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SOCIAL NETWORKS, AGRICULTURAL INNOVATION, AND COOPERATIVES IN THE NIAYES REGION OF SENEGAL

GRAEME REED* & GORDON M. HICKEY

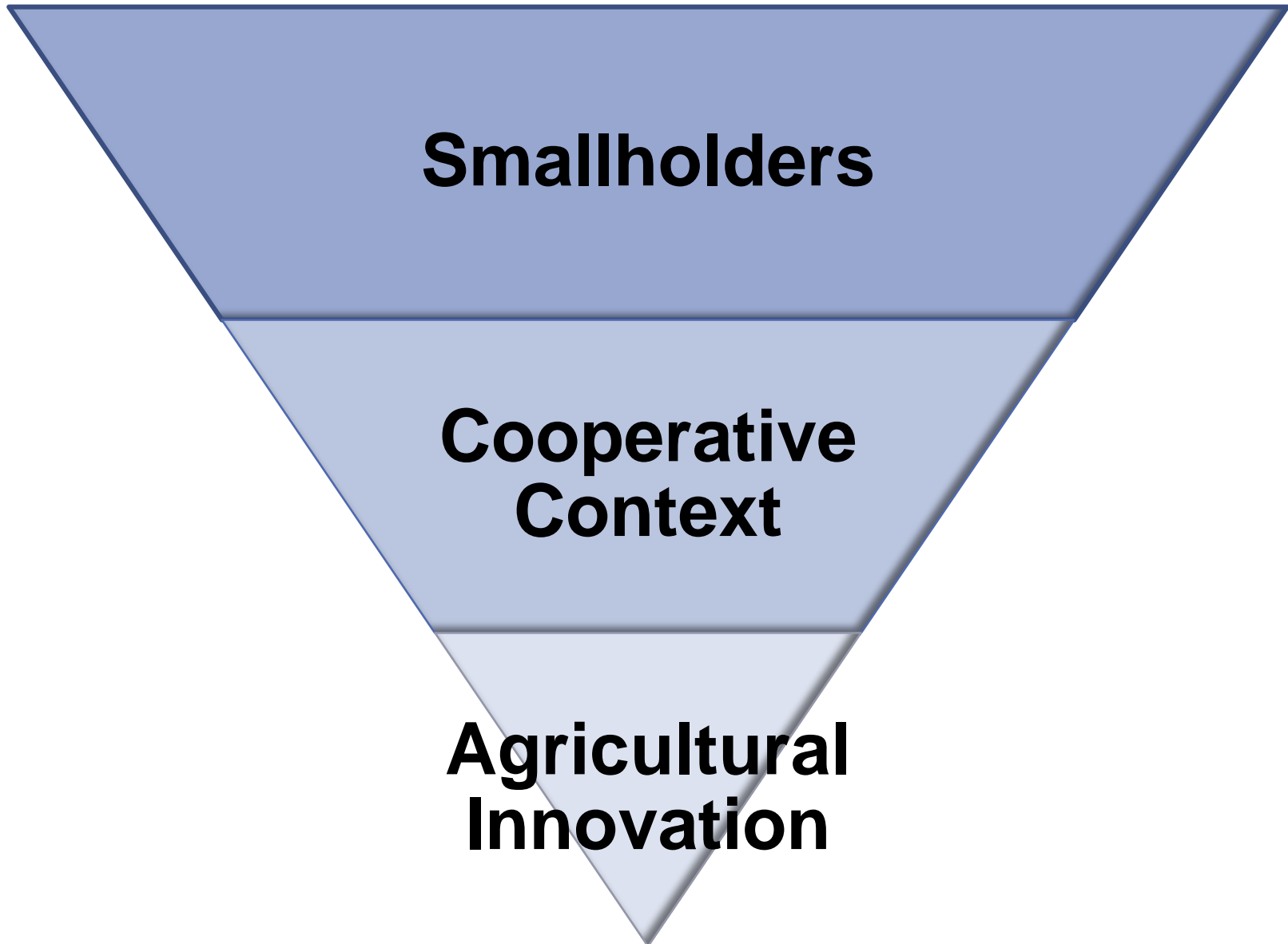
DEPARTMENT OF NATURAL RESOURCE SCIENCES, MCGILL UNIVERSITY

EMAIL. GRAEME.REED@MAIL.MCGILL.CA PHONE: (514) 915-8382

*“The cooperative model is just an instrument such as a car, it is not the instrument in itself that is good or bad, but rather the utilization and exploitation by **people** that influences its success or not.”*

