

Networking and collaboration in research institutions

Pieter Swanepoel (PhD, Pr. Sci. Nat.)



UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

Contents



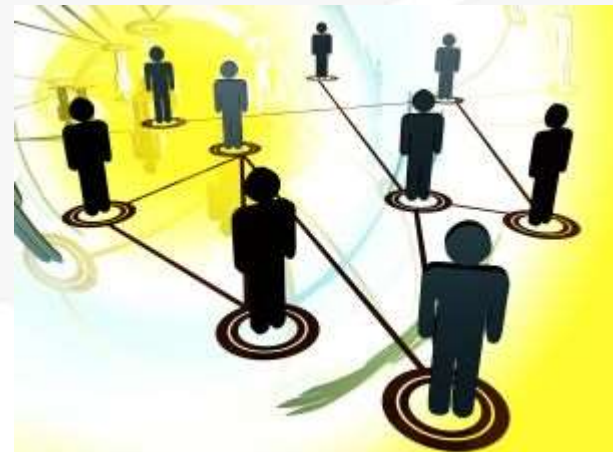
- Key components of collaboration
- Benefits and limitations of collaboration
- How a person should be approached to initiate collaboration?
- How should collaboration be arranged?
- How are researchers' contributions managed in academic collaboration?
 - Co-authorship (cross-ethnic/multi-racial and multi-institutional)
- Conclusion



Key components of collaboration



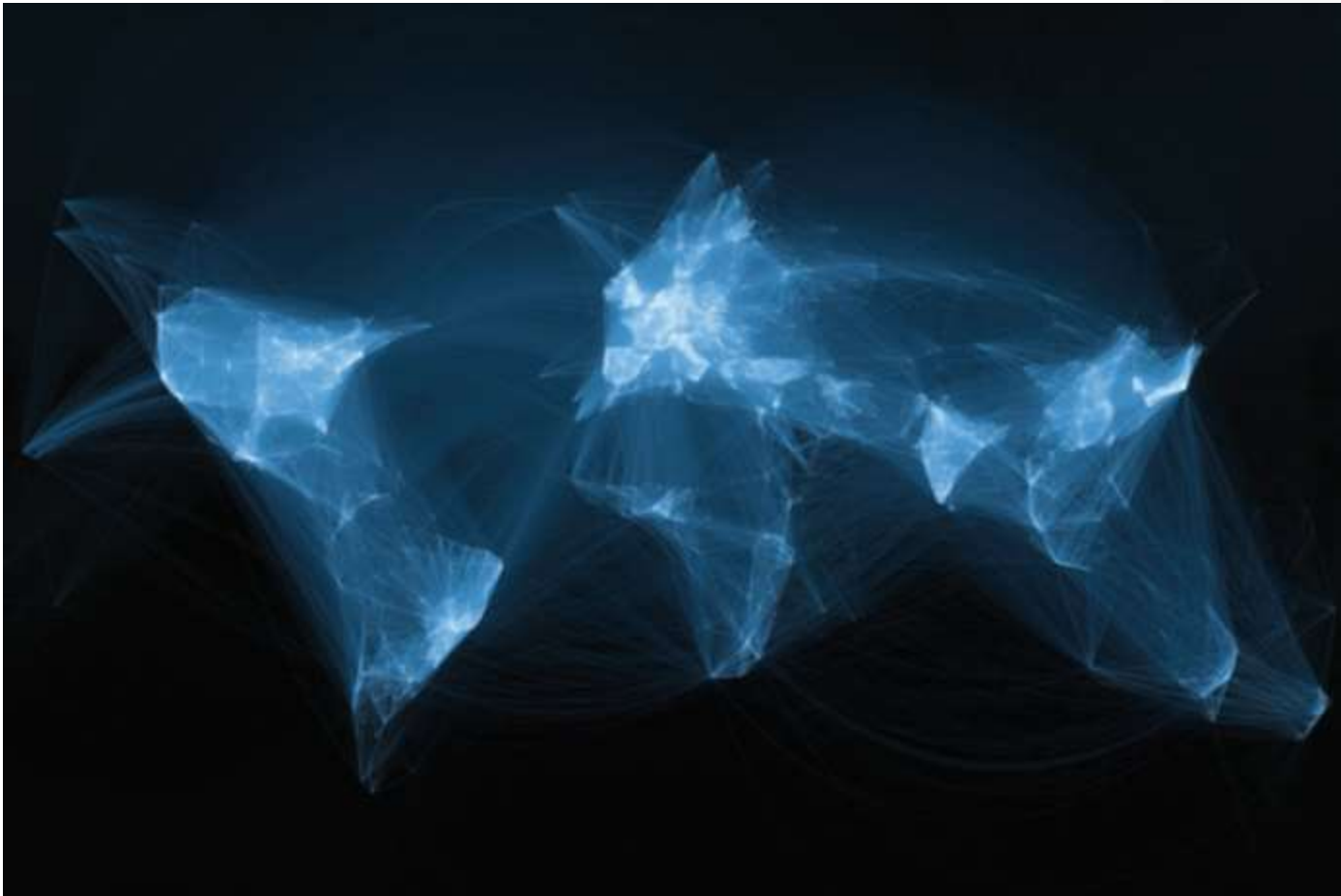
- **Scientific collaboration** is a form of interaction among producers of knowledge
 - Effective communication and exchange;
 - Sharing of skills, competencies and resources;
 - Working, generating and reporting findings together.
- Collaboration includes:
 - Inter-individual
 - Inter-institutional (International/local)
 - Research-industry
 - Co-authorship



