3.2.2 Developing research leadership capabilities

In terms of developing as research leaders, participants would value training programmes, but as one element amongst several. Much mentioned were:

- collaboration and networking opportunities
- mentoring
- opportunity to manage a project as a principal investigator and to put their experiences into practice
- leadership and researcher development training, including such topics as fundraising strategies, communication, and skills for mentoring and networking
- funding for research projects.

3.2.3 Gender issues

Some participants stressed that while experiential learning approaches to leadership development are much valued, they must be built on transparency and equality of opportunity.

Views on barriers to increasing the number of women research leaders echoed the themes expressed by senior research leaders:

- a sense of women being 'pushed down' in professional pursuit
- the belief that women need to 'sort out' their home responsibilities first, whereas men don't have this issue
- gender-pre-determined roles
- social responsibilities: childbearing, childcare, family obligations.

Participants made the following observations and recommendations:

- The importance of women in research teams for their good management of research
- Women's chances of integrating in research teams would be increased through the development of new gender themes
- The creation and (where they exist) expansion of women's research incentive grants
- Managing breaks in research records for caring responsibilities
- Inspiring women by training them in research leadership
  Appointing women to positions of responsibility in research.

3.2.4 Reflective learning reported by participants

Participants reported various insights from the focus groups, such as:

- recognising how the lived experience of being a supervisee or mentee shaped ideas about research leadership
- exploring the dos and don'ts of a good research leader and being able to 'walk the talk'
- importance of: having self-determination and being driven; being 'on top of your work' with respect to publishing, grantsmanship and financial management; delegating and assigning tasks to avoid 'burn out'.

As in the interviews, the RDF was valued as a framework for discussing research leadership competencies.

3.3 Survey: respondent profile

The survey gathered views from a wide geographical area and a balanced mix of those involved in research roles - research leaders, researchers, research students and research managers. The total number of responses (267) exceeded our target (250). Response by gender (52% men; 48% women) was balanced in most roles. 63% of respondents were based at universities, 28% at research institutions and 4% in the private sector.

3.3.1 Geographical distribution

24 African countries were represented, across a wide geographical spread but concentrated in sub-Saharan Africa, as shown in figure 3. The highest responses were received from Nigeria (51), Kenya (42) and South Africa (38), followed by Uganda (21) and Tanzania (20).

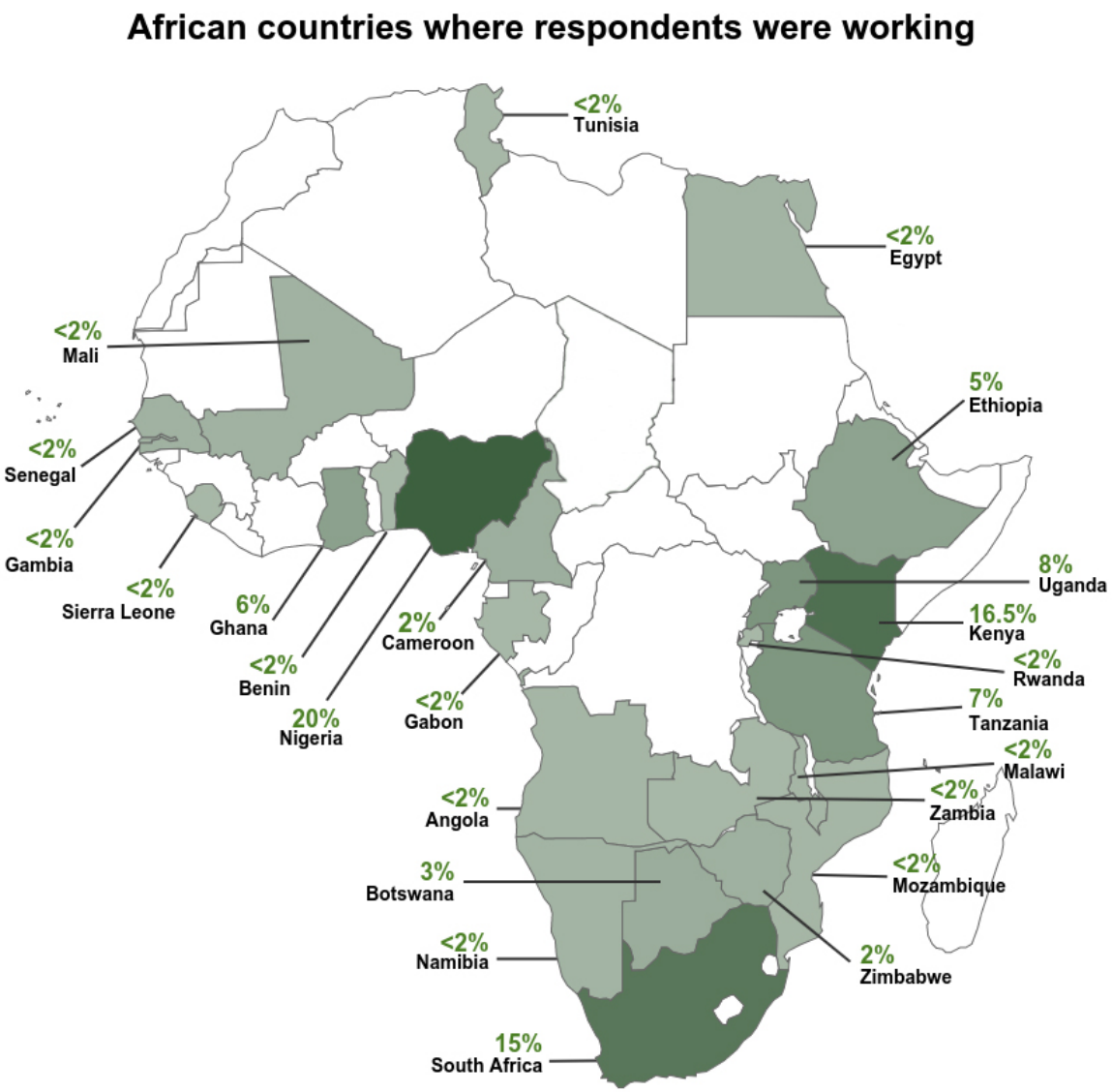

Figure 3 African countries where survey respondents were working

More women responded from Kenya, South Africa and Uganda, whereas more men responded from Nigeria, Tanzania and most of the countries that received fewer responses. The differences were not significant.

