Developing a web explicit research strategy theory in African universities: a cross-comparison of specific regional efforts through an analysis of research web-pages

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ABSTRACT

The research is an analysis of web explicit research strategies of specific African universities. The sampling was purposive. The African continent was sub-divided into four distinct cardinal regions in order to get a general overview of the whole continent. A further selective sampling was done according to international rankings, as a method for deciding which universities will be mapped. The rankings identified were: Webometrics, Academic Rankings of World Universities and Times Higher Education. Much contemporary analytical work is based on the examination of Internet data, like Google analytics. Premised on this assumption, the research resorted to analyze information available on different research web-pages. The aim was to conceptualize research strategies currently in place (in the Internet), the respective internal and external factors which influence such strategies, and the corresponding issues that result from it. The model developed can be used by African universities in the development of their own context specific research strategies.

Keywords: Research; Strategy, African, Universities, Explicit & Tacit

1.0 INTRODUCTION

A University can be defined as a community of scholars and masters, not excluding other stakeholders, who work together to achieve certain goals [research, community service, teaching and learning]. University education must carry out a higher mission of providing an integral training for the complete human being (Campos & Sotelo, 2001, p. 183). Huisman (2000, p. 2) & Trow (1995) explain that universities differ in terms of their operation, sustainability, mission and environment. Martin & Etzkowitz (2000, p. 13) elaborate that a university, in addition to possessing the two traditional roles of teaching and research, has a third mission- contribution to the economy. Research is therefore a substantive feature of a university, especially those which regard themselves as research universities.

Research is the creative work of a trained and energetic mind, stimulated by curiosity about a problem. In general, research is all effort directed towards increased knowledge, natural phenomena, environment and problems in all fields of science. Research aims to be self correcting (Walliman & Baiche, 2001, p. 10). Research refers to all creative activities in the fields of science, engineering and art. A research culture is the intellectual seed-bed required for sustainable and productive research activity (Hazelkorn, 2005, pp. 62-63). The actions necessary, and appropriate, to create, develop, rescue, recreate or to sustain research culture are different in different institutions, and at various levels in any one institution. The role to be played by a single lecturer inside a department is very different from that of her professorial department chair, or her vice-chancellor (Delamont & Atkinson, 2004, p. 19). A research strategy is drawn from research platforms that are realised in a number of focal areas as the basis of actual prioritization of research efforts and allocation of resources (Hazelkorn, 2005, p. 176).
A statement of a research strategy, in a university or a department, could generally refer to: business needs that will be addressed by the university or appropriate department, industry or organizations. Researchers will look for problems to solve and opportunities to validate their models and theories including methods and instruments used to provide answers (Vlad, Morel, & Bourcerie, 2003, p. 133). Another definition is a model of research activity, with its respective mission, objectives, structures and processes, which highlights how an institution will carry out its research.

Objectives of institutional research strategy are three-fold. The first objective is to grow research activity in terms of increase in the number of research and research students, grow recruit research active members, expand research activity, and promote international partnerships/ collaboration. The second objective is in terms of organisation and management, through increase in research funding, allocating resources to facilitate research productivity and excellence in establishing centres of excellence. The last broad objective is institutional status and mission. Its sub-components include: enhancing institutional profile, fostering innovation and entrepreneurship and ensuring a strong research and teaching nexus (Hazelkorn, 2005 p. 58).

1.1 BACKGROUND AND CONTEXT

Research is the search for knowledge. It is a scientific and systematic search for pertinent information on a specific topic (Kothari, 2007). In game theory, strategy is the set of rules that governs all moves – a plan to achieve specific aims. Research strategies are general orientations on ‘how’ to conduct research. The end product of research is knowledge either in tangible or intangible form, explicit or implicit. Knowledge can be an end in itself (Newman 1907, p. 99) or

a means to an end [i.e. the knowledge industry concerned with its production, distribution and consumption of knowledge] (Kerr, 2001, p. 66).

The conceptualisation of university knowledge according to different perspectives lends itself to the development of a number of thinking modes. Mode 1 thinking (traditional research based) is a situation where knowledge is characterised by the hegemony of theoretical or, at any rate, experimental science; by an internally-driven taxonomy of disciplines and by the autonomy of scientists with their host institutions. Mode 2 thinking views knowledge as having a trans-disciplinary nature, socially distributed, application oriented and subject to multiple accountabilities (Gibbons, Scott, & Nowotny, 2003, p. 179).

Higher education institutions have experienced a number of different teaching-research scenarios. Hazelkorn (2008, p. 156) explains four different types of teaching-research institutions. Type 1 is the traditional model, wherein faculty have both teaching and research responsibilities; tenure/promotional opportunities are usually awarded on the basis of research activity and perhaps a teaching portfolio, albeit evidence suggests that increasing emphasis is being placed on the former rather than the latter. Type 2 sees research activity expand and external pressures increase; the needs of the research team and the strategic needs of the institution begin to favour a more formalized structure for research. Different terms, such as unit, laboratory, or centre, are used to give formal recognition to this stage of development. Initially, faculty may move seamlessly between teaching and departmental commitments and the centre, but there may be efforts to second or buy-out research-active faculty to work for a greater part of their time in the centre. Type 3 occurs as the centre becomes more financially self-sufficient. Many faculty members may continue to teach on a reduced workload supervising postgraduate students but others may not. Depending on how the relationship is maintained, the nexus may weaken further. The wholly autonomous or independent research centres or institutes, represented by Type 4, are not yet a common feature of most HE regimes. In such circumstances, there is usually a clear separation between teaching and research, albeit some support postgraduate students—a form of teaching—and many offer post-doctoral opportunities.
In the post war era, research evolved into a separate and autonomous role, a change from the previous conception of its link with the basic teaching mission. During the golden age of research universities in the 1960s, the research universities, staid and conservative in their role as guardians of academic standards, were in the forefront of some of the most dramatic changes in America. The first tier universities were involved in expanding departments, facilities and graduate programs. The second tier universities established doctoral programs and attracted funds for research. Research universities are identified with the level of research expenditures, the quality of faculty in the eyes of their peers and size of doctoral programs (Geiger 1993, pp. 58, 203), notwithstanding their teaching function.

