

**EDINA**

**Survey of Support for Geospatial Resources within Higher and  
Further Education**

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## Introduction

Over the summer of 2009 EDINA conducted a survey with a view to establishing the type and extent of support available to end users within UK higher and further education institutions for the use of maps, spatial data, GIS and geospatial resources.

The publication of the 'Review of Geospatial Resource Needs' in December 2009<sup>1</sup>, which highlights a problem related to a user skills gap and makes proposals for remedy, coincides well with the release of the results of this survey. The work for that report summarised responses from 512 researchers on the mailing list of the ESRC Economic and Social Data Service from late December 2008 to February 2009; the work reported here summarises responses from 84 **support staff** for JISC-supported geospatial resources operated by the EDINA and Mimas National Data Centres over the summer of 2009.

The survey aimed to cover the use of geospatial resources broadly defined, (to include resources such as Digimap, Landmap/SIDS, UKBORDERS, Google Earth, Bing maps etc), spatial data (including postcodes, topographical data, satellite imagery) and software used with these resources and data (e.g. GIS and CAD software).

## Summary

A total of 84 people from the Higher and Further Education support community responded to the survey. Support for geospatial resources is provided within the institutions of 84% of respondents but there is evidence of mixed levels of support between these institutions. Of these 85 respondents, only 5% said their institution was *very well supported*; 48% said it was adequate but 41% said it was insufficient and 6% said it was not covered at all. Importantly, this illustrates that nearly half of respondents to this survey believe that in spite of the wide ranging support already offered, there is a significant gap in the support provided to users in their institutions. Reasons cited include lack of staff time and lack of staff expertise. When asked who should provide support, answers varied depending on what in particular required support. For example, respondents thought that support for the use of software should be provided by the software vendor, and support for online services should be offered by the service provider.

There is a need for an expanded training programme and direct helpdesk support to end-users. While this type of support is already provided to cover individual services (such as Digimap, Landmap and Census data services), it does not exist to cover research methodologies for effective and appropriate use of spatial data. The survey indicates that software vendors have a key role to play in providing support and training for GIS and CAD software and that support provided on a subject or discipline-specific basis is less favoured.

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<sup>1</sup> David Owen, Anne Green and Peter Elias, Review of Geospatial Resource Needs, ESRC, December 2009.

## Survey Results

### 1. About the respondents

The majority of the 85 individuals responding held support roles within their institutions (some with more than one role), working mainly in central or departmental libraries or learning resources centres. A third of respondents were lecturers or researchers working within departments. Over half of those responding were Digimap site representatives with just under a quarter (23%) providing general support or GIS support for Digimap specifically.

The majority of respondents (80%) considered themselves to be competent or expert in information technology and in their knowledge of Digimap, with a further 40% regarding themselves as competent or expert in the use of GIS or CAD software. Equally, however, about 40% of respondents were novices in the fields of GIS/CAD, use of spatial data, Landmap/SIDS, UKBORDERS and other geospatial resources.

### 2. Provision of Support for Geospatial Resources within Institutions

76 individuals responded to the question concerning the existence of support within their institution and 84% of these stated that geospatial support is provided using a range of delivery methods. Table 1 below gives an indication of these delivery methods. There is a clear divide between those who provide support from a central position within an institution and those who provide support from a departmental position. Just under half of respondents indicated that support is provided centrally, either by a team or by an individual. Significantly, 12 respondents said that support was not offered to users in their institution. Of these, 8 respondents belonged to Universities, one to a 6<sup>th</sup> Form College and two to FE colleges. These 12 respondents also included 7 Digimap site representatives. Given that part of the role of a site representative is to provide support for the service, this combination of responses may indicate a number of possible reasons why support is lacking. Note that responses were given anonymously, so it is not possible to establish which specific institutions the responses apply to.