– Cooperative Expert

CONCEPTUAL FRAMEWORK



RESEARCH QUESTION

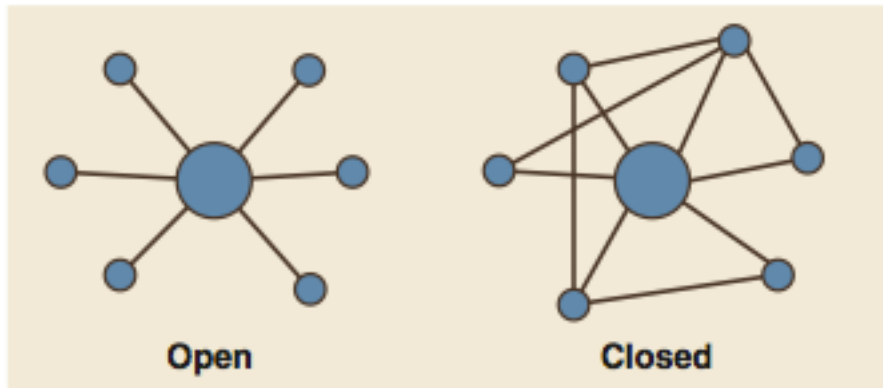
How do social networks influence innovation dissemination within the formal structure of a cooperative?

METHODS

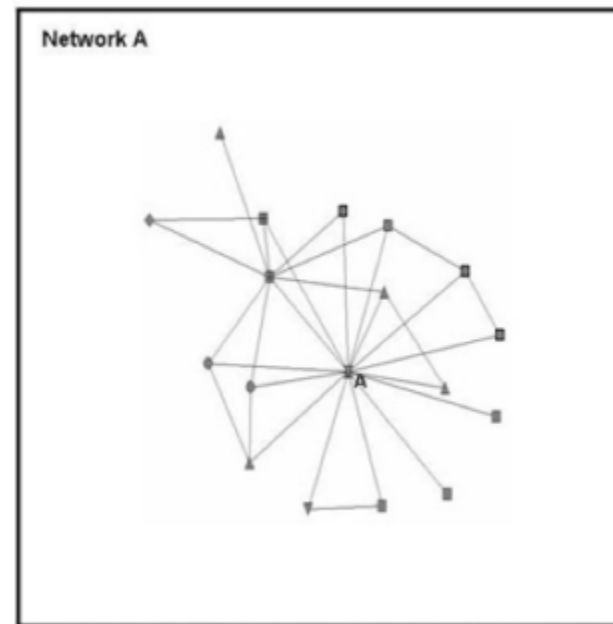
Exploratory mixed-methods case study design (Yin, 2003)

- 1. Social Network Analysis (quantitative)**
 - Household survey (n= 202; 136 in COOP A, 66 in COOP B)
- 2. Semi –structured interviews (qualitative)**
 - 35 key informants