Keller (1983, p. 140) mentions that university research will become more vital to a nation's success public health, economic growth, security and quality of life. This has led to development of strategic planning within the field of research. Strategic plans have five parts: the statement of mission, a background analysis, statement of objectives, a definition of strategies, and an assessment of the organisational structure and information system (Doyle & Lynch, 1979, p. 603).

Strategic planning deals with a new array of factors: the changing external environment, competitive conditions, the strengths and the weaknesses of an organisation, and opportunities for growth. It involves continuous adjustments to shifting conditions, with a central strategy in mind. These adjustments lead to the development of four activists, ''the defenders", these leaders

fight for stability, quality, order and continuity; the "analyzers" who are anxious to keep up with changes but are cautious; the "prospectors", who aggressively seek to find and exploit new services and markets; the "reactors" who are non strategists and are always putting out fires (Keller, 1983, p. 140). The research will bring to light the general positioning of the African universities according to these four categories.

Developing a university research strategy involves the input from, and negotiation with, several institutional levels, usually repeated several times, in a dialogue which is not only limited to the institution itself but involves many partners (Reichert, 2006, p. 25). There are a number of research strategies, amongst these include: the open innovation paradigm which is understood as the antithesis of the traditional vertical integration model where internal research and development activities lead to internally developed products that are then distributed by the firm. It assumes that firms can and should use external ideas as well as internal ideas, internal paths and external paths to market as they look to advance their technology (internal technology base; external technology base; technology spin offs; technology outsourcing & licensing)(Vanhaverbeke & West, 2006, p. 2);

Other research strategies are: student research placements to undertake company research projects as part of a degree together with strong praxis element; continuing education programmes aimed at senior practicing managers and professionals based on updating latest research, conducted by Faculties or by Professional Training Centres; direct communication between individual faculties and particular companies for specific projects; designated university research and development centres which are outside the faculty structures with their own locations and staff budgets (these are normally multidisciplinary, interface strongly with communities, attract considerable income and encourage spin-off companies); incubator organisations, which may either be for spin-off companies from university faculties or for individuals in society with bright scientific ideals; joint venture companies who are science intensive , where university and company have complementary roles and parallel stakes; more complex science and technology parks, which involve real estate, a whole supportive infrastructure, and normally encompasses incubator organisations(Davies, 1998).

Universities have different research strategies in line with their mission and vision. From a global perspective, and in particular the United Kingdom and New Zealand, there has been the emergence of new research institutions which were initially vocationally-oriented. This led to a restructuring of these institutions to accommodate the new modus operandi. The quality and quantity of higher education research determined the status and prestige of these new institutions. In New-Zealand, the government separated higher education funding from teaching and research, with the latter being contested by institutions that conduct research (Billot, 2008, p. 2).
Public support for higher education in Africa has grown, but is still at very low levels by international standards. Most institutions are still comparatively young-many having developed in the post-independence period beginning in the early 1960s; and have less developed scholastic traditions with limited numbers and generally less qualified personnel to staff them vis-à-vis universities in Europe. The need to place universities in the broader context of each country's higher-education sector and to compare them with relevant regional and global developments is helpful (Beintema, Pardey, & Roseboom, 1998, pp. 2-3). Some non-governmental organisations like SIDA have tried to champion for African universities to take bold steps in setting priorities and managing research as well as encouraging these institutions to provide co-financing of research, directly from own sources or by lobbying their governments to provide funds (Hydén, 2006, p. 4).

Africa's universities continue to provide the vast bulk of its research and train virtually all its researchers. Alternate sites for the generation and adaptation of knowledge are emerging and assuming prominence: public research institutes, private research centers, firm-based research units, regional and sub-regional centers, nongovernmental organizations, and so forth. But the trend is only beginning and has yet to pose any kind of threat to the dominance of the university as the core of the knowledge generation, reproduction, and dissemination systems in Africa.

1.2 PROBLEM OF STUDY

A number of countries and in particular, African universities, have identified the need to boost their research capacity. Nevertheless, some universities are still pre-disposed and engage in teaching as a core function, excluding research and community service. The aim of this research is to offer an 'eye-opener' to the various possibilities which universities can engage in. It will provide an indicator to other potentialities which universities can harness in order to ensure socio-economic sustainability intra-specific to different disciplines, inter-disciplinary and trans-disciplinary. At the end, the researcher will develop a generalised model which African universities can adopt and adapt to suite their divergent needs. A generic model is developed after mapping research strategies, based on web-exposure and web-information utilized in few African Universities. The research followed a geographical distribution of universities.

1.3 RESEARCH QUESTIONS

i. Which external factors are explicit and which additional factors should be made explicit in a research strategy within the African context?
ii. Which internal factors are explicit and which additional factors should be made explicit in a research strategy within the African context?

1.4 METHODOLOGY

The research utilized different research and project documents produced within the different African settings and available in the Information Superhighway in the months of December 2009 and January 2010. A grounded theory developed using critical analysis of textual information and conceptual maps will be incorporated with the various discourses that have been occurring through time. University research ratings were also included [i.e. Webometrics, Academic Rankings of World Universities and Times Higher Education].

1.5 SCOPE

The general scope was the African continent; sub-divided using the geographical perspective into the four regions: West Africa; East Africa; North Africa; South Africa. Leading universities were identified in each region and a forensic research analysis done based on the methodology identified in 1.4. Three (3) West African universities were sampled: University of Ougadougou, University of Dakar, Kwame Nkurumah University. Six (6) universities were sampled from Eastern Africa: Makerere University; University of Nairobi; University of Dar-es-Salaam University; Strathmore University; University of Addis Ababa; and University of

Khartoum. North African universities were five (5): Ain Shams University; Al Akhawyn University; America University in Cairo; Cairo University; and University Cadi Ayyad. From the southern region of Africa, five (5) universities were selected: University of Cape Town; University of KwaZulu Natal; University of Pretoria; University of Stellenbosch; and University of Witwatersrand. The researchers noticed that South African, North African and East African Universities were better ranked than West African universities. This meant that fewer West African universities could be selected, hence the sample of three (3) universities in that region. Since the researchers were from different East African countries, they, in addition, felt the need to include one more university in order to better inform the conclusions about their region.