Key components of collaboration



- Grassland science (and many other disciplines) - Integration, globalization, interdisciplinary



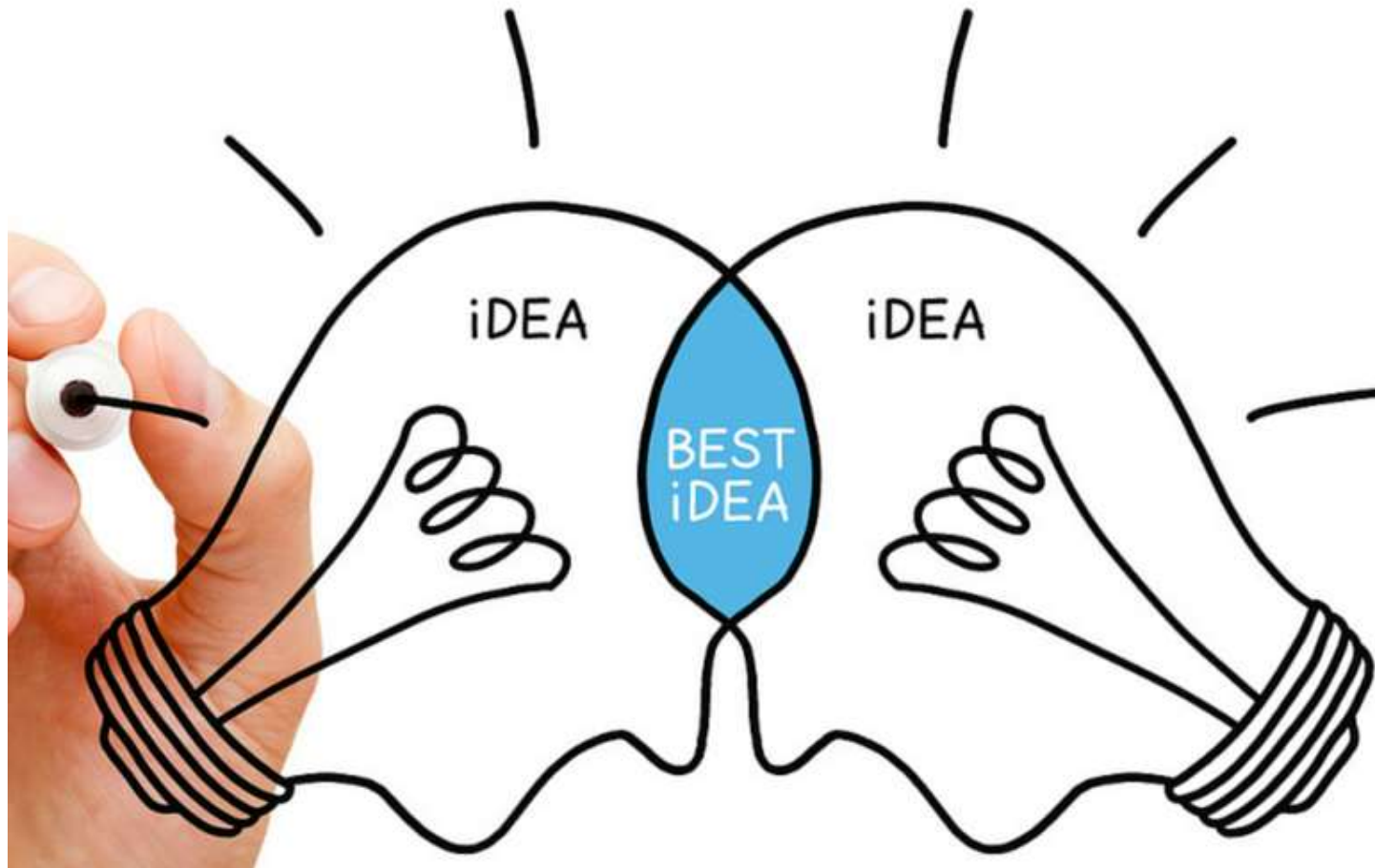
Key components of collaboration



- Critical for novice researchers:
 - Between young and more senior researchers
 - Collaboration in research across disciplines
 - With practitioners/Industry
- Technology simplified the collaboration process
 - Inter-institutional
 - Cross-country
- Communicate ideas/findings through blogs, social networking sites, other social web platforms



Benefits of collaboration



Benefits of collaboration



- Sharing knowledge, expertise and techniques
 - Cross-fertilization of ideas
- Jointly controlling the accuracy and the significance of results
 - Risk sharing
- Higher quality and more efficient research conducted
 - Collaborative papers tend to get cited more often
- Cope better with the increasing specialization in science, with interdisciplinary approaches, and with the complexity of scientific instruments
 - Gain access to new resources
- Building of scientific capacity in less developed nations
- Lead to more funding opportunities
- Raise your personal profile and gain confidence
- Increase your productivity
- Expand your world view, build personal relationships



Limitations to consider



- Social process - a patient construction of personal relationships or adaptation in an unfamiliar environment
- Collaboration can entail time costs
- Needs deep integration among co-authors/collaborators
 - Final result should be a coherent and uniform piece of work
 - If integration among authors fails, the quality of the outcome declines
- Writing the results may bring to disagreements among colleagues about findings and interpretation



How should you approach a person to initiate collaboration?



- Face-to-face interaction during conferences, workshops or seminars is highly successful
- Assess the collaborative opportunity
 - Do I need this collaboration to move forward?
 - Do I have the expertise/resources sought by the other collaborator?
 - Can collaboration be conducted efficiently? (distance, institutional restrictions, legal/political complications)
 - Funding?
 - Are our professional/scientific interests compatible?
 - Can I rule out potential conflicts?



How should you approach a person to initiate collaboration?



- Send an email
 - You have the expertise you claim
 - He/she is best possible collaborator
 - Mutual benefit
 - The whole is greater than the sum of the parts



