Proceedings of the Workshop on Knowledge Management Capacity in Africa

"Harnessing Tools for Development and Innovation"

***Edited by*:**

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BUILDING KNOWLEDGE MANAGEMENT CAPACITY IN AFRICA – THE CHAIR'S INTRODUCTION TO WORKSHOP PLANNING AND THE *PROCEEDINGS*

The growing realisation that Africa needs to move from a resource-based economy to one that is based on knowledge has brought to the continent much interest in the applications of knowledge management (KM) which is considered one of the knowledge age disciplines. There have been a few initiatives on the African continent in the past, including the KMAfrica community's last conference in 2009 in Senegal and the Knowledge Management Consultation Workshop in 2010 in South Africa that focused on Public Administration. This is the first workshop on Knowledge Management to be held in Sudan. Our goal and vision for this workshop is a broad and diverse KM extravaganza addressing a broad array of issues that will provide benefits to all while working towards the KM ethos of sharing and collaboration as a cultural norm.

On behalf of the workshop organisation committees, I am delighted to welcome you all to the Sudan – to Khartoum and Omdurman, and to the Blue and White Niles. I do wish you a very rewarding time in all aspects (not least scholarly content!) of the workshop. Through this introduction, I hope to provide a narrative covering the development of the workshop as well as the knowledge it produced. It is worth noting at the outset that when we started planning the workshop, Sudan was the largest country in Africa and our workshop a modest effort to connect people with common interests in KM at the local and regional levels. Since then, Sudan became smaller and our workshop became larger. It may seem odd to compare a workshop to a country but the similarity I want to highlight is that they are both made of people and resources. A diverse set of people and resources are what makes a country rich in culture and economy, and what makes a workshop rich in discussion and ideas. As Julius Nyerere put it, "a nation which refuses to learn from foreign cultures is nothing but a nation of idiots and lunatics...[but] to learn from other cultures does not mean we should abandon our own". In line with these wise words from a great African thinker, we are very proud to have in our midst participants from Ghana, Guyana, Jamaica, Malaysia, Mali, Rwanda, Saudi Arabia, Senegal, South Africa, Swaziland, Tanzania, Tunisia, Uganda, the United Kingdom, the United States of America, and Zambia. I hope that we all are able to learn from each other as we connect and share our experience, so that we emerge with common knowledge and aspirations, and with partnerships, communities and networks.

The idea for this workshop was born at the 4th International Conference on Appropriate Technology (4th ICAT) held in Accra, Ghana in November, 2010. Members of the International Network on Appropriate Technology (INAT), organiser of these biennial conferences, felt the need to hold smaller and regional workshops around the AT theme. I volunteered to take on the responsibility to work on organising a regional worship on a pertinent and hot topic. A proposal for a workshop to examine our capacity in Africa to perform KM was developed and offered to my teachers, Professor Mohamed Elamin (Dean of Garden City College) and Dr. Manar Abdelrahman (Dean of Faculty of Mathematical Sciences at the University of Khartoum), who were very supportive, and this led to the two institutions becoming the local hosts for the workshop, with INAT as the international partner. From the beginning, we aimed to make the workshop a truly collaborative project by involving different people and sectors in the organisation and sponsorship of the workshop. The consistent support from the Epidemiological Laboratory to the workshop organisation led to their incorporation as co-organisers to reflect the weight of their contributions and the support of their director, Dr. Asma Elsony, who encouraged us to develop more than a "small" workshop. Notwithstanding, the workshop community grew steadily since the first call came out on April 1st, 2011, and the newness of the topic of attracted a diverse set of responses spanning the breadth and depth of knowledge management issues.

One of the first challenges that we faced was the newness of KM to the local academic, professional and business communities. This prompted the workshop coordinators to engage in a series of grass roots KM awareness and outreach activities. Workshop organizers participated in public fora, such as the Nile Forum organised by the Nile Centre for Technology Research, the British Council Management Forum, and the Faculty of Mathematical Sciences Forum, and visited over fifty organisations, including universities, development agencies, and private and public sector organisations. Workshop organizers met with their staff and delivered seminars about KM and the upcoming workshop. Most of these visits were concentrated in Khartoum. However, representatives from the workshop's student committee even travelled to three universities in eastern Sudan, the first outreach activity conducted by computer science students from the University of Khartoum to lesser endowed educational settings. This was a grounding experience about equity that drove their imagination of how they, from an elite institution, could contribute to development and capacity building. The KM awareness challenge was taken up with especially great enthusiasm by the student committee – comprising students at all levels as well as fresh graduates – who all improved their communication skills, learning how to become ambassadors within their social networks and deliver the same message to different audiences.