1.6 SIGNIFICANCE

The research will provide a generic model which can complement other existing models developed by other global research strategy authorities. It will in addition, provide an African perspective of what universities ought to do and how to do it in order to be competitive in the global research arena.

1.7 ANALYSIS

The researchers coded web-data according to emerging concepts present on web-pages. Theoretical codes and selective codes were developed which later informed the emergent theory and model.

1.8 LIMITATIONS

The study limited itself to content available in the Internet. Data available on organisational intranets and documents were not sampled. Hence, the theory generated at the end of this research paper was deemed 'explicit' to the extent that specific information on research strategy was available and communicated to all internal and external stakeholders through the World-Wide Web. The extent of tacitness was not dealt with, since even intra-institutionally, certain people are privy to certain information while others are not.

2.0 LITERATURE REVIEW

Organs responsible for directing research in different universities vary from institution to institution. Factors which influence institutional research strategy can be grouped into two major categories: external and internal factors. External factors include: political-economic aspects [globalisation, knowledge economy, a national research strategy]; financial factors [external funding mechanisms and policy instruments, international/supra national research programmes and benchmarking] and institutional position [socio-economic status of region, demands from industry/ government, presence of other institutions, consultancy and entrepreneurial activities]. Internal factors include: mission and strategy [requirement of funding body, change of status and self perception]; human resource and institutional structure [availability of competence, funding opportunities, recruitment/retention of students]; structural or research profile [aspiration to develop profile status, research teaching nexus and relationship with industry] (Hazelkorn 2005, p. 57).

Research can be approached in terms of models of university-industry co-operation. The methods available of technology transfer include training of students, publication of research results, faculty consulting, sponsored research, collaborative research, consortia, technology licensing, start-up companies and exchange of research materials. The models available for university-industry collaboration include: technology licensing (at individual, school/departmental and institutional level), start-up companies, sponsored research agreements, consortia, high-level research alliances, high-level technology alliances and experiments. Competing factors include economic development, industry segments and critics (Severson, 2004, pp. 1-6).

Contract research can be considered in four ways and using two variables (institutional and individual). The four different types of contract research are between individual-individual [peer to peer contacts, conference visits, guest lectures and committees], individual-institution [students, post-docs, industrial sabbaticals and advisors], institution-individual [part-time professors, academic sabbaticals, secondments, governing boards] and institution-institution [industrial affiliation, strategic consortia, joint programs with public co-funding](EUA, 2009, p. 7).

A number of approaches to strategy definition include: where a central institutional core plays the most important role in strategic development; when a central institutional strategy/ strategic action prioritizes particular areas; a central institutional strategic action developed for mainly new initiatives; a central institutional level changes previous resource allocation; a central academic body (the Senate/Research Council / Research Committee) has a central role to play in the strategy definition; Faculties and Schools playing the most important role in defining research strategies; Research institutes below the level of faculties playing the most important role in defining research strategies (Reichert, 2006, p. 27).

The financial aspect of a research strategy can be approached in two ways: through the use of discretionary funds or to provide assistance to researchers in less fashionable fields in their bid to attract external funding bodies. Financial aspects of a research strategy have led to the disproportionate favouring of fields of research with perceived strategic importance for economic growth and with useful-commercially significant- application. This has led to the emergence of performance based funding by external agencies to build and maintain a research culture. Consequently, a decision on how to apportion research grants has become a complex phenomenon. Some institutions are increasingly moving to a merit and seeding approach to investment; others generate their own research funds from commercial developments; few accept the principle of soft monies and others share resources and facilities, not just research strength but also economies of scale (Connell, 2004, p.40).

A structural and research profile is anchored in teaching-research nexus with an emphasis on research-based learning or research-based teaching. Through research, the professor teaches and, simultaneously, the student studies and learns. This is especially common in advanced higher education where teachers clearly teach by means of research activities, and students are engaged in the educational process via those activities and learn throughout the engagement to an extent that research, teaching and study activities are completely juxtaposed (Clark, 1997, p. 243-244). The student therefore participates in multiple groups. Research groups offer the mentor-apprentice relationship that acts as a vehicle of transmission of tacit knowledge also a teaching group responsible for training and certification of advanced students. Knowledge generated may later trickle to the rest of the organisation. For organisational learning to occur, the knowledge acquired through research must be: communicated to other organisational

members; stored in organisational memory in the form of written documents, computer files and embedded procedures and technology; available for shared interpretation by others and regularly updated to influence teaching activities and industry (Cyert & Goodman, 1997, p. 51).

The research human resource strategy can be four-fold. Recruitment of experienced researchers, post-doctoral or other senior professorial posts, sometimes on contract and accompanied by relatively generous support funds and salaries; re-invigorating and recognizing research performance via promotion, salary and other benefits, including career stream choices and new academic contracts which include research or research only positions; training through faculty development strategies or plans; re-orientation through encouraging a multi-disciplinary and inter-disciplinary approach; enabling strategies which aim to meet different abilities and capabilities over a faculty member's career, sabbatical leave, research scholarships and fellowships, and gender specific initiatives (Hazelkorn, 2008, p. 164). In some universities, the role of the research manager with adequate strategic thinking, entrepreneurship, administrative, networking, communication and resourcefulness skills becomes an important linchpin for a research strategy (Connell, 2004, pp. 31-43).

Political-economic aspects and in particular globalisation, has influenced university research. Gibbons (1994, p. 70) stressed that research in universities in mode 2 are related to the process of massification of higher education and are an outgrowth of it. They involve close working relationships between people in different institutions, and typically include business people, patent lawyers, production engineers and others located outside the university. It also necessitates different pattern of funding from traditional discipline based research. In the wake of these developments, a host of new institutional arrangements emerges linking government, industry, universities and private consultancy groups in different ways. University based research is threatened by the encroachment of industry and the profit making mentality. Linkages can extend from being within a specific locality to collaborations or linkages which spans international boundaries.