By one individual in a central unit, offering support to the whole institution	28.9%
By one individual in each department	18.4%
Each department has a number of individuals offering support to that department	19.7%
By a central support unit with some/limited departmental provision	10.5%
By a team of people located centrally, offering support to the whole institution	6.6%
We offer no support to users	15.8%

**Table 1 Delivery of support for geospatial resources**

### 3. Common queries

The survey asked respondents to indicate the most commonly asked questions relating to geospatial matters. The most common queries related to Digimap. Digimap has a very large and heterogeneous user base (c.45,000 users) and is regarded as a multi-disciplinary resource with use being made of it in subject areas ranging from biological and earth sciences through medicine to humanities and language studies. In particular, users request assistance in registering for Digimap, in logging in and using the service interfaces to download data and create maps for printing. Other common questions related to the use of specific GIS software applications, including data conversion, data integration, and spatial analysis. Support staff are also asked for advice on appropriate map and data products to use for particular tasks. The range of queries is broad, encompassing simple tasks such as logging in to a service as well as more complex and methodological challenges.

Findings from this survey indicate concurrence with the ‘Review of Geospatial Resource Needs’ published by ESRC in December 2009. *There is a demonstrable need for ongoing investment in knowledge and skills regarding the use of geospatial data and resources.*

### 4. Support Staff Confidence Levels

Empirical and anecdotal evidence has suggested that many staff find themselves in support roles inadvertently, rather than being recruited specifically for the purpose of providing support for geospatial data and resources. In the light of this, the survey asked how confident respondents were in responding to particular types of questions from data and resource users. Encouragingly, support staff considered themselves to be mostly confident or reasonably confident in answering all types of queries. Respondents had least confidence in responding to queries about data management and about the use of specific software applications.

Answer Options	Confident	Reasonably confident	Hesitant	Not confident	TOTAL
<i>General</i> questions about online geospatial services	22%	48%	19%	11%	100%
Questions about <i>specific</i> online geospatial services	13%	45%	31%	11%	100%
Questions about availability of geospatial data	9%	52%	28%	11%	100%
Questions about specific data products	13%	41%	35%	11%	100%
Questions about use of data in	22%	31%	25%	22%	100%

software applications

Questions about the use of <i>specific</i> software	27%	28%	22%	23%	100%
Data management questions	19%	32%	24%	25%	100%
Licensing and copyright questions	11%	58%	23%	8%	100%

**Table 2 Number of respondents indicating their confidence in responding to different query types**

## 5. Provision of Support

The respondents claimed to receive between zero and 60 queries a month, averaging just over 11 queries per month. 74% thought that the quantity of queries had either increased or stayed the same over the time they had been in a support role at their institution.

Requests for support for geospatial matters came mostly from undergraduates, according to nearly 60% of respondents. 50% of respondents indicated that postgraduates were the second most demanding and 48% of respondents said that academic staff were third. Other support staff appear to require least assistance.

The most common method by which users contacted staff for support was by e-mail (68%). Other methods included contact in person (24%) or by telephone (5%). Support staff responded mainly by e-mail (42%), in person (28%), by telephone (5%) through a CMS (2%) or by some combination of these (23%). Respondents added further comments which indicated that many queries relating to geospatial data are very difficult to respond to by email since they require ongoing questions and answers between user and support staff:

“You can't sort GIS queries by email - it's just too maddening a piece of software, with too many small places where they can go wrong.”

## 6. Funding for support for geospatial data, software and resources

This question was answered by only 75% of respondents. Of these, nearly 36% did not know how support was funded within their institution. Of those respondents who indicated that funding was available for support 21% judged that the funding had remained the same over the past three years; the majority did not know how funding for support work had changed within their institution.

Sources of funding	% responses
I don't know	35.9%
No funding is available from anywhere	17.2%

Support is funded from centralised budgets	12.5%
Funding for support comes from School/department budgets	25.0%
Other (please specify)	9.4%

**Table 3 Funding for providing support**

## 7. Source of Geospatial Advice for Support Staff

This is a survey of *support staff*, not of end users, but a key question is where do these support staff turn to for geospatial advice and support? The answers reported are set out below in Table 4. Over 79% turn to EDINA or Mimas for assistance and use service-specific help pages where available, for services (57%) or for software (50%). There is also evidence of peer to peer support, with significant numbers of respondents consulting colleagues for assistance. It is also encouraging to learn that communication occurs between institutions.