One of our most challenging activities involved dealing with the logistics of bureaucratic matters such as obtaining visas. A number of factors make this a challenge, such as the nature of our civil service and the sometimes low morale of those working in it, the disconnections in information flows, and the centralisation of decision-making. Other challenges include cultural idiosyncracies related to timeliness and the need often for personal intervention by

influential individuals. Notwithstanding, these kinds of challenges are relevant in the context of this workshop and the successful implementation of KM, as well as to our promise of holding international events. Our gratitude goes particularly to the General Manager of the National Information Centre and his staff, all of whom provided the solid support we needed to accomplish the visa approvals. Without the help from Engineer Mubarak, Uz. Salma, Uz. Lamia, and Colonel Suliman, the rich programme of the workshop developed through substantive international participation may not have been realized.

It is the aim of this workshop to bring together researchers and practitioners from different sectors to deliberate and exchange ideas on the topic of KM and its implications in business, education, environment, governance, and health, in addition to its utilisation in development projects and indigenous knowledge systems. In addition to speeches from co-organising institutions and the National Information Centre, the three main keynote speakers addressed this variety in target audiences. Mr. Douglas Weidner, the Director and chief facilitator of the KM Institute, Washington, DC, USA, addressed organisations in the business and government sector, while Professor Woods the founder and director of the KM Centre at the Multimedia University, Kuala Lumpur, Malaysia, addressed issues of KM education as well as applications for higher education institutions. Our third keynote speaker, Mr. Dean Mulozi, Regional Coordinator for the SATNET Initiative, addressed KM applications for regional development and poverty reduction. The technical content of our programme covering this diversity of fields, coupled with highly interactive activities like round-table discussions, poster sessions, software demonstrations, KM Solutions Cafè session, as well as the usual plenary paper sessions and courses, we hope have given workshop participants theoretical as well as practical engagement in the ideas presented.

We offered three courses as pre-workshop activities. The first is the Certified Knowledge Practitioner course, delivered by the KM Institute, which offers organisations an opportunity to build local KM capacity as well as earn certification from a renowned institute at reduced rates. Our gratitude to Douglas Weidner for giving up on thousands of dollars that his institute would have earned for delivering this course elsewhere, and to whom I am thankful for all I have learned from him in the course of organising his various contributions to the workshop. The second course on Information Technology Infrastructure Library Overview is delivered by the Sudanese Centre for Engineering and Environment Studies. Our gratitude here goes to Engineers Lamia and Eltayeb who offered the course at a reduced rate as well as donated the participants' fees to the workshop. The third course is geared to students and researchers on how to write a research paper. The course was delivered by a team comprised of international and local academics participating in the workshop. The credit for including this third course goes to Professor Chaibi Thameur as it was his initial idea, and our gratitude to Professors Mohamed E. Eltom, Sondra Hale, John Tharakan, Charles Verharen, and Dr(s). Manar Abdelrahman, Mohamed Abdalla, Hisham Abushama, Bazara Barry and Anour Dafalla, who came to the rescue when Thameur's travel arrangements precluded his participation in this pre-workshop activity.

The workshop commenced with the Student Day which included a poster session organised by Suhaila Eltayeb and Lana Mohamed, who led the efforts of collecting students' contributions and succeeded in bringing participants from local Universities such as the University of Khartoum, Ahfad University for Women, the Future University, Neelain University, Sudan University for Science and Technology, and Kassala University. The poster session also included international participation from Howard University's Engineers without Borders Student Chapter, Jackson State University and the African University College for Communications from Accra, Ghana. The themes of the poster session were divided according to student's projects in the fields of KM, informational and communication technologies for health and education, and medicinal plants. Students' contributions to the workshop programme also included a plenary paper session with six student papers from five universities, as well as a discussion session moderated by finalists from the department of KM at the Future University. The poster session was held in parallel with the software demonstrations session that included a number of propriety and open source KM tools (coordinated by Rofaida Elzubair and Iram Oshari), as well as the indigenous knowledge systems (IKS) exhibition that was coordinated by Fatin Azhari and Abdelhameed Adam from Garden City College. They were aided by a diligent research team including Abdelkareem, Fatima Salah, Samah Elhadi and Israa Elamin. The aim of this session was to showcase some elements of Sudanese indigenous knowledge systems (IKS) to foster exchange on what KM, as a field, can bring to the issues of codification, application, and intellectual property of IKS, as well as to discuss their place within a developing country's book of knowledge. We are thankful to Artist and Trainer, Mr. Mohamed Basher for sharing his knowledge on leather processing and for his advice and support in all other aspects of this session's realisation. Our thanks also go to cultural legend Uz. Saadia Alsalahi, who has won awards for Sudan at numerous local and international exhibitions over the past three decades, for sharing her profound expertise on Sudanese cultural legacies. We are indebted to Dr. Suzan from the Department of Linguistics for informing us on Sudanese languages and the work on keeping them from extinction; and to the groups who lent us their exhibits to represent Sudan's cultural diversity.