Regarding institutional positioning, Gibbons (1994, pp. 76-80) noted ten shifts accompanying the current massification of higher education: diversification of functions (importance has been given to part-time study with universities engaging in abstract to utilitarian research together with the blurring of periphery and core activities); the student population is drawn from a broader social base with a recent growth in feminism which consequently leads to the reshaping of intellectual contours of many subjects; shift from liberal education to professional training; tensions between teaching and research with more emphasis being placed on scientific publications and technological devices rather than in the form of young trained minds; growth of problem-oriented research rather than curiosity driven research with specific institutions funding university research; decline of primary knowledge production to their configuration in novel patterns and dissemination to different contexts; broadening of research accountability with an inclusion of professional groups and market; through technology, there will be a separation of teaching and research with each taking place in different locations; multiple sources of research funding in higher education with emphasis shifting to mission-oriented research; a change in efficiency and bureaucratic ethos shown through the real academic unit being the course or research team and the abandonment of cultural claims transcending the accumulation of intellectual and professional expertise.

3.0 DATA PRESENTATION

Data are presented according to geographic distribution.

3.1 WEST AFRICA

The following data presents the existing grounded research strategy and environment in three West African universities with corresponding frequencies [i.e. between 1 and 3].

External environment

There was no explicit external factor identified in the sampled universities.

Internal environment

Intra-university but external to research strategy

One university, University of Dakar, identified the importance of explicitly stating the role of faculties and departments in its research strategy.

Research strategy

The following dimensions were identified as critical in a research strategy: Post-Doctoral fellowships (1); explicit list of completed research projects (1); explicit research advisory council (1); explicit research funding (1); explicit research centre (1) [Research centre sub-categories: informative role (1); multi-disciplinary and interdisciplinary research (1); post-graduate degree offers (1)]; existence of research groups (1); research group members and resources are known (1); research publications(2). University of Dakar had more explicit elements in their research strategy while the least was Kwame Nkurumah University.

Web-page

Two universities had some research web pages presented data not in English [University of Dakar and University of Ouagadougou]. The research web-pages were used as: a lecturer profiling tool (one university-University of Ouagadougou); an assessment tool (1 university-University of Dakar); human resource tool (one university- University of Ouagadougou); link to other research centres (two universities-Universities of Dakar and Ouagadougou).

3.2 EAST AFRICA

The following information presents grounded web research strategy and environment as observed within six East African universities. The frequency range is one (1) to six (6).

External environment

The most critical factors which influenced research strategy include: contribution to economic development (4) [Strathmore University; University of Dar-es-Salaam; Makerere University; University of Nairobi]; contribution to historical development (3) [University of Addis Ababa; Makerere University; University of Nairobi]; contribution to social development (5) [Strathmore University; University of Addis Ababa; University of Dar-es-Salaam; Makerere University; University of Nairobi].

Internal environment Intra-university but external to research strategy

The amalgamation of faculties and departments within the research strategy was considered vital within an institution.

Research strategy

The following categories of a research strategy were important within the region: explicit mission and vision of research strategy (2) [Strathmore University and Makerere University]; research strategy is explicit and available (1) [University of Dar-es-Salaam]; clear ethical regulations (2) [University of Addis Ababa and University of Dar-es-Salaam]; clear research rules and regulations (4)[Strathmore University; University of Addis Ababa; University of Dar-es-Salaam; University of Khartoum]; entrepreneurial spirit (3) [Strathmore University; University of Dar-es-Salaam; University of Nairobi]; explicit intellectual property policy (2) [Strathmore University; University of Addis Ababa]; explicit list of completed research projects (1) [University of Nairobi]; explicit list of ongoing research projects (5)[Strathmore University; University of Addis Ababa; University of Dar-es-Salaam; Makerere University; University of Nairobi]; explicit research advisory council (2) [Strathmore University and University of Dar-es-Salaam]; explicit research funding (3)[Strathmore University; University of Dar-es-Salaam; Makerere University]; research funds from government (1) [Makerere University]; research funds from partnership (2) [University of Addis Ababa and Makerere University]; research funds from student fees (2)[University of Addis Ababa and Makerere University]; research incentives given (1) [University of Addis-Ababa]; explicit research management and co-ordination system (3)[University of Dar-es-Salaam; Makerere University; University of Nairobi]; explicit e-book and journal repository (3) [Makerere University; University of Nairobi; University of Khartoum]; explicit research database (1)[Makerere University]; explicit research print collections (1); explicit research special collections (1) [Makerere University]; explicit research publication policies (3)[University of Dar-es-Salaam; University of Nairobi; University of Khartoum]; integration of information technology into research (3)[Strathmore University; University of Dar-es-Salaam; Makerere University]; involvement of external stakeholders (4) [Strathmore University; University of Dar-es-Salaam; Makerere University; University of Nairobi]; collaboration with other universities (3) [Strathmore University; Makerere University; University of Nairobi]; involvement of external research institutes (2) [Makerere University; University of Nairobi]; involvement of nongovernmental organizations-NGOs (4) [Strathmore University; University of Addis Ababa; Makerere University; University of Nairobi]; involvement of public authorities (3) [Strathmore University; Makerere University; University of Nairobi]; involvement of United Nations funded bodies (3)[University of Addis Ababa;

Makerere University; University of Nairobi]; research centre (3)[University of Addis Ababa; University of Dar-es-Salaam; Makerere University]; explicit research centre mission (1)[University of Addis Ababa]; research centre involved in outreach activities (2)[University of Dar-es-Salaam; Makerere University]; research centre adopts an inter-disciplinary and multi-disciplinary approach (2)[University of Addis Ababa and Makerere University]; research centre offers post-graduate degrees (1)[Makerere University]; research collaborative degrees (1)[Makerere University]; research group members and resources are known (1) [University of Addis Ababa]; research conferences and workshops are explicit(2) [Strathmore University and Makerere University]; research incubator (1) [Makerere University]; research infrastructure support programmes (1) [Strathmore University]; research peer review panel is explicit (1) [University of Addis Ababa]; research profile of lecturers (1) [Makerere University]; research support offices are explicit (2) [Strathmore University and University of Addis Ababa]; faculty or institute senior research coordinator (2) [Strathmore University and University of Addis Ababa]; Office of graduate studies is explicit (1) [University of Addis Ababa]; Office of institutional research (1); Office of institutional research has supportive role (1)[Strathmore University]; institutional Research Office offers consultancy services (1)[Strathmore University].

