

Improving Water Productivity in Agricultural Systems

(With emphasis on irrigated production systems)

05 – 23 November 2017

ICARDA, Amman, Jordan

Cadoption Analysis and Impact Assessment of Water Saving- Irrigation Technologies

19 November 2017, Amman, Jordan

WHY WE NEED ADOPTION STUDIES?

Background

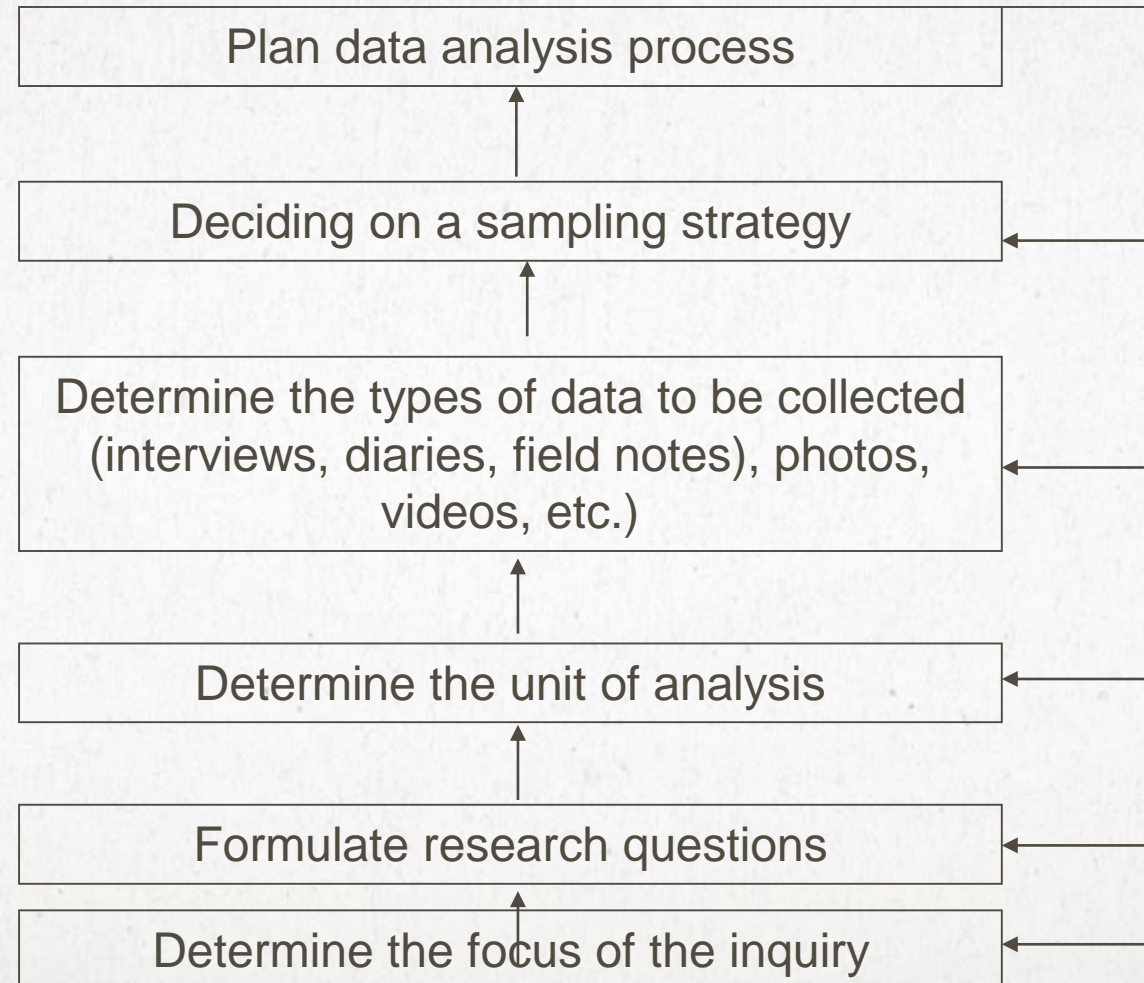
- Better understanding of farming systems and farming communities.
- Quantifying the number of technology users over time to assess impacts or determine extension requirements.
- Identifying Constraints (Technical, Socioeconomic, Environmental, Social, Cultural, Policy) and Working on Solutions.
- Improving technology adoption and diffusion.
- Providing information for policy reform.
- Providing a basis for measuring impact.

