"Comparative evaluation of open source digital library packages"

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Abstract:
In the last decade the way to publish and access information has been changed a lot because of the availability of open access repositories. This became possible because of a varied range of open source repository packages. Other reasons like every year deduction in library budget and increasing urge to show more visibility of their institute, popular institutions also started establishing repositories. This paper starts with giving brief introduction of different open access models, open source philosophy and some of the expectations from a digital library package and tries to evaluate DSpace, EPrints and Greenstone.

Purpose:
This paper tries to evaluate some of the most popular digital library packages. It can help digital library administrators to decide among the available packages.

Methodology:
The evaluation is done by using a checklist having different categories. The categories are provided with weights according their importance for the package.

Findings:
The study shows that most of the softwares are in developing stage but are good at providing a good service. Among DSpace, EPrints and Greenstone. DSpace emerged as best option.

0 Introduction to Open source, open access archives.

With the rapid deduction in library budget, crisis in scholarly publication, high cost of dissemination of research and the challenge of preservation caused a convergence of factors and created "a perfect storm" in the library and information world.
This has given rise to aura of open source softwares to provide open access to the research literature/articles.

0.1 Open access:
According to Peter Suber [14]

> "Open-access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions. What makes it possible is the internet and the consent of the author or copyright-holder"

The main aim or value that was associated with the upcoming of open access movement was to provide
- long-term preservation of electronic resources
- widest possible access to research and scholarship
- respect for intellectual property rights

There are two primary vehicles for delivering open access to research articles:
- Open access Archives/Repositories ("Green OA")
  OA archives can contain preprints, postprints(peer reviewed), or both.

- Open access Journals ("Gold OA").

0.2 Open Source:
The common understanding that is associated with open source software is that it is free, but OSI (Open Source Initiative) at www.opensource.org [10]defines open source comprehensively and highlights the following points:

i. Free redistribution
ii. Source code
iii. Derived works
iv. Integrity of the authors source code
v. No discrimination among person or groups
vi. No discrimination among fields of endeavour
vii. Distribution of license
viii. License must not be specific to a product
ix. License must not restrict other software
x. License must be Technology neutral.

0.2.1 Reason Behind Boost in Open source:

Open source DL softwares because of its free access and good level of functionality are being used heavily as an alternative to commercial DL softwares.

Gone are the days when it was only big companies who were producing software products, at present because of good communication system availability of open source softwares and decreasing cost of computing and other requisites, librarians and other persons from different fields are also joining their hands in development of open source softwares.

The availability of the source code in open source softwares gives power to users to modify and make any changes or improvements to it, and such contributions can come from a community of programmers having different talents pools.

1 Digital libraries and archives :

Digital libraries (DLs) facilitate creation, organisation and management of multimedia digital content and collections, and provide search, retrieval and other information services over computer networks and other electronic media.

With the availability of a big list of open source digital library packages it is now too much tough for librarians, and repository managers to decide one out of those. So there is high need for evaluation of these packages. This paper tries to evaluate three most popular DL softwares.

1.1 Expectations from a DL software:

Evaluation can only be done if and only if we have a detail list of expectations from a DL software. Broadly we can divide our expectations in following categories.

- Content Management:
  - Content Flow
  - Text and multimedia indexing and retrieval
- User Interface:
  - Personalisation and visualization
  - Multilingual support
- User administration:
  - Restricted access
- System administration:
  - Preservation standards support
  - Automatic indexing
  - Persistent document identification
- Other characteristics:
  - Document summarization and categorization
  - Interoperability
  - Complainant with DL standards
  - Documentation

Content management feature is an important expectation from DL software. A DL software should be easy and functional in handling creation of content, submitting, reviewing and organizing. It should be able to provide searching and browsing functions such as metadata search, full-text search, and hierarchical subject browsing, additionally content encoded in various popular formats including text (e.g. ASCII, UNICODE, RTF), image (e.g. TIFF. GIF. JPEG), presentation (e.g. Adobe Postscript and Adobe PDF), structured formats(e.g. HTML and XML), audio and video (e.g. real, MP3. AVI and MPEG) ought to be supported.

Second important feature is User interface. A DL software should provide flexibility in customizing the interface to suit the needs of different digital library implementations as well as the support for multilingual access. With multilingual access, the user is able to specify the language for the DLs user interface as well as the cataloguing information stored within it.