How should you approach a person to initiate collaboration?



- Productive and well-established **formal agreement**
 - Purpose of the collaboration
 - Scope of the work
 - Expected contribution from each collaborator
 - Financial responsibilities of each collaborator
 - Milestones
 - Reporting obligations
 - Expectations about authorship



How should collaboration be arranged?



- Vertical Research Collaboration
 - Focus on a specific research project, in a specific area
 - Completed in collaboration with another researcher from the same field
 - Inter-institutional collaborative arrangements
 - E.g. relationship between supervisors and students as co-authors of research projects
 - Benefits are limited, but success generally high
- Horizontal Research Collaboration
 - Broader and wider scope
 - Offers several benefits to novice scholars
 - Interdisciplinary projects



How should collaboration be managed?



- Scenario 1: Collaboration between a **student/ young scholar and a senior researcher/supervisor** from the **same field** (vertical)
- Senior researcher is usually the a facilitator, motivator or guide
- Allow the student to participate in thinking process, without simply forcing his view onto the student
- Research scholar normally holds the first authorship
 - Completes most of the sections in the manuscript
- The issue of first authorship for students should be considered a privilege and not a necessity



How should collaboration be managed?



- Scenario 2: Collaboration between **two young scholars** in the **same field** belonging to one or more universities (vertical)
- Divide tasks:
 - Educational backgrounds
 - Distinct skill sets of each scholar
 - According to the available resources
- Different sections of the manuscript are allocated to each author



How should collaboration be managed?



- Scenario 3: Collaboration between **two scholars or between a scholar and a senior research fellow** from **two different fields** or disciplines, preferably belonging to two different universities (horizontal)
- Interdisciplinary collaborations
- Larger scale
- Demands due care and a responsible attitude
- A complete research protocol should be established
 - Specifies and documents the division of work and the roles and responsibilities of each participant
 - Preferably before it is initiated
 - Any administrative, documentation or coordination tasks should also be defined, modularized and included in the protocol



How should collaboration be managed?



