How to form international partnerships with developing countries to sustain global goals for an equal support

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ABSTRACT: International partnerships have been and are still an important instrument to support developing and least/less developed countries (LDC). The last decades have shown that foreign aid and international collaboration have been necessary and were also in most instances successful with high satisfaction in the partner countries. Especially Europe as one of the strongest partners in constant foreign aid for developing and least/less developed countries has a tremendous impact and influence in the direction of research foci, technical innovations, and even in the monetary use of supported funds. In these cases, the political will and visibility seem to be more important than the effective application of funds. The main innovation incubation takes often place in pre-negotiations on organizational level. The main actors, in this case scientists, researchers and university representatives are left out and have to accept the final decisions to eventually participate from the promised financial support. Procedures like that shift the focus from mainly demanded research necessities to prioritized decisions proposed funds and this way is mostly the wrong approach. For this kind of international partnerships, it is necessary to find instruments which cover the specific demand in partner countries rather than only focusing on the flow of supporting funds for swift and bridging operations. Developing and least/less developed countries need long term and sustainable funding strategies for a demand driven and self-responsible way of developing themselves strongly based on blueprints from pioneer partner countries.

KEYWORDS: Resources; International funds; Africa; Self-confidence; Co-ownership; Innovation incubators

Introduction
A decision by the African Union’s Executive Council in 2007 offered more independence for the African countries if each of the 54 countries would have spent 1% of their gross domestic product for research and development by 2010. Unfortunately, none of them could fulfill that important goal. This is one of the important steps towards the African independence. Additionally, the importance of high-quality research in Africa reflects the attractiveness for foreign commercial funding agencies to invest and spend funding while African governments often do not have the resources or the political will. Therefore, African academics more and more struggle to produce new knowledge, products or processes that could drive new innovations. With this perspective they will continuously face the pressure of the “impact factor syndrome” which is mainly setting the quality standard in African science.

A senior advisor for communication at the Nairobi-based African Academy of Science (AAS), Elizabeth Marincola, said “peer-reviewed science publishing is the only currency by which researchers validate their work, form collaborations, build on others’ work and enable others to build on their work and advice their careers”. Only this gives the possibility to increase the visibility of excellent African science and scientists, to support job prospects and academic output. Additional, lacking of self-confidence and colonial mentality is considered
that whatever is from Africa as inferior. But any way forward for African academics will be
directed by each African country government that so far have failed to support research prop-
erly, despite making empty promises to the African science community.

According to the World Bank Report “Sub-Saharan African Science, Technology, Engineer-
ing and Mathematical Research: A Decade of Development” research in health science ac-
count for 45% of all research undertaken in Sub-Saharan Africa, while only 29% of all re-
search in Sub-Sahara Africa, excluding South Africa, is conducted in physical science, tech-
nology, engineering, and mathematics (Blom, 2016).

To compensate the lack of international visibility in science many African countries offer sti-
pends for already established scientists to boost the output of local Universities by internation-
al guest scientists. With this system a win-win-situation is created to foster the reputation of
international scientists for their future career in academia paid by local taxes and bonuses by
local governments. The main benefit of this and similar systems is a knowledge gain for fol-
lowing generations in academia and a raise of expertise, knowledge and experience to be used
in lecturing. In these cases, a self-independency is directing the field of research on the poten-
tial following up projects without any political influence.

If the supporting finances are provided by institutions with high political influence the field of
research and the output will also be dependent on the supporter. Many international cases
showed the fact that the political will of donor countries always pretend the direction of colla-
boration and scientific niches. This is mainly caused by the fact that funds only can be re-
leased if the political will and the visibility of the donating country are fully fulfilled.
But nevertheless, science and especially Universities as international institutions should keep
their independent status even when most funds are provided by governments. This independ-
dency only gives the option to conduct high excellence research output and highly educated
students and researchers with international experience for the local markets.

Sharing out national funds

In general, Ministries have own agencies for the management of funds for specific topics. With
these allocated funds Ministries take their influence in the direction of activities and also
in the use of funds. The example from Germany (fig. 1) shows the interlinkage of Ministries
with overall topics in which also related funds are released. An overlapping release of funds is
only in exemptions possible as the allocated money is organized in the governmental budget
and suspended to each Ministry by the Ministry of Finances. In some cases, inter-ministerial
funding programs are a new instrument which is very welcome by the chancellorship to foster
the entire system. Similar systems are also known from international funding agencies and
interlinked organisations.
More difficult is the situation in developing or underdeveloped countries as the possibilities for corruption and misuse of research funding is potentially very high. In these cases, research topics are not in focus but the relatively high amount of funds opens possibilities and criminal intentions only for better lives for example. To spread and share the risk and the responsibility a threefold connection was established to direct the output use of research within the direction of practical applications.