In addition to the opening session, the second day of the workshop programme included seven plenary paper sessions on the various topics of the workshop. The Business plenary session includes a paper on the KM experience of Kenana Engineering and Technical Services that was presented by two fresh graduates reporting on their final year project, two papers about Zain's attempts to incorporate KM practices in one of the largest telecommunications companies, a paper from researchers at two U.S. companies on how KM can act as a governance model for

corporations, a paper outlining Sudapet's initiative that considers KM applications in the petroleum industry, and a paper from two researchers on KM applications in Sudanese organisations. The session on KM Applications in Development included a paper from academics and development workers at Westminster University on reasoning tools for humanitarian crises, one from Cheikh Ante Diop University on rural electrification projects, and a third from the Crisis and Recovery Working Group at UNDP-Sudan. It is worth noting here that this latter group have been very supportive of the workshop and have provided the workshop organisers with valuable suggestions, resulting in the inclusion of software demonstration sessions in the workshop programme, as well as funding a number of civil servants from Khartoum, Darfur, and Gadarif States to become Certified Knowledge Practitioners – thereby directly contributing to building local KM capacity. There were five papers on the KM for Education session that included two on electronic educational media, a paper from the Sudanese Research and educational Network – an essential component for KM utilisation in higher education, one on the relationship between socially relevant computing and KM and how the two can act as facilitators for social change, and the last on the approach of the African Union Commission for education and research in Africa. The environment plenary session included papers on using KM for education on climate change, distributing environmental information, and on the use of placer mining and its effects on Guyana's environment. In the Governance plenary session two examples were presented from fellow African countries, Tanzania and Uganda, on utilising research based knowledge in planning and KM uses in the public sector, respectively. Papers on KM Applications in Health presented projects from Mali, Sudan and Tanzania, in addition to reflections from a WHO consultant on knowledge production processes of international organisations' country missions. The final plenary paper session dealt with the intricate topic of IKS, exploring ethical models from African civilisations, discussing knowledge in conflict situations, and reflecting on what can KM bring to the field of appropriate technology. On Day 3, a set of invited presentations from prominent researchers and practitioners on various topics pertaining to KM were presented, that included a number of local initiatives for knowledge codification and sharing such as TEDx, Morgan and the OASCIR project. The day included eleven discussion sessions consisting of one session on business theme, two on development, two on environment, two on education, two on governance, one on health and one on IKS.

We started the planning for this workshop with very few contacts and modest knowledge on how much KM is applied locally and regionally. What we found was a heap of ideas, attempts, projects and finished products. This workshop and its Proceedings are the result of hard work by many people and can be considered a codification effort of materials that will act as a basic resource for local researchers and practitioners in this emerging and flourishing field of KM. I am very proud to have worked with my co-editors as students and now as colleagues – they have simply been superb and a pleasure to work with. We thank all contributors from Africa and abroad for sharing their experiences and thoughts on how best we can utilise KM in education, business, health, environment, and social well being to develop best practices and address common problems of development and capacity building resulting in an enriched intellectual environment.

