

Open Access: a new dawn for knowledge management

Ellen R. Tise and Reggie Raju

Stellenbosch University, Stellenbosch, South Africa



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Abstract:

The transformation into a knowledge society (or an information society) is dependent on the capacity to provide and sustain knowledge citizens and knowledge workers. The critical element here is knowledge and the pendulum needs to swing away from the control of knowledge towards its openness. This openness to knowledge will provide the impetus for the accelerated growth of knowledge societies.

This transformation process hinges on the free flow of information which is fundamental to bridging the knowledge gaps between privileged and under-privileged communities. Social inclusion and economic empowerment is only achievable in a society where the citizens have unhindered access to information and knowledge.

Implicit in the title, open access being a new dawn for knowledge management is the attempt to find synergy between open access and knowledge management. However, up to now, both the concepts, that is, open access and knowledge management have been mutually exclusive. Historically, knowledge management has been confined to an organization for its holistic information and knowledge management -it is viewed and practiced as a process for the capturing, distributing, and effective use of knowledge within the organization. On the other hand, the fundamental principle of open access is the distribution of information and knowledge to the widest possible audience with absolute minimum financial hurdles.

The point of departure

The point of departure between open access and knowledge management is that open access is much more universal and expansive while knowledge management is organization based and very confined. It is our contest in this discussion that open access provides opportunities for knowledge management to break free of its cocoon status. The strides that open access has made, provides opportunities to make a mark in the sand for the collaboration between open access and knowledge management: We would like to propose that the dawn is breaking for this collaboration. This 'de-cocooning' of information and

knowledge will add significant propulsion for the growth of knowledge societies: to add impetus to the growth of the global knowledge economy.

The collusion of open access and knowledge management will lead down the road to a knowledge economy and an informed society which in its self leads down the road to innovation and development. Irrespective of the philosophical underpinnings of open access, the ultimate goal is to share information and knowledge for a better society - for the growth and development of society.

Given the constraints of time, we will examine, albeit very briefly, three core concepts, that is, knowledge management, open access and knowledge economies. We will also attempt to weave a thread that will pull the different concepts together in identifying benefits of their collusion for an informed society.

Knowledge management

The Section's working definition of knowledge management, namely the process of creating, storing, sharing, applying and re-using organizational knowledge to enable an organization to achieve its goals and objectives, coupled with the objective of providing an international platform for knowledge sharing can be manipulated to create an opening for collaboration between open access and knowledge management. Knowledge management is extending the concept of "knowledge" beyond existing concepts like "memory", "storage", and "information". This working definition will be interrogated to identify synergies with open access. The ultimate purpose is to find synergies that will facilitate the free flow of information for the growth of a global knowledge economy.

Be that as it may, knowledge management is viewed as a range of strategies and practices that are used in an organization to identify, create, preserve and distribute insights and experiences. These insights and experiences are converted into information and knowledge and are very often an important component of organization's business strategy. The key principle here is that of sharing of information and knowledge within the confines of the organisation.

Interestingly, if one has to examine the more contemporary practice of knowledge management, there is sufficient evidence to indicate that the concept is driven by the capacity of the internet. The potential of the Intranet and the Internet to link geographically dispersed knowledge-based organizations gave weight to the exploration of new avenues to facilitate the sharing and management of information and knowledge: it is the connectivity or connectedness that makes the management of the information and knowledge a reality.

However, its Achilles heel is that the enthusiasm for intellectual capital was in conflict with the growing recognition that information and knowledge are essential assets for any organization - hence the exponential growth of knowledge management was smothered.

The insulation or cocooning of the organization's information and knowledge curtails any possibilities for openly sharing of that information and knowledge.

The current corporate interest in knowledge is based on a realisation that emerging economic imperatives, coupled with social and industrial restructuring, demand a more rigorous approach to the exploitation of knowledge as an organisational resource. Organisational knowledge is inclusive of the knowledge of products, processes and successes.

In terms of a hierarchy, knowledge is the top of the data-information-knowledge hierarchy where information is meaningful, processed data and knowledge is actionable information, separating knowledge from information or data. In alignment with this hierarchy is the view that actionable information is resident in the individual and is defined as tacit knowledge. This tacit knowledge is intuitive and cannot be written or verbalised. If such intuitive knowledge is written or verbalised it gets converted into explicit knowledge which essentially is that which is set out in tangible form. It is this explicit knowledge or information that is deemed important for the growth of new information (or knowledge) and innovation which in itself (innovation) is critical for the growth of knowledge societies (Fricke 2009).