Web-page

All universities sampled provided information in English. In one university the research web-page was used as a lecturer profiling tool [University of Nairobi], three(3) universities used the it as a way of providing critical research statistics [University of Dar-es-Salaam; University of Nairobi; University of Khartoum] and three(3) linked these web-pages to other research centres[Strathmore University; University of Nairobi; University of Khartoum].

3.3 NORTH AFRICA

The following data portrays the existing grounded research strategy and environment in five North African universities with corresponding frequencies [i.e. between 1 and 5].

External environment

Three aspects of macro-development were considered critical in universities' research. These aspects include: contribution of research strategy to economic development (3) [American University; Cairo University; University Cadi Ayyad]; contribution to historical development (1) [American University]; contribution to social development (2) [American University and Cairo University]; government research regulations (1) [American University].

Internal environment - Research strategy

The following factors of research strategy were important: explicit research strategy mission and vision (1)[American University]; clear ethical regulations (1) [American University]; clear rules and regulations (1)[American University]; entrepreneurial spirit (2)[Al Akhawayn and American University]; explicit list of completed research projects (1)[Cairo University]; explicit list of ongoing research projects (1)[Cairo University]; explicit research advisory council (1) [American University]; explicit research reports (2) [American University

and Cairo University]; explicit research paper series (1) [Al Akhawayn]; explicit integration of information technology into research (1) [Al Akhawayn]; collaboration with other universities (2) [Al Akhawayn and Cairo University]; involvement with external research institutes (2) [Al Akhawayn and Cairo University]; involvement of NGOs (1) [Cairo University]; involvement of public authorities (3) [Al Akhawayn, Cairo University, University Cadi Ayyad]; involvement of United Nations funded bodies (1) [Al Akhawayn]; research centres (3) [Al Akhawayn; American University; Cairo University]; Research centre acts like information centre (1) [American University]; research centre has explicit mission and vision (2) [Al Akhawayn and Cairo University]; research centre involved in outreach activities (1) [American University]; multi-disciplinary and inter-disciplinary research approach (2)[American University and Cairo University]; research centre offers post-graduate degrees (2)[American University and Cairo University]; research group members and resources are known (2) [Al Akhawayn and Cairo University]; research competitions and awards (3) [Al Akhawayn; American University; Cairo University]; research conferences and workshops (3) [Ain Shams University; Al Akhawayn; University Cadi Ayyad]; research incubator (1) [Al-Akhawayn]; research profile of lecturers (1)[Al Akhawayn]; explicit research publications (2) [Al Akhawayn and University Cadi Ayyad]; Office of Graduate Studies (1) [American University]; Office of Institutional Research (1) [American University]; explicit Office of Institutional Research Mission (1) [American University]; Office of Institutional Research has supportive role (1) [American University]; Office of Institutional Research offers consultancy services (2) [American University and Cairo University]; provides accreditation services (1) [American University]; Office of sponsored programs (1) [American University]; researchers have own web-pages (1) [Al Akhawayn]].

Web-page

There were three web-pages that provided information in Arabic. The research pages were mainly used as a lecturer profiling tool (1) [American University] and assessment tool (1) [American University].

4.4 SOUTHERN AFRICA

The southern part of Africa availed favourable research results. The five (5) top universities were sampled. The external and internal environmental research strategy factors were identified.

External environment

The important effect of alumni on research was identified as a critical factor in two (2) universities [University of Cape Town and Stellenbosch University]]. Other external environmental factors were: contribution of research strategy to economic development (5)[University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; contribution to historical development (3))[University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; contribution to social development (5))[University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; business enterprise offices (2) [University of Pretoria].

Internal environment

Four (4) universities juxtaposed the existence of faculties and departments within their own research policies)[University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; human resource strategy was explicitly correlated with research strategy (3) [University of KwaZulu Natal; University of Pretoria; University of Witwatersrand]; existence and function of library in research was critical (2))[University of Pretoria and University of Witwatersrand]; interface of teaching function with research function (3))[University of Cape Town; University of KwaZulu Natal; University of Witwatersrand]; clarification of the role of Finance Office in research (1) University of Pretoria]; inclusion of government research regulations in university research (2) [University of KwaZulu Natal and University of Pretoria].

Research strategy

The facets which were important in a research strategy were: explicit mission and vision of research strategy (4))[University of Cape Town; University of KwaZulu Natal; University of Pretoria; University of Witwatersrand]; explicit ethical regulations (5))[University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; Ethics online courses (1))[University of KwaZulu Natal]; research ethics and quality reviews (2) [University of KwaZulu Natal and University of Witwatersrand]; clear post-doctoral fellowships (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; clear doctoral funding guidelines (4) [University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand];known Post-Doctoral fellowships (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; explicit research rules and regulations (4) [University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; entrepreneurial spirit (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; explicit intellectual property policy (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; explicit list of completed research projects (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; explicit list of ongoing research projects (4) [University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; explicit research advisory council (4) [University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; explicit research funding (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; research funds from govt (3) [University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; research funds from partnership (4) [University of Cape Town; University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; research funds from student fees (2) [University of KwaZulu Natal and University of Witwatersrand]; research incentives given (3) [University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; explicit research management and co-ordination system (5) [University of Cape Town; University of KwaZulu Natal; University of

