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Communicating the benefits of an Institutional Repository: Experiences of a Research Institution

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TABLE OF CONTENTS

LIST OF FIGURES

Abstract

Institutional repositories (IR) are now being recognised as a significant way of valuing and showcasing an institution's intellectual output; a major tool in opening access to research. Knowledge is considered as a strategic resource. It is inevitable that we create, store, share and transfer information and knowledge in a continuous flow and for the advancement of our research institution. This paper briefly discusses the processes involved in the establishment of an IR using AgriOcean Dspace, an open source IR software at the CSIR-Food Research Institute. Marketing and advocacy strategies employed to engage CSIR-FRI staff to enable them to contribute meaningfully and effectively in populating the IR have been outlined and benefits described. The paper also describes the various communication methods used to promote the IR and evaluates their effectiveness in getting users to participate in populating the IR. The study adopted a survey method. A web-based questionnaire was used to elicit data from CSIR-FRI Staff. The survey found that although as high as 87.9% of respondents were aware of the benefits of an IR and 62.4% were aware of the existence of the IR, 40% of respondents had not submitted their works to the IR.

Keywords: Institutional repositories, research institute, marketing, intellectual output, Ghana

CHAPTER ONE

1.0 Introduction

Information has become a very important resource in every sector of operation, and people rely on it for their functioning and livelihood. Chisenga (2006) suggest that:

> Access to appropriate scientific and technological information and knowledge at the right time could play a critical role in the development of the countries in Africa. It could assist in finding solutions to most of the problems, such as inadequate food supply, poverty, water pollution, diseases, environmental degradation, deforestation, and many others besieging the continent today (p. 1).

As centres for intellectual and scholarly research, academic and research institutions (whether in developed or developing countries) are expected to take an interest in the creation, dissemination as well as preservation of knowledge (Christian, 2008). Growth in information presents challenges, particularly to the management of scholarly information. A significant amount of research output may not reach a wide audience even if published. Academic and other institutions are therefore now addressing the issue of access to scholarly information. According to Jain, Bentley and Oladiran (2014), the concept of a flexible system to help in the management of scholarly output in terms of access control, rights management, community feedback and publishing abilities was discussed at the Massachusetts Institute of Technology (MIT) and resulted in the DSpace Project.

Jain and Bentley (2008) reported that for more than a decade, research and academic institutions have struggled with how to manage the collective, digital intellectual output they produce. Clearly, due to technological advancement, it is easy to create and access digital material. Paradoxically, however, while there is potential for instantaneous access, all too often many materials are not usually made accessible to many users and they remain marooned in the authors' computers.

The establishment and development of institutional repositories are gaining momentum in Ghana. In many institutions, there are documents which need to be preserved, managed, as well as shared and that is one of the main reasons for establishing an institutional repository in research and academic institutions. Other reasons for the establishment of an institutional repository are because it would help to preserve the institution's intellectual property and increase the institution's visibility and prestige. It also acts as an advertisement for funding sources and industrial sponsors

(Prosser, 2003). Since the introduction of DSpace and other IR software packages such as ePrints, repositories have been established in academic institutions worldwide. Establishing an IR is relatively straightforward. The challenge lies in communicating the value of the IR to the academic community, and working with them to deposit their research. A variety of communication channels to promote engagement are needed. This case study describes the methods used at the CSIR-Food Research Institute, Accra in Ghana.

1.1 CSIR-Food Research Institute

The Food Research Institute (FRI) is one of the thirteen (13) Research Institutions of the Council for Scientific and Industrial Research (CSIR) which operates as a Science and Technology Research Development Organisation. The Food Research Institute was established in October 1963, incorporated by L I No. 438 of 19th March 1965 and became an institute of CSIR in October, 1968 by NLC Decree 293.

The CSIR-FRI is mandated to conduct applied research into problems of food processing and preservation, food safety, storage, marketing, distribution and utilisation. It is mandated to research into national food and nutritional security in support of the food industry and also to advise government on its food policy. As a leading S&T Institute in the transformation of the food processing industry in Ghana. The core research interests and programs of the FRI include: (i) Food Products Development, Up-scaling & Technology Transfer (ii) Technical & Analytical Services (iii) Quality Assurance, Food Security and Analytical Services (iv) Technology, Business Incubation, Community Outreach (v) Knowledge & Performance Management.

