

EARNEST Study Questions for NRENS

on Organisation and Governance



Introduction

EARNEST is a foresight study, part of the GÉANT2 Project and co-funded by the European Commission. It will provide policy inputs for initiatives that could help to keep the evolution of European research and education networking at the forefront of worldwide developments, and enhance the competitiveness of the European Research Area.

The project will run until November 2007. Complete details on EARNEST can be found within <http://www.terena.nl/activities/earnest/docs/earnest-workplan.pdf>

The EARNEST workplan specifies seven study areas: Researchers' Requirements, Technical Issues, Campus Issues, Economic Issues, Geographic Issues, Organisation and Governance Issues, and Requirements of Other Users.

This questionnaire has been designed mainly as part of the Organisation and Governance Issues sub-study and mainly focuses on fact finding, with the goal of drawing a clear picture of the current situation. The report that will come out of this work will serve as a basis for future recommendations.

The questions are split into several sections each of which addresses certain aspects of the governance, organisation, funding, support etc. of the NREN organisation and its network. The organisation and governance workplan objectives (which are shown in italic blue) are also given and the questions that attempt to address the objectives then follow.

The questions are wide-ranging covering policy, funding, governance, organisation, management and some technical issues.

Target of the questionnaire

In order to get a picture as clear as possible about the organisation and governance issues associated with European research and education networking this questionnaire has been aimed at the NREN organisations that develop and support National Research and Education Networks.

The questions in this questionnaire feed into several EARNEST study areas so will inform many different aspects of the study. The questionnaire is therefore quite long and in some places the questions may be difficult to answer. If there is any doubt about the meaning of the questions please contact Robin Arak who is leading the EARNEST organisation and governance study area. He can be contacted by email at robin.arak@btinternet.com. Completed questionnaires should be emailed to Robin Arak at the email address robin.arak@btinternet.com.

Questions shown in *green italics* are questions that could be answered by the underlying data from the TERENA Compendium but since there is a timing difference between the gathering of the TERENA Compendium data and this questionnaire respondents are asked to answer these questions so that a complete snapshot of the current situation can be obtained.

Where questions are asking you which statement or statements are correct please tick after the letter in front of the correct statement or alternatively make the statement(s) that are correct into **Bold type** so that it is clear which choices you have selected. If you wish to put in further explanations please do so if you think they will clarify your response. If you need additional space for comments please insert additional lines where required.

Please answer the following so that a follow up can be made if necessary

Country:

Name of NREN:

Primary Contact email address:

Primary Contact telephone number:

Section completed	Name of person completing section	Job title of person completing section	Email address of person completing section	Telephone number of person completing section	Date completed
Section 1					
Section 2					
Section 3					
Section 4					
Section 5					
Section 6					

If you have a standard document that describes the structure of your NREN and gives details of the organisations that are involved in governing it and determining its policy and funding please provide it if it is written in English. Some examples of such documents, which would be helpful can be obtained from the TERENA web site on the Organisation and Governance Study web page in the Reference Documents section: <http://www.terena.org/activities/earnest/gov.html>.

SECTION1: FUNDING

Question in the study to be addressed

The funding and charging models and funding levels used by the different organisations in the chain of delivery of network services. Often the funding models will dictate the level of services and support that can be provided by a particular network organisation, and the funding models and level of funding will not necessarily be geared to the service levels demanded by some groups of users.

1. Is your annual budget/funding determined by you alone, you in negotiation with government, by you in negotiation with end-user institutions or by some combination of all these. Please explain how your NREN's and the network budgets are determined? (if you wish to describe the structure of your NREN here in order to make clear how funding is determined as a result of the structure, please do so below.)

e.g. the budget for the NREN organisation is determined by the NREN and the budget to fund the network is determined by a negotiation between the NREN and the department of education and science.

TI This question is answered by TERENA compendium question 4.6 but please answer it!

How is the NREN funded?

- a) Central grant from government***
- b) Charges to institutions (universities, research establishments, tertiary education establishments, schools etc.,)***
- c) Combination of both and others***

If you have answered c) to the question above list the top 5 organisations that provide funding and the approximate percentages of funding provided by each organisation. (E.g. government 60%, universities 30% ,schools 10%)

- 1.***
- 2.***
- 3.***

- 4.
- 5.