3.3.1 Research role and gender

Figure 4 illustrates the representation of respondent roles across the research community. The largest groupings were researcher (34%), research leader (30%) and doctoral researcher (26%). Some respondents reported multiple roles (15% as having two or more and 8% as three or more).

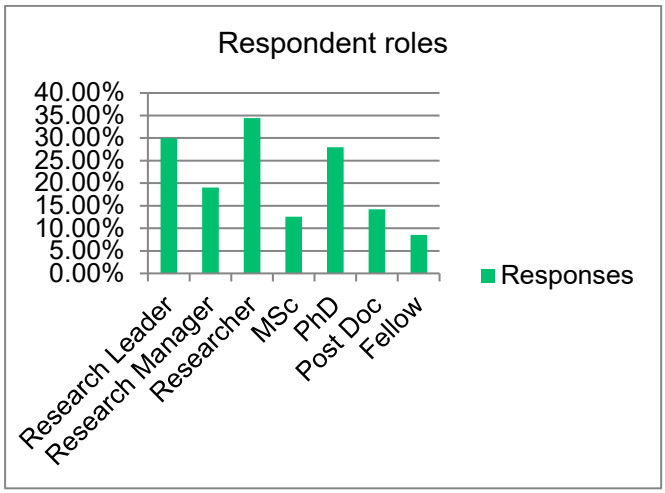

Figure 4 Survey respondent research roles

Table 5 illustrates the percentage of women in each research role. Highest percentages of women (over 50%) were in roles of research leaders, researchers, doctoral researchers or Fellows. Fewer women identified as research leader/research manager or postdoctoral researcher.

Table 5 Research roles with breakdown by gender (N=249)

Role*	Total number	Men	Women	% Women in role
Research leader and manager	13	11	2	15%
Research leader	61	33	27	44%
Research manager	35	15	18	51%
Doctoral researcher	42	18	22	52%
Postdoctoral researcher	27	18	9	33%
Fellow	16	6	9	56%
MSc researcher	22	12	10	45%
Researcher (academic staff)	33	15	20	61%
No role/gender given	18			

* Where multiple roles were declared, individuals were assigned to their most senior declared role

3.4 Survey: results

The survey explored perceptions of the competencies and qualities required for successful research leadership and the current landscape of research leadership provision. It provided a mix of quantitative data around research leadership and institutional support along with a wealth of free text responses, summarised below. Further analysis is given in appendix G.

3.4.1 Leadership qualities

Qualities of senior research leadership in Africa identified from the pilot focus group of DELTAS leaders were provided to respondents, who were asked to rate their importance. There was considerable agreement about the most important qualities in a research leadership role (figure 5), with no significant gender differences.

Figure 5 Requirements of senior leadership roles: >50% survey respondents strongly agree (darker shade of 'doughnut' is % strongly agree). Source: pilot focus group, DELTAS Annual Conference, 2018

As shown in figure 6, there was a high degree of consensus on the importance of all the qualities presented. The only requirements to receive >10% 'disagree' ratings were 'business approach', 'creating high expectations', and 'previous experience of leadership'.

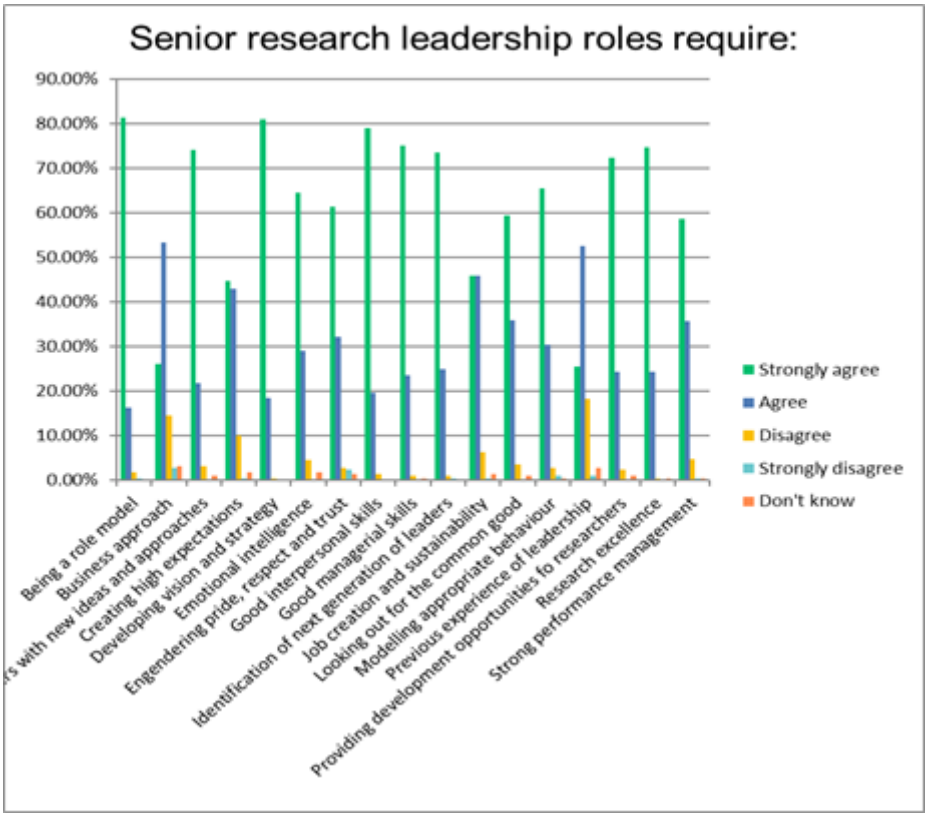

Figure 6 Survey response: requirements of senior leadership roles.
Source of leadership qualities: pilot focus group, DELTAS Annual Conference, 2018