Thirdly digital library deals with a lot of users like a traditional library so the user administration is also an important expected feature. This includes restricting access to content in the DL through password authentication, IP filtering, and proxy filtering. Specially when a particular DL content is in sensitive domain like defence but it is not encouraged in open access philosophy. Also one can monitor and report usage patterns. This usage patterns are analysed, the needs and interests of DL users can be better understood. End users of a system want to be able to organize the information space according to their own profiles based on their interest so we can say that personalisation and visualization is also an expected feature in DL.

As like every software which provides service there is high requirement of back end maintenance same is applicable for DL software also. Functionality of automatic tools is useful particularly for large DLs where maintenance work is labour-intensive. Functions such as automated content acquisition, harvesting and automatic metadata generation, including named entity recognition and automatic subject indexing/classification, makes DL maintenance much easier. Apart from this a DL needs to support preservation standards as well as persistent document identification, so that the

transfer of digital materials from one hardware/software configuration to another would not compromise reference citations and other links. This can be achieved only when a DL can offer functionality of handles and support for various available standards.

Some other expectations would be document summarization and categorization which offers a user to overcome the information overload. A DL should also support interoperability so that it can communicate with other DLs. For this a lot of protocols like Z39.50, OAIPMH, SRU/SRW, SOAP are avaialable among these at least two basic interoperability protocols should be supported, viz. Z39.50 and OAI-PMH(Open Archive Initiative for Metadata Harvesting).

Additionally, the DL must be compliant with standards established for DL collection and services. For e.g. For representation of Information XML; XHTML for web pages so that it can be accessed from small portable devices like Mobile and PDA's, TIFF, GIF and JPEG for images, Unicode for multilingual support and information interchange; and Dublin core and MARC 21 for metadata.

Most importantly the DL package should provide mechanisms for support like documentation, manuals, mailing lists, discussion forums, bug tracking, feature request systems and formal helpdesk support.

2 Ways to evaluate DL packages:

For effective evaluation there should be some framework to test. Punter[12] points out the following instruments can be used to accomplish this task.

  i.   Static analysis of code, for structural measurement or anomaly checking
  ii. Dynamic analysis of code, for test coverage or failure data;
  iii. Reference tools that compare the software product
  iv. Reference statistical data; and
  v.   Inspection with checklists.

Although he further points that the first three are usually looked upon as well founded and applicable to software evaluation, experience shows that the use of checklists are necessary.

2.1 Checklist:

The checklist which is used to evaluate is heavily borrowed from a work of Goh et. al.[5] They designed a checklist for the evaluation of digital library software using 12 categories. The categories were determined from the literature and each category is assigned a weight which sums up to 100 percent for all categories whereas the items making up a category always sum up 10. An institution which would like to evaluate institutional repository software can adapt the checklist with its items or fine-tune the weights according to their needs.

The checklist consists of 12 categories of items, each with varying degrees of importance: content management, content acquisition, metadata, search, access control and security, report and inquiry, preservation, interoperability, user interface, standard compliance, automatic tools and support. The weights were assigned on the basis of a modified Delphi technique by four people familiar with institutional repositories. If discrepancies in the weight estimates were observed, they were resolved through discussion.

The checklist and usage can be found from appendix 1.

3 Selection of DL packages for evaluation:

From the heap of available open source DL packages it was really very much tough to choose packages for evaluation. For the purpose of this paper the list available at the Registry of Open Access Repository (ROAR)[13] three packages viz. DSpace, EPrints and Greenstone were taken for evaluation on the basis of these criteria:

- The software package must be available for download and installation at no cost via an open source license to facilitate evaluation.
- The software package should be relatively well known and commonly used, and this was inferred from the number of bases installed, especially in credible organizations such as universities. (taken from ROAR)
- The software must be supported either on Linux or Windows, as these are commonly used platforms.

3.1 DSpace:

DSpace[1] is an open source software package that provides the tools for management of digital assets, and is commonly used as the basis for an institutional repository. It supports a wide variety of data, including books, theses, 3D digital scans of objects, photographs, film, video, research data sets and other forms of content. The data is arranged as community collections of items, which bundle bitstreams together.