BASIC REQUIREMENTS FOR SUCCESSFUL ADOPTION

1. Technology should be developed and evaluated in areas of targeted groups.
2. Technology should not require high level of capital costs and imported inputs.
3. Production methods employed should be relatively simple.
4. Production should be mainly from local materials.

HOW TO CONDUCT ADOPTION STUDIES?

Structural Framework



HOW TO CONDUCT ADOPTION STUDIES?

Issues considered in quantitative and qualitative studies

Qualitative	Quantitative
Political and Institutional dynamic forces like, interdepartmental cooperation, conflicts, and investment	Impacts on production, income, Employment, education, expenditures, health and nutrition
Beliefs and attitudes, norms and values, social relationships	Targeting accuracy
Gender relations and status of women	Participation rates in training or services
Experiences with different institutions like, government agencies, hospitals, and banks	Household socio- demographic profile
Processes occurring in households, Organizations, and Communities	Household’s decision making
Service delivery like care practices and attitudes of service providers toward beneficiaries	Quality of services like staff absence, waiting times, availability and accuracy of consignments
Local satisfaction with program design, targeting, and administration	Test scores

HOW TO CONDUCT ADOPTION STUDIES?

Sequence of quantitative and qualitative methods

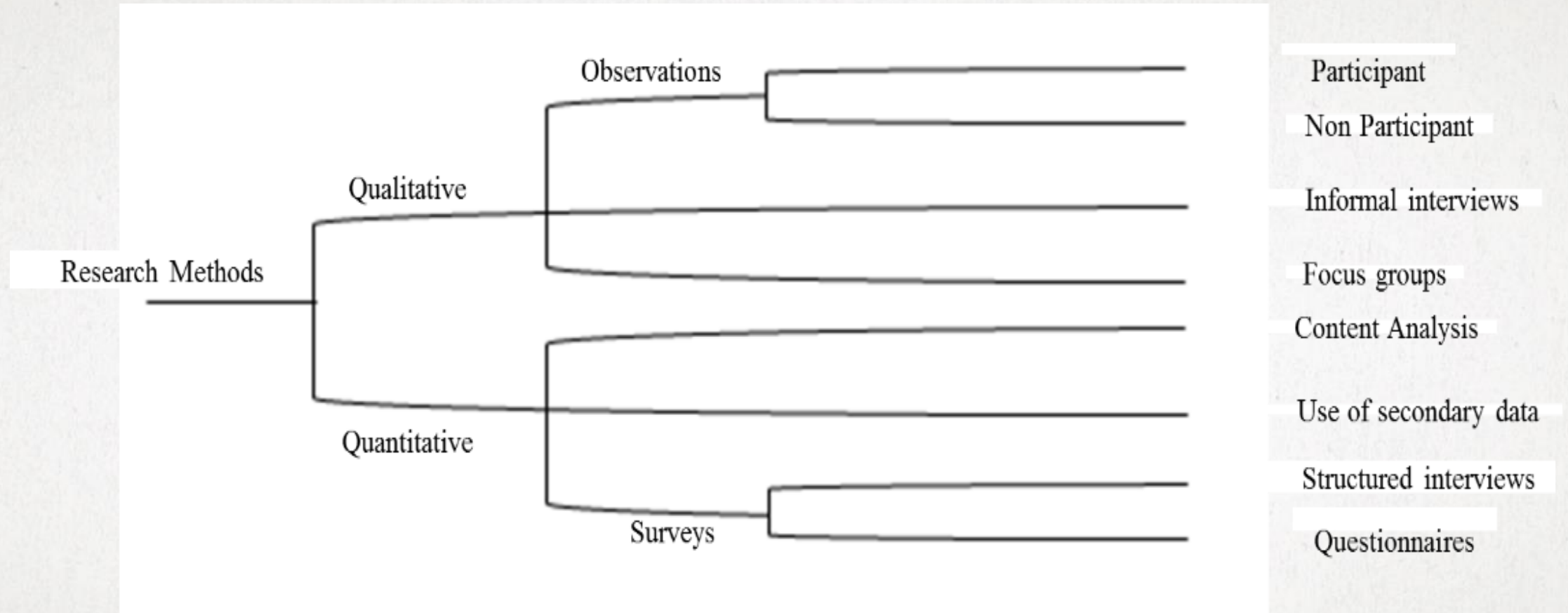


Fig. 1 Sequence of qualitative and quantitative methods used in the study

HOW TO CONDUCT ADOPTION STUDIES?