In this context of the nature of information and knowledge, it is debatable as to whether organisational knowledge can be managed given the nature of knowledge in the traditional sense. It is unrealistic to make the assumption that all relevant knowledge, including tacit knowledge can be extracted from knowledge workers and stored through well-established institutional processes in well-designed knowledge repositories. Often, employees hoard their knowledge because their contributions do not benefit their careers.

Be that as it may, it is important to aspire to convert knowledge, especially tacit knowledge, into information to be manipulated by the widest possible audience for the growth of global knowledge economies. The most convenient conduit for the sharing of this information and knowledge is a forum where there are very limited barriers to access – open access.

Open access

Before engaging in discussion of open access and its possible synergies with knowledge management, we would like to examine all three components or segments of open access, namely, the open distribution of scholarly content, open source software and open education resources. Collectively and collaboratively, these three components of information will lead to stronger and knowledgeable societies. It is our contention that these information components will be the 'yellow brick road' to a knowledge society where information and knowledge is the currency for democracy, social inclusion, economic growth and decent 'poverty free and disease free' lifestyles.

In less than a decade, open access has become a movement, linked to the broader 'open knowledge' philosophy that emphasizes maximizing the potential use and reuse of information and knowledge by making it freely and openly available via the internet. As part of the 'open knowledge' philosophy, **open access to scholarly content** started out in response to the ever increasing cost of information to the end user (libraries). This was fuelled by the accusation of double dipping, that is, institutions paying authors to develop the content and then buying back that content from the publishers. When open access to scholarly content got out of the starting block, there was very little doubt that there would be conflict with the publishers. However, publishers have responded exceptionally well with the development of alternative business models which addressed the issue of costs to the end user. Further, the outcome of the implementation of these alternative models has improved access to content and ultimately improved visibility of the content.

On the other hand, **open source** refers to software code that is available to the general public for use and/or modification from its original design. The source code is typically created as a collaborative effort in which programmers improve upon the code and share the changes within the community. Open source sprouted in the technological community as a response to proprietary software being exorbitantly expensive. Open source software lowers initial and ongoing costs, eliminates vendor lock-in, and allows for greater flexibility.

The third component is **open educational resources**. Open Educational Resources (OERs) are teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution.

Essentially, OERs facilitate universal access to high quality education content. It provides a strategic opportunity to improve the quality of education as well as facilitate policy dialogue, knowledge sharing and capacity building. It has been argued that OERs, through strengthening education, is key to building peace, sustainable social and economic development, and intercultural dialogue.

OERs are underpinned by the ethos that it facilitates the free and open access of digital education publications of high quality. These publications include lectures, related reading materials, snapshots of discussions, assignments, evaluations, etc. More often than not, OERs use open source software to share education content – emphasising the need for open access component to work in unison.

In recent years, Open Educational Resource materials have been prepared in an open standard format and are becoming more and more interactive in nature. The collusion of open sources and OERs ensures that content is offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research.

By all accounts, 2012 was a watershed year for open access and the entire open access movement including legislative debates, a researcher-led boycott of major academic publishers, new policies by major research funders, and increased interest in open access

from the general public and mainstream media. The movement is continuing to gaining momentum in developed countries which already have the necessary information infrastructure. The emerging economies amongst the developing countries are not far behind in building up necessary information infrastructure, essential for sustainable economic development.

These emerging countries have further challenges to bridging the digital divide within their societies in that they have to address the issue of the co-existence of marginalized and privileged communities. Be that as it may, these developing countries are exploiting the advancements in information and communication technologies and by building up necessary information infrastructure to become active contributors to global knowledge production.

Knowledge economy

The third concept that is teased out is that of the knowledge economy. With the exception of agricultural intensive economies and labour intensive economies, the global economy is in transition to a 'knowledge economy'. In a knowledge economy, knowledge is used to generate economic benefits including job creation. Therefore, it is imperative that knowledge becomes easily available to ensure that economic growth. At the epicentre of economic benefits and job creation is the concept of innovation – change can only become a reality when there is innovation. It is beyond contest that innovation is dependent on access to information. This cyclic process, that is, access to information leading to innovation and innovation leading to generation of new information, becomes the core of a 'knowledge economy' (OECD 1996).