The Institute's vision is to be recognized as the leading Science and Technology Institute in the transformation of the food processing industry. Also, the Institute`s mission is to provide S & T support to the growth of the food and agricultural sectors of the national economy (CSIR-Food Research Institute, 2017).

CHAPTER TWO

2.0 Literature Review

2.1 Institutional Repository: what is it?

Several definitions of Institutional repositories have been professed by various authors. Nevertheless, Lynch's (2003) definition has been the most frequently cited. The author describes an IR as:

> a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution (p.2).

On the other hand, Van Wyk and Mostert (2011) have proposed that IRs are generally institutional based, academic in scope, collective and permanent, open, and interoperable. Also, Chang (2003) posit that an IR is a new method for capturing, collecting, managing, disseminating, and preserving scholarly works created in digital form by the constituent members of an institution. The repository, then is a system for dissemination and stewardship of the intellectual life and scholarship of an institution. It becomes a new way for the institution to contribute to the broader world of scholarship. The repository is cast as a new way to do collection development, to expand this function from the identification and purchase of published materials, to the gathering and dissemination of the works of the faculty. The system is seen as collaboration among libraries, technologists, administrators, and faculty to enhance access to the scholarship of the institution (Giesecke, 2011).

In summary, the main purpose of an institutional repository is to bring together, preserve and disseminate the intellectual output of an institution. Repositories involve change in the way research is disseminated, preserved and published. An institutional repository can serve as a publisher of research materials such as theses, peer reviewed papers, working papers, lecture notes, memorial lectures, keynote addresses and other types of grey literature (Murugathas & Balasooriya, 2014).

2.2 Relevance of Institutional repositories

Dabholkar, Prabhakaran and Kurahatti (2008) argues that with the process of globalization in knowledge activities, the demand for information has been growing steadily in all spheres of work. The concept of access to information free of charge is gaining momentum. Meanwhile, Murugathas and Balasooriya (2014) opined that, research can only make an impact when other people can see its results. Researchers are awarded for their work not financially but through its impact. They want their research to be read, consumed and understood. They want their peers to comment on it, credit it and add or extend it. Researchers want to disseminate their research findings widely, but publishers restrict the access to publications based on subscription. Conventional method of research dissemination via publication in journals is much more limited in its possible impact than is the new method of publication of the same research in open access repositories.

According to Rieger (2007), institutional repositories facilitate a number of activities that include digital asset management; preservation of digital assets; ensuring the visibility of institutions; and facilitating discovery of content. IRs can also provide access to outputs of public research initiatives. The major goal of Institutional repositories is to facilitate access to their contents. Swan and Carr (2008) notes that:

> Repositories should be one of the institution's web based tools that take research into places that have not been reached before. One important issue … is that the primary reason for establishing a digital repository is to increase the visibility of the institution's research output by making it available on Open Access (p. 31).

Institutional repositories provide organizations with an opportunity to create a central location that collects and preserves their digital content. The goal of implementing institutional repositories is mainly to have the intellectual output of an institution in a central source. Some institutional repositories will extend content beyond published materials to include others that may not necessarily be published, such as conference presentations, working papers, technical reports and similar material. Institutional repositories also provide access to others who may have an interest in the output and they promote the visibility of an organization on the Internet (Moahi, 2009).

Additionally, Moahi (2009) further notes that the main driver for institutional repositories in the African context has been similar to that of other countries in the west, rising costs of serials, limited library budgets, visibility and similar factors. What has been even more critical however has been the fact that research is funded by African and other donors and organizations at great cost, but the results are not shared. In this context, therefore, IRs can provide a means of ensuring that the output coming from Africa is registered and accessible on the Internet.

Chisenga (2006) posits that, institutional repositories provide access to wealth of knowledge in the form of scientific and technological information which are very essential for development. Several of the research output from Africa exists in the form of unpublished information and knowledge resources such as research reports, theses and dissertations, seminar and conference papers, and very little of these research outputs find their way into the world's well-established international scientific journals.

Ahmad, Aquil and Siddique (2012) have revealed that, Institutional repository can also be of great benefit to the improvement of university ranking especially the ranking systems which emphasize web presence and visibility. Webometrics considers four important factors to measure ranking of the universities. Which are Size (number of web pages), rich files (number of documents), scholars (number of papers) and visibility (number of external links). It will act as a self-evaluation tool for management. Standardization of institutional records. Compilation of institutional curriculum vitae and individual curriculum vitae can be linked to the full text of articles. It enables long term preservation of scholarly work.