In the 1990s Leydesdorff and Etzkowitz established the model of Triple Helix (TH) which conceptualize the relationships between university, government and industry to address the need of organizational innovation in a knowledge-based society (fig. 2). Innovation is therefore defined as “reconfiguration of elements into a more productive combination” (Etzkowitz 2008), while it requires a central role of universities as innovation is not seen as new product development as it is mainly by the industrial sector (Etzkowitz 2008).
Within the Triple Helix field interaction model, it is essential that each of the partners - government, universities/academia, industry – play an equal role to achieve the common goal. In this case the effective share of governmental funds to universities/academia with the aim of developing products and innovations which will in return be effectively marketed for industry to pay back the invested money by government through economic rebound.

In this system the university-sector can identify best practices, develop research studies on the possible outcomes of different actions, and even support the development of novel devices, by working closely with the two other partners and having enough data to work with, which are very precious for the effectiveness of envisaged studies for industry. Government will pay that envisaged studies at universities to support industry on the long run and to boost the governmental economy, therefore. That system can certainly only function well if all partners are satisfied equally, all demands are fulfilled and the system is in balance.

As this balanced system is not easily to achieve plenty of imbalance like lack of interest, trust, capacity regulations or viable business models can occur (fig. 3). That sample lists challenges that interconnections between university and industry are facing in Africa, together with challenges for the implementation.

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**Fig. 2:** Triple Helix field interaction model (Etzkowitz 2008); G = government, U = universities/academia, I = industry

**Fig. 3:** Proposed linkages between barriers to university-industry linkages in SSA (Outamha and Belhcen 2020), on the left, and the barriers to development of Green Mini-Grids in SSA (African Development Bank Group et al. 2016), on the right (Da Silva, 2021)
The Lack of access to finance reflects the lack of entrepreneurial prowess on the university side, resulting in lack of interest and aggravated by lack of mutual trust and lack of communication platforms bringing together the other two sectors. Other samples are the gaps in policy and regulation that reflect that those academic curriculums in universities, prioritizing human capital formation, tend to not address the training of leaders that can give an answer to structural problems undermining the development of countries.

To distinguish between the competition of Triple Helix interaction and steering instruments within governmental funding strategies and approaches it is necessary to investigate more into governmental steering, internal and external steering of targets and purposes.

**Governmental steering**

International institutions are often ruled by governing boards which are represented by participating partner countries. With this system every partner has the same vote and therefore the same influence by nomination on common decisions. These executive steering committees are assigned for the responsibility of developing a strategic plan, or strategic vision for an organisation. When a strategic plan is accepted by all partners, the steering committee starts the implementation. The implementation process ensures employees at every level are conducting business operations in a manner that supports the strategic plan. Implementation also requires the committee to make sure the organisation's financial and physical resources are controlled in a manner that supports activities mandated by the overall strategic plan.

The governmental steering committee has the obligation of handling risks, assumptions, issues, and decisions. So, each of the member in such a committee has the meaningful input on risks and assumptions of the project, the same for mitigations. They will need to be aware of the issues and every decision that cannot be made by the project team typically will be made by the governmental steering committee.

This strongly ruling options give the governmental steering committee a very strong position in influencing the entire system as they are the decision makers for the necessary funds and budget. Nevertheless, funding of higher education and research has been subject to substantial changes in the last decades. Although there is variation across European and African countries and higher education institutions, a stronger competitive element in both the funding of education and in research is taking part (Nyhagen, 2015). Funding systems in higher education are increasingly characterized by incentive-based and output-based models and with a more competition-oriented funding system (Weiler, 2000). New forms of organizing and funding research are designed through research parks, an increased emphasis on externally funded research and the creation of cross-disciplinary research centres (Bleiklie and Byrkjeflot 2002). A common consequence of recent changes in funding models is that universities are forced to look for alternative sources of income, which to some extent provide the institutions with more autonomy, but also place more responsibility on the universities. If changing these comfortable income models the university organisation and the public mission of universities as well as for academics and research are getting more and more under pressure to organise enough funds for exceptional highly experienced and reputed scientific institutions without a substantial influence by policy makers. By now, universities and research institutions have to balance between funds and influence from policy to keep and retain the so needed and internationally requested independence in science and research.
Influence from internal

International partnerships are highly sensitive on decisions on similar levels and the influence of internal strategies. Therefore, one of the most effective strategy is to install internal insiders who act according funders influence. That construct is the easiest and most effective manipulation without high visibility or confusion. Because funders are mostly involved in employee recruitment it is always possible to set the requirements for new employees in the advertisement according own perceptions. Regular strategic exchange from the beginning gives the impression that it is in the funder concern only without further interest. But in lieu of the support a targeted manipulation is easily realizable without further sensation.

