Contents

Executive summary 306
  The problem 306
  University-firm interaction 307
  The methodology 307
  The scale, of and propensity for, interaction 307
  Drawing on the South African experience to plan strategically 309
  Cautions and spaces for action 309

Introduction: Universities and economic development in the SADC countries 312
  A focus on university-firm interaction in the SADC region 314
  Methodology of the study 316
  The chapter 324

Part 1: An overview of universities in the SADC countries 325
  1.1 Research, science and technology, and innovation in the SADC region 325
  1.2 The nature of the universities in the sample 336

Part 2: University collaboration and interaction in 13 SADC countries 345
  2.1 Collaboration and partners 345
  2.2 The existence of different types of relationships with firms 348
  2.3 Channels of communication 350
  2.4 Outcomes of interaction 352
  2.5 Features of university units that interact with firms 353
  2.6 Features of firms that interact with universities 354

Part 3: Identifying patterns of interaction 355
  3.1 Aggregating and distinguishing trends 355
  3.2 A measure of existence of relationships with firms 356
  3.3 Features of the four universities with moderate interaction 357
  3.4 Universities with a small scale of relationships with firms 362
  3.5 Universities with only isolated instances of interaction 364
  3.6 Patterns of interaction 366
Part 4: Constraints and opportunities for interaction
4.1 Benefits of interaction
4.2 Obstacles to interaction
4.3 Initiating interaction with firms
4.4 Positive perceptions

Part 5: The case of South Africa
5.1 The scale of university-firm interaction
5.2 Forms of interaction
5.3 Five patterns of university response
5.4 Informing strategic responses in SADC

Part 6: Promoting university-firm interaction in the SADC universities
6.1 The scale, of and propensity for, interaction
6.2 Drawing on the South African experience to plan strategically
6.3 Cautions and spaces for action

References
Executive summary

The problem

The extent and ways in which universities as knowledge generators make their resources available for innovation in firms and industrial sectors can make a critical difference to knowledge intensification and competitiveness in developing countries. The challenges for Sub-Saharan Africa and the Southern African Development Community (SADC) region are similar to other countries of the south, but at the same time, very specific. As Muchie (2008:1) so clearly proposes, the issue is how African universities can be aligned to economic development, poverty eradication and sustainability – “Here research and knowledge, far from being ivory tower pursuits, become critical to making poverty history and preparing countries to cope with disasters.” New knowledge and technological developments can be harnessed to address public health, food security, water resources, extraction of mineral wealth, exploitation of bio-diversity and indigenous knowledge.

There is strong advocacy and an aspirational push from continental, regional and international organisations to promote science and technology, to enhance the role of the university and to promote university-firm interaction, but conditions for realising this vision are not optimal. There is a general awareness of the kinds of constraints experienced in African countries, such as insufficient substantial political support for science and technology, inadequate science and technology policies, low research and development spending, low quality of sector education and training, high levels of brain drain, and weak science and technology institutions (NEPAD, 2003).

The risk is that African universities will continue to be driven by external agendas that do not sufficiently take these regional and national constraints into account. The danger is that they will be expected to – or aspire to – adopt uncritically the strategies and practices that have proved effective in developed economies, or in developing economies with very different trajectories of development.

Hence, we need to understand the conditions of possibility for the new roles of the developmental university in Sub-Saharan Africa. This report aims to contribute to such a massive task in a very limited, highly focused and extremely modest manner. It focuses on one new role identified for the university as knowledge producer – that is, to enhance linkages and interaction with knowledge users, specifically firms. We focus on understanding the nature of existing university-firm interaction in the SADC universities at a single point in time, 2008.
We aim to do so in order to inform the work of the Southern African Regional Universities Association (SARUA) in promoting the interests of its member universities – ultimately SADC.

University-firm interaction

Understanding of universities’ role in facilitating technological upgrading in Sub-Saharan Africa has been largely speculative, proposing what could ideally be, or anecdotal, describing specific initiatives. We do not really know whether universities interact with firms on any significant scale. If they do, which universities tend to interact most typically? What are the main forms of interaction that take place? What are the channels of interaction, and how do they benefit universities and firms? Are these the most desirable and effective forms, or should we focus on a wider, more strategic range of interactions?

Empirical research is required to investigate the complex multiple tacit and codified forms of interaction possible between universities and firms in Southern Africa. It is important to understand the extent and nature of interaction between firms and universities as a first step, in order to design strategic policy and mechanisms that do not simply impose ‘best practice’ drawn from elsewhere. On this basis, we can promote stronger interactivity and collaboration around research and technology development within the SADC region.

The methodology

The study had three empirical steps:

- A descriptive analysis of the context for university-firm interaction in each of the 13 countries to inform the research design and data analysis, drawing on existing databases and secondary studies.