Advice

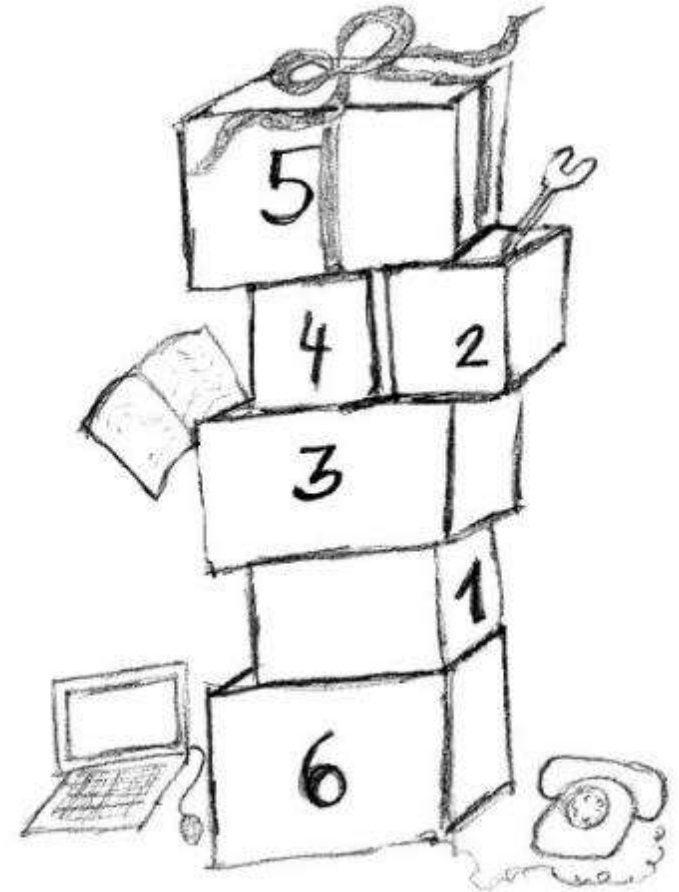
- Don't be afraid to ask questions
- Don't be intimidated - have your say if you think it goes in a direction you do not agree with
- Don't be passive and wait for tasks given to you by senior partners



How should collaboration be managed?



- Work package (WP)
 - A group of related tasks within a project.
 - Look like projects themselves (sub-projects within a larger project)
 - WPs are the smallest unit of work that a project can be broken down to



How should collaboration be managed?



Soil quality of communal rangelands in South Africa

- **Work package 1 – Rangeland assessments:**
 - MSc student at university X
 - Supervisor: Prof. B
 - Prof Y will advise on invasive species management aspects...
- **Work package 2 – Soil physicochemical properties:**
 - PhD student from university Y. Responsible for...
 - Supervisors: Prof. C and Dr. Z
 - PhD student will visit University X annually to conduct a portion of the planned analyses under the guidance of Prof W.
- **WP3 – Soil microbiological properties:**
 - ...
- **WP4...**



Co-authorship



- An issue of *Nature* today has a similar number of articles to one from 60 years ago, but at least four times more authors.
- 1980s: Papers with >100 authors were rare.
- 1990s: > 500 papers per year with >100 authors
- First paper with 1000 authors was published in 2004
- A paper with 3000 authors came in 2008
- By 2013, a total of 120 *Nature* papers had more than 1000 authors and 44 had more than 3000



Effect of collaboration on quality and impact of papers in Agriculture (WoS)