If none of the above please explain how your NREN is funded.

T2 This question is answered by TERENA compendium question 4.4 & 4.5 but please answer it!

What is the total level of annual funding for your NREN in Euros?

.....Euros

- 2. Is the NREN budget used by you as
 - a. as a management tool to monitor expenditure on different items written in the budget
 - b. as a way of controlling the overall cash that you can spend
 - c. or both a & b?

- 3. Do you (please tick one of the following)
 - a. set a multi-annual budget
 - b. predict your multi-annual budget
 - c. set a multi-annual budget but change it if new requirements emerge or variations occur
 - d. only set a budget a year at a time

3a If you answered a, b or c how many years ahead do you set or predict your budget?

3b If part of your budget is not used within a particular financial year is your NREN (tick all that apply)

- a. allowed to redeploy the budget to use for something else
 - b. have to return the funding to the organisation providing the funding
 - c. carry the budget forward to the next financial year
 - d. only allowed to carry forward specified funding when a justification is made and a reason given to carry forward the funding for particular expenditure items.
 - e. required to get permission from the funding organisations to carry forward funding
 - f. has other arrangements to deal with under spends (please state below)
- 4. How is the NREN funded when enhanced services are to be provided or a new development is undertaken? (Tick all that apply)
 - a. Additional central grant from government

- b. Additional funding is provided by user institutions on the NREN.
- c. Additional funding is provided by business sponsorship of the NREN or NREN projects
- d. Funding is raised on the basis of a project plan/business plan.
- e. Make savings elsewhere in the budget in order to fund the enhanced services or new developments so that the overall budget remains the same
- f. Use of reserve funding
- g. Manage to fund the new services or developments within the allocated budget.
- h. The projects are funded using other means (please state)

If none of the above please explain how your NREN is funded when new services are to be developed and cannot be funded under “normal” funding arrangements. Also if you have answered ‘c’ or ‘h’ please explain.

For the purposes of the next question the funding of operational support of the NREN is defined as the funding necessary to keep the network and the services on it running and to provide help desk and fault resolution services. It is NOT the funding necessary to enhance or build new or existing network infrastructure or to develop or enhance existing services or to provide new services. However you should include any funding which is wholly necessary to keep the services running, because if it was not spent the services would not function.

5. Different parts of the network’s operational support may be funded in different ways so please describe them by filling in the table below where each row of the table must add up to 100%. Also provide any descriptions that you feel will explain the funding mechanisms for different parts of the network

(e.g. regional network support is funded by universities and backbone support is funded by government.)

(e.g. regional network support is partly funded by universities and partly by government funding and backbone support is funded by government with contributions from the connected institutions.)

(e.g. the network backbone is funded by the government but the links to universities are funded by the universities.)

Please note that if the same type of institutions are connected to the network in different ways then please complete table 5b as well (e.g. some universities are connected directly to the backbone PoP and funded as part of the overall network cost and others are connected via a regional network which is funded by universities.)

Please note each row of the table should add up to 100%

5a

Section of network	% of funding provided by government or central public funding	% of funding provided by end user sites	% of funding provided by EU	% of funding provided from other sources	Names of other source of funding
Link to GEANT					
NREN network backbone					
Links between NREN network backbone and the commercial internet					
NREN regional and metropolitan networks (if they exist)					
Links between NREN backbone and regional and metropolitan networks (if they exist)					
Links to universities					
Links to research institutions					
Links to tertiary/ professional education institutes					
Links to primary and secondary schools					
Links to other non education					

public sector institutions e.g. hospitals, libraries					
Links to commercial research and science institutions & companies					
Links to other commercial organisations					

Please note that if you do not know because the budget is not within your remit then put an estimate and/or **NOT an NREN budget.**

Table 5b for describing how funding is provided when differing methods are used to connect institutions of the same type. (If you do not have regional or metropolitan networks do not fill in table 5b)

Section of network	% of funding provided by government or central public funding	% of funding provided by end user sites	% of funding provided by EU	% of funding provided from other sources	Names of other source of funding
e.g. Link to universities Via backbone PoP					
e.g. Link to universities via regional network					

5c Please fill out the table below detailing the levels of expenditure made to provide the network services and to provide operational support for different sections of the

network. The funding should not include that for enhancing services or for developing new services.