2.3 Challenges in developing Institutional repository

Although there are numerous identified benefits of IRs, their success is dependent on how well certain challenges are handled (Pickton & Barwick, 2006). The potential barriers includes cost, which may be a challenge for many libraries especially those in the developing counties. Though the initial financial cost of using open source software may not be high, recurring costs, particularly technical staff and staff training (specialist IT consultancy, publicizing, creating metadata, user support, developing policies), may be substantial. Using proprietary software is more expensive; hence, many academic and research libraries in the developing world do not select that option. Having considered the cost of using open source software as against that of proprietary

software, the IR Project Team at CSIR-Food Research Institute settled for the open source software. This was because the CSIR-Food Research Institute IR Project Team had the technical expertise for customizing the open source software and for the creation of the metadata. IR Project Team acquired the necessary skills and knowledge in AgriOcean Dspace Software from a training workshop on developing and managing institutional repositories using Agridrupal and AgriOcean DSpace Tools, which was organized by the FAO Regional Office for Africa, in collaboration with the CSIR Institute for Scientific and Technological Information from 1st – 4th July 2013, at the CSIR-INSTI, Accra, Ghana. Costs were thus kept to a minimum.

Again, a major limitation in establishing an IR is being able to effectively promote its benefits while addressing the concerns of its patrons; one of the most effective ways of demonstrating benefits of the IR is by quickly populating it (Giesecke, 2011).

A major barrier, is gaining and maintaining the support and commitment of the parent institution and authors. It is important that institutions plan well before establishing IRs to ensure their continuous existence. In the case of CSIR-Food Research Institute, the IR Project Team ensured that at every opportunity the benefits of the IR was promoted through the Institute Staff Webmail System. The IR Project Team has also drawn up a continuous marketing program that the Institute Management has agreed to incorporate into its annual programmes, in order to attract and maintain commitment of staff.

Other challenges include right management issues including authors' concern regarding infringing publishers' copyright. Bossaller and Atiso (2015) explains that, in Ghana, although there is a legal requirement for scientists to give a copy of their work to the national library, there is however no national policy requiring scientists to deposit their work in an IR.

Also many researchers may want to deposit but time is an issue. It is therefore important that mediated deposit services are introduced. Finally, as indicated by Makori, Njiraine, and Talam (2015), the lack of rewards or incentives for depositing in the IR could lead to low patronage.

Although, librarians may be aware of the numerous benefits of an IR, however, as Fortier and Laws (2014) assert, IRs are not as yet particularly attractive to authors and other researchers in the academic community. This has created a situation where many IRs face the difficulty of attracting content even though the success of an IR is highly dependent on authors' willingness to deposit

their research output in the IR. Therefore, librarians need to be creative in their communication activities to convince authors and researchers regarding the benefits of depositing their intellectual output with an IR.

2.4 Attraction of content for the establishment of the CSIR-Food Research Institutional repository

Items accepted by the project team for the CSIR-Food Research IR include journal articles, technical reports, training manuals, conference papers, thesis and dissertations, posters, flyers, annual reports, books, book chapters, handbooks, extension leaflets, newspaper publications and consultancy reports.

The Institutional Repository Project at the CSIR-Food Institute, Accra, Ghana was started in July 2013, after a training workshop on developing and managing institutional repositories using Agridrupal and AgriOcean DSpace Tools that was organized by the FAO Regional Office for Africa, in collaboration with the CSIR Institute for Scientific and Technological Information from 1st – 4th July 2013, at the CSIR-INSTI, Accra, Ghana. The workshop was to equip member institutions of Ghana Agricultural Information Network Systems (GAINS) with the necessary skills to enable them use Agridrupal and AgriOcean DSpace in the management of their digital institutional repositories of research outputs. This project was implemented by the IT Professional, Librarian and Scientific Secretary of the CSIR-Food Research Institute who were mandated by the Management of the Institute.

The IR Project Team were mandated to make a case for the establishment of an IR, taking cognizance of personnel, cost implications, software, logistics and all other essentials as well as to draft a policy for the IR. The IR Project Team opted for AgriOcean DSpace as open source solution due to cost factors. Members of the IR Project Team had also acquired some training on the use of this software and thus it was envisaged that there would be technical support when necessary from a team at FAO and CSIR-INSTI.