A BRIEF INTRODUCTION TO SOCIAL NETWORK ANALYSIS



Reprinted from Borgatti et al., 2009

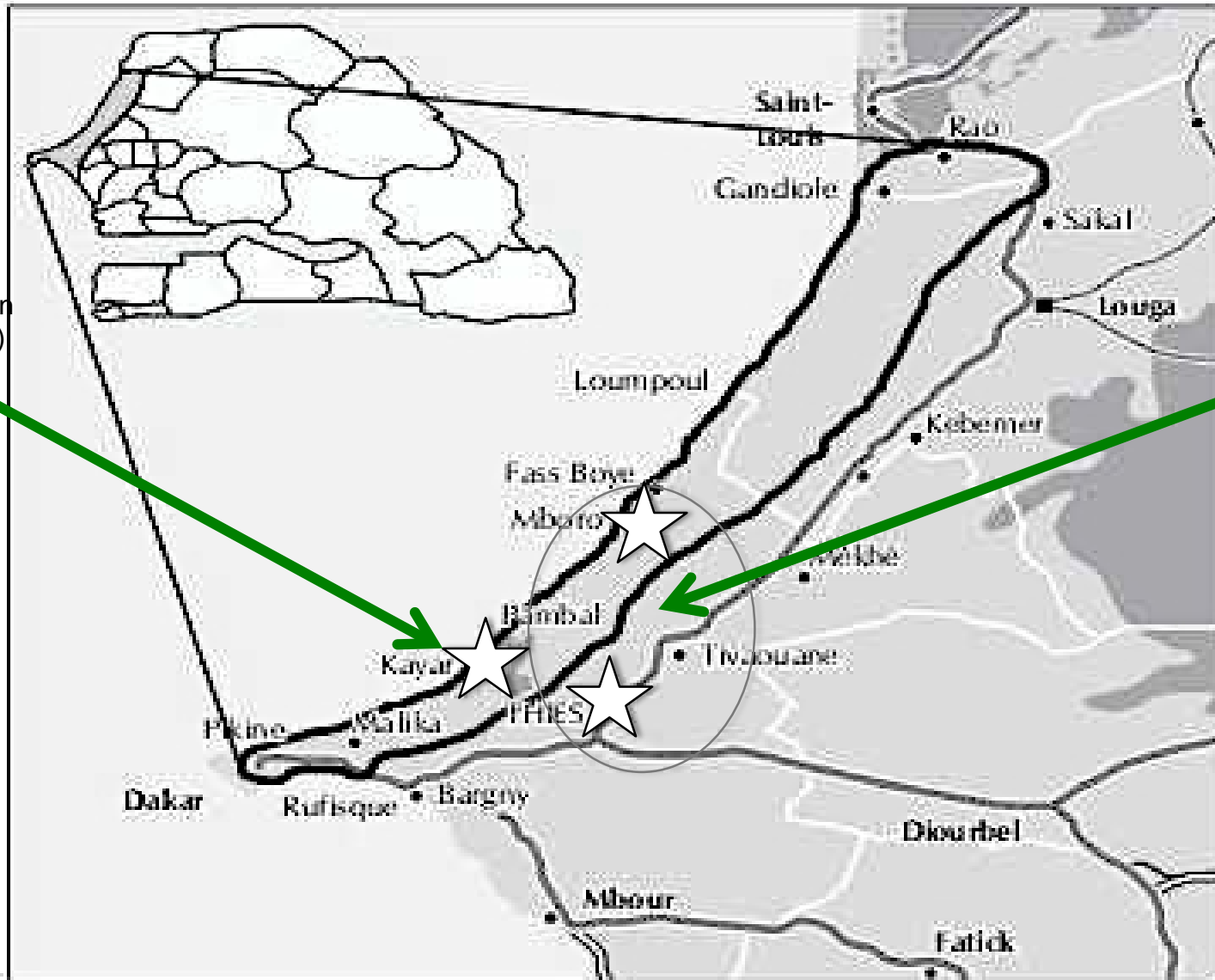


Reprinted from Sandstrom and Rova, 2010

NIAYES REGION

COOP A
n= 136
Village-level
representation
(hierarchical)

COOP B
n= 66
Low organization
elected members
but no real
representation



SURVEY RESPONDENTS

<i>n</i>	COOP A	COOP B
Age	136	66
18 – 24	0 (0 %)	9 (14.5%)
25 – 34	14 (10.3%)	13 (21.0%)
35 – 44	18 (13.2%)	11 (17.7%)
45- 54	26 (19.1%)	15 (24.2%)
Over 54	78 (57.3%)	14 (22.6%)
Education		
<i>No official education</i>	28 (20.9%)	8 (12.9%)
<i>Primary School</i>	13 (9.7%)	17 (27.4%)
<i>Secondary School</i>	12 (8.9%)	7 (11.3%)
<i>Religious</i>	59 (44%)	20 (32.2%)
<i>Superior Education</i>	6 (4.5%)	4 (6.4%)
<i>Other (includes basic literacy/ primary school plus religious schooling)</i>	16 (11.9%)	6 (9.7%)
Experience		
<i>Over 10 years</i>	129 (95.5%)	55 (88.8%)
Years living in the community		
<i>Over 10 years</i>	126 (93.3%)	52 (85.2%)
Land size		
<i>Less than 1 ha</i>	45 (35.6%)	2 (3.4%)
<i>1 – 3 ha</i>	62 (46.3%)	35 (60.3%)
<i>4 – 6 ha</i>	20 (14.9%)	16 (27.6%)