3.4.2 Leadership styles

The above leadership qualities above can be grouped into different leadership orientations. Congruent with the findings of the literature review, interviews and focus groups, relational qualities feature strongly (table 6).

Table 6 Analysis of leadership development by leadership orientations

Leadership orientation	**Leadership qualities – priorities of respondents**
Relations-oriented	Looking out for the common good Challenging researchers with new ideas and approaches Good interpersonal skills *Creating high expectations** Emotional intelligence Engendering pride Being a role model Modelling appropriate behaviour
Business-oriented	Developing vision and strategy Strong performance management Good managerial skills *Business approach** *Job creation and sustainability **
Research-oriented	Research excellence *Previous experience of leadership**
	*Rated less highly by respondents (<50% 'strongly agree')

3.4.3 Top ten competencies for leadership development programmes

Respondents were asked to select leadership competencies with the highest priority for inclusion in leadership development programmes, ranking them 1–10. Competencies for leadership were the 25 set out in the RDF (appendix B). All 25 leadership competencies were selected by respondents to some extent.

Table 7 summarises respondents' top ten priorities by gender. There was large agreement on three priority competencies for inclusion in leadership development programmes: subject knowledge, responsibility and mentorship (shown in bold). However, in selecting priorities there were noticeable gender differences: all other priorities differed by gender.

Table 7 Survey response: comparison by gender of top 10 competencies by RDF domain

RDF domain (group of competencies)	Top 10 priorities for women respondents	Top 10 priorities for men respondents
(A) Knowledge and intellectual abilities	***Subject knowledge*** *Evaluating*	***Subject knowledge***
(B) Personal effectiveness	***Responsibility*** *Self-reflection*	***Responsibility*** *Enthusiasm* *Reputation and esteem* *Preparation and prioritisation*
(C) Research governance and organisation	*Project planning and delivery*	*Income and funding generation* *Infrastructure and resources*
(D) Engagement, influence and impact	***Mentoring*** *Team working* *People management* *Influence and leadership* *Publication*	***Mentoring*** *Policy and impact* *Public engagement*

Women respondents' top 10 included more competencies concerned with working effectively with others (team-working, people management, influence and leadership and self-reflection), whereas that of men prioritised more competencies concerned with research development and impact (reputation and esteem; income and funding generation; infrastructure and resources; policy; public engagement).

3.4.4 Highest priority competencies

Subject knowledge was selected as number one priority by a large margin (53% of respondents). The next group of responses for highest priority covered leadership of self and others – self-reflection, responsibility, people management and mentoring (39% in total). Research leadership activities – income and funding generation, publications, project management and planning were seen as number one priority by the remaining 8%.

Although low as first choices, the above research leadership activities featured strongly as respondents' second priority (50% of total responses) Leadership of self and others - including enthusiasm, team working and networking – totalled 35% as second choices.

3.4.5 Important elements to include in research leadership development

Using themes from a Vitae research report 'Developing the next generation: guidance and good practice in the leadership development of early career researchers and academics[xviii]'

respondents accorded high importance to a number of elements: working with others (85%); building a network (85%); achieving work/life balance (77%); building a research profile (71%); career planning for leadership (68%); and finding mentors and role models (64%).

Whilst 'research cultural environment' was scored very important by fewer than half respondents (41%), it was also scored by 48% as important. The closeness of important and very important scores was exceptional.

Of the gender differences (figure 7) the most significant was in relation to 'building a research profile', which was considered very important by a higher proportion of men.

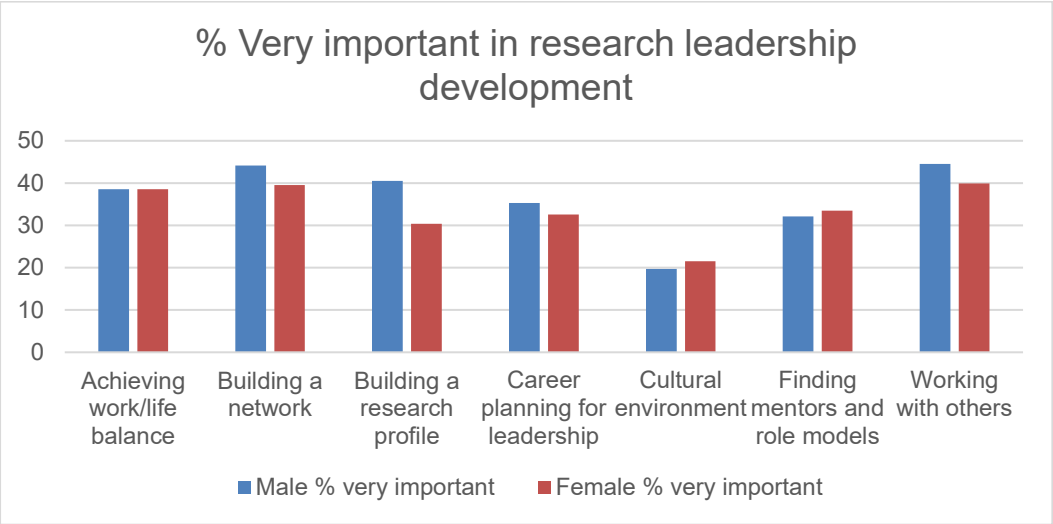

Figure 7 Survey response by gender: elements in research leadership development: % 'very important'