Source of assistance	% responses
EDINA or Mimas	79.3%
Service-specific help pages	56.9%
Application software help pages	50.0%
Colleagues in other units/departments	44.8%
Colleagues in my unit/department	43.1%
Online forums	41.4%
Books/journals	31.0%
Special interest or User Groups	27.6%
Mailing lists	22.4%
Colleagues in other institutions	20.7%

**Table 4 Sources of advice for Support Staff**

52 respondents answered the questions asking who *should* provide assistance for support staff. The question was constructed in such a way as to allow respondents to indicate different sources of support for different aspects of the use of geospatial data and resources. The responses for this question can be found in Table 5 below.

It was acknowledged by some additional comments from respondents that the source of support should vary according to the question posed and the subject it concerned. Significant points to note from this question were that the great majority (83%) of support staff for JISC-supported geospatial resources operated by the EDINA and Mimas NDC's thought that EDINA/Mimas should provide

support for geospatial resources more generally. Furthermore, software vendors should be providing support for both GIS and CAD software (75%).

There was endorsement for the concept of a dedicated Geographic Information support unit to support the use of geospatial resources and spatial data. The role of local subject expert colleagues appears to be important, perhaps indicating the value of face-to-face meetings in the learning process. Notable numbers of respondents thought that these experts should be providing support for all aspects of the use of geographic information. Following the comments regarding the complexity of geospatial queries, it is no surprise to find that support staff would find it useful to request assistance from a local source, where a face to face meeting is easier to arrange if necessary.

<b>Answer Options</b>	<b>Geospatial resources</b>	<b>GIS software</b>	<b>CAD software</b>	<b>Spatial data</b>
<b><i>EDINA/Mimas</i></b>	<b>43 (83%)</b>	10 (19%)	5 (10%)	<b>34 (65%)</b>
<b><i>Subject expert local colleagues</i></b>	<b>21 (40%)</b>	<b>27 (52%)</b>	<b>19 (37%)</b>	<b>18 (35%)</b>
<b><i>Software vendors</i></b>	3 (6%)	<b>39 (75%)</b>	<b>29 (56%)</b>	5 (10%)
<b><i>Externally provided, dedicated academic Geographic Information support unit</i></b>	22(42%)	16 (31%)	6 (12%)	23 (44%)
Research Councils and their Institutes	17 (33%)	5 (10%)	4 (8%)	15 (29%)
HEA Subject Centres	14 (27%)	6 (12%)	2 (4%)	7 (13%)
Regional Support Centres	11 (21%)	2 (4%)	2 (4%)	5 (10%)
Institutional Map Library	15 (29%)	6 (12%)	3 (6%)	14 (27%)
Other (please specify)	2 (4%)	2 (4%)	1 (2%)	1 (2%)

**Table 5 Who should provide support to support staff**

## **8. Means of providing support**

The survey asked respondents to indicate what methods of providing support they would find most useful (see Table 6 below). The majority of respondents (71%) thought that email support would be useful, 55% requested help pages, 47% thought face to face training was useful and 38% wanted telephone support and paper documentation. A further suggestion was made by one respondent that an online chat facility would be useful.

<b>Support method</b>	<b>% respondents finding this useful</b>
Email support	70.7%

Help pages	55.2%
Face to face training	46.6%
Telephone support	37.9%
Paper documentation	37.9%
Online training	36.2%
Online forums	34.5%
Face to face support from colleagues	34.5%
Mailing lists	27.6%
Special Interest or User Groups	19.0%
Other (please specify)	3.4%

**Table 6 Useful methods of support provision for support staff**

## 9. Provision of a dedicated Geographic Information support unit

The majority of respondents thought that an academic GI support unit should be provided on a national basis. Other arrangements such as the hub-and-spoke model have also been proposed in order to make use of centres of excellence in particular disciplines or subject areas, although this does not seem to be preferred by respondents to this survey.

<b>GI Support Unit Structure</b>	<b>% respondents</b>
National	63.0%
Regional	20.4%
Institutional	11.1%
Research Council based	3.7%
Subject/discipline based (e.g. Health, Architecture, Crime)	1.9%

**Table 7 Provision of a dedicated GI support unit**

## 10. Training for Support Staff

Training for support staff is widely recognised as a means of assisting staff both to increase their own skill levels but also in order to provide support to others. Training courses are available for a wide range of online services and for a variety of software. Training is provided by a variety of organisations, both commercial and academic. Anecdotal evidence from EDINA's support work

suggests that much of the training offered by commercial organisations is beyond the reach of many academic budgets. Questions relating to training experiences were included in the survey in order to establish how much use support staff make of training as an assistive resource. 69% of respondents had attended training for a specific geospatial resource, which had been run by an academic organisation other than their own institution (e.g. Research Council; Digimap Site Representative training). For the purposes of this exercise, respondents were asked not to acknowledge training they had attended which was run by commercial enterprises.