Section of the network	Funding to provide services and support for the network sections in thousands of Euro annualised for 2006/7	Tick if funding is provided via the NREN organisation	Tick if approximation is given because the NREN does not fund all costs	Tick if not funded by the NREN at all
Link to GEANT				
NREN network backbone				
Links from NREN network backbone to the commercial internet				
NREN regional or metropolitan networks (if they exist)				
Links to universities				
Links to research institutions				
Links to tertiary/professional education institutes				
Links to primary and secondary schools				
Links to other non education public sector institutions e.g. hospitals, libraries				
Links to commercial organisations				

Please give any comments below about the approximations you have used in table 5c and the reasons why.

5d Please give details of the funding used to carry out new developments such as to enhance existing network infrastructure, enhance existing services and develop new services.

Please answer the following questions and then complete table 5d to include any additional developments

(i) How often is your NREN network backbone upgraded?years

(ii) What was the annual cost of the backbone infrastructure before the last upgrade (not including annual running costs)? To calculate this you need to take the capital cost of the network and divide by the number of years it was used before an upgrade was implemented.

..... Euros/year

(iii) What is the annualised cost of the last backbone upgrade in Euros. To calculate this you need to take the total cost of the new network (not including annual running costs) and divide by the number of years between upgrades.

..... Euros/year

(iv) How is the upgrade paid for? (e.g. government department of research, department of education, partially by the connected institutions and partially by government.)

(v) How often are your NREN regional and metropolitan networks upgraded?

.....years

(vi) What is the annualised cost of the last upgrades of all the regional and metropolitan networks in Euros. To calculate this you need to take the total cost of the new regional and metropolitan networks (not including annual running costs) and divide by the number of years between upgrades.

Euros/year

(vii) How is the upgrade paid for? (e.g. government department of research, department of education, directly by the universities and research institutions connected to the regional network, etc.)

(viii) Are access links to higher education and research institutions upgraded

- a. regularly? If so please state how oftenyears
- b. when the capacity of the links is reached
- c. when funding becomes available
- d. when the institutions decide to upgrade as they pay the costs and determine when to implement an upgrade.
- e. on an ad-hoc basis (please explain)

(ix) What is the average annualised amount spent on upgrading links to higher education and research institutions?Euros

(x) How is the upgrade paid for? e.g. government department of research, department of education, directly by the universities and research institutions connected to the regional network. etc.

5d (xi)(Other developments)

e.g. Videoconferencing service, web hosting etc.

Type of developments	Annualised Funding in thousands of Euros	% of funding provided by government or central public funding	% of funding provided by end user sites	% of funding provided by EU	% of funding provided from other sources	Names of other source of funding

6. Are a uniform set of services offered to all institutions connected to your network?
- A uniform set of services are offered to all
 - A base level of services is offered to all, with additional services offered to some institutions at no additional cost to the institution.
 - A base level of services are offered to all, with additional services offered to some institutions for an additional cost paid by the institution

If different arrangements are in place please explain.

7. Where a significant percentage (e.g. more than 20%) of your revenue comes from end-user (site) subscription do you have a set of pricing principles, which you use to determine the subscription? If so are these based on:
- the size of the institution?
 - the type of institution? E.g. universities, schools, hospitals, etc.
 - the resources consumed by the institution? E.g. bandwidth consumed, peak traffic levels, etc.
 - the resources made available to the institution e.g. bandwidth of interface connection
 - Other criteria? Please specify below

8. If a significant percentage of your revenue does not come from end-user (site) subscriptions today do you envisage this changing in the next five years?

- a. YES
- b. NO

8a. What percentage do you expect future revenue from end user sites to be?