Pretoria; Stellenbosch University; University of Witwatersrand]; explicit e-book and journal repository (4) [University of Cape Town; University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; explicit research databases (3) [University of Cape Town; Stellenbosch University; University of Witwatersrand]; explicit research special collections(3) [University of Cape Town; Stellenbosch University; University of Witwatersrand]; explicit research publication policies (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; explicit research reports (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; explicit gender and affirmative action policy in research (3) [University of Cape Town; Stellenbosch University; University of Witwatersrand]; clear integration of information technology in research (3) [University of Cape Town; University of KwaZulu Natal; University of Witwatersrand]; explicit invitation of external academics (3) [University of Cape Town; University of KwaZulu Natal; Stellenbosch University]; general procedure for invitation of academics known (2) [University of KwaZulu Natal; Stellenbosch University]; involvement of external stakeholders (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand] [collaboration with other universities (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; involvement of external research institutes (4) [University of Cape Town; University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; involvement of NGOs (3) [University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; involvement of Public authorities (3) [University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; involvement of United Nations funded bodies (1) [University of KwaZulu Natal]]; knowledge fields development programs (4) [University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; Blue sky research program (3) [University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; knowledge fields research grant (3) [University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; involvement of Professors Emeriti (1) [University of KwaZulu Natal]; research centres (4) [University of Cape Town; University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand] [research centre acts like an information centre (3); research centre has explicit mission and vision (3) [University of Cape Town; University of KwaZulu Natal; University of Witwatersrand]; research centre involved in outreach activities (3) [University of Cape Town; University of KwaZulu Natal; University of Witwatersrand]; research centre involved in multi-disciplinary approach (3) [University of Cape Town; University of KwaZulu Natal; University of Witwatersrand]; research centre offers post-graduate degrees (1) [University of Cape Town]; research centre offers collaborative degrees (1) [University of Cape Town]; research centre performs quality reviews (3) [University of KwaZulu Natal; University of Pretoria; University of Witwatersrand]]; research group members and resources are known (3) [University of Cape Town; University of KwaZulu Natal; University of Witwatersrand]; research group quality reviews (1) [University of KwaZulu Natal]; strategic research initiatives (1); strategic research initiative committees (1) [University of KwaZulu Natal]; research competition and awards (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; research conferences and workshops (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; research groups (3) [University of Cape Town; University of

KwaZulu Natal; University of Witwatersrand]; students involved in research groups (3) [University of Cape Town; University of KwaZulu Natal; University of Witwatersrand]; existing research incubators (3) [University of Cape Town; University of KwaZulu Natal; Stellenbosch University]; research infrastructure support programs (2) [University of KwaZulu Natal and University of Witwatersrand]; explicit research mentors (3) [University of KwaZulu Natal; University of Pretoria; University of Witwatersrand]; provision of lecturers' research profile (4) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University]; provision of lecturers' research ratings (4) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University]; research publications (5) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; explicit research support offices (4) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; University of Witwatersrand]; explicitness of researchers' sabbaticals (1) [University of KwaZulu Natal]; seminars and retreats organised for Doctoral students(2) [University of Cape Town and University of KwaZulu Natal].

Web-page

All universities had web-pages dedicated to research. Three (3) universities used research pages as a lecturer profiling tool [University of Cape Town; University of Pretoria; University of Witwatersrand]; four (4) used it as a research assessment tool [University of Cape Town; University of KwaZulu Natal; Stellenbosch University; University of Witwatersrand]; all universities (5) used the research pages to provide core research statistics[University of Cape Town; University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand]; four (4) [University of Cape Town; University of KwaZulu Natal; University of Pretoria; University of Witwatersrand] used the pages to source qualified research personnel; all sampled South African universities had direct links to research centres. The main web communication language was English, though extra links were provided for native languages.

4.0 AN EMERGENT AFRICAN RESEARCH STRATEGY MODEL

After combination of the various facets, an emergent conceptual diagram which integrates the various research strategy dimensions from all sampled universities is as shown in Figure 1: An emergent African Research Strategy Model (last page).

4.0 ANALYSIS

4.1 WEST AFRICA

From the analysis of explicit information available on the research web-pages of the most prolific West-African universities, it appears that these institutions are Type 1 institutions wherein faculty have both teaching and research responsibility with a greater emphasis on the teaching portfolio [one university with known post-doctoral fellowship; one university with clear research groups; two universities whose faculty have produced publications and zero infrastructure support programs] (Hazelkorn, 2008, p.156). It was not clear which category of research activists the organisations are under. In order to encourage internal and external participation, there was need for these universities to make explicit and include the following facets into their research strategy: role of alumni in research (0); role of external business enterprise office (0); the role of research outputs in economic, social, historical development (0). In order to bridge funding opportunities with research activity, there was need to explicate the role of the finance office (0); role of NGOs (0); development of a clear research mentorship system (0); role of partnerships and collaborations (if any) in research (0). Other salient features are: role of libraries in promoting research (0); inclusion of government regulations into research regulations (0); development of explicit human resource strategy that promotes and advocates for research (0); explicitness of research strategy mission and vision (0); developing a clear documented and available research strategy and availed in the Information Superhighway (0); deployment of research ethics regulations in the intranet and Internet (0); creation of an explicit intellectual property policy (0); developing an explicit research management and coordination system with access to the latest research databases (0); invitation and involvement of external research scholars to grow research (Hazelkorn, 2005, p.58). The involvement of external researchers may create stronger international and regional research links which can cultivate the apparent nascent research culture within these universities.

4.2 EAST AFRICA

East Africa presented more favourable research results. There was a clear inclusion of local developmental efforts within research policies of the different universities. These institutions presented a greater tendency towards type 2 research, since research activities were more, and there were more occurrences of formalizing the different research structures (Hazelkorn, 2008, p.156). Though the taxonomic classification leans more towards Mode 1 thinking, with a greater prevalence of hegemony of theoretical and experimental science [explicit list of completed research projects (1-University of Nairobi) ; explicit research funding (3)[Strathmore University; University of Dar-es-Salaam; Makerere University]; explicit research centres (1-Makerere University); multi-disciplinary and inter-disciplinary approach to research (2-University of Addis Ababa and Makerere University); research centres offers post-graduate