DSpace is also intended as a platform for digital preservation activities. Since its release in 2002, as a product of the HP-MIT Alliance, it has been installed and is in production at over 373 institutions around the globe, from large universities to small higher education colleges, cultural organizations, and research centres. It is shared under a BSD licence, which enables users to customize or extend the software as needed. Version 1.5 has been chosen for the purpose of study.

3.2 Greenstone:

Greenstone[7] is a suite of software for building and distributing digital library collections. It provides a new way of organizing information and publishing it on the Internet or on CD-ROM. Greenstone is produced by the New Zealand Digital Library Project at the University of Waikato, and developed and distributed in cooperation with UNESCO and the Human Info NGO. It is open-source, multilingual software, issued under the terms of the GNU General Public License. The current installed base is unknown but the number of downloads of the software appear to be large since 11/2000 the average downloads per month since then is 4500. Version 2.81 has been chosen for the purpose of study.

3.3 EPrints:

EPrints[3] open source software is a flexible platform for building high quality, high value repositories. It is recognised as the easiest and fastest way to set up repositories of research outputs of literature, scientific data, theses and reports or multimedia artefacts from collections, exhibitions and performances. Till today 287 known archives are running EPrints worldwide. Total records in known archives: 519952

EPrints is developed at the School of Electronics and Computer Science, University of Southampton, UK, with the first version of the software publicly released in late 2000. Version 3.1 has been chosen for the purpose of the study.

4 Findings:

No	Category	DL software packages		
		DSpace	EPrints	Greenstone
1	Content management	6.51	**7***	5
2	Content acquisition	6.49	**9.79**	5.7
3	Metadata	**7**	5.84	5.84
4	Search support	**13.58**	10.72	11.79
5	Access control and privacy	**5.83**	2.86	2.97
6	Report and inquiry capabilities	1.8	1.8	**3***
7	Preservation	**5***	2.75	1.25
8	Interoperability	5	5	**8**
9	User interface	**8***	**8***	**8***
10	Standards compliance	**10***	**10***	**10***
11	Automatic tools	2.66	2.66	**4***
12	Support and maintenance	**9***	**9***	**9***
		80.87	**75.42**	**74.55**

*Note: * indicates the highest category score*

Table 1: Evaluation result for each categories.

4.1 Content Management:

This category involves procedure to the submission of content into the DL as well as management of submission workflow. By going through checklist Greenstone lacks some features like sending email notification for users about submission. Whereas EPrints because of providing review of completed contents scored highest, whereas DSpace also scored well because of its stepwise and better review of license statement. Feature of segregated workspaces also adds to the value.

4.2 Content Acquisition:

This category involves functions related to import and export, versioning and supported document formats. Here because of functionality of history and comparison view EPrints again emerged as winner, apart from this the functionality to upload compressed file has added weights to both EPrints and Greenstone whereas DSpace because of its absence lagged behind, but having the ability to approve file formats added. It was found that mostly all DL packages support all popular and established file formats.

4.3 Metadata:

For any DL package the support for metadata is important for content indexing, storage , access and preservation. Here DSpace emerged as winner because of having feature of adding and deletion of customized metadata fields and real time updating and indexing of accepted content, whereas all DL packages support by default the core metadata standard Dublin Core. Greenstone because of its availability of various plugins supports a lot of metadata formats. Whereas others have a feature to define new metadata schemas.

4.4 Search Support:

Search support refers to a range of searching and browsing functionality such as metadata search, full-text search, and hierarchical subject browsing. All DL packages scored well because it is the most looked feature among developers. As most of them are using same search engine ie. Lucene they have similar functionality of boolean, proximity and truncation search. Apart from this all of them provide full text search and metadata search. In respect of browsing DSpace has better browsing functionality by customised fields which is added. Whereas sorting of results after search also adds to DSpace, while others lack this feature.

4.5 Access and privacy:
Access and privacy includes the administration of passwords as well as the management of user's accounts and rights to specified location in DL. It was found that all DL provide user login and their own space on DL so that better tracking of their tasks can be done whereas EPrints and DSpace provides the facility of retrieval of forgotten password. DSpace because of its IP filtering, encrypted password storage and providing roles to user gained top position. While all the DL packages provided the feature of adding deleting and editing user profiles.

4.6 Report and Inquiry capabilities:
Report and Inquiry capabilities category is concerned with usage monitoring and reporting. Here Greenstone emerged as winner because of its functionality of generation of various types of reports. Whereas DSpace and EPrints generates usage report statistics and the presence of functionality of history view adds value to EPrints.