-% in 1 years time
-% in 2 years time
-% in 3 years time
-% in 4 years time
-% in 5 years time
-% in 10 years time

9. If you charge end users or in the future charge them what will determine their charges. (Tick all that apply)

- a. Actual bandwidth of the connection
- b. Type of connected interface bandwidth e.g. E1, E3, STM-1 STM-4 etc.
- c. Usage of bandwidth (i.e. average bandwidth used)
- d. Size of connected institution
- e. Type of institution
- f. Other mechanisms so please explain your plans below

10. Do you have differing funding models for different categories of user?

- a. YES
- b. NO

10a If the answer is YES to the question above please explain the different funding models used.

For the purposes of the following question ‘national usage’ is when the users connected to your network use services within your country and ‘international usage’ is when users connected to your network link to services outside your country.

11. Do you make any pricing difference between national and international usage of networking services or between education/research usage and commodity internet usage of end users and if so how do you reflect this in your pricing policy? Please tick any of the statements, below which are correct:

- a. There is no pricing difference between national and international network usage.
- b. There is a pricing difference between national and international network usage.
- c. There is no pricing difference between education/research usage and commodity internet usage
- d. There is a pricing difference between education/research usage and commodity internet usage

11a If you have ticked either or both of 'b' or 'd' please describe how the different usage affects your pricing policies.

11b Does your NREN

- a. Support wavelengths to end user sites
- b. Plan to support wavelengths to end user sites
- c. Have no plans to support wavelengths to end user sites

11c If you have answered a or b above how are/will the provision of wavelengths be charged to the end user site

- a. no charge
- b. at cost
- c. subsidised

12. How do you think that GEANT should be funded in the future?

- a. As in the current situation where half the funding is provided through the DG-INFO programme and the other half by contributions from the NREN organisations connected to GEANT
- b. By the funding being provided through the European Infrastructure Fund (which is a loan) thereby GEANT infrastructure would be funded to support research and education by the member states whose NRENs connect to GEANT The loan would ease cash flow problems of continually funding GEANT.
- c. By providing all the funding by the NREN organisations that connect to GEANT.
- d. By providing some other form of European infrastructure funding with an EC contribution of say (50%) that did not have to be repaid and an equal contribution from NRENs or their governments.
- e. By other means please state below:

T3 This question is answered by TERENA compendium question 4.13 but please answer it!

Please give the top four categories of expenditure for your NREN with the percentages of expenditure e.g. networking services 70% staff 15% equipment 5% R&D 5% .

<i>Expenditure Item</i>	<i>Percentage of expenditure</i>

SECTION2: GOVERNANCE, ORGANISATION AND POLICY SETTING OF YOUR NREN

Question in the study to be addressed

The level of autonomy that the various individual network organisations (national research and education network organisations, regional network operators, universities, colleges and research institutions) wish to maintain in deciding on the standards that they will adopt and the methods used to implement and support their network services.

13. How is your NREN organisation governed?

Please tick all the following that apply

- a. The NREN is part of the government or government department
- b. The NREN is not part of the government or government department but the government or government department control it. (Please explain how the control is made below e.g. through shareholding, or via directors etc.)
- c. The NREN is a separate legal entity
- d. The NREN is part of a larger legal entity that has a wider remit than just the NREN
- e. The NREN legal entity is controlled by the senior officers (e.g. directors) of the legal entity
- f. The NREN is controlled by a committee of nominated people from the education and research communities
- g. The NREN is controlled by a committee of nominated people from the government or appointed by the government
- h. The NREN is controlled by a committee of nominated people from the education and research communities and the government
- i. The NREN is controlled by an individual lead institution (e.g. a university) with committee, which sets policy and strategy.

If none of the above applies please explain how your NREN is governed below stating which organisations or people have actual control and decision making powers.

For the purpose of the question below the different types of users are categorised by large groupings such as university users, research institution users, college users, school users, health service users, government department users, commercial users etc.

14. Are all the different types of users that are connected to the NREN network represented in the governance structure of the NREN organisation?

- a. YES they are fully represented on the main NREN governing committee or governing board

- b. NO but they have representation in some subsidiary or consultation committees
- c. NO some types of users are not represented at all in the governing committees or subsidiary or consultation committees

14a. Please explain where the different user communities are represented by filling out the table below?

