

# LOCAL COOPERATION, LOCAL PROSPERITY

Insights from a Participatory System  
Dynamics Modelling process in a  
Degrowth Community

*Giovanni Cunico*

*I-Chun Huang*

*Sebastiaan Deuten*

*giovanni@cunico.org*

*r97b44004@ntu.edu.tw*

*sebastiaan.deuten@gmail.com*

Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions

LOCAL COOPERATION,  
LOCAL PROSPERITY

*Giovanni Cunico*

*I-Chun Huang*

*Sebastiaan Deuten*

# Agenda

- Background
- Problem
- Process
  - Assumptions
  - Timeline
  - Interviews
  - Dynamic Hypothesis
  - Workshop
- Analysis
  - Causal Loop Diagrams
  - Simulations
- Policies
- Implementation
- Conclusions

Background

Problem

Process

Assumptions  
Timeline  
Interviews  
Dynamic Hypothesis  
Workshop

Analysis

Causal Loop Diagrams  
Simulations

Policies

Implementation

Conclusions

# Background

- the “Cooperative”
- Rural area near Lisbon, Portugal
- Located in small municipality 15,000 inhabitants
  - A cooperation between local producers, owning a store near the center
  - Goal is to provide for all necessities of life: food, housing, education, energy, health care. Previously managed by the government, businesses, or family system; currently ceasing to exist or becoming more expensive

Background

Problem

Process

Assumptions  
Timeline  
Interviews  
Dynamic Hypothesis  
Workshop

Analysis

Causal Loop Diagrams  
Simulations

Policies

Implementation

Conclusions

# Background

In 2016: food, clothing, ceramics, cosmetics, furniture, building material, music instruments, solar panels. Also business support, architecture, web design, a veterinary clinic, yoga and homework support



Background

Problem

Process

Assumptions  
Timeline  
Interviews  
Dynamic Hypothesis  
Workshop

Analysis

Causal Loop Diagrams  
Simulations

Policies

Implementation

Conclusions

# Background

- Course Project - Course: Sustainability Strategies Lab; European Master in System Dynamics
- Project April, May, June; 2016

# Problem

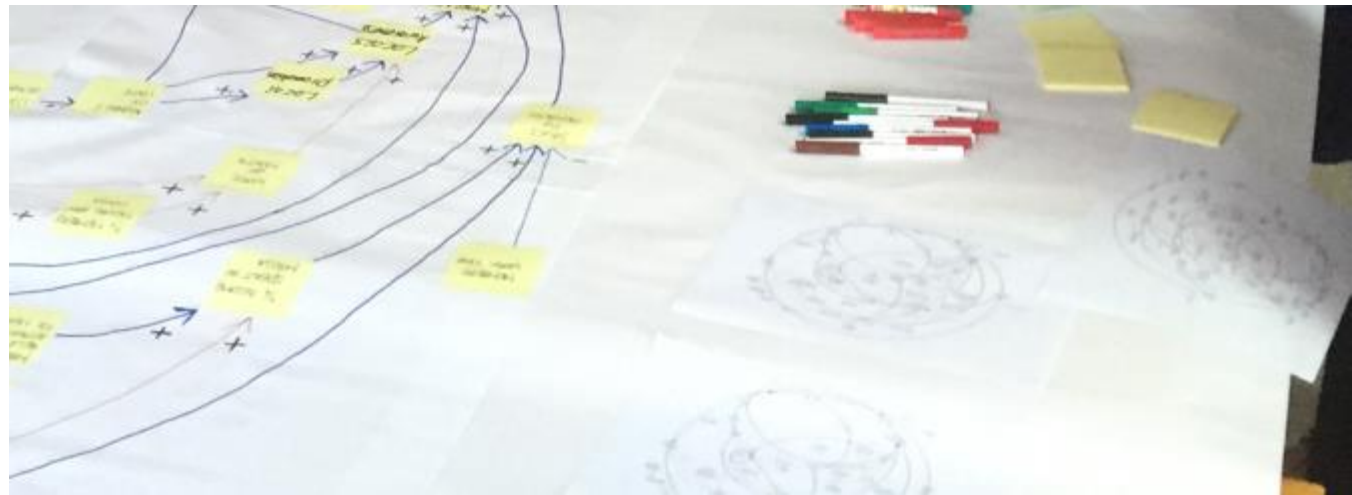
- Less than desired communication and effort amongst the members of the cooperative
- Not financially independent - lack of liquidity
- Reliance on the manager

# CONCLUSIONS

The background features abstract geometric shapes in various shades of teal and green. On the left, a solid teal shape curves upwards. On the right, there are several overlapping, semi-transparent shapes in different shades of teal and green, creating a layered effect. A thin, light-colored line runs diagonally across the right side of the page.