From the inception of the IR in July 2013, the team was proactive in creating awareness on the development and implementation of an IR that would provide access to the institution`s intellectual output and making it visible to the world. Hence, to ensure greater visibility of the FRI Institutional Repository it can be accessed at: http://208.113.167.196:8080/publications/ Or FRI Institutional

Repository Link available at www.foodresearchgh.org. Figure 2.1 below is a home page screenshot of the customized user interface of AgriOcean Dspace for the CSIR-FRI Institutional Repository:-

Figure 2.1: Homepage of FRI Institutional Repository

Source: CSIR-Food Research Institute Intranet

CHAPTER THREE

3.0 Methodology

The researchers adopted an online survey method to collect data from senior members and senior staff of CSIR-FRI to measure the effectiveness of the marketing of the IR. The online questionnaire was designed using google forms (https://docs.google.com/forms), a web-based forms management tool. Online surveys are advantageous because respondents can answer the questions and submit their responses during a single visit to the website link, thus avoiding the additional step of mailing the survey. Web-based surveys are also inexpensive. It does not also require interview time and allows respondents to maintain their anonymity and reconsider their responses.

The survey questions were categorized into two parts. Part I consists of demographic information, and Part II comprised of questions about the awareness of Institutional Repository.

The population of senior members and senior staff in CSIR-FRI as at March 2016 was 97. The authors were able to identify all the email addresses of the 97 staff. Respondents of the study therefore included all the 97 senior members and senior staff of the institute. An e-mail of invitation with reference to the link of the online questionnaire was sent to the email addresses of 97 staff in March 2016. An email reminder was sent after every two weeks until the link to the questionnaire expired in May 2016. Data analysis was univariate using descriptive statistics of frequencies and percentages and results were represented in graphs.

CHAPTER FOUR

4.0 Results and Discussion

This study was conducted from March-May, 2016, and out of 97 invitations sent, 93 responses were received, giving a response rate of 95.9%. All the 93 responses were duly completed and therefore subjected to data analysis. IBM Statistical Packages for Social Scientists (SPSS) version 24 and Microsoft Excel 2016 were used in data analysis.

4.1 *Survey Participants*

Majority of the respondents were males (54.8%). The data also revealed that most of the respondents were between the ages of 30-39 (47.3%) whilst there was almost an equal number of respondents in their 40s (22.6%) and 50s (30.1%), respectively. As expected, most of the respondents were senior staff (65.6%), with (34.4%) being senior members participating in the survey. In terms of divisional distribution, the commercial division recorded the highest number of participants (28%). This was closely followed by food technology research division (24.7%). There was an equal number of respondents from the chemistry and nutrition research division (12.9%) and the account divisions (12.9%). Also, 14% of respondents from the microbiology and mushroom research division participated in this survey. Figure 4.1 below shows details of the divisional distribution of responses:-