Type of user group	Tick if these users use the network	Tick if these users are represented on the main management committee of the NREN organisation	Tick if these users are represented on a subsidiary or consultation committee	Comments on how the user group is represented in the governance of the NREN organisation
Universities				
Research Institutions				
Tertiary/ professional education institutions				
Primary and secondary schools				
Government departments				
Health service institutions				
Commercial users that have a link with education and research				
Commercial users that use the network but do not have direct links with education and				

research				
Other (please specify)				

15. How are the NREN management policies such as the connection policy, use policy, user policy, charging policy, security policy, etc. developed and agreed?

- a. Developed and agreed by NREN organisation management team
- b. Developed and agreed by the NREN organisation management team and the management committee of the NREN's organisation legal entity e.g. the "board" of the legal entity.
- c. Developed by NREN management team and the management committee of the NREN's organisation legal entity and agreed by a committee representing universities and research institutions
- d. Developed and agreed by a committee representing universities and research institutions
- e. Developed and agreed by the government department of education or research
- f. None of the above

15a. If none of the above please explain and/or explain the details of how the policy is developed and agreed.

16. How are the NREN technical policies and standards such as routing standards, end to end policies and standards, developed and agreed?

- a. Developed and agreed by NREN management team
- b. Developed by NREN management team and agreed by a committee representing universities and research institutions
- c. Developed and agreed by a committee representing universities and research institutions
- d. Developed and agreed by the government department of education or research

16a If none of the above please explain and/or explain the details of how the policy is developed and agreed.

17. Where certain types of user institution are not connected does your NREN have plans to connect new types of user institutions such as schools, hospitals, doctors surgeries, local government offices, commercial research organisations, etc.

- a. YES
- b. NO (Please state below why your NREN is not intending to connect new types of user institutions)

18. If you have answered YES to the question above please can you tick all the statements that best describe how the decision to connect new types of user institutions is authorised. (Please tick all that apply)

- a. The NREN senior management team can make the decision
- b. The NREN governing body e.g. the legal entity governing body or committee
- c. The NREN has to seek approval from the government to make the decision
- d. The NREN has to seek approval from its existing education and research user base to make the decision by consulting with a representative committee
- e. The NREN has to seek approval from all the organisations that currently provide funding to the NREN to provide the network and the network services
- f. The decision process could be made quickly
- g. The decision process will take a long time because of a long consultation process
- h. The decision process will take a long time because the body that has the power to take the decision generally is slow at taking decisions
- i. The national telecommunications regulator has to be involved in the decision to connect new types of user institution outside those involving education and research.

18a If there are any other comments please state them below

18b Please tick all the statements below that are true:

- a. The NREN is concerned that if it wishes to connect new types of institution outside the research and education sectors the government may not or will not approve the proposal.
- b. The NREN is concerned that if it wishes to connect new types of institution outside the research and education sectors the telecommunications regulator may not or will not approve the proposal.

- c. The NREN has registered as a telecommunications operator in order to connect a broad range of user institutions outside the research and education sectors to the NREN.
- d. The NREN is considering registering as a telecommunications operator in order to connect a broad range of user institutions outside the research and education sectors to the NREN.
- e. The NREN has “pending issues” with the telecommunications regulator that need to be resolved. (Please explain these below).

19. Does your NREN organisation have to deliver services according to an agreed Service Level agreement?

- a. YES
- b. NO there is no defined service levels at all.
- c. NO there is no formal service level agreement but “best efforts” are made to deliver a reliable service.

19a. If you have answered YES to the question above how is the service level agreement determined?

- a. by the organisations providing funding for the network
- b. by negotiations with the connected institutions or a group representing the connected institutions and their end users
- c. by none of the above, please explain below.

20. What is the attitude of the NREN to liaison with the pan-European networking community in order to provide a set of robust end-to-end services across Europe?

- a. The NREN fully participates in the development and setting of policies at a European level and implements the agreed and recommended policies.
- b. The NREN participates in the development and setting of policies at a European level and implements the agreed and recommended policies only when these policies are in-line with the existing or future policies of the NREN or government.
- c. The NREN participates in the development and setting of policies at a European level and implements the agreed and recommended policies only when these policies are in-line with the existing NREN or government policies.
- d. The NREN monitors European policy setting and does generally not implement European policies unless they have a direct relevance to networking services in existing use on the NREN.

