



**SAAVI Case Study and The 3 'C's (Collaboration, Capacity and Capabilities): Linking Innovation Systems and Health Systems in Development**

**IKD WORKING PAPER**

**No. 6**

**January 2006**

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## **Abstract**

Public-Private Partnerships (PPPs) are an innovative mechanism to provide incentives to investment in vaccine development for HIV/AIDS and Malaria. They provide social and economic incentives to collaborate suggesting a new meaning of 'value added' is created that emphasises process factors. This paper investigates the creation of 'value added' through a case study of the South Africa AIDS Vaccine Initiative (SAAVI). A finding of this case study was that all too often innovation and health systems are seen as separate areas of activity. However, viewing PPPs from within a 'systems of innovation' perspective makes clear that these two systems are linked by the concept of absorptive capacity (understanding the value and use of knowledge). Furthermore, this paper emphasises how it is possible through a fuller investigation of collaboration and the capabilities of learning and knowledge to link innovation and health systems.

## Context

### Science & Technology and Health Systems

The relationship between science and technology (S&T) and health systems has in the past rarely been acknowledged. The World Health Report (WHR) in 2000 recognised that health systems are often seen in terms of the provision and investment of health care. 'Health systems' tend to refer to healthcare systems and do not acknowledge wider areas of activity such as S&T research. At the same time S&T policy has not generally focused on health related matters because health has not been strategically important to national growth in many countries (Freeman and Miller, 2001). Increasingly, however, there is recognition that S&T, particularly biotechnology related research and development (R&D), is an important part of the health system and that developing countries must develop their own R&D capacity if they are to achieve sustainable health systems and the Millennium Development Goals are to be reached (Mugabe, 2005; Csaszar and Lal, 2004).

The concept of a health research system (Pang *et al*, 2003) has been developed to encompass health related R&D and its application. This system consists of the "people, institutions and activities whose primary purpose is to generate and apply high-quality knowledge that can be used to promote, restore and/or maintain the health status of populations" (WHO, 2000) and lies at the intersect between the health system and the wider research system. A similar idea is that of a 'health innovation system' which refers to the network of institutions whose "interactions and activities generate and/or use scientific knowledge and produce (as well as apply) technologies to solve specific disease problems" (Mugabe, 2005). The parenthesis used in this quote highlight the lack of importance that appears to be given at present by those using this concept towards application and access to technologies.

Wide definitions of health research or innovation systems provide the base for S&T related innovation to strengthen a country's achievement of public health goals when considered through a wider conceptualisation of a health system<sup>1</sup>. The findings of the study discussed in this working paper show how important it is to increase our understanding of how S&T related innovation and health systems interact. During the process of the study it became clear that perhaps the most important implication of intangible value added in the form of collaboration, and absorptive capacity is that they hold the key (when viewed through the lens of innovation systems related thinking) to reducing the acknowledged gap between science and technology and health systems. In particular, the study highlighted that all too often innovation and health systems are seen as separate areas of activity. Better understanding of this linkage and the role of knowledge capacity in strengthening this linkage would aid the sustainable achievement of public health goals.

## **The Case Study Context**

Finding a vaccine for HIV/AIDS is the best long-term solution for this disease that is now the leading cause of death for adults in the world (WHO, 2004) claiming three million lives a year (UNAIDS, 2004). The economic and social consequences of HIV/AIDS are also dramatic – it is estimated that South Africa's GDP will fall by 17% by 2010 as a result of AIDS (UNAIDS, 2003). Cultivating interest in vaccine R&D for the strain of HIV affecting Africa is however difficult. Such R&D is deemed too risky and expensive to warrant investment by private industry, the traditional sector for R&D development (Trouiller *et al*, 2002) and where most expertise lies (IAVI 2004a). In an attempt to rectify the situation, innovative collaborative arrangements known as Public Private Partnerships (PPPs) are being promoted. These are seen to provide the right balance of funding and research expertise to develop vaccines for these diseases. Defined as a relationship involving at least one private and one public sector player with a mutual sharing (although not necessarily equally) of risk and benefits (Widdus, 2003), PPPs have been promoted because of their role in combating the market failure mentioned above (Mzarek and Mossialos, 2003) by providing an economic incentive to collaborate through reducing the economic risks to those involved. A social incentive to collaborate is also created producing a whole greater than the sum of the parts creating “win-win interactions” using mutually beneficial strategies (Batson, 1998:487).