degrees (1-Makerere University); research incubators (1-Makerere University); research support programmes (1-Strathmore University); explicit Office of Graduate Studies (1-University of Addis Ababa); involvement of external stakeholders in different research funding mechanisms (4)] (Gibbons, Scott, & Nowotny, 2003, p.179). In order for these universities to shift from Mode 1 thinking to Mode 2, and for research activities, study and teaching activities to be completely juxtaposed (Clark, 1997, pp. 243-244), the following issues need to be made more explicit to all stakeholders in a research strategy: role of alumni in research (0-all East African universities); role of external and internal business enterprise office (all East African universities); departmental and faculty role in promoting research (especially within these universities: University of Addis Ababa; University of Dar-es-Salaam; Makerere University; University of Khartoum); role of government research regulations-if any (0-all East African universities); role of library in promoting research; clarification of the research-teaching nexus (0-all East African universities); presenting a clear documented research strategy (Strathmore University; University of Addis Ababa; Makerere University; University of Nairobi; University of Khartoum); role of research ethics committees (0-al East African Universities); conducting research ethics reviews (0-all East African universities); explicit post-doctoral fellowships developed within research centres (Strathmore University; University of Addis Ababa; University of Dar-es-Salaam; University of Nairobi; University of Khartoum) and research support offices; an explicit intellectual property policy (University of Dar-es-Salaam; Makerere University; University of Nairobi; University of Khartoum); availing a list of completed and ongoing research projects(Strathmore University; University of Addis Ababa; University of Dar-es-Salaam; Makerere University; University of Khartoum); role of external research funding bodies with elaborate rules of different types of collaboration (University of Addis Ababa and University of Khartoum); provision of research incentives (Strathmore University; University of Dar-es-Salaam; Makerere University; University of Nairobi; University of Khartoum); development of research competitions and awards (0-all East African universities); development of explicit research reports (0-all East African universities) and research paper series (0-all East African universities); development of Blue-sky research programs (0-all East African universities); involvement of professors emeriti (0-all East African universities); development of research collaborative degrees (Strathmore University; University of Addis Ababa; University of Dar-es-Salaam; University of Nairobi; University of Khartoum); development of research centre quality reviews (0-all East African Universities); explicitly involving students (0-all East African universities) in research groups; development of research incubators (Strathmore University; University of Addis Ababa; University of Dar-es-Salaam; University of Nairobi; University of Khartoum); development of a clear research mentorship system (0-all East African universities);formation of research peer-review panels ((Strathmore University; Makerere University; University of Dar-es-Salaam; University of Nairobi; University of Khartoum)); profiling (1) and rating researchers (0-all East African universities); inclusion of research publications in research policies; development of offices of institutional research (Makerere University; University of Addis Ababa; University of Dar-es-Salaam; University of Nairobi; University of Khartoum) with corresponding faculty and departmental representatives with adequate strategic thinking, entrepreneurship, administrative, networking, communication and resourcefulness skills (Connell, 2004, pp. 31-43). From the data, already it presented a worthy cause for regional university collaborations with many of these universities developing and evolving similar research strategy aspects. Knowledge sharing amongst these universities, which

have similar features, will foster economic, social and political development and regional self-sustainability.

4.3 NORTH AFRICA

Similar data were presented in North Africa. There were more external environmental features included in research policies. The three developmental aspects [social, historical and economic] were deemed important with the extra addition of the role of government research regulations. There were similar models of university-industry collaboration (Severson, 2004, pp. 1-6): collaboration with other universities (Al Akhawayn and Cairo University only); involvement with external research institutes (Al Akhawayn and Cairo University only); involvement of nongovernmental organisations in research; formation of research centres (Cairo University only); development of post-graduate degrees through research centres (American University and Cairo University only). Issues which need to be clarified in an explicit manner in research policies include: the role of alumni (0-all North African universities) and business enterprise offices in research (0-all North African universities); departmental and faculty role in research (0-all North African universities); interface between an institutional human resource strategy and research strategy (0-all North African universities); role of the finance office (0-all North African universities) and library (0-all North African universities) in research; explicit ethical regulations (0-all North African universities); research ethics training courses (0-all North African universities); research ethics policies quality reviews (0-all North African universities); doctoral funding guidelines (0-all North African universities); intellectual property policy (0-all North African universities); list of completed and ongoing research projects (Ain Shams, Al Akhawayn, American and Cadi Ayyad University); research advisory councils (Ain Shams, Al Akhawayn, Cairo and Cadi Ayyad University); source of funding [i.e. from government(0-all North African universities), from partnership (0-all North African universities), from student fees (0-all North African universities)]; research incentives given (0-all North African universities); research management and co-ordination system [i.e. e-book and journal repository (0-all North African universities), research databases (0-all North African universities), research print collections (0-all North African universities)]; research publication policies (0-all North African universities)); gender involvement and affirmative action (0-all North African universities); rules and regulations for invitations of external research scholars (0-all North African universities); knowledge fields development program (0-all North African universities); Blue-sky research program (0-all North African universities); knowledge field research grant (0-all North African universities). The observation made by Hazelkorn (2008, p. 164) on linking the personnel function with research was not clear, since the relation between the human resource strategy and research strategy was not explicit.

4.5 SOUTHERN AFRICA

South African universities adopted Mode 2 type of research thinking. Knowledge was viewed to have a multi-disciplinary, inter-disciplinary and trans-disciplinary nature (Gibbons, Scott, & Nowotny, 2003, p.179), socially distributed, application oriented and subject to multiple accountabilities [research centre involved in outreach activities (University of Cape Town, University of KwaZulu Natal and University of Witwatersrand); research centres adopting an inter-disciplinary approach (University of Cape Town, University of KwaZulu Natal and