Feedback on training was very positive. Of those who had attended training courses the vast majority found the courses relevant and useful. Table 8 below indicates the proportion of respondents who agreed with the statements suggested.

<b>Feedback from course</b>	<b>% responses</b>
The course content was relevant	89.4%
The materials were well presented and easy to understand	80.9%
I learned enough to be able to do my job better	76.6%
The time away from work was well spent	72.3%
I learned that I need further training in some areas	44.7%

**Table 8 Responses to training courses attended**

When asked if they might attend courses relating to particular geospatial resources in the future, 22 respondents answered this question; of these 13 thought “maybe”, 3 responded “yes” and 6 responded “no”. Whether this indicates that they found the courses sufficiently useful to want to attend similar courses in future, or whether they found the courses lacking so as not to want to attend in future, we cannot say.

Of those who had not attended training courses the most common explanations were that the courses were not relevant to them in their roles, that they just haven’t got round to it and that there is no funding to pay for either the course itself or for travel to attend. Appendix 1 gives further details on the responses to this question. Any support strategy which proposes to use training as its mainstay will need to address these issues if it is to be successful. For example, courses need to be held at locations throughout the country e.g. by using the ESRC regional training suites though issues of venue specification may militate against this.

### **Internal Training Courses**

While information about publicly available and centrally run training courses is readily available, similar information about the provision of courses run for local staff and students within institutions is much less accessible. The survey asked whether such courses were available. Respondents were asked to indicate whether training was offered at an institutional level, by individual departments or at a school/faculty level; 64 respondents answered this question. Table 9 below indicates the results.

Training course subject	Training courses run by:		
	Departments	Central units (LRC, IT Services etc)	School/Faculty
None	20	15	17
General use of GIS	17	7	14
General use of CAD	9	1	6
General use of image processing software	11	2	7
Applied use of specialist GIS/CAD/Image Processing software	11	2	12
Mapping in general	13	5	11
Digimap	13	19	9
Landmap/SIDS	4	1	0
UKBORDERS	7	4	2

**Table 9 Training courses run locally for local staff and students**

The marked acknowledgement of courses run centrally by institutions about Digimap may be explained by the large and diverse user base for this service. It's use across many subject areas will increase the number of people interested in attending such a course, thus making it worthwhile to organise. Similarly, the use of GIS in particular departments may encourage them to offer their own courses dealing with GIS in a subject-specific context.

### **Barriers to institutions offering training**

When asked what barriers stood in the way of institutions offering in-house training for their staff and student nearly 64% suggested that appropriately qualified staff do not have time to offer training; 31% of support staff responding to this survey thought that they did not have sufficient knowledge and expertise to offer training. However, in spite of this nearly 20% of respondents said that the question did not apply to them because their institution did offer training in-house for local users. The barriers are not, therefore, insurmountable in every case. Table 9 below illustrates the full range of responses.

<b>Suggested barriers to offering training</b>	<b>% of respondents</b>
Appropriately qualified staff don't have time	63.8%
We don't have sufficient knowledge and expertise	31.0%

Not enough people would attend to make it worthwhile	27.6%
There is no demand for training	12.1%
Not applicable - there is training for local users	19.0%
We don't have appropriate facilities	8.6%
Our policy is use training options external to our institution	0.0%

**Table 10 Suggested barriers for institutions in offering training**

Acknowledging that training is an important part of any support strategy, respondents were asked which organisations ought to offer training for services and software. The responses to this question are given in Table 11 below. Notably, 32 respondents thought that EDINA and/or Mimas should provide support for geospatial services. We might extrapolate this to suggest that service providers should provide training for the services they operate. There are marked differences in views on which organisations should provide training for GIS and training for CAD software. 30 respondents thought that institutions should provide training for GIS software, but only 17 thought institutions should do the same for CAD software. In contrast, similar numbers thought that software vendors should provide training for both GIS and CAD software.