The transition into a knowledge economy emphasises the need for interconnectedness and the globalization of the economy where knowledge resources such as know-how and expertise are as critical as other economic resources. An imperative in this knowledge-based economy is education given that education is fundamental in knowledge production – hence the importance of Open Educational Resources (OERs). Education is considered both an economic resource for nations and the means for individuals to advance in the context of this knowledge economy. This approach is in keeping with the appreciation that education belongs to the service sector and can be legitimately tapped by the market. However, this thinking is at odds with more accepted principle that education that belongs to the public sector is a public good that should not be privatized.

Access to these educational resources radically breaks down barriers to quality education and facilitates access to course material that is prepared and evaluated by experts. In fact, it radically improves the quality of education and the more equitable distribution of good education in preparation for greater contribution to a knowledge society. The globalisation

of education inadvertently leads to the globalisation of economies. Through greater collaboration between higher educational institutions around the world and enhanced reuse of learning materials, both in their original form or translated or otherwise adapted, the phenomenon of OER contributes to the globalisation of higher education. At the same time it increases competition between institutions by making teaching content and processes within individual institutions visible to a potentially worldwide audience.

It is easy to weave the thread pulling together a knowledge economy and access to quality of education using the open access conduit. As indicated, open source and OERs collude to improve access to that education for the betterment of society – for the growth of an informed society – for the growth of a knowledge society. What about knowledge management – how do we weave the thread to pull that concept into the fold?

The twain shall meet

In the endeavour to pull together the three core concepts, namely knowledge management, open access and knowledge economy, it is important to identify common ground. It is this commons that will provide the necessary evidence to indicate that open access will facilitate a new dawn for knowledge management. It is accepted that not all information can be shared. Be that as it may, it is crucial that we look at going beyond knowledgeable organisations - there is a drive to create knowledgeable societies.

Using Petrides and Nodine's (2003) definition of knowledge management as a set of practices that helps improve the use and sharing of data and information in decision-making, we would like to look at possible synergy between knowledge management and OERs. Petrides and Nodine also state that educational institutions are implementing knowledge management to improve information sharing. They also make the assertion that knowledge is the key asset in the education process and many educational institutions are seeking better ways to transform that knowledge into effective decision-making and action. Therefore, the sharing of the educator's 'key assets' (knowledge) opens possibilities of weaving that thread to pull knowledge management into the open access fold.

The ecosystem of educational institutions growing and revitalise themselves through knowledge they create and passing-on that knowledge to others: who build on the strengths of that knowledge, eliminating weaknesses en route to a good educational system. This ecosystem serves as the kernel of an open educational system. The preparedness to share, the processes of sharing, the processes of building a strong educational system allude to synergy between open access and knowledge management. This is the first semblance of synergies between knowledge management and open access – *this is the first insight to the twain coming together*.

As indicated earlier, open access and knowledge management are dependent on the internet and connectivity to share information and knowledge with their respective

'communities'. The unprecedented development of the internet, the transfer of intellectual property and knowledge, has had profound influence on the training of the next generation of scientists and skilled specialists. The breaking down of geographical barriers has encouraged developed countries to forge ahead with the search and recruitment of 'intellectual resources' around the world, especially 'intellectual resources' from the developing world.

This harvesting of 'intellectual resources' entrenches the control and regularization of the production, distribution, and use of global scientific knowledge by institutions and corporations from developed countries. The corporatization and privatization of knowledge is being engrained in the corporatized economy, in which there is a presence of corporate power instead of market competition. This exclusivity is exacerbated as any research that is done outside the so called 'mainstream' is considered marginal and its results are ignored. The end result of this marginalisation is that research results that promise benefits upon commercialization in the future are removed from the open scientific revolution. Moskovkin (2011) quotes Kovriga as referring to this as 'knowledge encapsulation'.

Drahos and Braithwaite (1995) stretch the negativism of 'knowledge encapsulation' when they examine the de-democratization of information and knowledge. Drahos and Braithwaite (1995) bring to the fore the concept of 'knowledge feudalism'. They make the assertion that 'knowledge feudalism' "makes democratic citizens trespassers on knowledge that should be the common heritage of humankind, their educational birth right. Ironically, information feudalism, by dismantling the 'publicness' of knowledge, will eventually rob the knowledge economy of much of its productivity". This feudalism drives the self-interest of developed countries and their multinational corporations. It is argued that the supply of knowledge as a public good is negated at a time when people around the world are becoming more and more dependent on knowledge goods.