University of Witwatersrand); entrepreneurial spirit of research activity (all South African universities); involvement of external stakeholders (all South African universities); research funds from partnership (only exception in terms of explicitness was University of Pretoria)]. Observations made by Gibbons (1994, p. 70) were also observed: close working relationships between people in different institutions (all South African universities), and typically include business people, patent lawyers, production engineers and others located outside the university (only exception in terms of explicitness was University of Pretoria). It also necessitated different pattern of funding from traditional discipline based research with the creation of post-doctoral fellowships (all South African universities) with research funds from government (University of KwaZulu Natal, Stellenbosch University and University of Witwatersrand), from partnership (all universities except University of Pretoria) and student fees (University of KwaZulu Natal and University of Witwatersrand). New institutional arrangements emerged linking government, industry, universities and private consultancy groups in different ways. University based research was encroached by industry (except University of Cape Town in terms of explicitness).
Though South Africa showed positive research attributes, a number of other areas need to be improved: involvement of alumni in research (University of KwaZulu Natal, University of Pretoria and University of Witwatersrand); role of library in research (University of Cape Town, University of KwaZulu Natal and Stellenbosch University); development of ethical regulatory committees (University of Cape Town; University of Pretoria; Stellenbosch University); explicit research paper series (all universities); explicit general procedure for invitation of external academics (University of Pretoria and University of Witwatersrand); procedures for invitation of professors emeriti (all universities); post-graduate degrees offered through research centres (University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand); explicit development of research collaborative degrees (University of KwaZulu Natal; University of Pretoria; Stellenbosch University; University of Witwatersrand); formation of strategic research initiatives with their corresponding committees (University of Cape Town; University of Pretoria; Stellenbosch University; University of Witwatersrand); development of research infrastructure support programs; making explicit office of graduate studies and institutional research (all universities); explicit research sabbatical programs.
South Africa appears to have a stronger research culture for sustainable and productive research, with the elite universities having more established research strategy frameworks (Hazelkorn, 2005, pp. 62-63). Research has been realised in a number of focal areas in these most prestigious universities with an explicit method of allocation of resources. Knowledge generated through research in these universities has been used as a means [i.e. distribution and generation of knowledge according to industrial needs] (Kerr, 2001, p. 66) and an end [Blue-sky research (3)] Newman (1907, p. 99).

The South African region seems to be the only region whose universities are characterised typically under Mode 2 thinking. The other regions (East, South and West Africa) are either at the early or later stages of Mode 1 thinking.'

5.0 CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

i. Which external factors are explicit and which additional factors should be made explicit in a research strategy within the African context?

The external factors which were explicit were the role of research on economic, social and historical aspects of development. The role of alumni in supporting research was only identified in two universities; namely Stellenbosch University and University of Cape Town (South Africa). Business enterprise offices domiciled within or without university boundary can improve university research if these parties can identify issues of mutual concern and benefit. Other possible factors which can be included are the explicit role of globalisation, knowledge economy and role of a national research strategy (Hazelkorn, 2005, p. 57) on an institutional research strategy. African countries, using collaborative regional ventures, can ensure that global knowledge is made locally relevant (Glocalisation) through tri-partite and block agreements.

ii. Which internal factors are explicit and which additional factors should be made explicit in a research strategy within the African context?

Internal factors identified after grounding web-data and that were explicit but exist independently of a university's research strategy include: faculty (7) and departmental (6) roles; library function; teaching function and human resource strategy. Other factors which are in the same category include: governing boards and peer contacts. These factors were highly prevalent in South African universities followed by East African universities.

A research strategy, identified through 'grounded' data, should as much as possible and explicitly, include these elements: explicit mission and vision; clear ethical regulations; framework for training researchers on ethical regulations; research ethics quality reviews; post-doctoral fellowships; doctoral and post-doctoral funding guidelines; clear research strategy, rules and regulations (Reichert, 2006, p. 27) entrepreneurial spirit of research; intellectual property policy; list and format of completed and ongoing research projects; research advisory councils with criteria for membership; research funding strategy [sub-categories could include-criteria for research funds from government, criteria for research funds from partnership and criteria for research funds from student fees]; research incentives; research management and co-ordination system integrated into information communication technologies [sub-categories are: e-book and e-journal repository, research databases, research print collections and research special collection]; research publication policies; research report criteria; gender involvement and affirmative action in research; criteria for research paper series; rules for invitation of external research scholars; criteria for collaboration [sub-issues include- standard for inter and intra-university collaboration, criteria for involvement of external research institutes, standard for involvement of nongovernmental organisations, standard for involvement of public authorities, criteria for involvement of United Nations funded bodies]; knowledge fields development programs [i.e. Blue-sky research programs and knowledge fields research grant]; norm for involvement of external academics; setting and managing research centres with its respective roles [i.e. informative role, outreach activities, multi-disciplinary and inter-disciplinary approach, formation and offers of research collaborative degrees, research quality reviews] ; standards for

research groups; norms for research group members and resources; standards on research competitions and awards; regularity of research conferences and workshops; criteria for student involvement in research groups; criteria for research mentors; guidelines for research incubators; guidelines for research peer-review; standards for rating and profiling researchers; guidelines for formation of research support offices [i.e. role of Office of Graduate Studies, Office of Institutional Research]; criteria for researcher sabbaticals. An internal factor which may be added is the role of research centres of excellence.

Research web-pages can be utilized more as a way to link university researchers, inter alia, to research centres and external stakeholders. It can provide a means to assess research output. Some universities have used their research web-pages to source qualified research personnel (professor emeriti, visiting scholars and post-graduate fellows) and invite scholars to various research activities. The language of communication thus becomes a vital asset to an institution. As much as possible, universities should translate their research information into English to make information accessible to the global community. Regular updates and submission of research statistics on web-pages can be used to attract and foster research efforts.

5.2 RECOMMENDATION

In general, there is need to create stronger regional collaborations, which can be used to form intra and inter-regional research groupings. Universities within the different regions have evolved differently due to different foundational principles and environmental factors. In East and Southern Africa there are private and public universities. Nevertheless, there is some commonality in aspects of research policies. It might be appropriate for African states, *ceteris paribus*, to learn from each other and forge stronger collaborative links taking advantage of their geographic and socio-economic strengths, notwithstanding weaknesses like lack of funds. Regional blocks for instance the East African Community (EAC), South African Development Community (SADC) and the Economic Community of West African States (ECOWAS) may be used as vehicles to achieve this end. It is critical for all stakeholders, governments, universities, private and public sector to finance the basic infrastructure and staffing of their higher education and research sectors (British Academy, 2009). A starting point could be to build an *explicit* web research strategy framework which can be used to inform, communicate and build research networks within Africa. Parameters suggested in the grounded model can be used as sign-posts to develop a realistic and contextual relevant research policies and strategies.

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Figure 1: An emergent African Research Strategy Model