3.4.6 Delivery of leadership development

Respondents considered a variety of interventions for development of research leaders, as identified from the DELTAS leaders' focus group. As shown in figure 8, a broad range of interventions were seen as highly relevant to research leadership development: at least 50% of respondents agreed strongly on the importance of each. Mentoring gained the strongest agreement, followed by a closely grouped cluster of interventions: coaching; growth from leading self to leading others; leadership training and development programmes; learning new skills and capabilities; and space to develop leadership responsibilities.

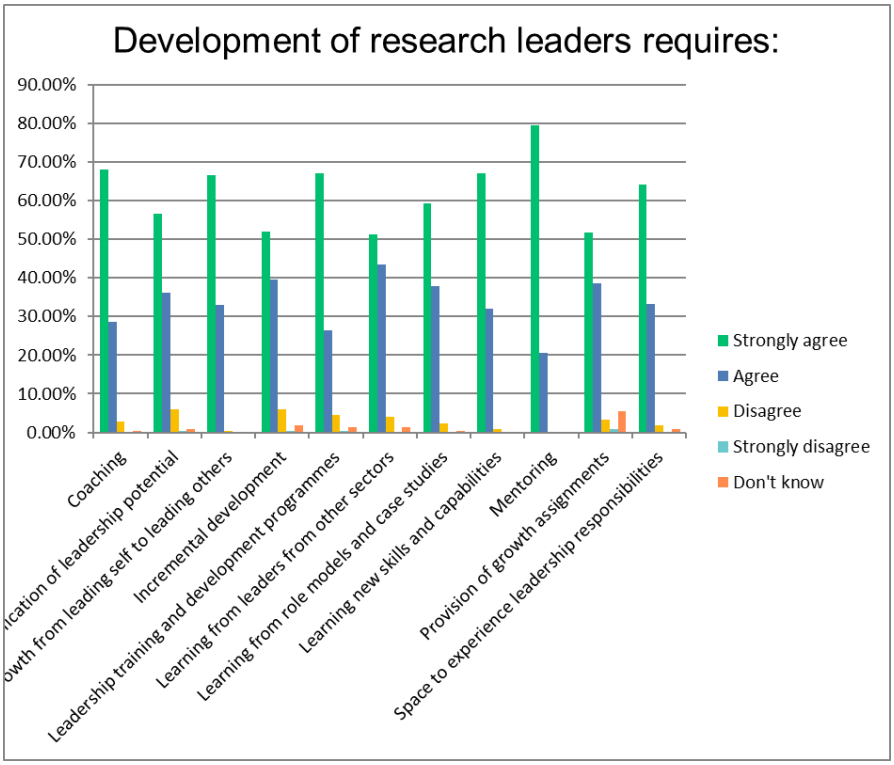

Figure 8 Survey response: leadership development intervention preferences. Source of interventions: DELTA leaders' focus group

A higher percentage of women responded with strong agreement to 'space to experience leadership responsibilities' (70% women; 58% men), as well as 'provision of growth assignments' (55% women; 50% men), suggesting the value of experiential development opportunities within research to women researchers in particular. Men responded with 5% stronger agreement than women to 'coaching', 'early identification of leadership potential' and 'incremental development'.

3.4.7 Existing provision of leadership development programmes

40% of respondents were not aware of any leadership development programmes for researchers at their institution. The majority of programmes reported focused on early career researchers: 47% of respondents were aware of such provision. However, only 15% of respondents were aware of programmes that spanned more than one career stage. 12% reported programmes for mid-career researchers and just 8% provision for senior researchers.

Programmes were very often delivered in collaboration with other organisations (42%). 32% indicated that programmes were delivered by internal staff; 29% by external providers.

3.4.8 Themes in free-text responses

Continuous path of leadership development

Many free text responses referred to the need for continuous development of research leaders. Recommendations included learning by doing, clear mechanisms for identifying leadership potential, support for emerging leaders at key transitions, continuous training and development for independent researchers, and motivation of research grant holders to stimulate others.

> *"Leadership is a process, a learning path, the more exposure one gets .....the more chances to keep up and improve."*
>
> Survey respondent

Developing local opportunities for early career researchers

Recommendations for leadership development of early career researchers particularly focused on interventions that are deliverable within the local research environment, such as:

- opportunities for personal professional growth including exercising leadership, taking responsibility, being a chair, attending meetings, networking and placements, peer reviewing, motivation and encouragement
- small grants, awards, competitions
- programmes starting with time, financial management, communication and people skills
- contact with inspirational leaders, role models, and mentoring.

> *"It is about a combination of measures not one isolated measure or short-term initiative."*
>
> Survey Respondent

Many of these opportunities do not require a large research budget, but do have time implications.

Requirements of institutions

The following were cited as important in supporting research leader development:

- **Institutional leadership and culture** – buy-in from top management and collaborations
- **Governance, support structures and equal opportunity** – boards/committees, research offices/administration, research support systems, writing policy statements and guidelines, funding
- **Integrated programmes** – mentoring, coaching and leadership development programmes for all career stages including postgraduate students and ECRs
- **Staffing** – develop expert mentors, trainers, recruit and support good young talent
- **Building/space/equipment** – funding and adequate space/labs plus power supply
- **Technical** – ICT including internet connection.