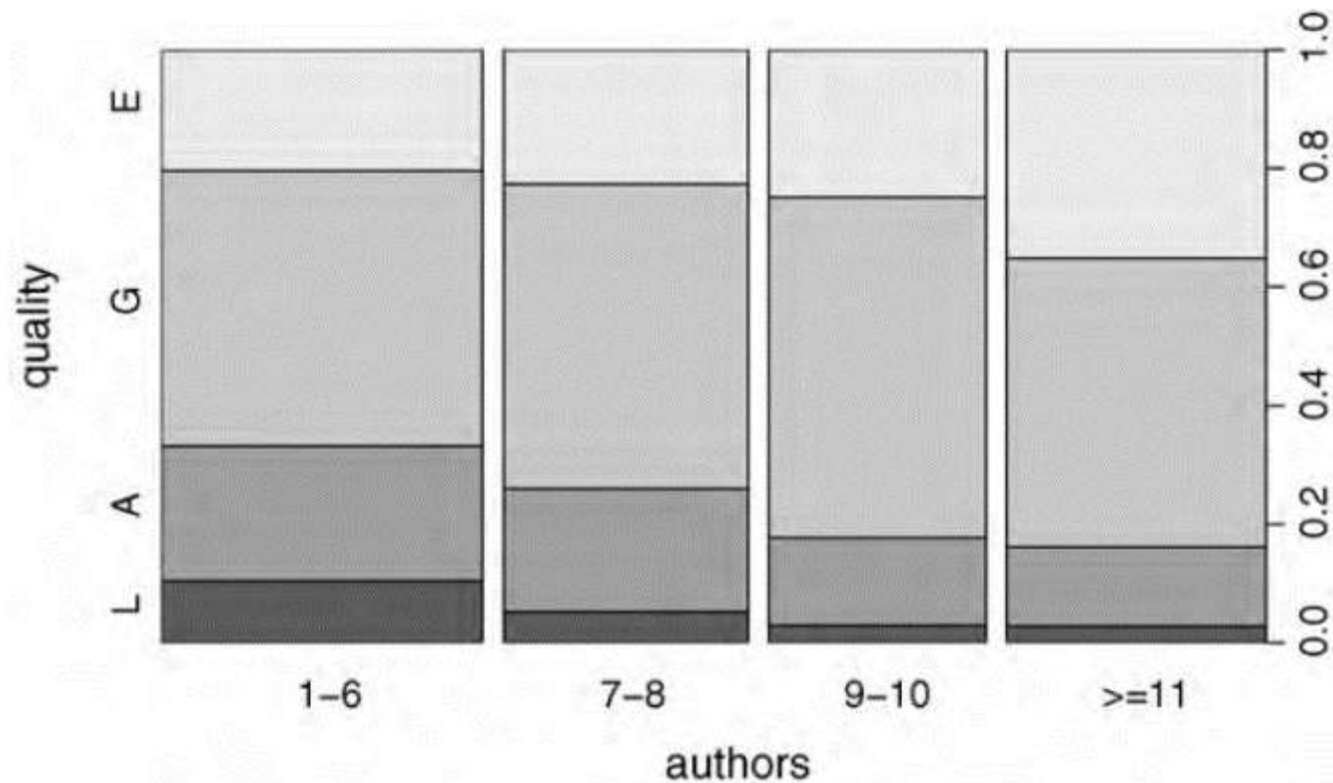


Authors	Articles	Quality	Impact
1-3	230	0.66	7.34
4-5	270	0.72	7.96
>6	250	0.75	9.20
All	750	0.71	8.26

Franceschet, M., & Costantini, A. (2010). The effect of scholar collaboration on impact and quality of academic papers. *Journal of informetrics*, 4(4), 540-553.



Peer judgement received by papers



Franceschet, M., & Costantini, A. (2010). The effect of scholar collaboration on impact and quality of academic papers. *Journal of informetrics*, 4(4), 540-553.



Multi-ethnic co-authorship



Multi-ethnic co-authorship



- Freeman and Huang (2014): Studied 2.57 million papers in Web of Science data base
 1. Co-authors more likely to be of the same ethnicity than would occur by chance
 2. Papers with authors of the same ethnicity is associated with lower impact factor journals and with fewer citations per paper
 3. Researchers with weaker previous publications records are especially likely to write papers with persons of the same ethnicity





Greater **diversity** and breadth of knowledge of a research team contributes to the quality of the scientific papers that the team produces



Conclusion



- Success hinges on effective collaboration among various contributors (novice researchers, senior research fellows and practitioners from industry).
- Communication and social media channels provide scholars with a wealth of opportunities to identify, locate and approach prospective collaborators.
- Face-to-face interaction
- Vertical research collaboration - a quick start to novice scholars, and particularly doctoral students
 - requires less effort and usually ensures the research project can be initiated and managed with ease
- Individuals from different cultures and with different belief systems think differently
 - Collaboration is likely to spur innovative ideas and solutions
 - Generating publications that make an impact.



Dankie
Thank you
Enkosi



UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

Additional Reading



- Adams, J. (2012). Collaborations: The rise of research networks. *Nature*, 490(7420), 335-336.
- Adams, MJ. “Mutual Benefit: Building a Successful Collaboration.” *ScienceCareers.org* (October 6, 2000), http://sciencecareers.sciencemag.org/career_development/previous_issues/articles/0630/mutual_benefit_building_a_successful_collaboration
- Ankrah, S., & Omar, A. T. (2015). “Universities–industry collaboration: A systematic review,” *Scandinavian Journal of Management*
- Franceschet, M., & Costantini, A. (2010). The effect of scholar collaboration on impact and quality of academic papers. *Journal of informetrics*, 4(4), 540-553.
- Katz, J. S., & Martin, B. R. (1997). “What is research collaboration?” *Research Policy* (1997)
- Mujumdar, A. S. “Editorial: Role of Global Networking in Research Collaboration,” *Drying Technology* (2015).