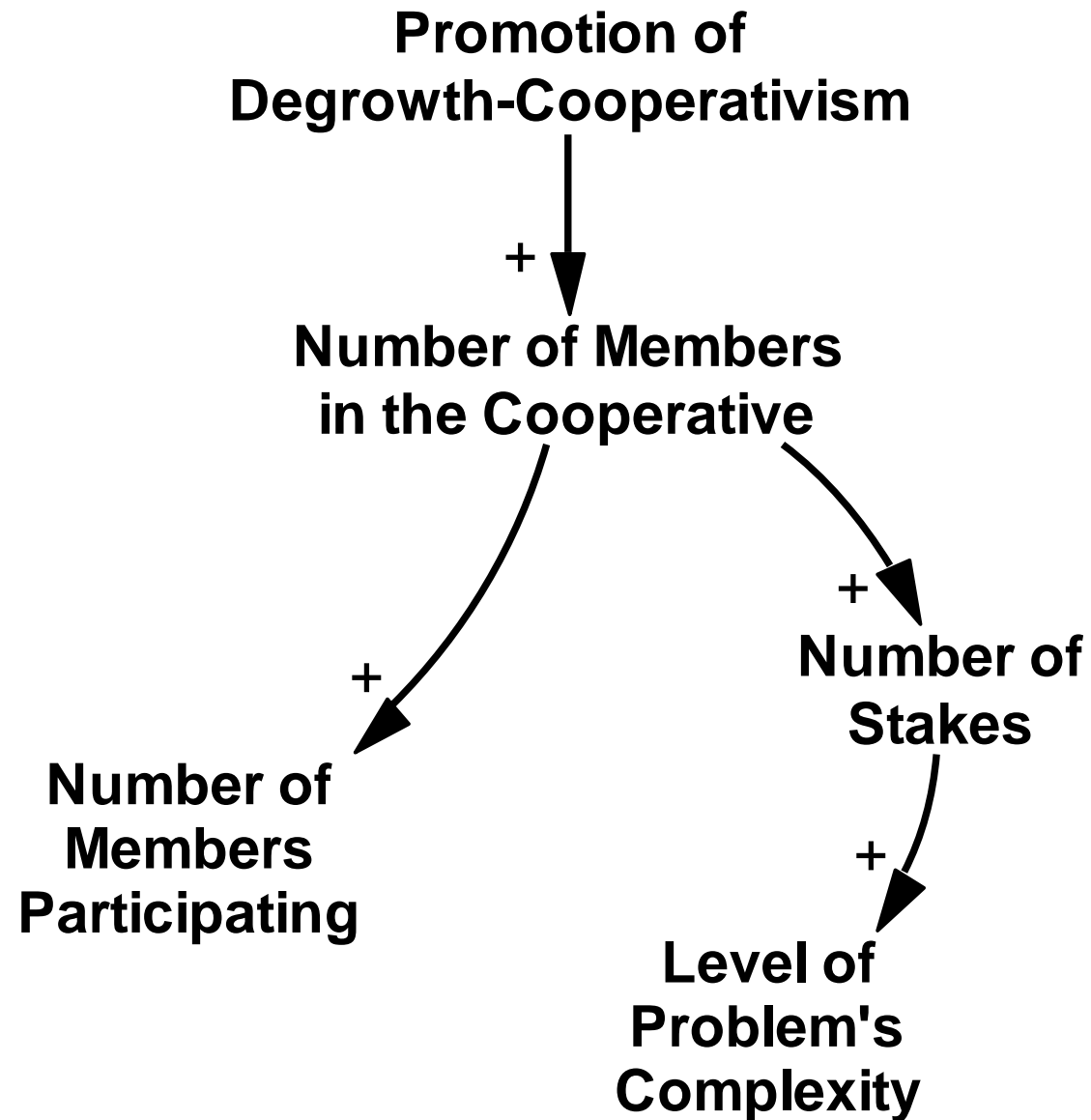
# Conclusions: Theoretical

- GMB has the potential to ignite discussion
- Discussion has the potential to change the status-quo
  
- SD and Degrowth share common principles: GMB facilitators have a low potential of getting in conflict with GMB participants from a degrowth community