- A survey of university-firm linkages and interaction from the perspective of universities in 13 SADC countries, linked to a comparative study of university-firm interaction in twelve countries in Sub-Saharan Africa, Latin America and Asia. The goal was to obtain a minimum of 30 of the 41 universities in the 13 countries. Ultimately, despite our best efforts, we received responses from 29 universities.

- An analysis of forms of interaction and university organisational responses in South Africa, to inform strategic interventions.
The scale of, and propensity, for interaction

A positive propensity

The trends identified highlighted a positive propensity and orientation towards research, innovation and interaction with firms. The survey revealed a strong positive orientation on the part of most universities in the 13 SADC countries, evident in a widespread understanding of the potential benefits of interaction with firms, and a strong positive evaluation of the importance of a range of forms and channels of interaction.

A small scale of existence

At this point in time, however, we found interaction to exist primarily in isolated instances or on a small scale across the sampled universities in the SADC region.

There are aggregate trends that provide indications of directions and points for future intervention:

• Collaboration between local universities exists most strongly, on a moderate to wide scale, and there is an encouraging scale of collaboration with public research institutions, although there are not many public research institutions in each country.

• Collaboration on a moderate scale exists with a wide range of public sector and development partners – national government, regional government, community organisations and local non-governmental organisations (NGOs) – potentially important for universities’ roles in support of local development.

• Those forms of interaction tending towards a moderate scale are the education of work-ready students, related to the core teaching role of most universities, as well as consultancy.

• The channels of communication with firms that are most freely available in the public domain, informal and tacit, are most important.

• There are few outcomes of interaction with firms other than the traditional results of university activity such as students and publications.

• Initiating interaction has tended to be a matter for individual academics.

• Universities have research policy and structures, but very few have internal and external interface structures to support and facilitate innovation.
• Key obstacles that the universities prioritised are:
  • the lack of understanding and knowledge of firms and universities of one another's activities and potential;
  • the need to build research capacity and infrastructure; and
  • the need to overcome the dominance of foreign-driven research agendas.

• Two critical obstacles that the universities did not prioritise are issues of intellectual property rights and of the geographic location of universities in relation to centres of economic activity.

Groups of universities distinguished

Noting that more substantial and contextually grounded research is required, we made preliminary distinctions between three groups of SADC universities, based on the scale of interaction relative to the SADC countries, and on their institutional profile. These three groups are:

• Those universities with a moderate scale of interaction with industry:
  • Relatively new medium to large universities with a new strategic science and technology orientation focused on national development needs.

• Those with a small scale of interaction:
  • Established larger universities with a more traditional orientation.
  • Very new small universities with a new-technology and entrepreneurial orientation.

• Those with isolated instances of interaction
  • Established small universities.
  • Small new universities with an orientation towards new technology.

Such distinctions potentially facilitate more nuanced and targeted developmental interventions aimed at groups of universities with similar experiences.
Drawing on the South African experience to plan strategically

The scale of interaction in South African universities is much larger and takes a greater variety of forms, with the respondent universities displaying five distinct responses to interaction, depending on their research capability and their organisational structure.

Insights from the South African case are particularly pertinent to other SADC countries, rather than an unreflective appropriation of forms of interaction from more developed economies. Kruss (2005a, 2005b) has proposed a matrix of forms of interaction that individual universities may use to plan to grow interaction strategically. Once a university has set strategic targets in terms of its own conditions, capabilities and institutional vision, it can determine what policies and structures it needs to put in place. The analysis highlights a number of the key policies and structures that have worked in the South African context that can inform practice in the SADC universities.

Cautions and spaces for action

The analysis of the survey data and of the South African context highlights a number of areas for caution, as well as potential spaces for action.

Each proposal highlighted here is based on the assumption that strategies should build on intensifying and elaborating areas of existing strength and avoid creating brand-new initiatives for which the right conditions may not exist.

• Institutions need to interrogate the models they adopt in relation to what is possible. Particular caution is needed in appropriating models of the ‘entrepreneurial university’ that emerged in developed economies.

• A differentiated strategy for intervention is required that builds on strengths and capacities and ensures variation and balance across the higher education system.

• Support for curriculum restructuring in terms of the demands of a knowledge economy and local development needs is an important focus.

• Universities should pursue consultancies and contracts as part of a concerted institutional strategy. This should be regulated by a university contracts office so that they act to institutional, and not simply individual, benefit.

• It is vital to focus on building research capability in selected niche areas so that critical mass can be built in a university, and research agendas can be informed by local developmental needs.
• SARUA should investigate the most efficient mechanisms to build collaborative research networks between groups of neighbouring countries and across the region to create regional centres of excellence and regional technology platforms, taking into account differentiation between countries and universities with distinct histories. SARUA should pursue mechanisms to promote knowledge exchange between universities and firms.

• SARUA should develop a regional network to extend and deepen research to support interaction.