Detailed view on the methods used for data collection

Data collected on	Methods
Farmers livelihoods	Questionnaire, Farmers interview, field walk
Problems faced by farmers	Literature review, Focus groups, problem ranking PRA exercise
Documented sustainable agricultural practices and traditional farming practices	Interviews with Govt. agricultural offices, NGO's staff,
Reasons of adoption and non- adoption of sustainable agricultural practices	Questionnaire, Farmers interviews, informal talking with farmers and key informants
Rainfall and temperature data Maps generated	Local Govt. meteorology department GPS, GIS

HOW TO CONDUCT ADOPTION STUDIES?

Quantitative Research Methods

- These are several methods within this form of research of which are:
 1. Focus group discussions
 2. Key Informant Interviews
 3. Structured Interviews/Questionnaires

HOW TO CONDUCT ADOPTION STUDIES?

Focus Groups Discussions - FGD

- A group of 6-12 is assembled and engaged in an interaction to produce data and insights that would be less accessible without the interaction.
- The group put together should be fairly homogenous: Social status, experience/user status, sex, age etc
- It useful in identifying normative issues, terms, perceptions, attitudes, beliefs, interpretation, from a group of individuals
- Moderator is needed to guide and lead the discussion in a focused manner

HOW TO CONDUCT ADOPTION STUDIES?

Key Informant Interviews

- These are informal interviews directed to the knowledgeable people about the problem.
- These respondents may not necessarily be under the problem, but only with a sufficient knowledge.
- These informants should be selected carefully to reflect diverse views and concerns.
- An interview guide with issues to be covered is used and it is carried out in an informal atmosphere.

HOW TO CONDUCT ADOPTION STUDIES?

Structured Interviews: Questionnaires

Three methods:

1. Face-to-face interviews
2. Self-administered questionnaires
3. Telephone interviews

HOW TO CONDUCT ADOPTION STUDIES?

Structured Interviews: Face to face interviews

Advantages:

- Can be used with respondents who wouldn't be able to provide information in another format – bedridden, illiterate, etc.
- Researcher can elicit more in-depth response or fill in information if participant doesn't understand the question
- Different data collection techniques – open-ended questions, visual aids, etc.
- Certainty about who answered the questions

Disadvantages:

- Intrusive and reactive
- Cost time and money
- Difficult to locate respondents for callbacks

HOW TO CONDUCT ADOPTION STUDIES?

Structured Interviews: Self administered questionnaires

Advantages:

- Post Office locates participants
- Everybody gets the same questions
- Researcher can ask more complex questions
- No response effect (less likely to try to impress interviewer)
- Can be computer-based

Disadvantages:

- No control over participant interpretation
- Low response rates
- Uncertainty about who actually filled out the questionnaire
- Useless with non-literate, illiterate populations or hard-to-reach populations

HOW TO CONDUCT ADOPTION STUDIES?

Structured Interviews: Telephone interviews

Advantages:

- Combo of face-to-face personal quality with impersonal self-administered questionnaires
- Inexpensive and convenient (maybe)
- Safe for interviewers

Disadvantages:

- Changing demographics – more cell phones?
 - May miss certain population segments
- Survey must be short or people will hang up
- “No Call Lists” presenting increasing challenge

HOW TO CONDUCT ADOPTION STUDIES?

Focus Groups vs Surveys

- Surveys offer quantitative measurements based on a representative sample
- Focus groups offer content insight – the **why** of what people think

Impact Assessment of Agricultural Technologies

ADOPTION INDICATORS

- **Adoption Rate (AR):** % of farmers who used the technology.

The adoption rate of a new technology is subject to:

- Its profitability,
- The degree of risk and uncertainty,
- Capital requirements,
- Agricultural policies,
- Socioeconomic characteristics of farmers.

- **Degree of Adoption (DA):** Measured by the proportion of land under the new technology
- **Intensity of Adoption (IA = AR*DA):** Measured by multiplying adoption rate by degree of adoption.

ADOPTION INDICATORS

Case study

Exercise

Total number of olive trees farmers in region X	Number of olive trees farmers using supplemental irrigation technology	Total area planted with olive trees	Total area under supplemental irrigation technique
200	50	750 ha	500ha

Calculate the following :

Adoption rate (%)	Degree of adoption (%)	Intensity of Adoption
??	??	??