The social incentives to collaborate suggest a new meaning of ‘value added’ (VA) is being created whereby benefit gained from taking part is not simply related to economic or financial

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<sup>1</sup> The 2000 WHR acknowledged that it was important for a health system definition to include all groups that provide healthcare inputs (Murray and Frenk, 2000) including S&T activities.

resources or the creation of a tangible output, such as a vaccine. It suggests that intangible benefits or less easily measured process factors relating to how a partnership works are important. There has been recent acknowledgement that it may be possible to judge the success of PPPs using process related outputs such as sharing technologies and knowledge management (Pfizer, 2004). However, this need to balance process and outcome has not been the focus of previous research on health PPPs or even generally within the alliance and collaboration literature. Past research on health PPPs has tended to explain their rise and dynamics (see Wildridge *et al*, 2004) or has taken the form of partnership case studies (for example Muraskin, 2004 or Reich, 2002). The wider collaboration and alliance literature has tended to focus on the conditions favouring alliances and their impact on firms (outcome) but have not attempted to marry the two (Nielson, 2002).

In an attempt to rectify this situation a case study was conducted in mid-2005 to look into the role of process related intangible benefit gained or VA. It aimed to assess if a vaccine development partnership had resulted in the creation of new meaning to VA; to investigate if process related intangible benefits such as organisational relations were important to those involved and if they were important for success (effective partnership working to ensure a vaccine was developed). The case study examined the South African AIDS Vaccine Initiative (SAAVI) a country level PPP in South Africa set up in 2000 to develop an effective and affordable HIV vaccine for South Africa and the surrounding region. SAAVI is an example of a vaccine development PPP (VDPPP) between the South African government, a number of public sector research organisations and private sector companies as financiers. From the appointment in 2001 of a new SAAVI director the organisation developed into a coordinated group of organisations working in a product development approach with a scientific advisory board, a project directorate and a number of research projects based at public research organisations mainly within South Africa. SAAVI funds clinical development and not clinical trials (although it does provide assistance for infrastructure and start up activities, such as awareness raising, at clinical trials sites).

## **Methods**

The case study used interviews as the main method of data collection. These interviews were conducted during an 18-day trip to South Africa in May 2005. Secondary data collection using direct observation and document acquisition also occurred. Data analysis used the 'Framework' approach.

## **Interviews**

Formal semi-structured interviews (12 in person, one by email and another by phone) were conducted with 14 members of the SAAVI partnership including members of the directorate, major funding agencies and research groups involved in laboratory studies, clinical trials and

ethical or socio-behavioural studies. The main topics discussed were organisations' partnership activities; why organisations became involved with SAAVI and; partnership progress and future. In particular, interviewees were asked about their organisation's motivations for entering the partnership and the benefits gained to date from participating to gain information on the importance and attainment of VA or benefit gained from taking part. Questions were also asked regarding the measures of success by which the partnership could be evaluated to gauge the importance of the various types of VA.

It should be noted that when the field work was carried out, SAAVI was undergoing a management transition and nearing conclusion of a research grant funding cycle (August 2005). These issues may have exacerbated the attitudes of partnership members as tensions between the directorate and the research groups were heightened while initial (apparent) lack of coordination from the directorate during this transition had created a major breakdown in communications. This also led to questions relating to the sustainability of funding both from those within and outside the partnership.

## **Observation and Document Acquisition**

While visiting SAAVI's offices and its partner organisations direct observation occurred of routine office and laboratory activities together with attendance of appropriate meetings. Relevant project documents were attained during this time and during a literature search.

## **Data Analysis**

The data was analysed using a five-step applied grounded theory 'Framework' approach (Ritchie and Spencer, 1994). Reading of the data set ensures initial familiarisation. A thematic framework is drawn up as a coding system on which data is indexed and then charted via abstraction and synthesis to search for structure. Mapping (typology construction) and interpretation aids the drawing of conclusions.

## **Ethics**

The fieldwork protocol was assessed using the University of Edinburgh's Research Ethics Committee's Ethical Review process. Signed informed consent from interviewees and approval for direct observation and document acquisition was received. During writing up aggregation of data ensured confidentiality and anonymity. Any quotations used have received written consent by the individuals concerned.