# Conclusions: Theoretical





# Conclusions: Theoretical

Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

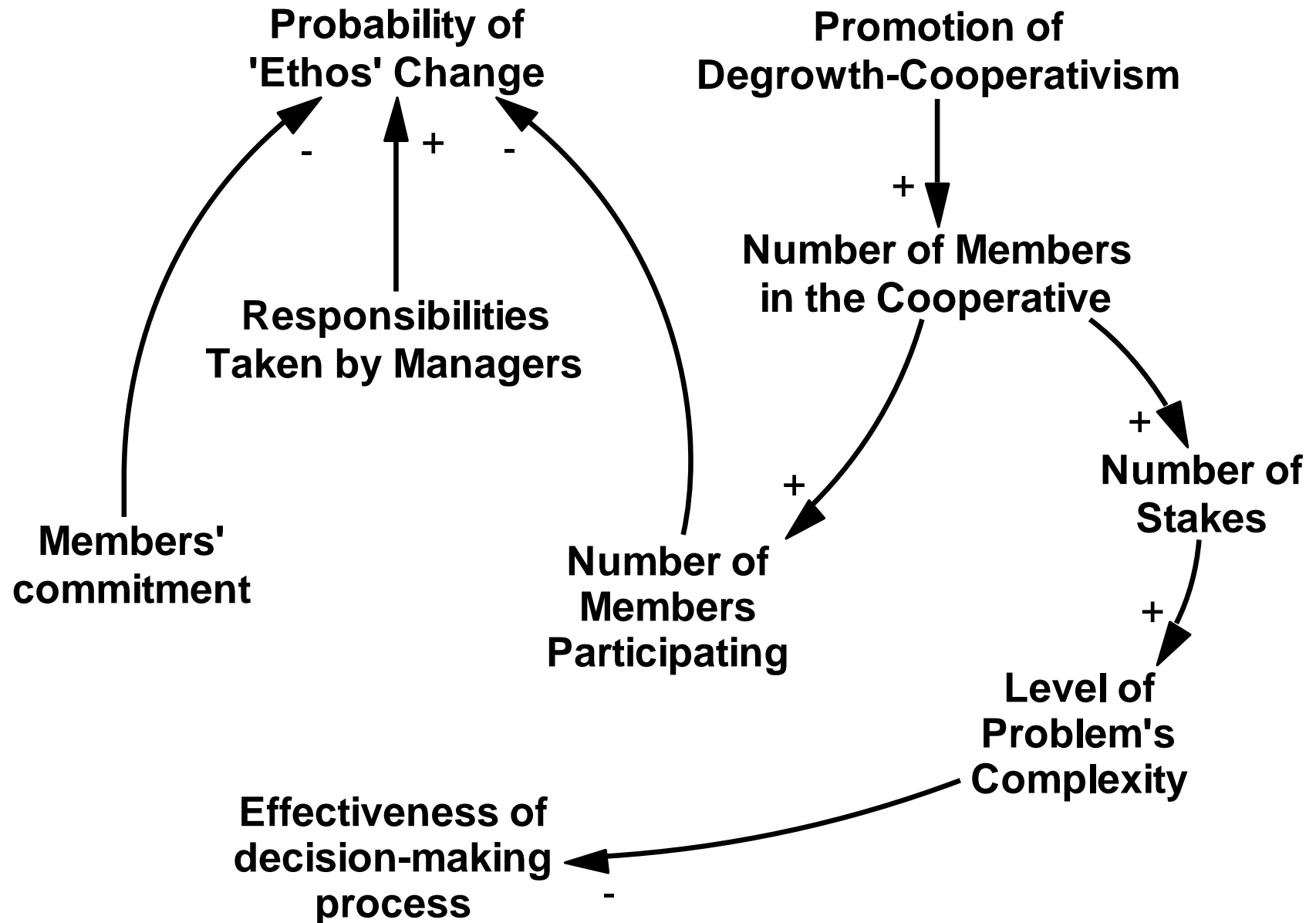
Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions



# Conclusions: Theoretical

Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

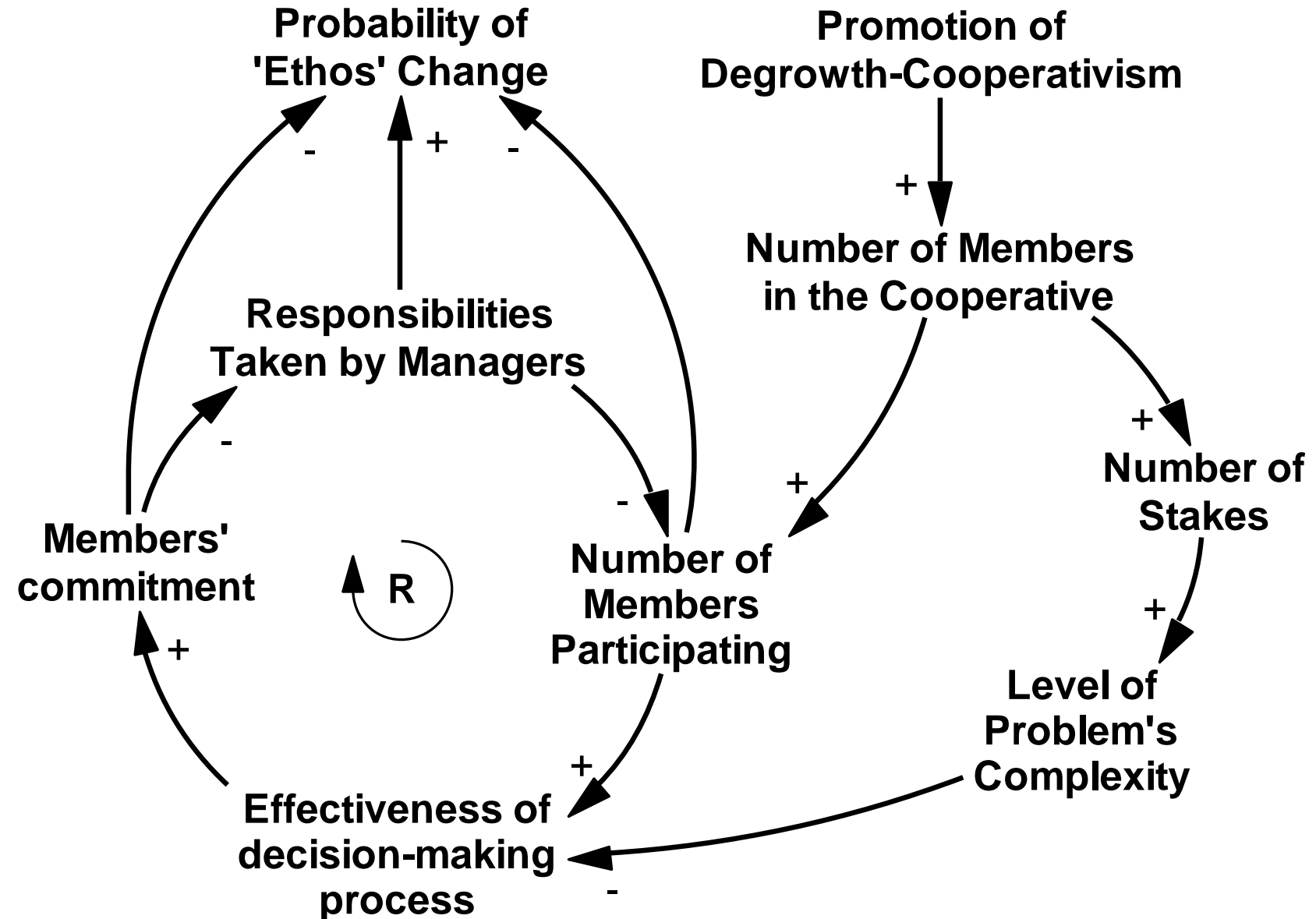
Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions



# Conclusions: Theoretical

Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

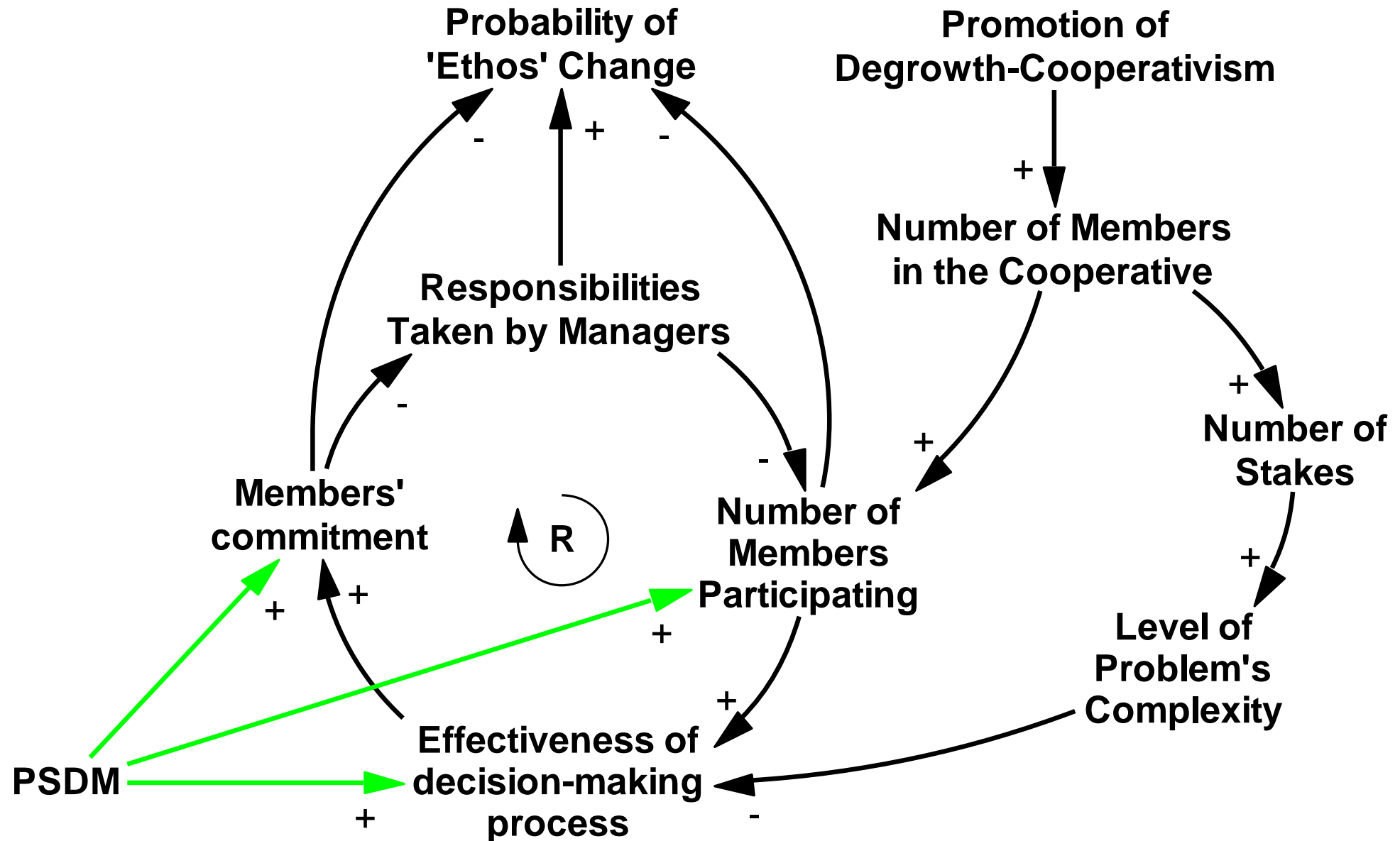
Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions



# HOW WE GOT TO THE CONCLUSIONS

The background features abstract, overlapping geometric shapes in various shades of teal, blue, and green. The shapes are layered, creating a sense of depth and movement. The colors range from light, airy blues to deep, forest greens. The overall composition is clean and modern, with a focus on geometric forms and a cool color palette.

# Problem

- Requests from the manager:
  - Raising awareness of the workings of a cooperative
  - Tool for explanation to potential members
  - Revising strategic plan
- Proposal: build common understanding amongst members
  - 8 interviews
  - 2 workshops for creating a systems map together with the members
  - 1 final meeting with the manager
- Facilitate discussion
- Action items

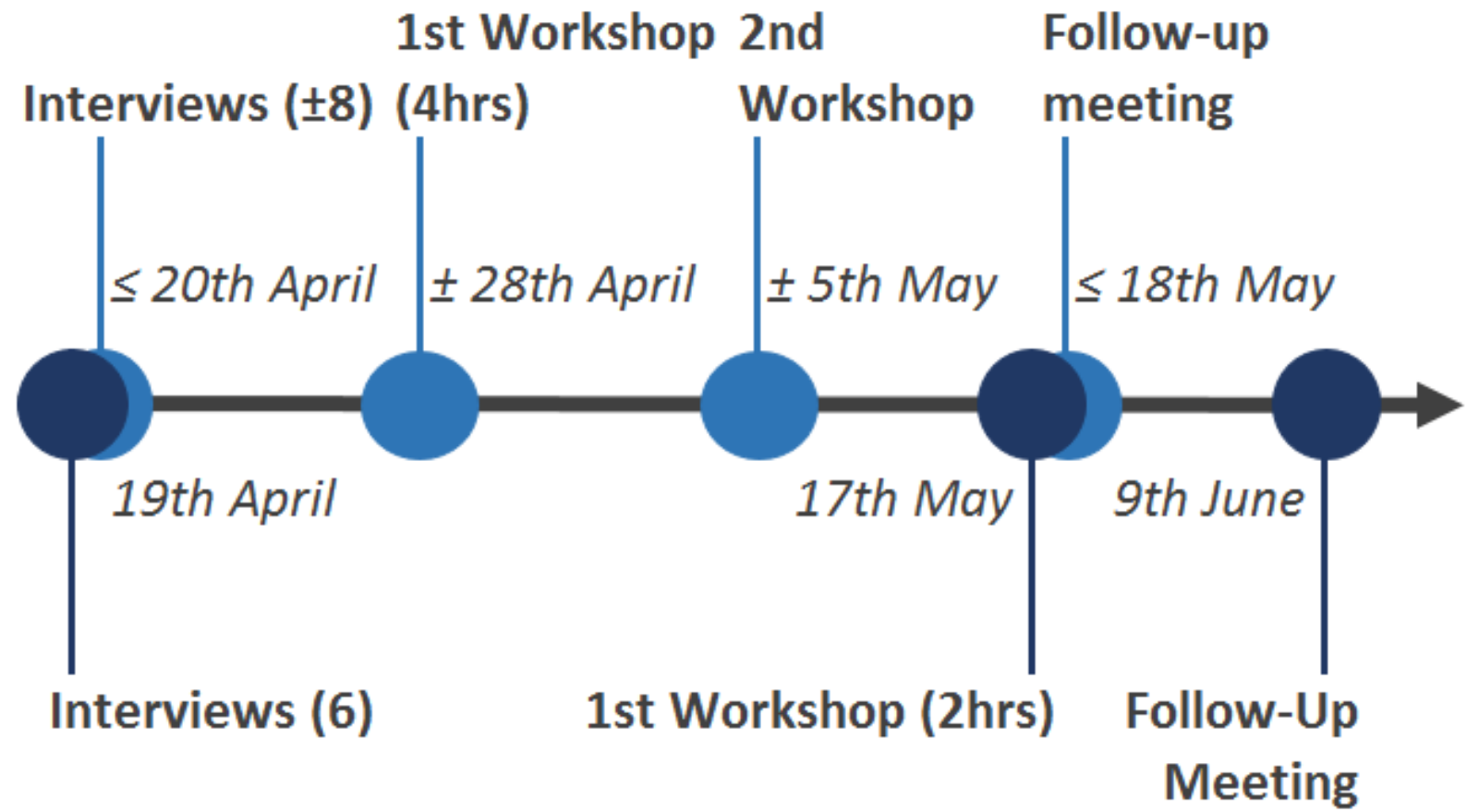
# Process: Assumptions

- **Problems can be met with** the use of Participatory System Dynamics Modelling
- **Raising awareness** of the workings of a cooperative
- Facilitating **communication** among-, and inspiring **action** in members
- Such that eventually financial independence is reached and the organization becomes less reliable on the manager
- **Diagrams potentially be useful** as a tool for explaining membership benefits to potential members

- Background
- Problem
- Process
  - Assumptions
  - Timeline
  - Interviews
  - Dynamic Hypothesis
  - Workshop
- Analysis
  - Causal Loop Diagrams
  - Simulations
- Policies
- Implementation
- Conclusions

# Process: Timeline

## Original Timeline



## Actual Timeline

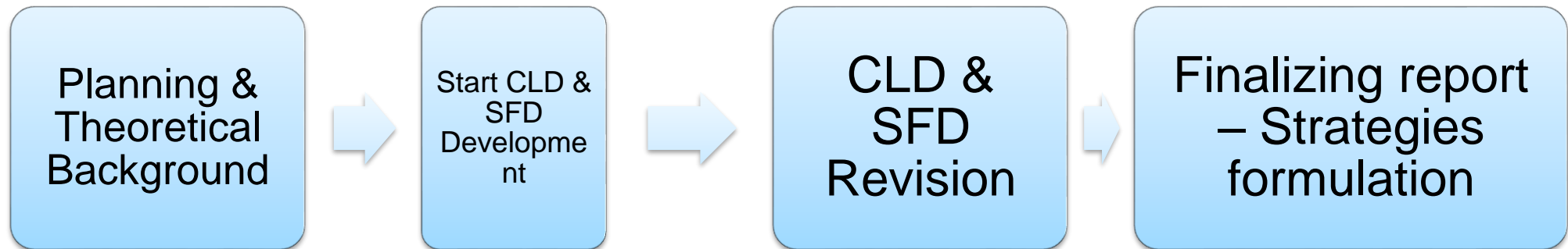