20a. If the NREN has a different position in regard to liaison about policy setting please state it.

SECTION 3: GENERAL OPERATIONAL SUPPORT FOR THE NETWORK

Question in the study to be addressed

The variability of network support and service availability in different network domains.

21. Is the availability and guaranteed hours of operational support of the network the same for all parts or sections of the network?

- a. YES
- b. NO

21a Please describe the level of operational support for different parts of the network by filling in the table below

e.g. Backbone 24x7x365 (24hours a day for 7 days a week, 365 days a year)

e.g. Regional network 24x5 (24 hours a day for 5 working days a week)

e.g. Connections to institutions 5 working days per week 08.00 to 18.00

e.g. Institution networks depend on institution policies and institution support hours

Part of Network	Guaranteed hours of support	Comments
Backbone		
Links to regional or metropolitan networks		
Regional networks		
Links to universities		
Links to research institutions		
Links to tertiary/professional education institutions		
Links to primary and secondary schools		
Links to non education/research users		
Institutional networks e.g. universities		
Links to GEANT		
Links to commodity internet		

22. Who is responsible for providing the technical and operational support for the NREN backbone. The answers could be NREN staff, outsourced company, regional network staff, university staff, school staff etc.

Part of the Network	Who provides technical and operational support	Comments
Backbone		
Links to regional or metropolitan networks		
Regional networks		
Links to universities		
Links to research institutions		
Links to tertiary/professional education institutions		
Links to primary and secondary schools		
Links to non education/research users		
Institutional networks e.g. universities		
Links to GEANT		
Links to the commodity internet		

Question in the study to be addressed

The variability of network performance in different network domains and the methods by which performance issues can be and are addressed.

T4 This question is answered by TERENA compendium question 2.4 but please answer it.

Give the average bandwidth of the NREN backbone. (e.g 10Gbps)

T5 This question is answered by TERENA compendium question 1.6 but please answer it

Give the bandwidths of the interfaces used to connect to universities and research establishments? (e.g. 100Mbps)

<i>Link Connection bandwidth (X)</i>	<i>% of institutions connected at this bandwidth</i>
<i>No connection X=0</i>	
<i>X<=ISDN</i>	
<i>ISDN<X<=2Mbps</i>	
<i>2Mbps<X<=10Mbps</i>	
<i>10Mbps<X<100Mbps</i>	
<i>X=100Mbps</i>	
<i>100Mbps<X<1Gbps</i>	
<i>X=1Gbps</i>	
<i>1Gbps<X<10Gbps</i>	
<i>X=10Gbps</i>	
<i>X>10Gbps</i>	

23. When there is a performance problem in the NREN who is responsible for resolving the problem? (E.g. NREN staff for the backbone and university staff for the connection to the university.) Please fill in the table below

Part of Network	Who troubleshoots and resolves the problem	Comments
Backbone		
Links to regional and metropolitan networks		
Regional and metropolitan networks		

Links to universities and research institutions		
Links to tertiary/professional education institutions		
Links to primary and secondary schools		
Links to non education/research users		
Institutional networks e.g. universities		
Links to GEANT		
Links to commodity internet		

SECTION 4: PROVISIONING AND SUPPORT OF END-TO-END SERVICES

Question in the study to be addressed

The variability of the policies in situ for the provisioning of services that can support end-to-end services. For example, policies for supporting Virtual Private Networks.

24. Who is responsible for setting up (provisioning) end-to-end services?
- a. NREN staff
 - b. Outsourced to a commercial company
 - c. Combination of both NREN staff and outsourced
 - d. Provided by institution staff from universities and research establishments
 - e. Combination of NREN staff and institution staff from universities and research establishments.
 - f. Provided by a lead institution(s) responsible for supporting the NREN
 - g. Totally automated under the control of the NREN organisation
 - h. Totally automated with devolution of control to end institutions within a policy framework set by the NREN organisation
 - i. Totally automated with devolution of control to nominated end users within institutions within a policy framework set by the NREN organisation

If none of the above or different support arrangements are being used please explain?