4.7 Preservation:
Preservation refers to preservation of metadata and quality control measures to ensure integrity, and persistent document identification for migration purposes. DSpace emerged as clear winner because of support for CNRI handles, better quality control measures and provision of a prescribed digital preservation strategy viz. which file formats are supported, which are unknown and which are unsupported for DL. Others lack this feature but all the packages were found capable of assigning system assigned identifiers.

4.8 Interoperability:
Interoperability refers to the function of interaction of DL with other similar kind of system locally or distributed. Results indicated that Greenstone was the best performer because of its added support for z39.50 protocol whereas all the DL packages supported OAIPMH. Greenstone also provides feature of upload of metadata from DSpace repository.

4.9 User Interface:
This category refers to the support for multilingual access as well as the ability to customize the user interface to suit the needs of different DL implementations. All DL package secured full score which reflects that these issues were taken care very well. Some peculiar features like availability of themes like Manakin for DSpace helps end user to get a better look and feel. Whereas Greenstone Librarian Interface lacks this feature. On the other hand AJAX enabled EPrints interface is a great boon for low bandwidth users.

4.10 Standards Compliance:
Standards are important for the sharing of digital content and a long term digital preservation. All DL packages scored well which confirms that all of them are compliant with the established standards for DLs.

4.11 Automatic Tools:
This category refers to tools for automated content acquisition, harvesting and metadata generation. Automatic tools help in reducing the labour cost and valuable time of implementing a DL.

Greenstone because of its feature to write plugins and following of CORBA based standards was able to get a better score. While others only have feature of automatic generation of indices and reports.

4.12 System Support and Maintenance:

Any open source software can be successful only and only if there is availability of support and maintenance. This category deals with the availability of these.

Experience shows that most open source softwares lack this feature. Here all the chosen packages scored very well, all were backed by well documented manuals, wikis and quick responsive mailing lists. Further all of them have their help desk support also.

5 Conclusion:

The consolidated score [Table 1]shows that DSpace emerged as a good option having best search and browsing support as well good support for metadata and provides more power to administrator to put access restrictions at collection level. The web browser based upload and better user interface. With the option of deployment of themes adds to better look and feel. The back end programming language JAVA makes it platform independent. The lacking points like unavailability to upload compressed files and little bit tough installation put it on backstage.

While EPrints having functionality to upload compressed files and AJAX based interface and very good support for metadata adds value to it. Whereas limited browsing and less implementation of access restrictions are some of the lacking features.

Whereas Greenstone having good report generation, indexing features, availability of a range of plugins, support for Z39.50 adds some feathers to its cap. But lack of embedded interface for Librarians makes it sometimes inaccessible on some machines. The default user interface is also not that much attractive from the user point of view. But the easy installation like one click installation is main reason for increase in number downloads of this software.

The clear indication which is coming out of this study is that all the DL packages are improving day by day and are ready to incorporate new state-of-the-art features.

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Appendix:
Appendix1: shows checklist and usage

1. Place a check mark for each item that exists in the software package being evaluated.

2. Within each subcategory,
    a. Multiply the number of check marks by the subcategory weight. This weight also represents the maximum score for that subcategory.
    b. Divide this resulting number by the number of items in the subcategory to obtain the subcategory score.

3. Within each category, sum all subcategory scores, divide the total by 10, and multiply the resulting number by the category weight to obtain the category score.

4. To obtain the consolidated score, sum all category scores.

Table II. Digital library evaluation checklist

	Checklist Categories		Weight
1.0	**Content Management**		**7.00**
1.1	**Submission Administration**		**3.00**
	1.1.1 Allows multiple collections within same installation of system	☐	
	1.1.2 Allows repository administrator to set submission parameters	☐	
	1.1.3 Home page for each collection	☐	
	Sub-category score		
1.2	**Submission workflow**		**3.00**
	1.2.1 Segregated submission workspaces	☐	
	1.2.2 Submission roles	☐	
	1.2.3 Configurable submission roles within collections	☐	
	Sub-category score		
1.3	**Submission support**		**2.00**
	1.3.1 Email notification for users	☐	
	1.3.2 Email notification for administrators	☐	
	Sub-category score		
1.4	**Submission review**		**2.00**
	1.4.1 Allows users to review completed content	☐	
	1.4.2 Allows users to review uncompleted content	☐	
	1.4.3 Allows content administrator to review submissions	☐	
	Sub-category score		
	Category Score		

