

QUALITY ASSURANCE IN CD-ROM BASED INFORMATION PRODUCTS*

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CD-ROMs have evolved as an effective information storage and dissemination media in libraries and information centres. However, publishers and database vendors are increasingly producing CD-ROM based information products and services without giving much attention to quality. Quality assurance in CD-ROM based information products is important in the present scenario and the present paper looks at the various parameters that determine quality of CD-ROM based information products.

INTRODUCTION

The information explosion accompanied by the rapid developments in the field of information technology has redefined the manner in which information products and services are rendered worldwide. One of the most profound impacts of the IT development on the information industry has been the paradigm shift from a paper-based media to the electronic media.

Among the various electronic storage devices, the Compact Disc-Read Only Memory (CD-ROM) is one of the best storage media because of its excellent features such as huge storage capacity, easy transportability, safety, durability and security of information on the CD-ROMs.

Steve Holder[1] refers to the CD-ROMs as "The New Gutenbergs". The CD-ROMs are altering the traditional print media. The major application areas are for information distribution, academic research system, publishing, software storage and in libraries.

A CD can hold around 630 megabytes of data which means that a single disc can hold large databases including the full texts of multi-volume encyclopaedias and dictionaries or hundreds and thousands of bibliographic records. CD-ROM databases not only have several advantages over the print media but also have some noteworthy advantages over online databases.

Firstly, CD-ROM databases can be searched in-house using relatively cheap hardware with no need for potentially troublesome telecommunication networks. The search software in CD-ROM databases is mostly flexible and straightforward to use as its menu driven approach is more user-friendly than the command-driven approach of most online services. This user-friendliness is enhanced by the pricing policy which is completely independent of use. The searcher is therefore not under pressure to complete search sessions quickly and it does not matter if the menu-driven software is slower to use than commands. It also means that onscreen help can be provided and used without financial penalties.

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The sale of information on CD-ROM is becoming economical and convenient medium for delivery. Typifying the information available on compact disc is abstract databases, bibliographies, directories, and periodical indexes; financial, demographic, cartographic, scientific, and engineering databases; the full text of journals and other text, encyclopaedias, dictionaries, books and other literary collections. Approximately one-third of the CD-ROMs produced are databases.

Generally these products are sold as individual discs, or on an annual subscription basis providing updated discs at regular intervals. Software is provided on the disc enabling easy access to the data contained on the disc.

Despite these merits, CD-ROM medium has some drawbacks. Its production and distribution means that databases cannot be easily and cheaply updated. As a consequence, databases are often not updated as frequently on CD-ROM as in online databases.

The pricing policy of CD-ROMs might be attractive but for the occasional user the charge would be high and in such a case, the pay-as-you-use online service might seem preferable. Though the reach of internet is growing rapidly, CD-ROMs continue to have an important role as an electronic storage and dissemination medium.

REVIEW OF LITERATURE

Quality assurance is the activity of providing the evidence needed to establish confidence, among all concerned, that the quality-related activities are being performed effectively [2]. ISO 8402-1986 defines quality assurance as related to a product or service as: "All those planned or systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality".

As in any other product or service, quality of CD-ROM based information products is of paramount importance. There are several attributes to the quality such as, value for money, easy operability, complete coverage, error free content, efficient

retrieval, attractive user interface, quick retrieval engine, thorough help features, documentation, attractive packing, timely updation, etc.

While there exist standards for publishing and production of books, there exist no implemented standards for the production of CD-ROM based information products. Also CD-ROM information product vendors are in a hurry to capitalise on the market generated by the new media, and therefore care little for quality. These have resulted in information products being produced as conceived by the producer. It is usually found that search parameters and features are different in different databases. A searcher thus has to spend considerable time to familiarise himself with a product to enable him to use it effectively.

Case studies on developing in-house CD-ROM databases show that the quality assurance factor has not been considered in the development of databases [3,4].

Building in at least the minimum required quality parameters can be very useful not only for the user but also for the producer as it helps in the overall improvement and marketing of the product.

There are over 20,000 CD-ROM databases available to users around the world and few, if any, have provided their users with formal specifications detailing their capabilities. The average database user is thus searching a mass of data without any defined parameters from which he or she can judge results. Documentation is intended to teach users how to search a given set of data using a given software; in some cases the tips intended to guide users into getting the best from the product actually disguise existing problems. In the information industry, quality is being dealt with on an ad hoc basis – some companies manage quality and some manage without managing. Even those companies which profess total quality management or quality assurance techniques are not all handling the problem the same way [5].

Peter Jasco [6] suggested an approach which was analogous to food and drug labelling, and which he called database labelling. Jasco

suggested that databases should have a detailed summary of their coverage and content readily available to users and potential users. It is essentially a way in which potential users can know exactly what is in a database and whether they want to use it – the extent to which they can 'trust' it.