## Results

<b>Overview – Results table</b>				
<b>Ranking/ Importance</b>	<b>Motivations</b>	<b>Benefits</b>	<b>Success Measures</b>	<b>Problems</b>
High	Circumstances	Collaboration	A vaccine	Form and Structure
↓	Public good	Capacity building	Capacity building	Communications
	Can't go it alone/ Collaboration	Credibility	Form and structure	Financing
Low	Academic discourse	Financial gain	Work competence	Capacity building

### Motivations

All 14 interviewees mentioned circumstances as the main reason for SAAVI's initiation. South Africa's existing expertise in the area of vaccinology, immunology, clinical trials and related social science research was seen to provide a strong platform for HIV vaccine research relating to African Clade C HIV by nine respondents. For example, when asked the overall reason for SAAVI's establishment one respondent answered:

***“[S]cience is very strong in South Africa – I'm talking about HIV related science. There aren't... there are probably a handful of us, you know in terms of seniority, but for that handful I think we make a loud noise on the global scene and we also have – between us – very innovative thoughts”***

Laboratory Scientist

SAAVI was initiated because South Africa should not be simply recipients of vaccines created by others **“but conveners too”**. Similarly, an importance of academic discourse mentioned was highlighted. Six organisations decided to become partners in SAAVI because **“there are lots of questions to be answered”** while 11 interviewees went further and felt that HIV/AIDS was **“a social and economic priority”** and that the need for a vaccine was of social value.

Therefore, the main motivation for creating SAAVI was a **“capacity and a need”**. However, a number of interviewees (n=5) did acknowledge that SAAVI was **“not all altruism”**; money and financing was also an important motivating force for organisations to become involved with SAAVI.

More important than issues of financing but less important than public good and circumstances was the idea that it is no longer possible to go it alone. Some respondents (n=7) acknowledged that there was a need to collaborate if they were to progress in the area of HIV vaccine research:

***“Well the global trend with research is if you work on your own is that you get far less done than if you work with others; and you have to leverage as much as possible...”***

Senior SAAVI directorate  
leader

## **Benefits**

When asked what benefits had been gained for being a member of SAAVI, collaboration and capacity building were joint top (n=11). Further benefits gained were credibility and finances.



Capacity was deemed to have been built in a number of areas. Interviewees talked about **“vast amounts of learning”** and having had a **“steep learning curve”** highlighting skills creation and training with few organisations previously involved in HIV vaccine work. New learning and skills were created within the laboratories, the clinical sites and within the SAAVI directorate. The skills and learning gained were not only related to HIV science but also to community education, HIV prevention, regulation, grant writing and working with others.

It was acknowledged that learning had taken place as a result of the collaborative activities of SAAVI. For example, one interviewee said there was **“benefit from interacting with the SAAVI network: the knowledge gained from the local network and the international network”**. Collaborative activities (meetings, working together on projects, regular communication) were mentioned as occurring by all those interviewed (n=14). ‘Collaboration’ was, however, only acknowledged as explicitly occurring by 11 of those interviewed; all of whom viewed collaboration as a positive activity providing an opportunity to bring diverse groups together, of getting **“people from completely disparate backgrounds sitting in the same room and getting on with each other”**. This opened **“a new world”** of working in a **“multi-disciplinary way”**. However, reservations (although not all explicitly linked to collaborative activity) were aired regarding the SAAVI collaboration itself. These related to the form and structure of SAAVI and the type and quality of relations occurring. Interviewees were concerned that there was still insufficient communication; groups were still working in isolation and not always collaborating.

A number of interviewees (n=7) also mentioned that due to participation in SAAVI new data had been created and many academic papers written. SAAVI was deemed to have specifically built staffing capacity both in the laboratories, at the trial sites in the form of community educators and in the directorate.

Half of those interviewed mentioned that they felt the creation of SAAVI had raised their and their organisation's credibility both in the country and internationally. It was acknowledged that working within a national framework or collaboration was expedient and that it was sometimes useful **“to have that SAAVI name behind you”** because SAAVI is a **“credit to the world”**. The high international credibility of SAAVI had led, said some (n=3), to SAAVI being used as a model for others in the region to use. It was also felt that SAAVI was now in a position that it could capitalise on this credibility and take a central role in international vaccine development. It was acknowledged however that credibility had been dented by recent events (the resignation of 3 directorate staff) particularly at the international level (n=2).

The final benefit mentioned was that of financing. It was acknowledged (n=7) that the SAAVI partnership had provided useful sources of funding that would not necessarily have been available from other sectors. Interestingly those that had received the least funding through SAAVI did not feel any less involved in the partnership.

## Measures of Success

The development and trialling of a vaccine was deemed the most important measure of success. **“Everyone wants to see a vaccine”**. Virtually all interviewees (n=13) felt that **“ultimately success will be measured by the degree of achievement of the primary mission of SAAVI”**. This either meant finding suitable candidates and taking them to trial or to go further and conduct a successful trial in the sense that it was conducted correctly and/or that the vaccine was deemed to work.