Responses about institutional structures for research leaders to better manage their research and researchers had much in common with the above. Research support

structures that helped grow research capacity and free up research leader time for own research and leadership of others were much mentioned.

Ensuring gender balance

> *"Institutional structures must provide equal and equitable support for researchers otherwise there will always be a gender imbalance…."*
>
> Survey respondent

Responses clustered around five key areas: policies; resources for women; parity/fairness; training provision; university structures.

> *"Relevant employment equity policies - the institution, as a whole, must subscribe to the principle of gender equity in the employment of all staff of whom potential research leaders are only a small subset"*
>
> Survey respondent

There were also some comments about harassment of women researchers and the need for support for other minority groups. Some of the comments urging the development and implementation of equality policies specified that these were important institution-wide.

4. Emerging themes

4.1 Conceptions of African research leadership

Our findings confirmed that research leadership embraces leadership of research, self and others. Whilst subject knowledge is fundamental in developing and leading research excellence, participants also emphasised key relational competencies in the areas of leading self and leading others. Being a role model and developing vision and strategy were especially highly valued. Crucially, African research leaders must contribute to research globally while acting as leaders locally. They are driven by simultaneous concerns with developing international competitiveness and local research impact. The African context thus has special characteristics: its emergent research leadership requires leaders to be relations-oriented –– related to community and not self-serving, with an increasing emphasis and focus on societal impact.

The relational style of leadership that was identified by research leaders in Africa is appropriate; consistent with the goals of developing research excellence and using it for the common good of society and community.

The views of men and women participants have commonalities and differences. These should inform models and strategies for the future of African research leadership (discussed below).

4.2 Leadership development as a pathway

There was high consensus around the developmental experiences and transition points on the pathway to research leadership. Leadership development is well understood as a pathway throughout a research career rather than a one-off event. Researchers' journeys along the pathway are all different: it is not a uniform, linear route. The developmental experiences and support mechanisms along that pathway are identified sometimes as existing in the local research environment, but more often as scarce or lacking.

> *"Create a culture that we are always learning; a humility around our profession"*
>
> Survey respondent

All types of participant see self-development towards research leadership as a process that requires personal characteristics and motivation combined with support from other sources, principally more senior/experienced researchers as mentors and leaders, institutional structures, and funded external opportunities such as fellowships and exchanges.

4.2.1 Need for strategic leadership development pathways

Lack of institutional/governmental investment in research and high competition for external opportunities are major factors behind the lack of structured leadership development routes for the great majority of researchers. Few institutional training programmes span all career stages and relevant external training options are limited.

4.3 Lack of institutional support: impact on the next generation

The picture that emerges from our findings is of research leaders pulled in different directions, with inadequate or no administrative support for grant applications, management and other functions of research offices and as a result, frequently unable to give sufficient supervision and support time to their early career researchers (ECRs). ECRs themselves may also lack adequate time to focus on developing their research expertise, due, for example to the extent of teaching duties. Coupled with a lack of local opportunities for experiential learning and formal training, this leaves many ECRs with inadequate opportunity to develop their potential as future research leaders. It was also observed that postdoctoral positions – an important opportunity to develop both research expertise and broader leadership-related competencies – are uncommon in Africa.

4.4 Connecting researchers

The value attached to mentoring that runs as a constant theme in our findings, and the prominence given to support for developing subject excellence, reflect the isolation many researchers feel, working in research systems that are relatively small and not well networked.

Flagship collaborative programmes involving two or more African institutions to build research expertise, leadership and talent exist, but their current reach is limited. Many talented, ambitious researchers are still reliant on North-South collaborations and learning opportunities to further their career development.[xix]

4.4.1 Researcher 'visibility'

Researchers have a particular need for 'visibility' of their research to have impact, find collaborators, and advance their careers. The sense of research isolation and lack of

networks and suitable mentors that emerged in our findings is linked to this. There is a need to support 'visibility' for researchers, especially for women, as confirmed by interviews with research leaders. A challenge for institutions is to create leadership development approaches, especially if the institution is itself not well-networked in the relevant areas.

4.5 Challenges facing women

Gender-sensitive policies and incentives for women researchers are in place and in further development at funder level, but appear to be rare at institutional level, as do effective talent management practices. Factors such as discriminatory employment practices and cultural and social expectations that women put home and family before career considerations impede the development of talented women researchers. At institutional level, such discrimination might mean reduced access to experiential learning opportunities such as project leadership. Uptake of externally funded opportunities such as mobility programmes in lower numbers than men is linked to lower self-belief that research leadership is attainable, impeded by obligations towards home and family as well as employment barriers.

4.6 Broad-based approaches to leadership development

Much of current formal research leadership provision focuses on the early career stage and on research-related competencies such as academic writing and research ethics. Respondents reported little institutional provision designed to support transition points beyond that of achieving the doctorate, and funder programmes such as the FLAIR programme (which provides mid-career support) do not reach large numbers of researchers. Development of competencies related to leadership of self and others are largely the preserve of general leadership programmes unrelated to the research sector.

Respondents endorsed a broad range of development approaches, the most popular being mentoring and coaching, leadership programmes and space to experience leadership responsibilities. Associated with the latter is support for growth from leading self to leading others, incremental development, and learning new skills and capabilities. From an institutional perspective this suggests that it is not enough to provide development programmes in isolation, these interventions need to be supported by experiential learning of leadership in the research environment and support through mentoring and coaching, role models and case studies, and learning from leaders in other sectors.

4.6.1 Role of frameworks

Frameworks such as the RDF were valued to better understand what research leadership requires, and help benchmark existing individual strengths and areas for development. Such models may be particularly valuable if they can also be used to support more strategic approaches at organisational levels, as tools to help assess need and evaluate provision.