I have drawn on many people for their support and assistance and to whom I will feel eternally grateful. I should like first to give warm thanks to all of the programme committee members for the various contributions and help they have extended and to all that I have learned from them. I want to thank the students from the Faculty of Mathematical Sciences who were the engine and spark of this workshop (in particular Iman Ibrahim and Rufaida Ismail), my colleagues at the co-organising and collaborating bodies and to whom I am affiliated, in particular the members of the International Network on Appropriate Technology, scattered all over the globe thereby making this workshop an international event. I also want to thank all members of the scientific review committee for their time and the valuable comments they made to their peers and which allowed us to improve on the content of our Proceedings. I also wish to express my gratitude and appreciation for additional support provided by friends and colleagues for being there when I needed them. Special thanks go to Uz. Elham Elmugammar, Dr(s) Hisham Abushama and Anour Daffalla for their continuous support and supply of contacts to resolve an obstacle we were facing, and to Uz(s) Asha Alsaid, Alla Daoud and Israa Geneif for coming to our aid and offering free translation services. My deep thanks go to Professor(s) Hale and Tharakan for their exceptional support in the midst of their busy lives including simple things like proof reading something I wrote. I am very fortunate to have worked with each and every one in the steering group, when we fought, laughed, worried, and succeeded together. We are grateful to the groups who came to our aid when we needed such as the Arch Media Team who revived our communication efforts, passed to us their knowledge on campaigning and advertising, as well as helped us to reach out to mass media and bring KM to every Sudanese house.

We appreciate and hold in high regard our sponsors, who made this workshop possible. Our deep thanks to SAYGA (DAL Group), National Information Centre, Knowledge Management Institute in Washington DC., Friendship Hall, Sudapet, TWAS, Sudanese Centre for Engineering and Environment Studies, Morgan for Information and Communication Technology, and Orange Technologies. We surely feel that collaboration is a beauty and the movement of social (and global) responsibility is reaching our midst, both lighting our way to progress.

Finally, we hope that you all will have an enjoyable and fruitful time, and that the exchanges you have at this workshop stimulate your individual and collaborative work, and that our visitors will take back with them fond memories from their exciting time in Sudan.

Gada Kadoda

Courses

COURSE (1)
CERTIFIED KNOWLEDGE PRACTITIONER – (CKP)

Knowledge Management Institute
Washington DC, USA,
Website: www.kminstitute.org
Email: info@kminstitute.org

COURSE DESCRIPTION & OBJECTIVES:

The CKP course provides a solid understanding of the essentials of Knowledge Management (KM) at the enterprise level. It is a 2 days course that includes: background, best practices used today, where KM is headed, and why it is vital to organizations' success. CKP helps you prepare for the Certified Knowledge Manager (CKM) entry level certification by KM institute.

COURSE CONTENTS

There are no prerequisites for the CKP. Students who take the 2-day class gain access to pre-class modules from the new "KM101" interactive program. This helpful bonus gives students a level-set knowledge of the material - regardless of background or experience. Pre-class material also frees up more time in class for practical exercises and "hands-on KM."

The course includes:
Pre-class modules (KM101), day Workshop (14 Modules), and post-class/online exam for the Certified Knowledge Practitioner (CKP) designation.

TARGET AUDIENCE

The CKP is ideal for anyone tasked to lead a KM initiative or improve an existing one; anyone interested in gaining a solid grasp of common KM principles with hands-on experience performing KM. KM400/CKP Graduates range from KM workers to managers, government to commercial, and just about everyone in between.

LEARNING OUTCOMES

- A Comprehensive overview of KM
- Best practices/case studies
- Real-world exercises
- KM Bulls & Squirrels™ and their importance
- Your Role on the KM Team
- Change Management and Keys to Success
- A Company-wide "KM Awareness Plan"
- Social Media and other Hot Topics

ABOUT INSTRUCTOR

Mr. Douglas Weidner (KM Institute Chairman/ Chief Instructor)

Douglas developed the internationally acclaimed Certified Knowledge Manager (CKM) and Master CKM Certification Program in 1999-2001, based on his actual KM consulting and training experiences. It was first taught in June 2001 and now has nearly 4,000 Certificants worldwide. He has trained, certified and advised KM leaders in almost every US government agency. Internationally, he has trained KMers from over 1,000 commercial firms and government agencies. His focus is on KM Institute's KM Body of Knowledge (KMBOK) ™ the Knowledge Maturity Model (KMM) ™ and its much-expanded worldwide KM Certification offerings. He is an engineering graduate of the US Air Force Academy, has an MBA in Business Economics – University of California – Los Angeles and MSIE in Operations Research.

COURSE (2)
ITIL® V3 FOUNDATION OVERVIEW

Sudanese Centre for Engineering and Environmental Studies
SCEES
Khartoum, Sudan,
Website: www.scees.org
Email: info@scees.org

COURSE DESCRIPTION & OBJECTIVES

Information Technology Infrastructure Library- ITIL V3 foundation overview is a 2 day introductory training course that gives the participants an overview to the key concepts, terminology and process of ITIL V3 Framework which might be used to enhance the IT Service Management within an organization. The Foundation Certification in IT Service Management is an introductory certification to the understanding of ITIL.