Capacity building was the next measure of success most frequently cited (n=9). It was deemed to be **“secondary”** or a **“more subtle”** measure of success. In particular, the creation of individual benefit through staff development, more general creation of technological and scientific expertise as well as the degree of physical infrastructure capacity created were deemed important. There was acknowledgement that staff numbers, particularly in relation to the country's transformation (affirmative action) goals, were important together with increased knowledge levels.

Interviewees also deemed it necessary to measure success in relation to the form and structure of SAAVI. **“We as a country must recognise that responsibility [that South Africa is to work towards a vaccine] and we must play the game”**. In order to “play the game” it was acknowledged (n=7) that SAAVI needed a good structure with clearly delineated roles together with clear objectives and good communication. These, together with the degree of international influence, were deemed important measures on which the status and form of SAAVI should be evaluated. Related to this was the issue of work competence. A number (n=6) of interviewees highlighted that **“the way in which we operate will be important”**.

## Problems

As seen above, the interviews raised issues related to the form and structure of SAAVI. Other issues related to communications, financing, building capacity and sustainability.

Every interviewee highlighted problems with SAAVI's form and structure (n=14). The **“organic process”** of strategy making within SAAVI affected the understanding regarding the relationship between the research groups and the SAAVI directorate. It was felt (n=6) that the **“subtleties of the academic endeavour”** – the need for independence and autonomy – had been misunderstood at times by the directorate in the past. As such, the degree of control between the directorate and the research groups was frequently questioned (n=9) together with the understanding of what constitutes contract-based work within a partnership.

Other problem areas were communications, financing, capacity building and sustainability. Communications was highlighted by more than half the interviewees (n=9) as currently problematic. It was felt that there was currently insufficient communication both between the groups and between the directorate and the groups because of the lack of a coherent structure of functions between the directorate and the groups (and related to this the degree of control necessary). Interviewees (n=8) felt that financing was an issue. Although many were surprised by the amount of funding that had already been received, it was still not sufficient. More specifically, funding from within the country alone would not be sufficient for the development and funding of vaccine trials<sup>2</sup>:

***“You know if you asked me, my feeling is that SAAVI because it's here and it's in this country and it's funding is such, probably is never going to be at the point of where it's going to be able to fund big trials on its own...these things are expensive.”***

Clinical trial site investigator

Related to this was an issue of sustainability mentioned by a number of interviewees (n=5). The lack of sustainable funding may hamper the sustainability of SAAVI's activities. Other sustainability issues mentioned included the need to consider the long term consequences for the career path of SAAVI funded researchers.

The issue of career paths is linked to the problem of capacity building highlighted by half those interviewed (n=7). It was felt there was a mismatch between the realities of capacity building (learning takes time) and transformation related capacity expected building. The time

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<sup>2</sup> This links to a related issue regarding the correct strategic direction that SAAVI should take highlighted by interviewees. There were calls for the funding of only trials or only development, not to pursue a pipeline approach but put money on advocacy and awareness of HIV vaccine trials instead and questions regarding the type of vaccine that should be developed (therapeutic vs. preventative).

and effort needed to build capacity was highlighted as an issue in all areas (laboratories, the trial sites, academic institutions and the directorate):

***“finding and keeping staff. At the beginning that was very, very hard, I thought. We had a lot of staff turnover... Attracting and keeping good young black researchers was a major tough...”***

Social Scientist

## **Needs**

Having highlighted some of the problems faced by the partnership a number of the respondents (n=10) provided possible solutions. Interviewees talked about the need to ***“nurture partnerships”*** with the SAAVI directorate taking a stronger lead in promoting collaboration and supporting partnership arrangements, ***“building capacity”*** and stimulating ***“academic endeavour”***. It was felt there needed to be a clear structure with a ***“good leader”*** supported by a larger directorate with expertise in all the research areas. A frequent and regular ***“open line of communication”*** both between the research groups and the directorate and between the groups themselves is required. The partnership needs to be ***“integrated internationally”*** while retaining the national focus. Finally there were calls for more regular progress review and evaluation.