ADOPTION INDICATORS

Case study

Result

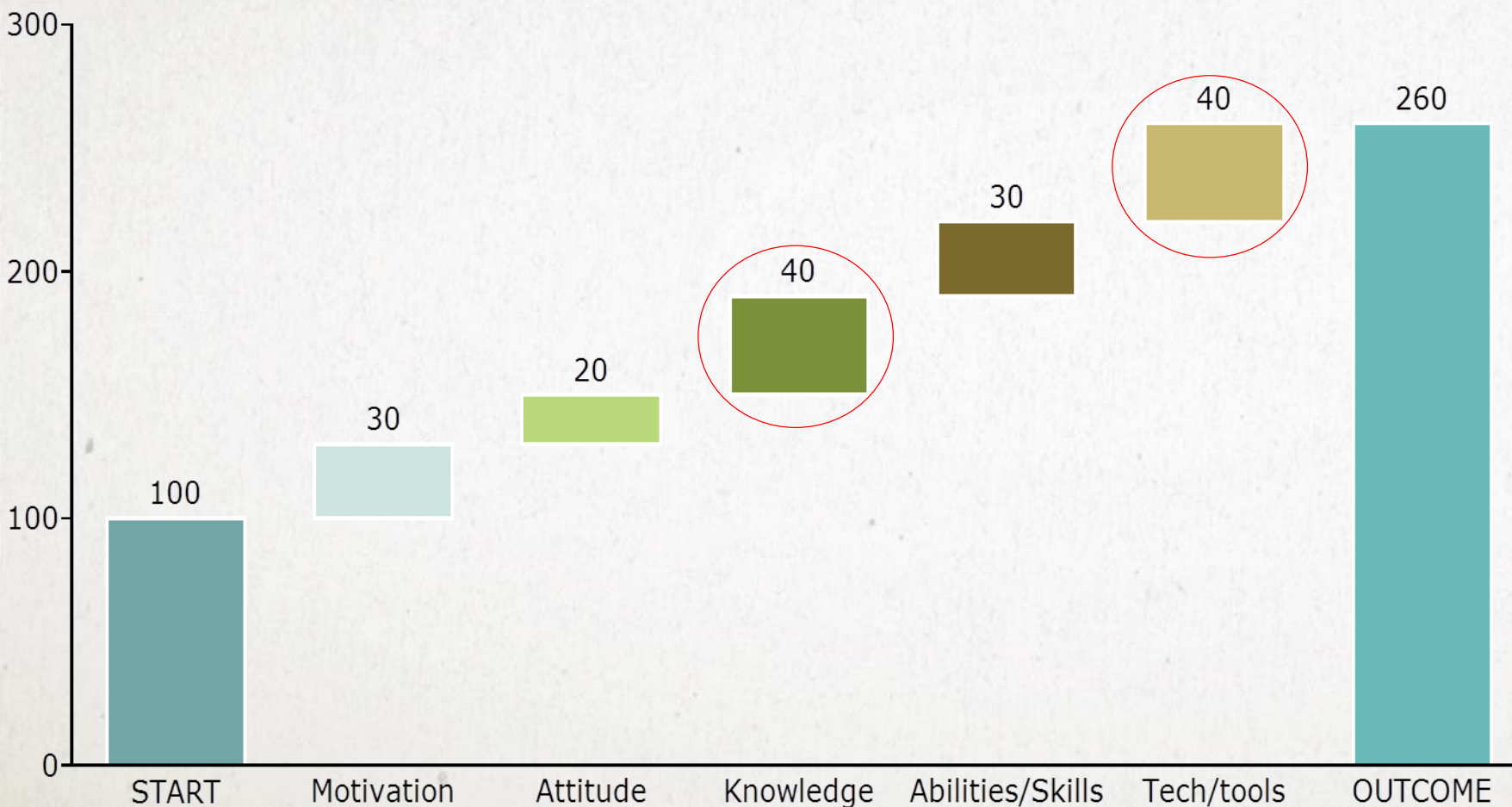
Adoption rate (%)	Degree of adoption (%)	Intensity of Adoption
0.25	0.66	0.16

- **Farmer's viewpoint** The final success of a new agricultural technology depends on perception of farmers' evaluation, acceptance, adoption, and sustained use.