(continued)

Checklist Categories	Weight	
2.0 Content Acquisition		**11.00**
2.1 **Content import/export**	**3.00**	
2.1.1 Upload compressed files	☐	
2.1.2 Upload from existing URL	☐	
2.1.3 Volume import of objects	☐	
2.1.4 Volume import of metadata for existing collections	☐	
2.1.5 Volume export/content portability (to other systems)	☐	
Sub-category score	☐	
2.2 **Document/object formats**	**5.00**	
2.2.1 Administrator ability to limit approved file formats	☐	
2.2.2 Submitted items can comprise multiple files or file types	☐	
2.2.3 Text formats	☐	
2.2.3.1 ASCII	☐	
2.2.3.2 UNICODE	☐	
2.2.3.3 RTF	☐	
2.2.4 Image formats	☐	
2.2.4.1 TIFF	☐	
2.2.4.2 GIF	☐	
2.2.4.3 JPEG	☐	
2.2.5 Presentation formats	☐	
2.2.5.1 Adobe Post Script	☐	
2.2.5.2 Adobe PDF	☐	
2.2.6 Structured formats	☐	
2.2.6.1 HTML	☐	
2.2.6.2 SGML	☐	
2.2.6.3 XML	☐	
2.2.7 Audio and video formats	☐	
2.2.7.1 Wave	☐	
2.2.7.2 Real	☐	
2.2.7.3 MP3	☐	
2.2.7.4 AVI	☐	
2.2.7.5 MPEG	☐	
Sub-category score	☐	
2.3 **Version control**	**2.00**	
2.3.1 Allows past versions of files to be retrieved	☐	
2.3.2 Changes can be identified	☐	
2.3.3 Changes can be compared	☐	
Sub-category score	☐	
Category Score		☐
3.0 Metadata		**12.00**
3.1 **Real time updating and indexing of accepted content**	**1.50**	
3.1.1 Features available	☐	
Sub-category score	☐	

Checklist Categories	Weight

3.2 Metadata schemas supported   **5.00**
3.2.1 Dublin Core ☐
3.2.2 EAD ☐
3.2.3 MARC 21 ☐
3.2.4 LOM ☐
3.2.5 METS ☐
3.2.6 MODS ☐
3.2.7 VRA Core Categories ☐
3.2.8 MPEG-7 ☐
Sub-category score

3.3 Add/delete customized metadata fields   **1.50**
3.3.1 Feature available ☐
Sub-category score

3.4 Set default values for metadata   **0.50**
3.4.1 Feature available ☐
Sub-category score

3.5 Supports Unicode character set for metadata   **1.50**
3.5.1 Feature available ☐
Sub-category score

Category Score

4.0 Search Support   **14.00**
    4.1 Full text   **4.00**
       4.1.1 Boolean logic ☐
       4.1.2 Truncation/wild cards ☐
       4.1.3 Phrase ☐
       4.1.4 Proximity ☐
       Sub-category score

    4.2 Search all descriptive metadata   **2.50**
       4.2.1 Boolean ☐
       4.2.2 Truncation/wild cards ☐
       Sub-category score

    4.3 Search selected metadata fields   **1.00**
       4.3.1 Feature available ☐
       Sub-category score

    4.4 Browse   **2.00**
       4.4.1 By author ☐
       4.4.2 By title ☐
       4.4.3 By issue date ☐
       4.4.4 By subject term ☐
       4.4.5 By collection ☐
       4.4.6 By customized fields ☐
       4.4.7 Browse by more than 1 field ☐
       Sub-category score

Checklist Categories	Weight

4.5 Sort search results — **0.50**
4.5.1 By author ☐
4.5.2 By title ☐
4.5.3 By issue date ☐
4.5.4 By relevance ☐
4.5.5 By other ☐
Sub-category score ☐

Category Score ☐

5.0 Access Control and Privacy — **7.00**

5.1 Password administration — **2.00**
5.1.1 System-assigned passwords ☐
5.1.2 User selected passwords ☐
5.1.3 Forgotten password retrieval function ☐
Sub-category score ☐