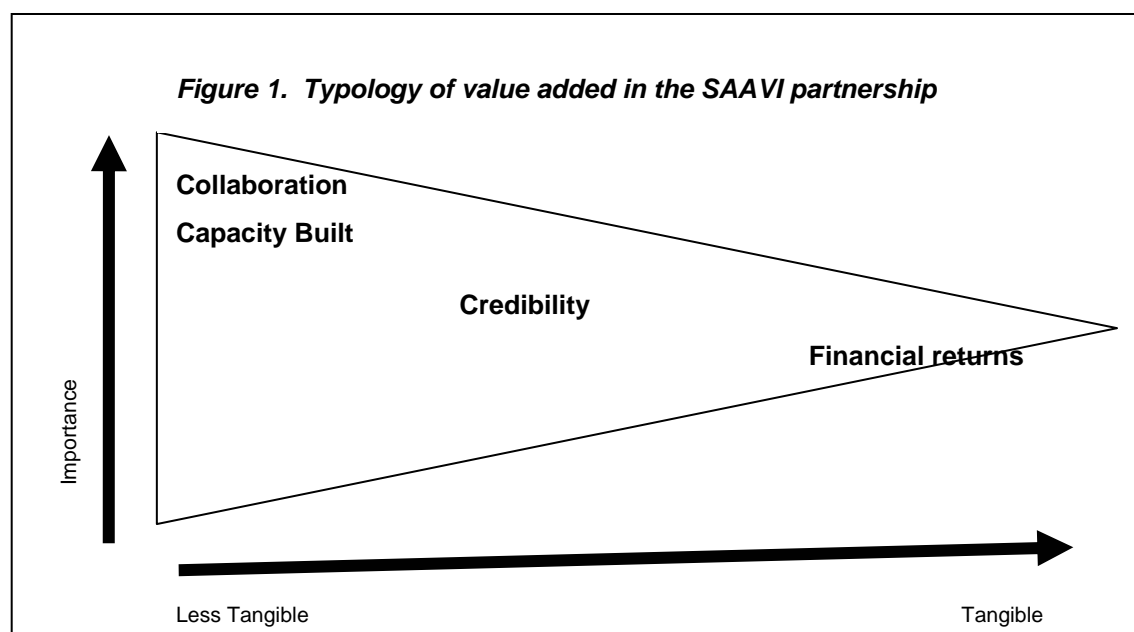
## Discussion – Collaboration, Capacity and Capabilities

### Value Added

VA, or benefit gained from taking part, has been produced for those involved in SAAVI. The benefits gained range from those that are more intangibly defined (collaboration and capacity building) to a benefit that is tangible (financial returns). The tangibility of these values is important because it indicates the degree it is possible to accurately detect and measure such benefits. Understanding what VA is created and their size is potentially useful in assisting in measuring partnership performance and producing incentives to move partnership forward. A typology of VA for SAAVI members based on their tangibility is outlined in Figure 1.

### The Value of Value Added Discredited

As the typology graphically illustrates collaboration was deemed by the groups involved in SAAVI as an important VA, being the most frequently cited. It was deemed no longer possible to go it alone on projects. Although it was cited as often as capacity building, it receives higher importance because interviewees acknowledged collaboration aided the creation of other VA including capacity building. Capacity building is therefore the second most important VA for SAAVI members. Although it can be valued as a tangible output (numbers staff trained etc), this ranking relates to the importance of knowledge capacity highlighted by the analysis of the data set. These two VA – collaboration and capacity building – were deemed more important than credibility gained and much more important than the tangible VA of financial return which was mentioned least frequently.



Collaboration was not deemed an important measure of success. The creation of a vaccine (the outcome focus of the partnership) was deemed most important. Process orientated measures such as capacity building, good structure, communications and work competence were deemed of secondary importance. Collaboration as a measure of success was not specifically mentioned. The emphasis on the outcome focus – of achieving SAAVI's mission of developing an HIV vaccine – is a function of the way the partnership was created. The creation of VA was not deemed important at the outset of the SAAVI partnership. Circumstances and an altruistic focus were responsible for SAAVI's creation.

As such VA occurred once the partnership had started. Although this finding may be due in part to the use of 'benefit gained from taking part' as a proxy measure for VA, it does not explain why after four years of functioning collaboration was not seen as an important measure of success. This suggests that although collaboration was acknowledged by members of the partnership as a benefit, the full extent of collaboration's "value added" may not be realised by those involved in the partnership despite the fact that interviewees mentioned collaboration as being responsible for providing the other benefits.

## **An Explanation for the Discreditation of Value Added**

The primary focus within SAAVI on development of a vaccine has placed a great importance on the science of vaccinology, particularly preventative vaccines, at the expense of clinical trials and the ethical and socio-behavioural aspects of later stage vaccine development and bringing a vaccine to market. Furthermore, the structure of the SAAVI partnership highlights this divide by virtue of the fact that the clinical trial sites receive less support relative to the work required<sup>3</sup> while the socio-behavioural research group was only set up in late 2004.