# Process: Timeline

## With Stakeholders



## Behind the Scenes



Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions

LOCAL COOPERATION,

LOCAL PROSPERITY

*Giovanni Cunico*

*I-Chun Huang*

*Sebastiaan Deuten*

Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions

# Process: Interviews

- 6 structured interviews
  - Four producers,
  - Store employee,
  - Manager
- Key themes in the interview:
  - Interviewees' understanding, concern, aspiration for the operation of cooperative
  - Cash flow: how money is earned and spent
  - Group dynamics in Minga
  - Tips for the workshop

Background

Problem

Process

Assumptions

Timeline

Interviews

**Dynamic Hypothesis**

Workshop

Analysis

Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions

# Process: Dynamic Hypothesis

- CLD based on interviews and theory
- Start SFD development based on CLD

# Process: Workshop

- Purpose:
  - Revise the systems map of Minga
  - Collect ideas about how to communicate the systems map to the rest of the members in Minga
- Setting:
  - Participants: 6, of which 5 were previous interviews
  - “Variety” among the participants
  - Supposed to be 3hrs but only 2hrs

# Process: Workshop

- Procedure
  - Hello and Explanation CLDs (30 mins)
  - Introduction Cooperative CLD (10 mins)
  - Initial Questions (10 mins)
  - Split in two groups, group discussions and alterations of the map (30 mins, incl break)
  - Group Discussion (30 mins)
  - Evaluation (10 mins)

Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions

LOCAL COOPERATION,  
LOCAL PROSPERITY  
*Giovanni Cunico*  
*I-Chun Huang*  
*Sebastiaan Deuten*