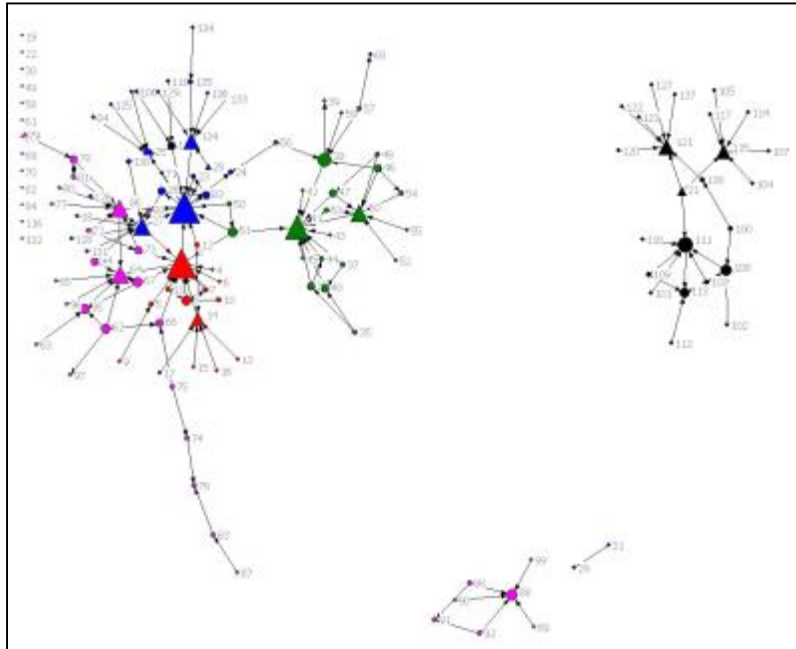
WHAT DO WE MEAN BY INNOVATION?

...adopted a new crop, new way of doing things, new planting method, new pest management technique, soil or water management or some “technical learning” in agriculture?

	COOP A	COOP B
Adopted Innovation over the last 5 years		
Yes	97 (71%)	42 (67.7%)
No	39 (29%)	20 (32.3%)
Information	4	9
Money	35	11

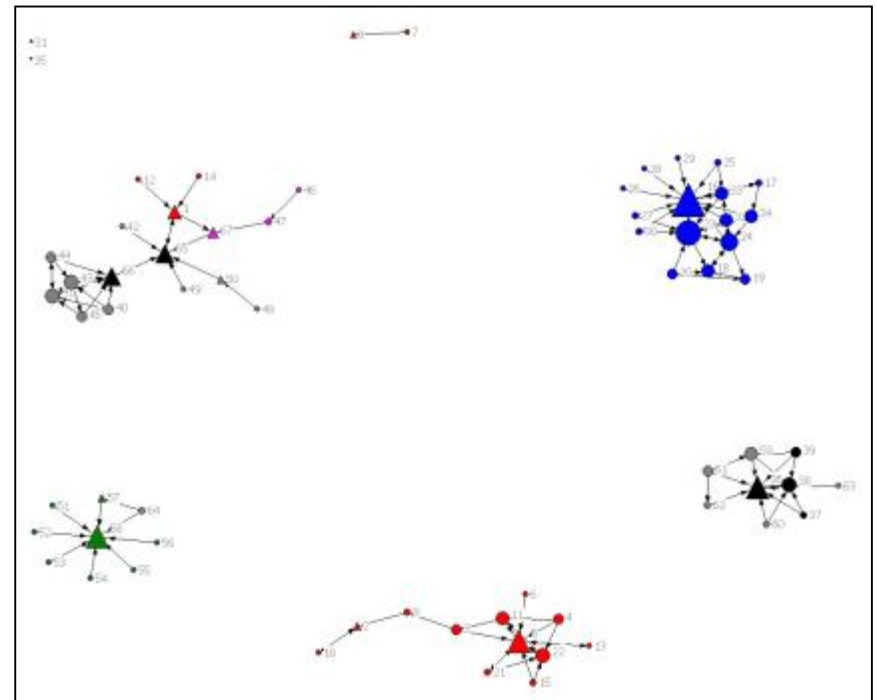
KNOWLEDGE SHARING NETWORKS

Q: WHO SHARES KNOWLEDGE OF INNOVATION WITH YOU?