While database labels have their merits, they do not ensure to comprehensively cover all the quality aspects of CD-ROM databases. The absence of standards does not obviate the need to do away with quality. This only further reinforces the need to strengthen quality assurance in CD-ROM databases.

According to McManus of Lotus Development Corporation, in addition to Quality Assurance (QA), Quality Control (QC) is also important. While QA begins when the product is conceived and continues through the design, development, testing and initial introduction of the product, QC at Lotus is responsible for checking the final CD-ROM product each time it is prepared for updates [7].

Quality Assurance begins right from the stage the product is conceived to the actual delivery of the product. However, for already established products, the level of quality assurance can be studied through the evaluation of the products. Such evaluative studies throw light on the deficiencies of the product and provide scope for improvement. Several studies have been undertaken on evaluation of CD-ROM products [8, 9].

PARAMETERS DETERMINING QUALITY IN CD-ROM BASED INFORMATION PRODUCTS

Information industry is intensively adapting itself to changes in its environment. The market is sharpening its demand for quality information and databases should match the needs and expectations of the individual. Meeting the customer's needs alone does not assure quality in an information product. There are several other parameters to be seriously considered to assure quality in information products. These are:

Information content

The information content in the database is the one that decides the use of the database. The database should therefore include what is precisely supposed to contain or projected to have.

Error free content

There is nothing more frustrating than finding errors in the content. The information content should be free from any factual or textual errors. Factual errors pertain to wrong information in the database and textual errors account for spelling, grammatical, syntactic errors, etc.

Cost

Regardless of how good or poor in quality the information product or service is, costs always represent the unavoidable limiting parameter. Quality assurance is only possible within the limits of available financial means. In the long run, quality is less cost intensive than non-quality. Adherence to the costs/quality relation is an important element in the quality assurance processes. Therefore, though initial cost of building in quality increases the production cost, it will be unfair to place the burden of this on the customer. The pricing policy should therefore initially be a customer oriented pricing which should enable the product to be well within the purchase reach of the customer. The aim should be to have a higher turnover of sale by lower pricing than having few customers who can pay a higher price.

Efficient retrieval

Efficiency in retrieval pertains to the speed of retrieval and the kind of information that the database retrieves on searching. This depends on aspects such as the configuration of the hardware used and is system dependent and many times dependent on the database itself. However, efforts should be made to enable the database to perform well under ideal or optimal conditions.

Simple user interface

User interface is of paramount importance because this is the place from which the user actually starts using the database. Graphical User Interface (GUI) ensures user-friendliness and ease of use. Quality is not to have a complex interface with several features. It is to have a simple interface that is not too harsh on the eye and at the same time has all the search parameters that are required for searching the particular database.

Software quality

Software quality assurance and software quality metrics are disciplines on their own. Applying the principles of software quality assurance in the development of retrieval software adds quality to the CD-ROM products.

Documentation and help features

The problems due to variations in the design of databases that cannot be controlled can be offset by quality documentation and help features. The software should have context sensitive comprehensive help features to help the user at any stage of the search process. Likewise, it should also be supplemented by easily understandable user manuals.

Labelling

Labelling is a means of specifying or describing a database which helps to map user expectation to product specifications and in so doing they can also form the basis of customer-provider quality agreements. First time users of databases would know exactly what they are paying for. From the information provider's point of view they offer a baseline from which increases in charges can be argued on the basis of better quality control.

Timely updation

The utility of the database depends on its timely updation. The database has to be updated at regular intervals as required by the customers.

CONCLUSIONS

Concerns about the quality of various information products have been on the increase for some 15 years now. Quality awareness has become an important issue and information quality problems have been a major concern in recent years. With increasing number of databases published on CD-ROMs, users are more exposed to errors affecting the quality of their search.

CD-ROMs have become a firm media for information products after initial scepticism about their longevity and durability. The other forms of optical media such as the CD-ROM Interactive and Digital Video Disks (DVDs), that have evolved have not dented the role of CD-ROMs as speculated and feared by technologists and experts. CD-ROMs as information dissemination media are here to stay.

The quality of CD-ROM information products, particularly that of databases in the present context, is extremely important.

Giving due attention to the various parameters that improve the quality will enable generation of information products of better quality. However, quality assurance should begin right from when the product is conceived and should continue through the design, development, testing, and initial introduction of the product. It is important that QA personnel understand how the product is designed and developed, in order to know which elements require rigorous initial testing and which will require ongoing testing as the product is updated.

In the competitively growing CD-ROM based information products market, the quality of CD-ROM products will be a clear and differentiating factor for its success.

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