The influence from inside is a very effective possibility of internal manipulation which is very difficult to disclose officially. If any appearance or evidence occurs it is immediate and directly liked to mistrust, loss of reputation and internal loyalty. For the cooperating institutions it could also result in restructure the entire institution and reorganisation of partnerships. If the internal informant will not be uncovered this influence by the funder seems to be a very strong instrument to force the strategy of funding institutions and governments to partner countries.

Influence from external

International institutions mainly organize themselves through business reports, roadmaps and strategic reports. These reports are necessary tools for future planning and therefore planning dependability regarding funder and other third-party supporter. All achievements, restructures or failure are publicly available and mirror the actual situation of the institution.

To take influence on the strategy of an institution from external it is only possible under the conservatorship of the public sector. All influential steps need to be supported by strong arguments which are seen as direct link to the institution and therefore for the benefit only. Critical steps can directly be neglected by the institutions, other funders or even public at this stage. This procedure also protects the institution directly from too much influence by unqualified people with external advantages only.

By this two-step approach – external suggestion and discussion before internal decision – each approach will be evaluated twice before a decision will be taken. Even for some decisions the governing board has to be involved and convinced as well before the final decision can even be taken.

By this type of external influence through funders the institutions are still independent and don’t have to act under the pressure of external partners and funders. Here a collaborative partnership on the same level can be guaranteed if the executive level is not be acting like a puppet even if a slight dependence to the funder is always existing.

Equal satisfaction

As a matter of principle, international research consortia should be managed equally by all participating partners even if there is a differential in strength, knowledge and budget. The main cause for scientific collaboration should the research on important fields with the potential output of new perceptions. The second course would then be the interlink to the private and economic sector for the transfer of results into practice. This step is mostly the most difficult one as this transfer is mostly excluded from the main funding period and needs to be funded by third parties. Due to the fact that during this period most of the projects are discontinued this period is often called “valley of death” (fig. 4).
Scientists often transfer knowledge or innovations from laboratory-phase to marketplaces once the research funding has used up. But during that phase the invention is not yet making any money. This stage is also where start-ups often fail unless extra investment can be found to bridge the gap in resources.

Fig. 4: “Valley of Death” (Dacey, 2014)

To overcome this unfruitful step of innovation it is even more important that all partners in the project focus on the demand driven process which was proposed and aimed from the beginning. Keeping this in mind while conceptualising an international project with multi-partner consortia the following approach could be a possible and optimised way to bypass serious and failure obstacles:

1. Donor country sets the frame for a funding program.
2. Competition for projects with demand driven research foci.
3. Funds available from all participating partner countries to support the idea of ownership.
4. Participating of partners from all partner countries.
5. Project investigator (PI) should be from developing country (local).
6. Strong link to economic sector (practice) to support local markets and people (to overcome/survive the “valley of death”).
7. Selection of most innovative and promising projects for funding.

Following this cycle and adding a common co-design, co-creation and co-ownership all achievements and risks are also shared between the multinational partners. The precondition for this transfer into success is that all partners have to be committed to the project output, spend own funds to the project (according of individual possibilities) and take over full responsibility. With this construct the steering of the project will be managed equally by the international partnership.
Conclusion

Of course, governments have to justify and market their investments. But the results after respecting the needs and demands of partner countries – especially developing and least/less developed countries - are of much higher value and could then be marketed even better. Research projects should only be funded because of their outstanding scientific excellence, demand driven output and use for the local people on the ground. All other factors for spending public funds for multi-national research projects should be handled as trivial or should even be neglected.

Contemporary and modern Governments throughout the world have to accept that science gets only successfully implemented if all parties involved are convinced and persuaded of all implementation steps they together progress. If they don’t except, international research projects will always hamper during implementation phase and will be dried up and drawn to a close when funds are used up. This procedure is not envisaged neither by governments nor by scientists. Therefore, except the independence of innovative partners because scientists and research projects are still needed to be innovation incubators for partner countries especially in and with developing countries.

Literature


Da Silva et.al. (2021) Triple Helix as a Strategic Tool to Fast-Track Climate Change Adaptation in Rural Kenya: Case Study of Marsabit County; In: W. Leal Filho et al. (eds.), African Handbook of Climate Change Adaptation, https://doi.org/10.1007/978-3-030-42091-8_76-1


Nyhagen (2015) Changes in funding of higher education and research: stronger governmental steering and organisational control of higher education institutions and academic behaviour? Dissertation submitted with a view to obtain the degree of Philosophiae doctor (PhD),
Department of Administration and Organisation, Theory Faculty of Social Science, University of Bergen.
