half of the funded topics should address the focus of the call. The result was that a vast majority of proposals to each call addressed the focus. This must be considered in drafting the two remaining calls where we would like to once again be open to proposals across the range of topics.

Systems Integration

Tools and techniques needed for constructing and dynamically reconfiguring value added services and applications from existing components and lower level services.

Specification of required service in terms of service types, behavior, quality etc.

Use of directory services or trading concepts for locating services.

Issues of fault tolerance, security, accounting, quality of service and management, which have to scale to cope with large, interorganisational systems and how these issues interact within different underlying services.

Network and Mobility Issues for Multimedia

Internetworking of fixed and mobile networks, including resource allocation issues, for multimedia traffic.

Traffic monitoring and control mechanisms to support the maintenance of quality of service contracts.

Group support for multimedia communications in both mobile and fixed networks.

Naming, locating and load balancing techniques for mobile clients or servers.

Distributed Multimedia Services

How to provide global services and resources across multiple networks.

Multimedia teleservices including provision for groupbased applications and synchronisation services.

Distributed multimedia databases how to describe, store and retrieve multimedia information in a database.

Video on demand data location, replication and load balancing issues.

Licensing and copyright control techniques for reusing multimedia information.

Human Factors Issues

Design & evaluation methods and tool support for multimedia human interface design.

Applicability and effectiveness of using different media to communicate across networks including virtual reality, live video, onthefly animation etc..

Techniques for creating and interacting with virtual organisations.

Economic Issues

Comparative costs (and economic benefits) of MNA compared with alternative solutions.

Table 1: MNA Programme Research Topics

Awards Under the EPSRC MNA Programme

33 Awards have been made in the three previous calls as a result of 157 proposals. The breakdown of these is shown in Table 2. Table 3 shows a breakdown of awards into the research topic which they address.

Proposals pass through the normal review process of refereeing by 3 or more referees who reject proposals or decide that they are fundable in principle, then a panel ranks those remaining into three categories: fund, resubmit, or unfunded by the programme. Referees mainly reject proposals because the scientific quality of the proposal is too low, although some are rejected because the planning and viability of the project is too low. The panel places proposals in the resubmit category if the proposal is either addressing a very good scientific topic but the planning and viability of the project is too low or because the project is well planned and structured but their is not a scientific question in terms of the normal IT and CS programme which is being addressed. The Panel places proposals in the category of unfunded by the programme if they meet the referees criteria for rejection, but too few referees reports were accepted for them to be rejected prior to a panel meeting, or because they are outside the scope of the programme. Proposals which are outside the scope of the MNA programme are normally inside the general CDS programme, since the contain networking or communications research, but nothing to do with wither multimedia or applications; occasionally they are proposals for support infrastructure with no scientific objective, or include multimedia but no networking in which case they are passed to other programs, or rejected for resubmission to JISC. Such proposals are passed with the referees reports to the next panel of the relevant programme for assessment against unconditional call proposals.

	Call 1	Call 2	Call 3	Total
Call Deadline	3/95	5/96	3/97	
Number of Submissions	72	49	36	157
Number of Funded Awards	14	11	8	33

Acceptance Rate	19.5%	22.45%	22.22%	
Number of Funded Institutions	12	10	8	21*
Budget for Call	£1.5M	£1.5M	£1.5M	£4.5M
Funds Allocated	£1.3M	£1.0M	£1.3M	£3.6M
Underspend	£0.2M	£0.5M	£0.2M	£0.9M

Table 2: MNA Awards by Call

	Call 1	Call 2	Call 3	Total
Human Factors	1	-	2	3
Application	6	6	3	15
Service	6	5	3	14
Communications	1	-	-	1
Total	14	11	8	33

Table 3: MNA Awards by Research Topic

The category of proposals which the panel places in the class for resubmission are the most difficult. At the panel meeting for the third call, five proposals were placed into this category, and took three hours of deliberation between them. Within these the most difficult to classify are those which are proposing application projects which are well planned and structured but their is not a scientific question in terms of the normal IT and CS programme which is being addressed. Normally the IT & CS programme funds projects which address problems inherent to IT & CS itself. Therefore if an engineer (civil, mechanical etc) makes a proposal for an application to use networking technology to transfer multimedia information between engineers to achieve their engineering objective, there does not appear to be an IT & CS research topic. Clearly such proposals are applications of multimedia and networking and could be funded under the MNA programme, except that both referees and panel members see the problem of applying the IT&CS technology to an external application domain as outside the conventional scope of the IT&CS programme and therefore the MNA programme.

Future Calls under the MNA Programme

There are two further calls planned under the MNA programme, with deadlines in early 1998 and 1999. The next call is expected to be issued in December for a march 1998 deadline. The topic of this call has not been resolved. Two options are currently under consideration:

1) To request application projects where scientific advances are expected not in the fundamental information technology itself, but more in its application to particular problems or domains. Such proposals may have been rejected from earlier calls where the assessment criteria were those conventionally used by the IT&CS programme to include scientific advances in the field of IT&CS itself. Application projects may make advances in the discipline of the application by applying information technology. Guidelines for both reviewers and assessment panel members will be required to maintain the standards of the programme whilst admitting such application projects.

2) To make a general open call for research proposals on any of the topics shown in Table 1 provided that they include both networking and multimedia aspects.

The first would address the observed problem of funding applications of IT&CS technology outside the normal scope of the programme, while the second would open the call to overcome the limiting effect on proposers of including a focus, thereby excluding proposals outside that focus. We would obviously like to achieve both objectives. If you have views on either option, or alternative proposals, or comments on the current scope of topics in the programme, please e-mail me, and they will be considered in deciding the topic of the next call.

Partly to facilitate the decision making about the future of the programme, a workshop will be held for projects funded

by the programme, but also for potential proposers and industrial participants at the University of Warwick on the 19th and 20th November, with the following objectives:

- 1) To bring together the MNA community into a cohesive synergistic whole
- 2) To promote cross fertilisation of ideas and technology between researchers at different levels (comms, service, applications, HF).
- 3) To develop the direction for future calls
- 4) To promote the programme and its results generally
- 5) To encourage industrial take up of project results specifically
- 6) Allow the MNA community input into the MNA programme evaluation procedure.

We would like all the industrial organisations involved in projects to attend the workshop for at least one day if possible to see the other technology being developed in the programme, and aid in exploitation and dissemination of results. Further information about the currently funded projects, future calls and the workshop is available at the programme web site.

Conclusions

The MNA programme has funded 33 projects on its previous 3 calls. It is considering topics for the 4th call. Please contact me by e-mail if you have strong views on topics for the third call.

The programme is organising a workshop in November at the University of Warwick to consider the topic of the next calls, and other aspects of the programme. For information on the workshop, existing projects or the next call please see the web site.

If you have had a proposal rejected and are unclear about why, please contact me by e-mail because I may be able to offer you guidance. There is no point in getting bitter with the process, if you only need to ask for further information to solve your problem.

If you are considering submitting a proposal it is one of my roles as coordinator to aid you, and I can look at proposals prior to submission and offer guidance, so once again please contact me by e-mail - I do not referee any of the proposals and there is no conflict of interests from this.