<b>Training offered by:</b>	<b>For geospatial services</b>	<b>For GIS software</b>	<b>For CAD software</b>
EDINA/Mimas	32	12	5
Institution (centrally)	26	30	17
Each Department/School	24	28	19
HEA Subject Centres	9	6	3
Regional Support Centres	9	8	3
Research Councils and their Institutes	8	4	1
Software vendors	6	24	20
Other	1	1	1

**Table 11 Who should offer training?**

### **Online Training Materials**

One option for provision of training is to offer online training, thereby minimising travel time and costs and improving access to the information. The survey asked respondents to comment on the most important features of online training. The most frequent comment was that they must be easy to understand with minimal jargon in order for them to be appropriate for use with novices. A re-usable format is also key. Appendix 2 gives more detail about these responses.

## 11. Provision of Learning Resources

Learning resources aid the spread of support throughout an institution, enabling users to help themselves rather than seek help from members of staff or colleagues. Survey respondents were asked to indicate whether their institution provided learning resources relating to geospatial data and resources. The responses were as follows in Table 12 below:

**Learning resources delivered by:**

Learning resources subject	Learning resources delivered by:		
	Departments	Central units (LRC, IT Services etc)	School/Faculty
General use of GIS	15	11	10
General use of CAD	4	3	5
General use of image processing software	5	3	4
Mapping in general	11	6	8
Applied use of GIS/CAD/Image Processing software	9	4	7
Digimap	13	<b>23</b>	7
Landmap/SIDS	4	2	1
UKBORDERS	6	5	2
None	13	9	11

**Table 12 Who should provide learning resources**

Most notably, learning resources tend to be provided by individual departments in preference to central provision. It may be that such resources are subject specific and are developed in the context of a particular discipline and by staff within departments. Again it seems that Digimap is an exception to this, again perhaps because of its wider cross-curricular appeal, learning resources can easily be offered centrally for use in any subject area.

## 12. How well are users supported in their use of GIS and geospatial resources?

This was a general, but key, question. Only 4.8% of respondents said their institution was *very well supported*. 47.6% said it was adequate but 41.3% said it was insufficient and 6.3% said it was not covered at all. Importantly, this illustrates that nearly half of respondents to this survey believe that in spite of the wide ranging support already offered, there is a significant gap in the support provided to users in their institutions. It might be inferred from this that lack of support means that institutions are not making the most of the resources (data and software) available to them.

The most frequent reasons given for insufficient support cover were lack of money, resources, time and staff.

Some further comments made are given here. Others are given in Appendix 2.

*“Cover was adequate but because it was presently not technically demanding... as user requirements become more complicated the support cover is insufficient. “*

*“Cover is concentrated in Earth Sciences and poor outside that dept.”*

*“We don't have adequate GIS knowledge. We are more than competent when assisting users with paper maps or with Digimap Classic and Carto, but we lack skills to help further.”*

*“There are users in some schools who effectively have no support available - they are reliant on personal contacts and assistance from others - if they know who to ask. Although there is an institutional contact for Digimap who does offer some support, they are based within a single school.”*

*“Lack of dedicated staff, and lack of acknowledgement that the demand for GIS is as high as it actually is. Lack of funding. Many staff who use GIS have no time to support others”*

*“The departments of Geography and Architecture are the only ones I'm aware of that provide specific support, for GIS and CAD respectively. This support is targeted at their own students. I don't think we have yet recognised the scope for providing GIS/CAD support for students across a wide range of disciplines.”*

*“I can help with Digimap but not with GIS. Expert help with GIS is only available from 2 members of academic staff, based in Geography and Agriculture, who don't have time to support users (especially from other Departments). A lower level of support is available from a few other academics in Geography, but again time is a problem.”*

## 13. How institutions can help their staff

The survey asked what single thing their own institution could do to help them in their role as support staff. Most respondents requested more funding for both software and training to use that software, with a significant emphasis on the training aspect:

*“further training of our GIS support officer”*

*“Spend more money on resources and making more readily available software and training”*

There were also calls for greater cohesion between existing support services and more staff time to create resources.