25. Are there any plans being developed to allow end user self provisioning of VPN services (for the purposes of isolating traffic from general traffic and possibly providing traffic engineering) by:
- a. Technical staff responsible for the network in a university/college/research institution
 - b. General information technology support staff of the university/college/research establishment
 - c. Trained end users
 - d. Any end users

If different arrangements are planned please explain?

26. Are there any plans being developed to allow self set-up (provisioning) of other end-to-end services such as guaranteed bandwidth, delay, etc. by:
- a. Technical staff responsible for the network in a university/college/research establishment

- b. General information technology support staff of the university/college/research establishment
- c. Trained end users
- d. Any end users

If different arrangements are planned please explain?

SECTION 5: SUPPORT AND FUNDING FOR SPECIAL PROJECTS AND DEVELOPING NEW STRATEGIC SERVICES

Question in the study to be addressed

The differing attitudes of different national research and education network organisations and user groups to the self-provisioning of networking, not following current models. For example, the use of cross-border fibres to provide interconnectivity between national research and education networks, the development of limited parallel networks to support specific projects etc.

In the following questions “special projects” mean projects which are not normal network services and are implemented as a result of specific requests for new facilities to be provided or configured. E.g. special projects could be projects to link European supercomputer centres together, or radio telescopes together or other scientific experiments together for the purposes of nationwide or European-wide collaborative scientific research.

27. Does your NREN organisation agree with:

- a. When an NREN organisation is not funded to support a special project the organisations running the special project should be allowed to acquire and run their own networking services. YES/NO
- b. When an NREN organisation could be funded to support and is technically able to support networking services required for special projects the NREN should always be offered the option to do so. YES/NO
- c. Using alternative arrangements to the use of GEANT when developing pan-European collaboration projects or links to other countries NRENs when more cost effective? YES/NO
- d. Using alternative arrangements to the use of GEANT when developing pan-European collaboration projects or links to other countries NRENs when costs of the alternative arrangements are similar to those for using GEANT? YES/NO
- e. Using alternative arrangements to the use of GEANT when developing pan-European collaboration projects or links to other countries NRENs when costs of the alternative arrangements are higher than those for using GEANT? YES/NO

27a If you have answered YES to any of the above questions please describe the reasons below:

Question in the study to be addressed

The way in which national research and education network organisations support projects that need "special" facilities or arrangements when projects are within the user community of their own organisation and when projects span the user communities of multiple national research and education network organisations.

28. Does your NREN provide technical and operational support for special projects run within your NREN user community? (Projects could be funded from any source. E.g. EC, ministry of research, etc.) YES/NO

28a If you answered YES how are these projects operationally and technically supported

- a. a project team with NREN staff and the user community staff is set up to manage the project
- b. informal dialogue with the user community staff takes place.
- c. Other arrangements are put in place (Please explain below)

28b If you answered YES how are these special projects funded

- a. the user community who benefits by the project pays
- b. the NREN and user community (benefiting by the project) pay
- c. the NREN pays
- d. all participants pay their own expenses
- e. None of the above (Please explain the financial arrangements for supporting special projects.)

29. Does your NREN technically and operationally support special projects run between your NREN user community and other user communities in other NRENs (e.g. joint projects between different universities in different countries with participating universities connect to your NREN)?

- a. YES
- b. NO

29a If you answered YES how are these projects managed

- a. a project team with NREN staff and all the user community staff and the other countries NREN staff is set up to manage the project
- b. project team with all NRENs involved and some representation from the users community staff is set up to manage the project
- c. informal dialogue with the user community staff takes place
- d. Other arrangements are put in place (Please explain below)

29b If you answered YES how are these projects funded

- a. the user community pays
- b. the NRENs and user community pay
- c. the NRENs pay
- d. None of the above (Please explain the financial arrangements for supporting special projects.)

30. Does your NREN organisation get involved in wider strategic and operational support projects other than offering basic network services. E.g. These services may include development of other e-infrastructure projects such as Grid, High Performance Computing, e-Libraries, Digital Libraries, storage management, identity management, strategies for improving schools networking, etc. (Getting involved means providing more than just basic network services such as providing technical support for various grid infrastructures)

- a. YES
- b. NO

If you have answered YES to the above question please describe any projects and strategic developments that your NREN is involved with that are not just an extension of normal network services.