CASE STUDY

Farmer's perception to agricultural technologies characteristics: the MAKAT Approach

The Conservation agriculture in Morocco



- Farmer's viewpoint
- The final success of a new agricultural technology depends on perception of farmers' evaluation, acceptance, adoption, and sustained use.

ADOPT

Adoption and Diffusion Outcome Prediction Tool

ADOPT SOFTWARE

Conceptual/Theoretical Framework

Methodological background

⦿ How ADOPT works

- **Predict** the likely peak level of adoption of an innovation and the time taken to reach that peak.
- **Encourage** users to consider the factors that affect adoption at the time that projects are designed.
- **Engage** research, development and extension managers and practitioners by making adoptability knowledge and considerations more transparent and understandable.

Data collection needed

- Focus groups/country/region (farmers vs researchers vs extensionists)
- 22 questions with several options (agreed only on one option)

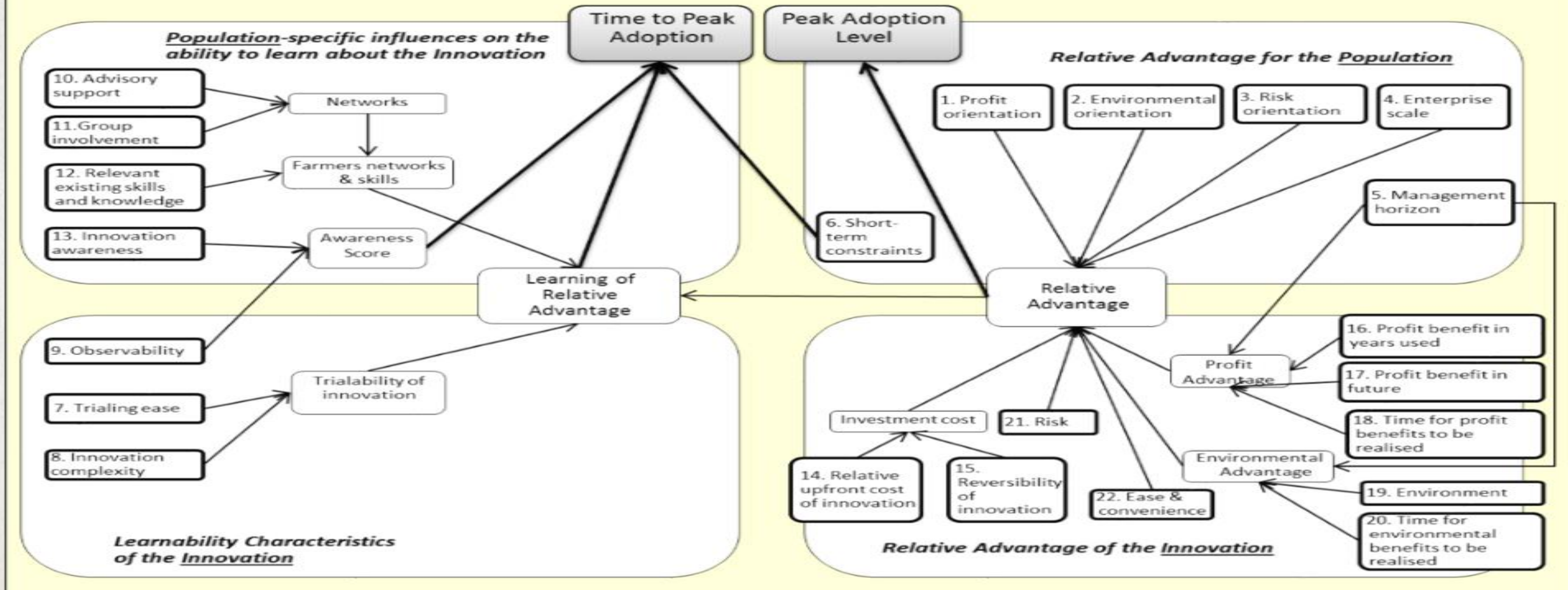
Outputs

- Time to peak adoption
- Peak adoption level
- Adoption determinants factors
- Sensitivity analysis

ADOPT SOFTWARE

Conceptual / Theoretical Framework

ADOPT: Adoption and Diffusion Outcome Prediction Tool.



ADOPT SOFTWARE

Example in Practice

ADOPT: Adoption and Diffusion Outcome Prediction Tool



Source:

http://aciar.gov.au/files/node/13992/adopt_a_tool_for_evaluating_adoptability_of_agric_94588.pdf

Thank You

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