# Process: Workshop

- Explanation of CLDs: Chicken, Eggs, Road Crossings





Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions

LOCAL COOPERATION,  
LOCAL PROSPERITY  
*Giovanni Cunico*  
*I-Chun Huang*  
*Sebastiaan Deuten*

# Process: Workshop

- Introduction Cooperative CLD





Background

Problem

Process

- Assumptions
- Timeline
- Interviews
- Dynamic Hypothesis
- Workshop**

Analysis

- Causal Loop Diagrams
- Simulations

Policies

Implementation

Conclusions

# Process: Workshop

- Small group discussion



# Process: Workshop

- Group discussion
- Portuguese

Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

**Workshop**

Analysis

Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions

LOCAL COOPERATION,

LOCAL PROSPERITY

*Giovanni Cunico*

*I-Chun Huang*

*Sebastiaan Deuten*

Stakeholder  
Engagement  
Parallel 4134  
08/07/18  
HT 102

# Analysis: Causal Loop Diagrams

Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

**Causal Loop Diagrams**

Simulations

Policies

Implementation

Conclusions

LOCAL COOPERATION,

LOCAL PROSPERITY

*Giovanni Cunico*

*I-Chun Huang*

*Sebastiaan Deuten*

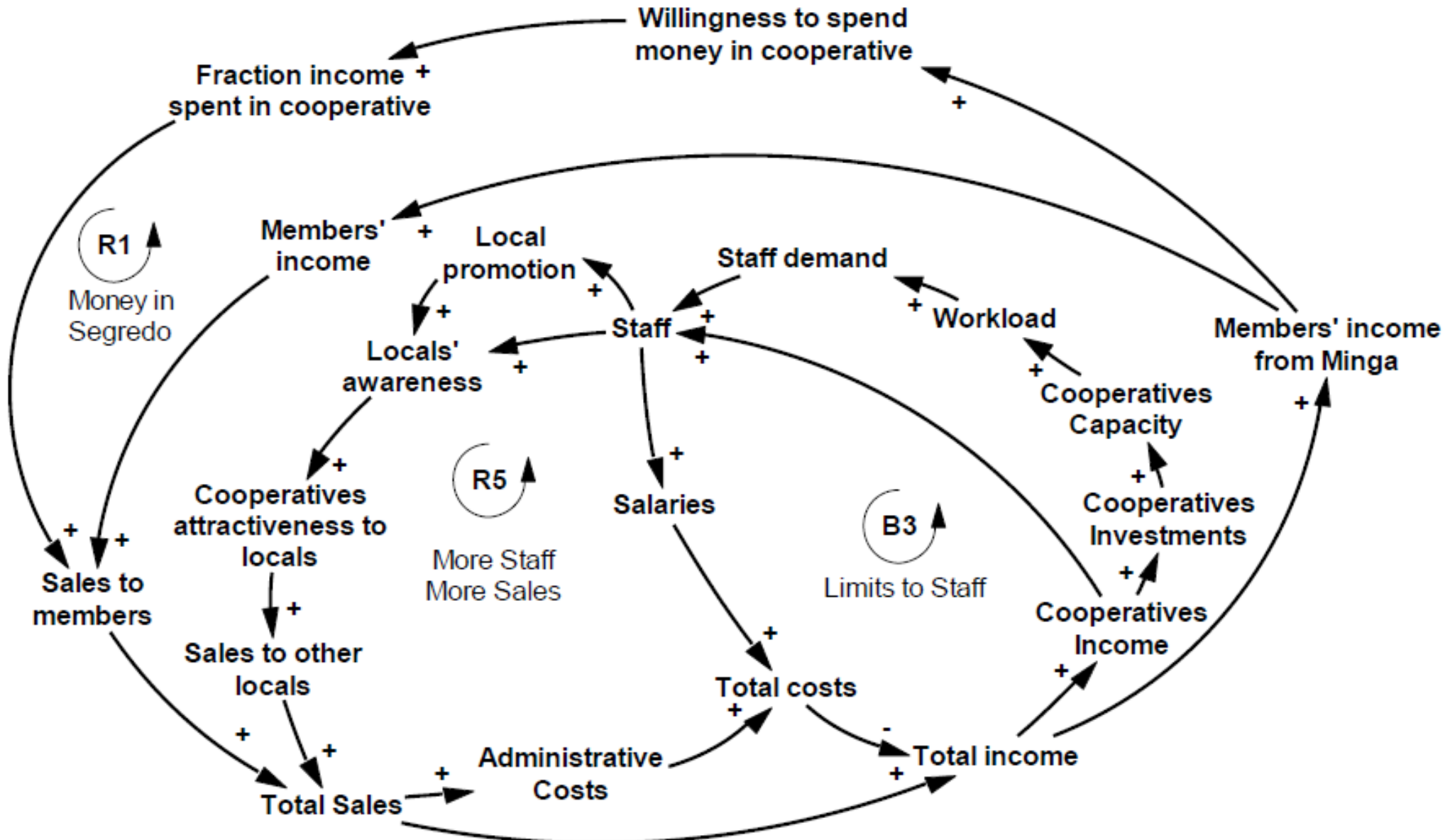
# Analysis: Causal Loop Diagrams

- Background
- Problem
- Process
  - Assumptions
  - Timeline
  - Interviews
  - Dynamic Hypothesis
  - Workshop