31. Do you think that your NREN should be providing more services than basic network services or those that your NREN already provides?
- YES
 - NO

31a. If you answered YES to the above question, please list the services that your NREN should get involved with.

31b. Give any reasons why your NREN organisation would be better able and qualified than other organisations to provide the additional services other than standard networking services. (e.g. Good knowledge of the education and research community, lower cost than commercial providers, previous experience in providing innovative services etc.)

e.g. The NREN might be in a better position to provide support than “special project” teams because they have a good knowledge of network infrastructures how to practically support them.

Question in the study to be addressed

The arrangements that national research and education network organisations have for communicating with their user base, particularly with those users that may require specialised services, some of which may rely on guaranteed end-to-end services.

32. What communication mechanisms are in place for users who require special services provided by the NREN which are not fully available or fully documented or are complex in setting up? (special services could be guaranteed bandwidth, VPN, QoS etc.)
- Communication is direct with the end user with NREN user support staff
 - Communication is direct with the end user with NREN technical support staff
 - Communication of the end user is via the end user’s institution information technology or network support staff who communicate with NREN staff.

If none of the above methods are used please explain

SECTION 6: CONNECTION AND SUPPORT OF PRIMARY AND SECONDARY SCHOOLS

33. Does your NREN provide direct connections for:
(Please state whether the connections are provided directly (DIRECT) or via a regional network (REGIONAL) or not at all (NO))

- a. Government funded primary schools
- b. Governments funded secondary schools
- c. Government funded tertiary and professional education institutes
- d. Privately funded primary schools
- e. Privately funded secondary schools
- f. Privately funded tertiary and professional education institutes

34. If connections for any of the above are not provided please state why.

35. Who provides the connectivity for schools and colleges

- a. NREN
- b. NREN in partnership with telco
- c. Telco
- d. Commercial ISP
- e. Other (please state below)

36. Who provides the operational support for schools and colleges

- a. NREN
- b. NREN in partnership with telco
- c. Telco
- d. Commercial ISP
- e. Other (please state below)

37. If connectivity is not provided to schools does your NREN have plans to do this in the future

- a. YES
- b. NO

38. If you have answered YES when do you plan to start connecting schools and complete the connection process:

- a. start date
- b. finish date

T6 This question is answered by TERENA compendium question 1.6 (for bandwidth of connection) but please answer it.

*What types of connections are provided to schools?
Please fill the table below*

<i>Type of connection</i>	<i>% of primary and secondary schools provided with this type of connection</i>
<i>Dial Up</i>	
<i>ISDN</i>	
<i>ADSL</i>	
<i>Broadband 2Mbps+</i>	
<i>Broadband 10Mbps+</i>	
<i>Other (please state, e.g. satellite, radio)</i>	

39. What services do you offer to schools

Service	At present (Tick)	Planned in the future (Tick)
Helpesk		
Router configuration		
IP address management		
Videoconferencing		
VoIP		
QoS		
Web hosting		

40. Which internet safety measures do you offer to schools

- a. Internet filtering
- b. Supervised access
- c. Acceptable use policy
- d. None

41. Are these measures implemented in all schools?

- a. YES
- b. NO

42. Is it a school decision which internet safety measure to have in place?

- a. YES
- b. NO

43. Which of the following network security measures do you offer to schools?

Network security measure	At present (Tick)	Planned in the future (Tick)
Firewall		
Virus protection		
Anti-spam		
Anti-hacking		
System backup		

44. Are these measures implemented in all schools?

- a. YES
- b. NO

45. Is it a school decision which network security measure to have in place?

- a. YES
- b. NO

46. What do schools use network connectivity for? (tick all those which apply)

- a. Teaching and learning
- b. Accessing educational resources
- c. Videoconferencing
- d. Other forms of networking e.g.Skype
- e. Management and administration
- f. Don't know
- g. Other (please specify below)

Thank you for answering the questionnaire. Please email your completed questionnaire to robin.arak@btinternet.com