COOP A
Core-periphery Model

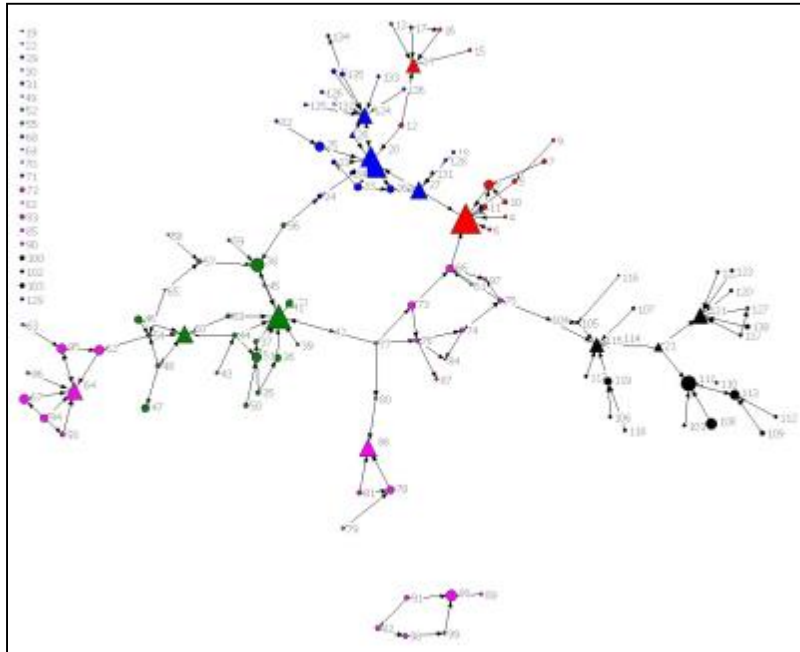
COOP B
Dispersed, broken into sub-groups



Colours represent sub-group attribution.
Triangles equal actors in positions of power and
Circles are general members

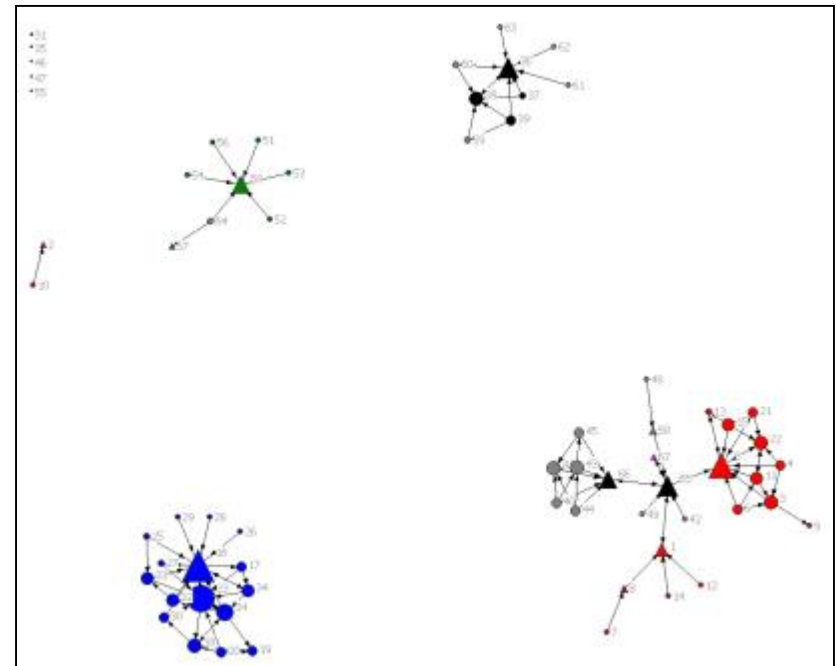
KNOWLEDGE PROVISION NETWORK

Q: WHO DO YOU SHARE KNOWLEDGE OF INNOVATION WITH?



COOP A
Core-periphery Model

COOP B
Dispersed, broken into sub-groups



Colours represent sub-group attribution.
Triangles equal actors in positions of power and
Circles are general members

HOW DOES INNOVATION SPREAD?

Vertical exchange

- Exchange between village representatives and cooperative leaders (staying with the hierarchy)
- Innovation transmission depended on connected sub-groups, which were not always present (COOP B)

“Every time that I go to a training workshop, whether on the dangers of chemical pesticides or on the cultivation of organic agriculture, I return to the village, call a meeting, and share the new information with them.” – COOP A member

WHAT INFLUENCES INNOVATION SPREAD?

Social relations are KEY

- Highly dependent on a relatively small number of key actors
- Leaders play an important role

“.... Everyone and everything has to pass by him. If [the union] received support in the form of equipment or finances, in place of sharing this information or that money or that equipment with everyone, he personally gives it out.” – Development official

Challenges facing MEMBERS' innovation ABILITY

1. Lack of Information

2. Access to Financial Capital

3. Access to Markets

POLICY IMPLICATIONS

1. Cooperatives members need both vertical and horizontal opportunities for members to spread and access innovation
2. Individual-level analysis can help identify what and/or who is influencing knowledge dissemination (innovation) and its adoption in a formal structure
3. Cooperatives are not inherently positive vehicles for innovation dissemination; rather, their ability depends heavily on the existing social capital found within the cooperative's framework

Thank you

Email. graeme.reed@mail.mcgill.ca