This divide mirrors one more generally within international health policy and feeds into the criticism of PPP mechanisms. The emphasis by SAAVI on vaccines is an implicit focus on a technological fix. This relates to a change in emphasis within international health policy post Alma Ata (Richter, 2004) whereby there has been a move from equity considerations to that of cost effectiveness, technological solutions and single disease reduction (Hardon & Blume, 2005; Richter, 2004). However, an emphasis on new vaccines places new demands on the health system (Brugha and Walt, 2001; Craven *et al*, 2003) and therefore PPPs such as SAAVI may work against existing health systems; fragmenting them leading to parallel systems (Nitsher, 2004). However, partnerships will only be successful if they work within and to strengthen health systems (Ridley, 2004). The science of vaccine development should not be seen as external to health systems but as integral to strengthening them (Ridley, 2004). However, at the same time, this partnership can physically go further in strengthening the healthcare system through its work at the trial sites and by doing so would reduce the current overt dominance of a technological fix and instead emphasis the greater systemic nature of the work that the partnership conducts.

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<sup>3</sup> clinical trials themselves are not specifically financially supported through SAAVI nor is parallel but important HIV prevention and palliative care work

## The Value of Value Added Revitalised – Collaboration, Capacity and Capabilities

SAAVI is a PPP involved in innovation or the invention of technology and their application (Freeman, 1982). There is increasing recognition of the importance of “interorganisational structure” (Blume, 1992:37) in innovation and “the role of organisations as operators translating individual subjective knowledge” (Metcalf, 1994:933). In particular, there has been increasing recognition of the importance of partnerships in producing successful innovation because of their ability to reduce transaction costs but more importantly to manage knowledge:

“Collaborative ventures are partly defensive innovations in that they are aimed at reducing or sharing risks and costs. They are also offensive innovations in that they extend the skill base of the firm and the range of knowledge available to it and thereby improve its ability to compete.”

(Gibbons *et al*, 1994:121 see Hewitt, 2000)

PPPs as **collaborative arrangements** are useful in moving and translating tacit knowledge. Tacit knowledge is knowledge which is difficult to codify and transfer being based on social context. Cohen and Levinthal (1990) developed a concept of “**absorptive capacity**” that has been widely taken up to describe collaboration’s knowledge management (KM) activities affecting innovation. The term describes a firm’s ability to recognise the value of knowledge, acquire, assimilate, and apply it (*ibid.*). Partnership improves a firm’s absorptive capacity through extending the range of knowledge available and increasing the resources used in innovation (Scott, 2002), providing new learning that further builds absorptive capacity (Cohen and Levinthal, 1990). This aspect of innovation theory would suggest that collaboration is important for success and is an important VA. Although SAAVI is not a firm, each individual organisation within SAAVI can be seen to represent the equivalent of a firm and therefore benefits from and creates absorptive capacity through its SAAVI membership.



The importance of partnership was in fact exemplified during the interviews by the type of issues SAAVI's members raised as partnership related problems. The partnership was deemed to lack sufficient form and structure with one interviewee asking "what is the structure?" Interviewees highlighted that there were few regular defined forms of communication or few official opportunities to work together, exchange and learn new knowledge. There were also concerns that control and competition between different groups and between the groups and the directorate worked to undermine the few forms of communication and collaborative working that existed.

Explicitly recognising partnership and KM and their interaction through absorptive capacity provides a mechanism in which SAAVI may be able to move beyond the issues of control and competition identified as problematic to produce a stronger process that allows the outcome of vaccine development to succeed. Acceptance that collaborative activity produces absorptive capacity has occurred in many quarters internationally (Edquist and McKelvey, 2000) and a 'systems of innovation' (SI) approach has been developed that takes these issues into account. This approach views innovation as occurring in a system "constituted by elements and relations which interact in the production, diffusion and use of new, and economically useful, knowledge" (Lundvall, 1995:2). This approach assumes that (economic related) knowledge and its creation, diffusion and use is central to innovation and that the networks and linkages that a systemic process create are the backbone on which knowledge is produced (Lundvall *et al*, 2002).

The results of the interviews conducted with SAAVI members would suggest that SAAVI has been able to create, diffuse and use knowledge to build absorptive capacity through its members' interactions with each other and the outside world. In fact SAAVI is possibly an example of a technological system. A technological system is "a dynamic network of agents interacting in a specific economic/industrial area under a particular institutional infrastructure and involved in the generation, diffusion, and utilisation of technology" (Carlsson and Stankiewicz, 1991). Working more explicitly within this approach may provide SAAVI with a mechanism to further harness the positive achievements it has created in the area of capacity building particularly in terms of KM and provide a new form of VA (absorptive capacity) which can become a measure of success as well as a benefit gained from taking part.