4.7 Limitations and areas for further study

4.7.1 International aspects of research leadership development

Interview participants differentiated two routes to international recognition; one through becoming a research leader and the other through becoming an 'international researcher'. Of course, research leaders can be both, but the degree of interdependence of the two terms may have implications for the career path choices of researchers. The extent to which international experience is necessary to become a research leader requires further

exploration, as it has implications for the local in-country development of research leaders, and the inclusion of women and others for whom mobility is challenging.

4.7.2 Conception and role of mentoring

We did not distinguish between the roles of 'mentors' and 'sponsors' in our research design; nor was this probed in the interviews or focus groups. Few participants had experience of formal mentorship programmes, and discussions of informal mentoring experienced by participants revealed both advice-giving (mentorship) and advocacy (sponsorship). Nor were any distinctions explored between different types of mentors (such as own supervisor/research leader versus a researcher at a greater distance from one's own research). A more nuanced understanding of the role of mentorship could be useful when developing leadership development strategies.

> *"Good leadership in research involves creating a balance between guiding protégés and others, and yet, also giving them space for autonomy. It is not only about mentorship, but intellectual mentorship."*
>
> Focus group discussion

4.7.3 Cultural differences across Africa

A study of this size, conducted across mostly Anglophone Africa, is necessarily limited in its reach. Congruence in findings in our qualitative research between interviewees and focus groups in Anglophone Africa and the Cote d'Ivoire gives some initial confidence in the general applicability of the models we recommend. However, this would need further testing in non-Anglophone countries.

4.7.4 Equity issues beyond gender

The project asked participants to comment on gender balance issues and was not focused on other forms of inequality. In focus groups and survey free text answers a small number of comments were made about race inequality being important as well as gender equality. No other types of inequality were mentioned.

5. Conclusions and recommendations

5.1 Need for systems approaches to research leadership development

Leadership training programmes should be integrated into a broader strategy for leadership development through practical experiences, leadership opportunities and mentoring with balanced career development planning, focusing not only on excellent research but also on excellent relational leadership of self and others. Models should be gender inclusive. There are potential resourcing advantages to broad systems approaches over models based wholly or largely on training programmes: this is discussed in appendix G.

5.2 What constitutes a suitable training programme?

The training programmes we reviewed mainly concentrated on conventional research or leadership training but not both. When procuring leadership programmes, institutions should consider whether they cover the breadth as well as the depth of research leadership development. Below (5.4) we offer a model of African research leadership designed to help assess the 'best fit' of training programmes to researchers' needs, inform the development of leadership development programmes though a competency-based approach and facilitate the evaluation of programmes as contributing to institutional goals and value for money.

5.3 Transition points in developing as a leader

Research leaders identified key career transition points as they progressed from doing a doctorate to leading others to leading other leaders and leading organisations. It is important in developing leaders that as they go through each transition stage they are given the opportunity to prepare by reassessing their values, tasks and time, and to transition from personal focus to community focus and the 'common good'. Such opportunities were not offered to current research leaders, who had to manage themselves though the process; some reporting that they had never caught up, for example, on work-life balance. Regarding leadership development as a continuous process with transition points where extra time and support are required would help leaders settle into their roles more effectively.

5.4 A potential model for African research leadership

Analysis of our findings on the competencies required to be a successful research leader in Africa has led us to develop a new model for research leadership development, one that balances research expertise, functional skills and relational competencies, and that is inclusive for both men and women researchers in Africa. This T-shaped model (figure 9) applied to research leadership includes both *depth* of subject knowledge and methodologies and *breadth* of priority relational competencies as reported by participants. Our model takes account of different gender viewpoints on these competencies in the path to research leadership in Africa, enabling the development of gender-inclusive programmes. The elements of the model are selected from competencies in the RDF, reflecting those most valued by participants and survey respondents.

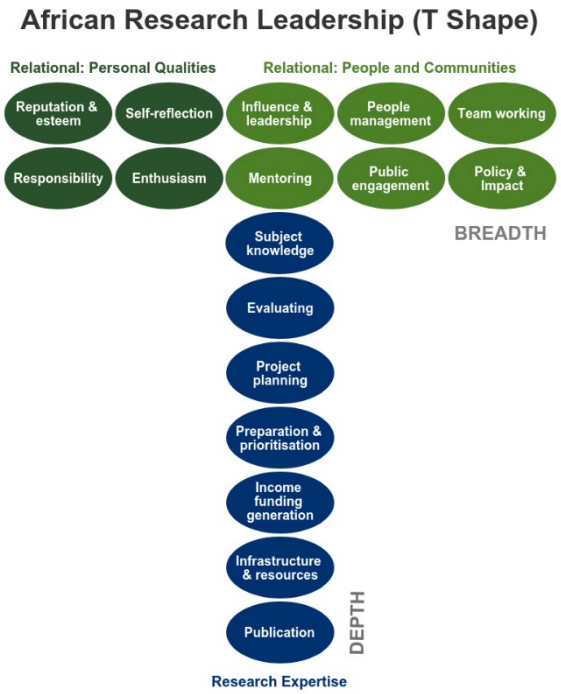

Figure 9 A competency model for African research leadership

The design of the 'T-shaped' model gives visual form to key goals of African research leadership reported by participants: developing research excellence (vertical column) and applying it for the common good of society and community (horizontal). Competencies prioritised by participants are divided into three elements: 1. People and communities; 2. Personal qualities; 3. Research expertise.