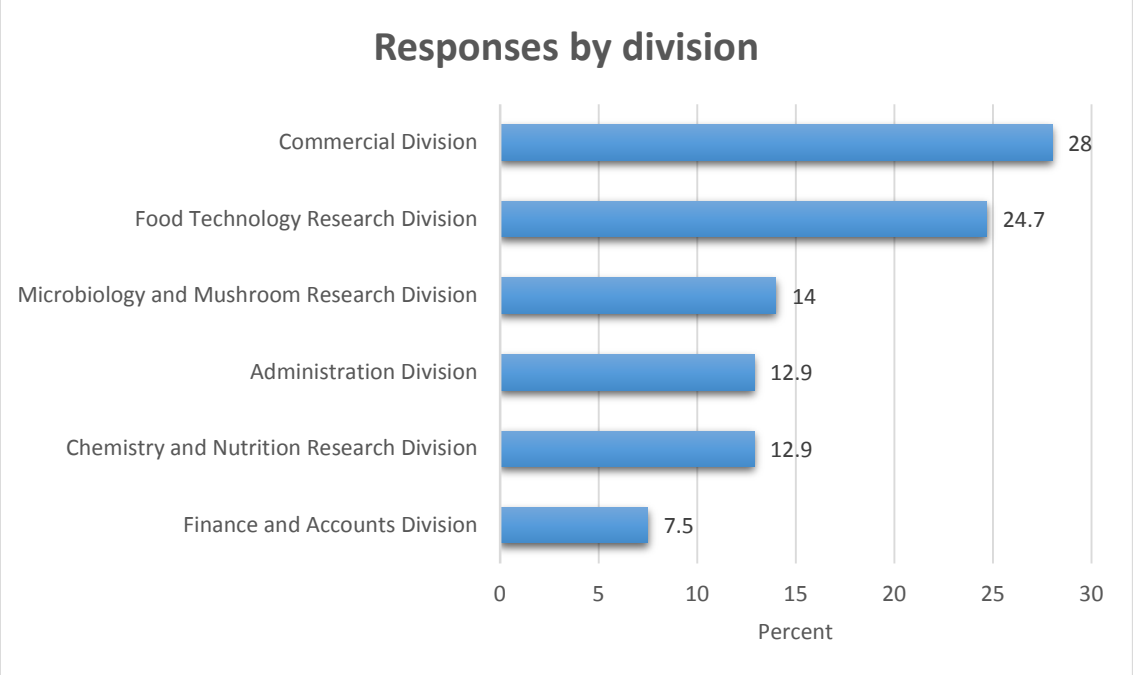

Figure 4.1: Divisional distribution of responses

4.2 *Awareness of IR*

The survey results revealed that, 62.4% were aware of the existence of the FRI IR. The results further revealed that more than one-third (37.6%) of the respondents were not aware of the existence of an IR in the institute. It was quite surprising to note a high rate of unawareness in spite of the various efforts by the IR Project Team to map out a series of strategies and activities to ensure that adequate publicity had been created about the IR. This finding suggests that there was still a great deal more to be done, which raises questions as to whether the strategies employed and the activities undertaken were ineffective or inadequate or was it that the implementation was poorly executed.

Respondents were also asked to indicate where they got to know of the IR. Results from the study revealed that most respondents became aware of the IR through a technical review meetings which was organized quarterly (100%), also (89.7%) through personal conversation with the information management team, while (81%) through email sent by the IR Project Team, IR sensitization workshop (65.2%) and through the FRI website (63.8%). These were the main strategies adopted by the information management team to create awareness about the IR and the results indicated they were effective. Figure 4.2 below shows the details.

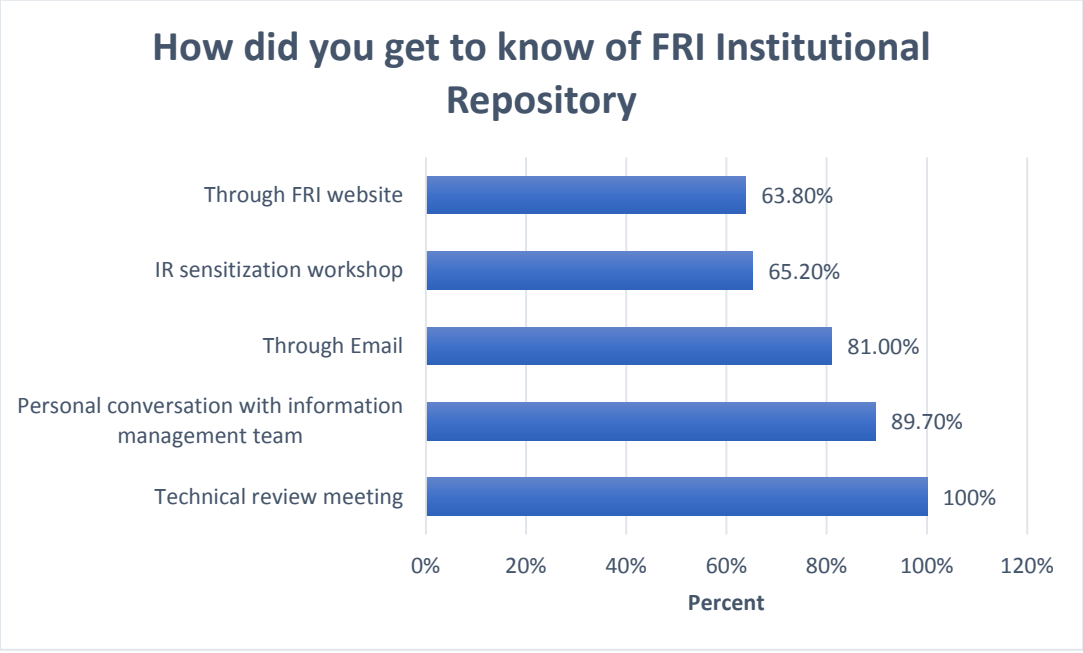

Figure 4.2: Means through which respondents got to know of the FRI IR

The FRI has an institutional email system which is used in disseminating various information to staff. Results from this study shows that majority of staff have staff e-mail address (70.7%). The authors therefore used the FRI mailing system as a communication avenue on the IR to staff. This was confirmed by 81% of respondents affirming that they received an email from the IR Project Team.