Working to strengthen the absorptive capacity within the SAAVI technological system would not only help build knowledge capacity but in doing so would also help to heal the vaccine science – community/access divide within SAAVI as a PPP acknowledging the linkage between S&T innovation research and the wider health system. Similarly, if this argument were taken one step further to investigate the ability of institutions to learn and manage knowledge, emphasising such a **capability** would perhaps provide an opportunity to also build the rift within international health policy with regards the relationship between an outcome orientation focused on technological quick fixes and process VA added related to issues of access and sustainable systems. The implications of these issues will now be discussed in brief.

## **Implications for Sustainability of PPPs to Reach Public Health Goals**

SAAVI as a VDPPP has the opportunity to do more than just work towards a vaccine having the ability to create sustainable capacity output at local level. This is possible with an increased emphasis on collaboration and its role in strengthening absorptive capacity to produce greater learning to ensure development of an HIV vaccine. As such, SAAVI has the ability to build scientific research capacity in terms of skills, knowledge and products in the laboratories, academia and trial sites in which it works. However, it has also built stronger health systems more generally through its trial site operations by providing facilities, infrastructure and newly trained community educators. SAAVI, particularly if it works to emphasise the benefits of collaboration in producing absorptive capacity, goes beyond producing simply scientific capacity and even beyond creating a 'health innovation system' by providing a base on which a more sustainable and broadly defined health system, as suggested in the 2000 WHR, is created.

Defining a health system in such broad terms acknowledges that scientific capacity is not a means to an end but an important end in itself within the health system. Working from within an SI approach provides an opportunity to move beyond seeing health system success simply in terms of outcomes such as development of an HIV vaccine and acknowledges the importance of output (knowledge capacity) for the building of sustainable health systems. However, this does not mean that intangible VA process factors such as knowledge or absorptive capacity should be championed at the expense of outcomes; it instead emphasises their inter-relationship and the role of absorptive capacity (understanding the value and use of knowledge) in linking S&T innovation and research activities with more traditional *healthcare* system activities. PPPs such as SAAVI provide an opportunity to operate – to innovate – at multiple levels of a widely defined health system providing a means to move beyond technological quick fixes towards sustainable long term health systems strengthening. To take the issue one step further to the system-wide issue of learning and knowledge capabilities (the ability to learn and manage knowledge), using the concepts from within a SI approach allow one to move beyond simply working within individual and discrete systems of innovation or health to focus on the systemic nature of development. Viewing development through this wider lens may provide a mechanism for the sustained achievement of public health goals in Africa if not also economic development.

## **Reflections and Limitations of the Pilot Study**

This pilot study used in-depth semi-structured interviews as the main method of data collection; field observation and document acquisition did not occur on the scale that was expected. The inability to actively engage all three data collection methods together with

issues relating to the conduct of the interviews, the difficulty meeting representatives of organisations and confidentiality were the major limitations experienced with the current research design. Excluding the time it took to analyse the results, no problems were experienced using the 'Framework' method of data analysis. The biggest issue of reflection has related to flows of power and politics in relation to knowledge. This and the limitations experienced with the data collection will be expanded upon below.

## **Reflections on Power and Politics Flows**

The concepts central to this study are those of 'values' and 'success' however underlying these are issues of power and politics that although not explicitly an object of the original research questions do require further attention. This became apparent through the conduct of the pilot study. Power and politics flows were highlighted during the study as affecting the relationships between different organisations involved in the SAAVI partnership. Tensions between the different research groups (those involved in laboratory science vs. medical or social science) together with those between the SAAVI directorate and the research groups are related to differing attitudes towards partnership knowledge flows. Similarly, tensions within international health policy regarding the need for single issue disease focused programmes rather than an overarching primary care focus reflect the power and politics flows that play out at international and country level. Although collaboration is often framed in terms of negotiation and resolution of differences through consensus, collaboration can exonerate the control of information and power and therefore studying how partnerships work in order to achieve their goals provides an opportunity to focus on the "underlying relationship between information and power" (Mosse, 1998:26). However, the ability to study these relationships and effectively understand how partnership works is affected by the power and politics flows between the researcher and the researched. The pilot study was affected by the ability to meet with partnership organisation's representatives, their willingness to be interviewed and general wariness of the project. This issue is further problematic because the research was conducted in the spirit of dialogical or collaborative research whereby issues of control and power rise to the fore regarding who controls the research (Schrijvers, 1991). These issues and their impact on the research requires acknowledgement but in reality require further analysis if the full extent to which the three 'C's of collaboration, capacity and capabilities link innovation and health systems through VDPPPs is to be fully understood.