5.2 User management — **1.50**
5.2.1 Add user profile ☐
5.2.2 Edit user profile ☐
5.2.3 Delete user profile ☐
Sub-category score ☐

5.3 Limit access at different levels — **1.50**
5.3.1 File/object level ☐
5.3.2 Collection level ☐
Sub-category score ☐

5.4 User roles — **2.50**
5.4.1 Allows definition of different user groups ☐
5.4.2 Limits access by role ☐
5.4.3 Allows collection to be customized for each role ☐
Sub-category score ☐

5.5 Access management — **1.50**
5.5.1 IP source address filtering ☐
5.5.2 Proxy filtering ☐
5.5.3 Credential-based access ☐
Sub-category score ☐

5.6 Security methods — **1.00**
5.6.1 Encryption ☐
5.6.2 Digital signatures ☐
Sub-category score ☐

Category Score ☐

6.0 Report and Inquiry Capabilities — **3.00**

6.1 System generated usage statistics — **6.00**
6.1.1 Feature available ☐
Sub-category score ☐

Checklist Categories	Weight

6.2 Usage reports — **4.00**
6.2.1 Report timeline specification ☐
6.2.2 Report fields customization ☐
6.2.3 Report templates ☐
Sub-category score ▢

Category Score ▢

7.0 Preservation — **5.00**

7.1 Persistent document identification — **5.00**
7.1.1 System assigned identifiers ☐
7.1.2 CNRI Handles ☐
Sub-category score ▢

7.2 Quality control — **3.00**
7.2.1 Feature available ☐
Sub-category score ▢

7.3 Prescribed digital preservation strategy — **2.00**
7.3.1 Feature available ☐
Sub-category score ▢

Category Score ▢

8.0 Interoperability — **10.00**

8.1 OAI-PMH — **5.00**
8.1.1 Feature available ☐
Sub-category score ▢

8.2 Z39.50 protocol compliant — **3.00**
8.2.1 Feature available ☐
Sub-category score ▢

8.3 Research protocols — **2.00**
8.3.1 Dienst ☐
8.3.2 SDLIP ☐
Sub-category score ▢

Category Score ▢

9.0 User Interface — **8.00**

9.1 Modify interface "look and feel" — **5.00**
9.1.1 Feature available ☐
Sub-category score ▢

9.2 Apply a customized header/footer to static or dynamic pages — **3.00**
9.2.1 Feature available ☐
Sub-category score ▢

9.3 Supports multi-lingual interfaces — **2.00**
9.3.1 Feature available ☐
Sub-category score ▢

Category Score ▢

(continued)

Checklist Categories		Weight

10.0 Standards Compliance — **10.00**

	Weight	
10.1 **Structured document forrmats e.g. XML, SGML**	**3.00**	
10.1.1 Feature available ☐		
Sub-category score ☐		
10.2 **Metadata formats e.g. Dublin Core**	**3.00**	
10.2.1 Feature available ☐		
Sub-category score ☐		
10.3 **Text document formats e.g. Unicode**	**2.00**	
10.3.1 Feature available ☐		
Sub-category score ☐		
10.4 **Image formats e.g. TIFF**	**2.00**	
10.4.1 Feature available ☐		
Sub-category score ☐		
Category Score ☐		

11.0 Automatic Tools — **4.00**

	Weight
11.1 **Metadata entry system**	**5.00**
11.1.1 Feature available ☐	
Sub-category score ☐	
11.2 **Generation of**	**5.00**
11.2.1 Search indexes ☐	
11.2.2 HTML pages ☐	
11.2.3 Reports ☐	
Sub-category score ☐	
Category Score ☐	

12.0 System Support and Maintenance — **9.00**

	Weight
12.1 **Documentation/manuals**	**4.00**
12.1.1 Feature available ☐	
Sub-category score ☐	
12.2 **Mailing lists/discussion forums**	**2.00**
12.2.1 Feature available ☐	
Sub-category score ☐	
12.3 **Bug track/feature request system**	**1.00**
12.3.1 Feature available ☐	
Sub-category score ☐	
12.4 **Help desk support**	**3.00**
12.4.1 Feature available ☐	
Sub-category score ☐	
Category Score ☐	

Consolidated Score ☐

Note: Category weights sum to 100, while subcategory weights sum to 10