In our quest to create further awareness of the FRI IR among staff of the institute, the IR Project Team took advantage of the quarterly review meetings organized by the institute to create greater awareness of the existence of IR. Also, the team has been speaking about the IR at various divisional and Internal Management Committee meetings. It was therefore not surprising that an overwhelming majority (98.9%) indicated that there has been information on the FRI IR at the technical review/divisional/IMC meetings.

4.3 *Awareness of the benefits of IR*

Questions were also asked regarding the awareness of the benefits of the IR to the individual and the institution. Results show that majority of respondents (87.9%) revealed they were aware of the benefits. This response shows that the efforts of the IR Project Team had been quite successful.

Respondents also assigned various reasons that motivated them to submit their work to the IR. The benefits of the IR (92.9%), desire to archive my research output (96.4%), tests if the benefits are realizable (94.6%) and already exposed to IRs (7.1%) are among the key reasons assigned by the survey respondents.

The benefits of the IR has encouraged staff, which resulted in 60% of respondents submitting their works to the IR. Although majority of respondents were aware of the benefits of the IR and have submitted their articles, quite a significant number of respondents (40%) had not submitted any material to the IR. This could be due to the issues of plagiarism, copyright and journal policy on depositing in IRs. Bossaller and Atiso (2015) in their survey of IRs in four research institutes in Ghana had similar findings with copyright issues being the main challenge to depositing in the IR.

Other issues they identified were trust in the IR and the need for training in using the IR. The IR Project Team assured the respondents about the security of the IR and how the repository cannot grant access to visitors without proper authentication. It however appears a number of them are still either not too convinced or confident enough to submit their works. This appears to be a confirmation of Jain, Bentley and Oladiran (2014) assertion that IRs are comparatively new to much of the academic world, particularly in developing countries and there is still some skepticism. The IR Project Team is addressing these concerns and management is also urging staff to submit their works to the IR.

4.4 *Communication channels for submission of articles*

In other to ease the submission of articles/papers to the FRI IR, communication channels have been established to facilitate submissions. The FRI IR has one main submission channel, that is authors submitting soft copies of their works to the FRI library or through an email to the IR Project Team. In situations where authors do not have the soft copies but rather hard copies, the hard copies are submitted to the FRI library for scanning into soft copies. Provision has not yet been made for those who want to do self-archiving. The channel of submission has been communicated to staff through personal conversation and email, and it has been re-echoed severally during technical review meetings. It was therefore not surprising that majority (76.3%) of respondents indicated that communication channel established for submitting a paper to the IR was clear to them. However, some respondents (23.7%) did indicate that they were not clear on the channels for submitting papers to the IR. This finding indicates that further work needs to be done by the IR Project Team in this regard.

In the open-ended part of this question, respondents were asked to suggest what should be done to enhance effective communication of the IR. Responses included the following: “reminders should be sent through the institute staff email”, “need more clarity on the benefits of IR”, “create more awareness on the relevance of IR”. Also, (97.8%) of respondents also suggested other ways that the IR Team could adopt as a mode of communication to create more awareness of the IR. They mentioned the following: use of flyers, pigeon holes, notice boards, word of mouth and posters, whilst others suggested use of internal memo and brochures.

Conclusion

The IR Project Team of the CSIR-Food Research Institute has successfully created a model Institutional Repository (IR) using AgriOcean Dspace software and this model could be replicated in all the other CSIR Institutes. The IR Team adopted a number of marketing strategies to communicate the IR to the FRI staff and by and large the outcomes were quite successful. In spite of the successes chalked by the IR Team, respondents suggested some additional ways that could be implemented in order to enhance the marketing strategies in communicating the IR to them. The other ways proposed by respondents to the IR Team includes: use of flyers, pigeon holes, notice boards, word of mouth, posters, internal memo and brochures. The marketing of the IR should therefore be an ongoing process that should be tailored to suit the FRI community and reexamined on a constant and continuous basis.

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