The central vertical 'pillar' denotes depth in research expertise, which was consistently regarded as a requirement for 'credibility' in research leadership; a quality that continues to grow over time. Whilst research training is important in the beginning of a research career and forms life-long learning for a researcher it does not fully equip researchers for leadership responsibilities further into their careers.

Participants recognised that focus on research excellence does not guarantee effective leadership of self and others. In developing research leaders, it is important to develop both deep functional disciplinary skills and expertise in research and a broad range of other qualities associated with leadership. A balanced approach to research leadership development is required. One of the strengths of conceptualising research leadership development in a 'T' structure is that it enables users to flexibly move in and out of the depth and breadth, and so for a time a researcher may be focussed on deepening research and functional skills and at another time developing a broader range of relational skills. In progression to research leadership, individuals can cycle through breadth and depth depending on current needs or indeed work on both at the same time.

Leadership development requires a multiple interventions of which training programmes are a part: a rethinking of leadership development within the research environment through experiential learning, good mentoring and appropriate HR practices are also required. The model can inform all these practices: it provides an assessment tool for deciding on the

focus of any intervention and checking if it is fit for purpose. For example, when institutions are considering the development or procurement of leadership development programmes the model can help define the requirements for and evaluation of programmes.

The proposed model also enables research organisations to consider inclusive research leadership for the future, reflecting perceptions of where research leadership is now but also looking ahead. Broadly, we found the priority competencies of men participants to be the more focused on research-related skills and external impact, whereas the priority competencies of women – with their greater emphasis on team leadership – present a people-orientated approach to research leadership, potentially pointing to what is required in a more inclusive future research climate. The proposed model takes account of both perspectives.

5.5 A potential model for accelerated research leadership development

We have noted that capacity issues determine the shape and success of research leadership development. A systems approach to leadership development has broader management implications than a narrower training programme model. In planning for novel, multi-faceted, approaches there is value in evaluating models from the literature of leadership development that may support development and change.

Having considered a number of models we offer the one outlined in figure 10 as a possible framework. It is a seven-pronged process for leadership development that institutions and funders may find useful in assessing research leadership development capability and developing capacity.

Adapted from Wichert Accelerated leadership development (2018)

Figure 10 Model of accelerated research leadership development, adapted from Wichert (2018)

Table 8 Project outcomes mapped to Wichert's accelerated development model

Model of accelerated leadership development	Outcomes of the project	Institutional actions for integrated systems approach
Assessment of potential	There were no formal mechanisms reported for assessing leadership potential - mainly left to research leaders' perceptions of potential, lack of transparency for researchers	Institutions provide transparent formal policies and guidance for the identification of leadership potential of researchers irrespective of gender
Providing breadth of job experience	A strong recommendation from participants was to engage more in leadership activities in the workplace and have opportunities for travel, secondments and conferences to broaden experience	Research leaders consider how they can provide diverse supported experiential learning of leadership tasks for all researchers, even when mobility is not possible; consider what experiences can be provided through local collaborations
Appetite for risk taking by high potential employees and organisations	Research leaders reported entrepreneurial activities in making collaborations and making decisions about e.g. partnerships for 'best interests'	Whilst risk in research is tightly controlled, decision-making around networks, collaborators, recruitment, funding carries risk. Engage researchers in more transparent decision-making to build confidence in managing risk
Developing through on the job learning	Researcher leaders learned 'on the job'; researchers want more leadership experiences in their jobs and mentors to guide them	Researchers given opportunities to experience leadership competencies, encouraged to reflect and learn from leadership styles/behaviours around them. Mentoring focused on leadership as well as research development. Training of mentors may be beneficial
Providing consolidation phases	Researchers and leaders advocate training programmes, mentoring and experiential learning in the work place	Alignment of training and experiential learning in the workplace provides both development and consolidation, supported by mentoring – an integrated approach linking training, experience and mentoring
Model of accelerated leadership development	**Outcomes of the project**	**Institutional actions for integrated systems approach**
Willingness to reflect and actively extract learning from past experiences	Mentoring was important to all, and the most popular request from participants; reflection and learning from others should be a fundamental aspect of mentoring	Strengthen the use of mentoring to allow reflection and learning, training mentors in techniques to enable this, enabling the next generation to learn good mentoring practices for leadership development from experience for culture change and sustainability
Access to various sources of support	Key concerns were lack of support for research management, funding from institutions, and managing research time with heavy diverse workloads	Institutions consider functional research management and financial support for researchers, along with workload planning to enable emerging research leaders to develop their skills

Adapted from Wichert (Accelerated leadership development, (2018))

Table 8 illustrates how the project outcomes map against the seven elements of Wichert's model and the institutional actions needed to achieve accelerated development.

5.6 A centre of excellence for research leadership

Programmes that are centrally developed and tailored for local need and delivery have the advantage of making use of scarce expertise while responding to particular local requirements. This may be especially important for the development of local research leaders who may not benefit from experiences outside their home region but are leaders all the same. A model of regional collaboration and exchange was suggested to broaden leaders' experiences and develop local capacity. This recommended the establishment of a

'centre of excellence for research leadership development in Africa' to lead and advise institutions on good practice in capacity building and the development of research leaders at local level. This would operate on a hub and spoke model in order to maximise reach in different parts of Africa. It could, for example, develop best practice, fund demonstration/flagship programmes as models for institutions, enable cross-fertilisation of people and ideas, and develop local delivery expertise. A centre of excellence would be well placed to facilitate sustainable and future-orientated approaches to research leadership development at institutional/multi-institutional level.

5.7 Evaluating effectiveness

The inclusion in research leadership models of developing self and others along with research excellence poses challenges for conventional methods of evaluating the effectiveness of research leadership development. It would be possible to establish an evaluation model, but this is currently outside the scope of this project. Going forward it will be important to identify appropriate evaluation criteria for leadership development interventions to determine cost-benefit of both research leadership capacity building and achievement of organisational goals in addition to metrics of numbers trained and research output achieved.