The encapsulation or feudalization of knowledge has to be dismantled and the twain has to meet to reinforce the conviction for a knowledge democracy. Institutions such as universities should not give businesses the majority right control over their inventions and henceforth monitor commercialization and distribution of their inventions. Further, it is imperative that strong university networks are developed, since individually, universities in a globalizing world cannot generate finite competitive knowledge for the new technological wave.

Examples of synergies between knowledge management and open access/where the twain has met?

1. *The World Bank*

The World Bank has been a leader among United Nations agencies in supporting openness and in supporting the open sharing of research output. In 2012, The World Bank launched an Open Knowledge Repository in which all The Bank's publications are deposited and licensed with a Creative Commons Attribution (CC-BY) license. All these programs are designed to make the organization more transparent and accountable. As of the end of 2012, the Open Knowledge Repository had nearly 9,000 reports, books, and other types of publications; the Open Data portal provided download access to more than 8,000 indicators from World Bank datasets.

While the World Bank has been a leader in this area, other U.N. organizations are following suit, particularly in regards to open data. The International Aid Transparency Initiative (IATI), signed by several U.N. agencies and the European Commission, requires signatories to publicly disclose "regular, detailed and timely information on volume, allocation and results of development expenditure.

2. *Open Source and Social Media*

The notion of creative collaborative work is not new, especially for the open source software development movement. The open source movement (OSM) began with experimenting with software democracy that crossed institutional and geographical boundaries. It has achieved momentum in motivating people to work together in self organised groups on common projects and making them available on the Internet for use or modification. The OSM is fulfilling the original promise of the Internet and promoting the Internet culture where people can work together in an environment that supports access to information. Already, it has inspired the emergence of an ecosystem of other projects such as Creative Commons sharing media resources (Pfaff and Hasan 2007).

New conversational technologies such as email, discussion forums, chat-rooms, Weblogs and Wikis are now connecting and supporting liberated knowledge exchanges. Interconnected networked structures of social interaction and creative activity are emerging as a part of the civil digital culture and, less rapidly, in the knowledge work of organisations. Conversational technologies are seen as tools to support work units and the individual knowledge worker.

The purpose of social collaborative technologies is to create, share and manage knowledge in the form that will persist over time while the participants may change. The core activity (objective), for which a corporate Wiki is used, is not knowledge management per se but

knowledge work. There is a dialectic relationship between knowledge and work, expressed by the continuous cycle of co-creating work-related knowledge in a form that is meaningful for knowledge workers to access as needed, through which learning occurs, resulting in more knowledgeable doing and so on (Pfaff and Hasan 2007).

The open source movement has had significant influence in the growth of open access. The development of software and standards for the sharing of OERs, the development of software for the creation of repositories, the creation of software for the publication of content directly in open forums are but a few examples of the significant role that open source has played in the distribution of knowledge – the same could apply to knowledge management.

Conclusion

Conversations about open access are no longer about whether it is a good idea; rather, the focus is on best practices, sustainability, and maximizing OA's impact. The fundamental objective of knowledge generation is the promotion of innovation which is critical for the growth of society. The chasm between knowledge management and open access has to be traversed to ensure that knowledge as a commodity is there as a public good. There is sufficient evidence to show that the chasm may be a mirage.

The three components that collude to promoting open access have grown exponentially. By the same token, knowledge management is using the same principles with the only point of departure being the communities that it is accessible to. Open access is available to any person that has access to the internet: on the other hand knowledge management is historically used for the organisation. There is sufficient evidence to show that we are at a watershed point where knowledge management is no longer mutually exclusive to open access. The twain is meeting and we are seeing open access as the dawn for a new knowledge management process.

References

Drahos, P and Braithwaite, J 2002. *Information Feudalism: Who Owns The Knowledge Economy?* London: Earthscan.

Fricke, M. 2009. The knowledge pyramid: A critique of the DIKW hierarchy. *Journal of Information Science*, Vol. 35: 131-142.

Moskovkin, V.M. 2011. Open access to scientific knowledge and feudalism knowledge: Is there a connection? *Webology*, Vol. 8 (1): June, 2011

Organisation for Economic Co-Operation and Development. 1996. *The knowledge-based economy*. Paris: OECD.

Petrides, L.A. and Nodine, T.R. 2003. Knowledge management in education: defining the landscape. California: Institute for the study of knowledge management in education.

Pfaff, C. C. and Hasan, H. 2007. Can Knowledge Management be Open Source? *IFIP: the International Federation for Information Processing*, Vol. 234: 59-70.