COURSE CONTENTS

The Overview course is based on the five core ITIL books which cover each stage of the service lifecycle. Briefly put, contents are:

- Introduction to ITIL and IT Service Management.
- The Service Life Cycle.
- The Service Design.
- The Service Transition.
- The Service Operation.
- Continual Service Improvement

TARGET AUDIENCE

IT Professionals such as Management, IT Support Staff, IT Consultants, Service Provider. It is open any individual who has an interest in the subject and has an IT background

LEARNING OUTCOMES

Upon the successful completion of the Foundation certificate the candidate is awarded 2 credits and fulfils the prerequisite entry criteria for the next level of study within the ITIL qualifications scheme, the ITIL V3 Intermediate Level.

ABOUT INSTRUCTOR

Eng. Eltayeb Elgaali Eltayeb Babiker (IT Manager, Khartoum Stock Exchange)

Eltayeb got his bachelor degree from Sudan University of Science and Technology, in Computer and Information Systems, 1st honour degree, 2002. Then his Master of information technology from Sikkim Manipal University –India, grade A, 2006, also he has postgraduate diploma in Telecom technology from Sikkim Manipal University, India in 2005.

He achieved number of international certificates as listed below:

- PMP, Comptia Project+, Oracle Certified
- RAC 10g Expert, ITIL Foundation, Sun
- Certified System Administrator, Oracle
- Certified Professional DBA, Redhat Certified
- Engineer, Redhat Enterprise Linux 3.

COURSE (3)
WRITING RESEARCH PAPERS

Proposed by *Professor Chaibi Thameur* (Pan African University)
Organised by *Dr. Gada Kadoda* (Garden City College)

Delivered by a consortium of International and Local Workshop Participants:
Dr. Anwar Dafalla (Alzaiem Alazhari University)
Dr. Bazara Barry (Head of Computer Science Dept., Faculty of Mathematical Sciences, University of Khartoum)
Professor Charles Verharen (Professor of Philosophy, Howard University)
*Dr. Hisham Abushama (*Head of Research, Faculty of Mathematical Sciences, University of Khartoum)
Ms. Rebecca Clay (Professional Writer, Washington DC., USA)
Professor John Tharakan (Professor of Chemical Engineering, Howard University)
Dr. Mohamed Abdalla (Lecturer of Computer Science and MBA programmes at various Sudanese Higher Education Institutions)
Dr. Manar Abdel Rahman (Dean of Faculty of Mathematical Sciences, University of Khartoum)
Professor Sondra Hale (Professor of Anthropology and Women Studies, University of California – Los Angeles)

COURSE DESCRIPTION & OBJECTIVES:

Unfortunately, the education of African scientists is often so overwhelmingly committed to the technical aspects of science in such a way that the communication arts are neglected or ignored. The cornerstone of the philosophy of this course is based on the fundamental assumption that original research must be communicated through presentation and published; only then can new scientific information be authenticated and added to the existing database that we call scientific knowledge. This course will help scientists and students in all disciplines to prepare manuscripts for submission to peer-reviewed professional publications that will have a high probability of being accepted for publication and being understood when they are published. The course will provide the rubrics and methodologies for efficiently communicating scientific findings to the broad community of scientists in a uniform and professionally acceptable manner.

COURSE CONTENTS

The course consists of lectures and group exercises on the following topics: Framing research papers (analytical and argumentative research); structure, format, content, and style of a journal article; primary and secondary research, plagiarism, referencing and citations; analysis and interpretation of data; and writing and presentation of research work.

TARGET AUDIENCE

The target audience for this course are graduate students at both the Master's and PhD programmes levels, as well as researchers who would all benefit from this course. Final year undergraduate students are also welcome and encouraged to attend.

LEARNING OUTCOMES

This course will help develop an understanding of the process of writing a research paper as well as conveying information about how research papers are assessed. Information will include: how to develop a logical framework of research; how to select and evaluate reference materials; and how to present the results. After taking this course, attendees will have a clear understanding of the process of writing a research paper. Upon completion of the course, participants will be able to:

- Develop a logical framework for research problems.
- Select and evaluate reference materials.
- Present results.
- Construct and develop a research manuscript.
- Appreciate how research papers are reviewed, assessed and evaluated.

Keynote Addresses