5.8 Recommendations

To accelerate world-class research, foster innovation, build linkages with policy makers and promote scientific leadership in Africa, greater emphasis should be placed on the importance of investing in institutional, national and African capacity to accelerate sustainable research leadership.

5.8.1 Recommendations for institutions

- **Accelerated leadership** - take a strategic approach to accelerated relational leadership development of their researchers, including processes for identifying leadership potential, formal and informal development opportunities at all career stages, mentoring and coaching support, researcher career pathways, gender equality initiatives, funding and resources
- **African research leadership** - ensure all leadership development programmes integrate all aspects of the 'T-shaped' leadership model, i.e. research expertise, relational leadership and development of leadership competencies
- **Gender inclusion and diversity** - give specific attention to how relational leadership development strategy and its implementation supports women researchers, given gender differences in preferred leadership styles, minority groups and any cultural specificities
- **Monitoring progress** - set up monitoring processes to evaluate the effectiveness of their leadership development programmes and the outcomes. This should include regular feedback from researchers and their managers
- **Data and evidence** - set up processes to collect and share ongoing data openly on the profile of researchers and their career paths, identifying and promoting role models describing their leadership development as incentives for other researchers.

5.8.2 Recommendations for all researchers

- **Career development** - take control at all stages of their career, using the 'T-shaped' model of leadership to reflect on their competencies with respect to relational leadership

and research expertise, identifying where they need to develop these further and investing the time to do so

- **Personal and professional development** - take advantage of all opportunities to develop leadership capabilities in both relational and research leadership through participating in specific development programmes, taking advantage of opportunities within their research activities and building their networks and research identity
- **Mentoring and networks** - actively seek out mentors who can support them in the development of their leadership capabilities and widen their networks.

5.8.3 Recommendations for research leaders/managers of researchers

- **Relational leadership** - provide opportunities for ECRs to develop their leadership capabilities alongside their research activities. This should include opportunities for example to apply for funding, access funding, broker international opportunities, attend and present at conferences, gain peer review experience, manage and supervise others, policy development, knowledge exchange, and get involved and/or lead public engagement activities
- **Personal and professional development** - actively encourage ECRs to reflect on their leadership competencies and activities, for example, during progress meetings and more formally through appraisal processes, where appropriate.
- **Networks and mentors** - use their own contacts and networks to facilitate the development of their ECRs' networks and strengthen their relational leadership abilities.

5.8.4 Recommendations for funders and other enabling national and pan-African organisations

- **Funding programmes** - consider the balance and profile of funding schemes to ensure there are programmes to support relational leadership development at all stages of the researcher career through specific calls and leadership development opportunities integrated into their terms and conditions of grants, particularly focusing on building a gender-inclusive research environment
- **African Centre of Excellence for Research Leadership** - invest specific funding to catalyse the implementation of accelerated relational leadership development programmes in institutions, encouraging the sharing of good practice and creation of targeted leadership resources through the development of an African Centre of Excellence for Research Leadership, using a 'hub and spoke' model to maximise engagement
- **African research leadership programme** - invest in a flagship Africa-led relational leadership development programme based on the accelerated leadership model to support Africa's rising stars, promote the importance of nurturing research talent and provide an exemplar model for institutions
- **Data and evidence** - set up processes to collect and share ongoing data openly on the profile of researchers in Africa and their career paths, identifying and promoting role models and describing their leadership development as incentives for other researchers.

[i] See literature review, appendix D: Curry et al, 2012; E.K. Niemczyk, 2018; Owusu et al., 2017

[ii] https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework/developing-the-vitae-researcher-development-framework
[iii] https://wellcome.ac.uk/funding/guidance/open-access
[iv] http://uis.unesco.org/en/news/rd-data-release (2018)
[v] All data in this section 2.1. is from British Council / DAAD 2018 study *Building PhD capacity in Sub-Saharan Africa,* except where otherwise stated:
https://www.britishcouncil.org/sites/default/files/h233_07_synthesis_report_final_web.pdf
[vi] UNESCO Institute for Statistics, 2019 quoted in
https://jacobsfoundation.org/app/uploads/2019/06/AERD_Report.pdf
[vii] https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/56814/IDL-56814.pdf?sequence=2&isAllowed=y p.6
[viii] https://www.gov.za/speeches/minister-pandor-announces-42-additional-research-chairs-women-researchers-2-sep-2015-0000
[ix] https://essa-africa.org/node/291
[x] https://globalyoungacademy.net/activities/african-science-leadership-programme/
[xi] https://theconversation.com/african-science-needs-more-leaders-heres-how-to-develop-them-114091
[xii] ibid.
[xiii] https://www.aasciences.africa/aesa/programmes/research-management-programme-africa-rempro-africa
[xiv] https://www.aasciences.africa/aesa/programmes/aas-affiliates-programme
[xv] A small number of survey respondents were based outside Africa (<10).
[xvi] http://www.uzchsperfect.ac.zw/ **nb link not secure**
[xvii] Since the completion of the data gathering phase of the project, we have learnt that AAS is developing a gender and diversity strategy that will have policies that cater for maternity and paternity as part of grant terms and conditions (interview with AAS, July 2019).
[xviii] https://www.vitae.ac.uk/vitae-publications/guides-briefings-and-information/developing-the-next-generation-vitae-brunel-lfhe-2015.pdf
[xix] The AAS Mentorship Scheme, designed to address this gap, is extending its reach but was at an early stage during our data gathering phase: https://www.aasciences.africa/mentorship-scheme

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