*“Provide GIS support to other departments as there are a number of users outside my department who have no GIS support and while helping them on an ad hoc basis as a favour, my role is only supposed to be department wide.”*

*“Give me time to create support materials for students/staff for using GIS and other geospatial resources”*

Such comments tally well with the reports from earlier questions that support exists but is still not as widespread or as effective as it might be.

## **Conclusion**

Support for end users of geospatial data and resources is provided but availability varies between institutions and there are significant gaps in provision, especially for more detailed or complex queries relating to the use of software and data. Many users have no support available to them; it has long been a concern that lack of support leads to inappropriate use of complex data and introduces the potential for errors in research results.

It is clear that there is no single solution to the support problem and that while there is a need for an expanded training programme and direct helpdesk support to end-users, this must be augmented by the opportunity to request assistance in person from local subject experts. Training should also be available, provided nationwide and should cover all levels of expertise.

There are many different models for providing support for the use of geospatial resources. JISC-funded National Data Centres, software vendors and local subject experts all have a part to play. It was noted from comments submitted by respondents to the survey that greater cohesion and coordination is required between those providing different levels of support. While the full remit of a dedicated GI advisory unit might extend well beyond the provision of “grass roots” support to end-users, the existence of such a unit would bring opportunity for greater cohesion of support and introduce a degree of equality in its availability across the UK higher and further education sector.

## Appendix 1; Attendance of training courses

<b>Reasons for not attending training</b>	<b>% responses</b>
There is no funding available to pay for courses or travel to courses if they are free	27.3%
I just haven't got around to it	27.3%
Such courses aren't relevant to me in my role	27.3%
I can't spare the time away from work	22.7%
I didn't know such courses existed	18.2%
The course was held too far away for me to attend	18.2%
I don't know where to find out when and where such courses are running	13.6%
The dates of the courses didn't suit	13.6%
My line manager doesn't believe they would be of benefit	9.1%

## Appendix 2; Online training materials

Which of the following criteria would be of GREATEST IMPORTANCE to you if training materials were made available for online geospatial resources (e.g. Landmap/SIDS, Digimap, UKBORDERS)?

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
They must be easy to understand, with minimal use of jargon	31.7%	19
They must be in a format which I can re-use with others	25.0%	15
I need to be able to use them with novices and experts alike	21.7%	13
They must be comprehensive and cover everything users need to know	15.0%	9
They must not be too long - I only need the basics	3.3%	2
They must target particular users with specific knowledge	3.3%	2
They need to use appropriate terminology for the subjects covered	0.0%	0
Total		60

### Appendix 3 Additional questions and responses

Please name ONE THING EDINA or Mimas could do to help you.

*"A helpline which would help academics and students directly"*

*"Make more online training available."*

*"Regular Workshops free for academics/educators"*

*"Tailored training"*

*"Continue doing what you are and expand online documentation re. eg digimap."*

*"Provide online ArcGIS support"*

*"Offer postgraduate training on geospatial resources"*

*"Regional roadshow/seminars to showcase products and provide some training"*

*"Create a forum so that users could discuss stuff and share info"*

Further general comments regarding support for geospatial matters were made as follows:

*"In an ideal world, we would help more users. We have a lot of expertise in GIS, RS, Digimap etc. but no time to help!"*

*"We only have one person who can offer top quality support across the institution - if they are unavailable, there is no back-up of equivalent quality, and users suffer badly as a consequence.*

*The ideal scenario would be for all our expert's talents to be made available via the web, but even this would not answer very specific queries."*

*"A central contact point for queries about academic access to data sources and software would be excellent as it would save me having to spend too much time trying to keep up to date. I spend time answering "where can I get X data?" or "do we have software to do Y?"."*

*"Different subject areas have different requirements of data and software so it is difficult to provide generic training that is all things to all people. Training and support resources need to be relevant to the subject area as many new users find it difficult to transfer skills between subject areas."*

*"Librarians such as myself don't really have the background knowledge to be effective in this subject area."*

*"No funding from central sources. All left to Department to fund (for whole institution). Unsustainable!"*

*“I think support here is only 'adequate' because there is only the one of me and there is very limited backup available. We have a virtual GI Community, which brings together GI users in all departments and regardless of status. This has enabled users to discover others with similar interests in different departments. Centrally provided teaching materials are also accessible here, for self-paced / self-directed learning and as reference materials.”*