## **Limitations of the Research Design**

During the fieldwork period it was difficult to fully engage in field observation. Although extensive note taking occurred, these notes were the researcher's observations based on minimal contact with many of the organisations involved in the SAAVI partnership. Due in part to the air of uncertainty affecting the relations between the different groups involved in the partnership, it was not possible to 'shadow' anyone other than during a SAAVI directorate

visit to the trial sites for World Vaccine Day. Furthermore, document acquisition was also predominately limited to that available on the internet due to the small levels of documentation that were in existence and of relevance to this study. Despite the failure to fully engage in either field observation or document acquisition, the quality and quantity of data collected during the interviews is of a high standard and has meant that conclusions can be drawn based predominately on the analysis of these interviews alone.

While the interviews did yield an array of interesting and useful data, at times the nature of the interview structure (semi-structured) meant that the discussions strayed away from questions and answers specifically related to benefit gained from taking part and measures of success, to issues of governance and partnership operations. While this may have reduced the amount of specifically in-depth data generated relating to VA it did further highlight the importance of partnership process when discussing value issues.

Gaining access (in the form of making initial contacts) was not a major problem encountered during the fieldwork. Due to the situation within the partnership at the time, there were occasions when a few people were initially reluctant to being interviewed. However, in all cases interviews were eventually held with all these organisations. A greater obstacle was the practical difficulty of physically reaching all the organisations involved in the partnership within the time available because of the distances involved between the locations of different partnership organisations.

There were also two confidentiality issues that arose relating to the taping of the interviews and the use of quotations in the final report. The first was a concern expressed by a number of those interviewed while the second is an issue that arose during the report writing process. A number of interviewees were initially wary at the concept of a taped interview due to SAAVI confidentiality agreements. Although it was stressed that the degree of anonymity being used during the report write up should provide sufficient safe guards one interviewee did decline being taped. The degree of anonymity during write up may also prove problematic because it does also restrict the depth of analysis that has been possible although anonymity did provide a greater degree of freedom during the interviews. In order not to infringe the anonymity of any of the partnership members' (a small group of individuals well known to each other), it has not been possible to deconstruct the issues raised to the level of different activity groups within the partnership. As such it is difficult to fully extract and highlight the power and influence flows that so affect the partnership performance and the collaborative relationships.

## **Conclusion**

This paper has outlined the content, method, results and implications of a case study of the SAAVI VDPPP that took place in May 2005 using mainly interview based research methods. It has provided valuable insights for refining the theoretical underpinnings and more practical

research reflections that will need to be addressed during any further research. In particular it has highlighted the importance of collaboration to the sustainability of partnership and the value of a SI approach and the concept of 'absorptive capacity' in strengthening the understanding and practice of PPPs.

The study examined the value determinants that were important for members of the SAAVI partnership with a view to answering research questions regarding what makes a successful PPP work, what incentives are important and more specifically what type of value is important. The study of SAAVI has found that the success of the partnership was dependent on the creation of VA or benefit gained from taking part. The most important VA was the intangible values of collaboration and knowledge capacity.

As such the following recommendations for the SAAVI partnership were made:

**Form and Structure:** The partnership would benefit from greater clarity of structure particularly regarding the relationship between the directorate and the research projects together with clarity of strategic focus. This would be further assisted by more regular communication through a larger number of channels.

**Collaboration:** Increased communication would also increase collaborative activities. Increased collaboration between the different research groups and with the directorate would work to build capacity at more levels of the health system.

**Capacity:** The partnership would benefit from a focus on knowledge and learning. Unity of focus around this issue would provide a means to overcome barriers between different sections of the research community involved, increasing communication which would have knock on effects for collaboration and further learning. Building absorptive capacity throughout the health system will provide SAAVI with a stronger structure throughout the research-development-access continuum to work towards development and deployment of an HIV vaccine. At the same time by working more systemically it would work more specifically towards building a stronger South African health system.

The importance of collaboration, particularly its ability to produce absorptive capacity – as suggested within a SI framework – gives new meaning to VA. If SAAVI were to work within a SI approach, particularly using a 'technological systems' approach, it would go further than building separate systems of innovation (scientific research) and healthcare. Such an approach emphasises a more widely defined and sustainable health system which places an

importance on process or output factors, and not simply outcomes, as measures of success. These findings suggest the need for further research focusing more specifically on the intangible value added 3 'C's of collaboration, capacity and capabilities in order that the full extent to which these VDPPPs have the potential to build sustainable health systems through a linkage of innovation and health systems is possible.

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