- Analysis
  - Causal Loop Diagrams
  - Simulations

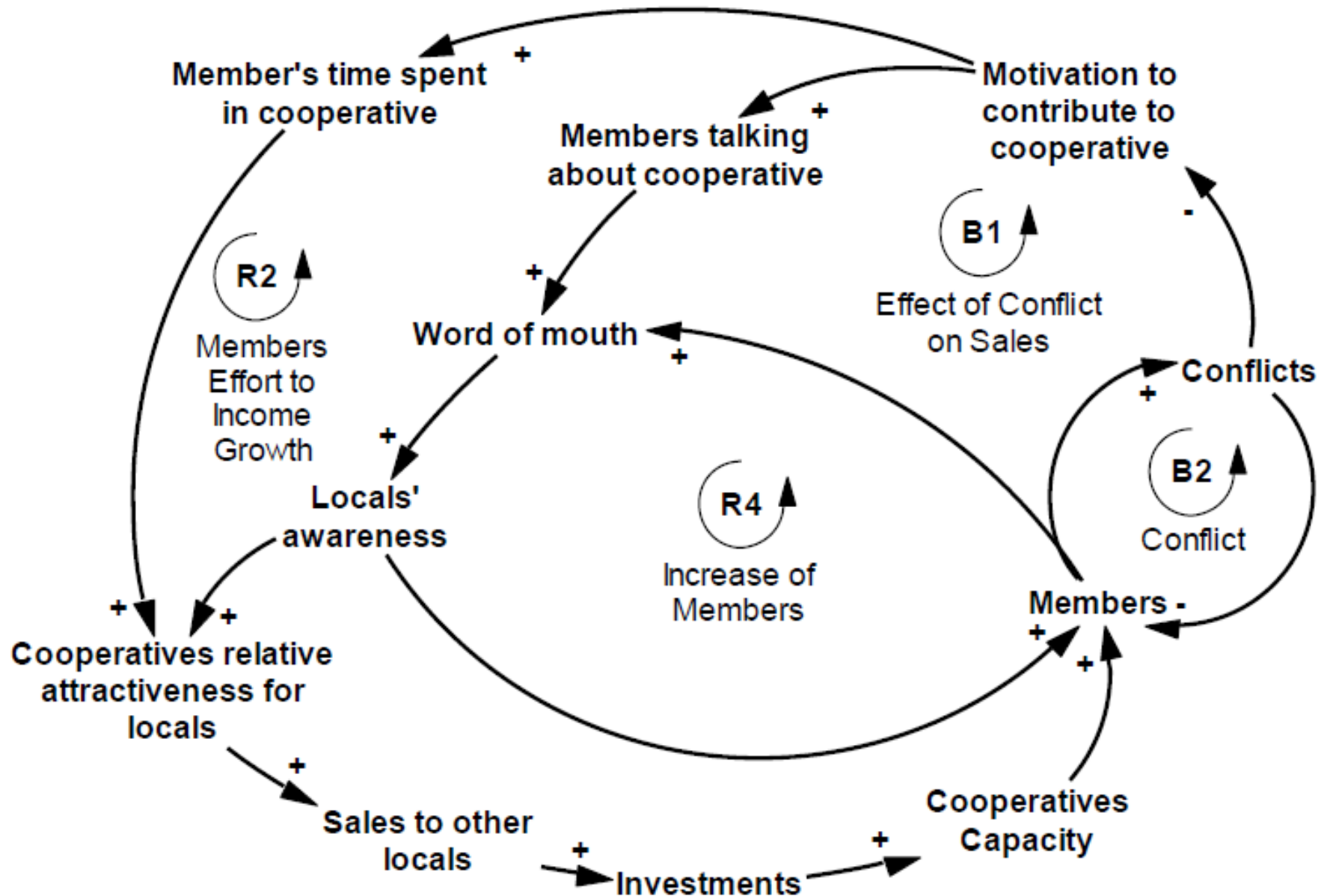
- Policies
- Implementation
- Conclusions

LOCAL COOPERATION,  
 LOCAL PROSPERITY  
*Giovanni Cunico*  
*I-Chun Huang*  
*Sebastiaan Deuten*



# Analysis: Causal Loop Diagrams

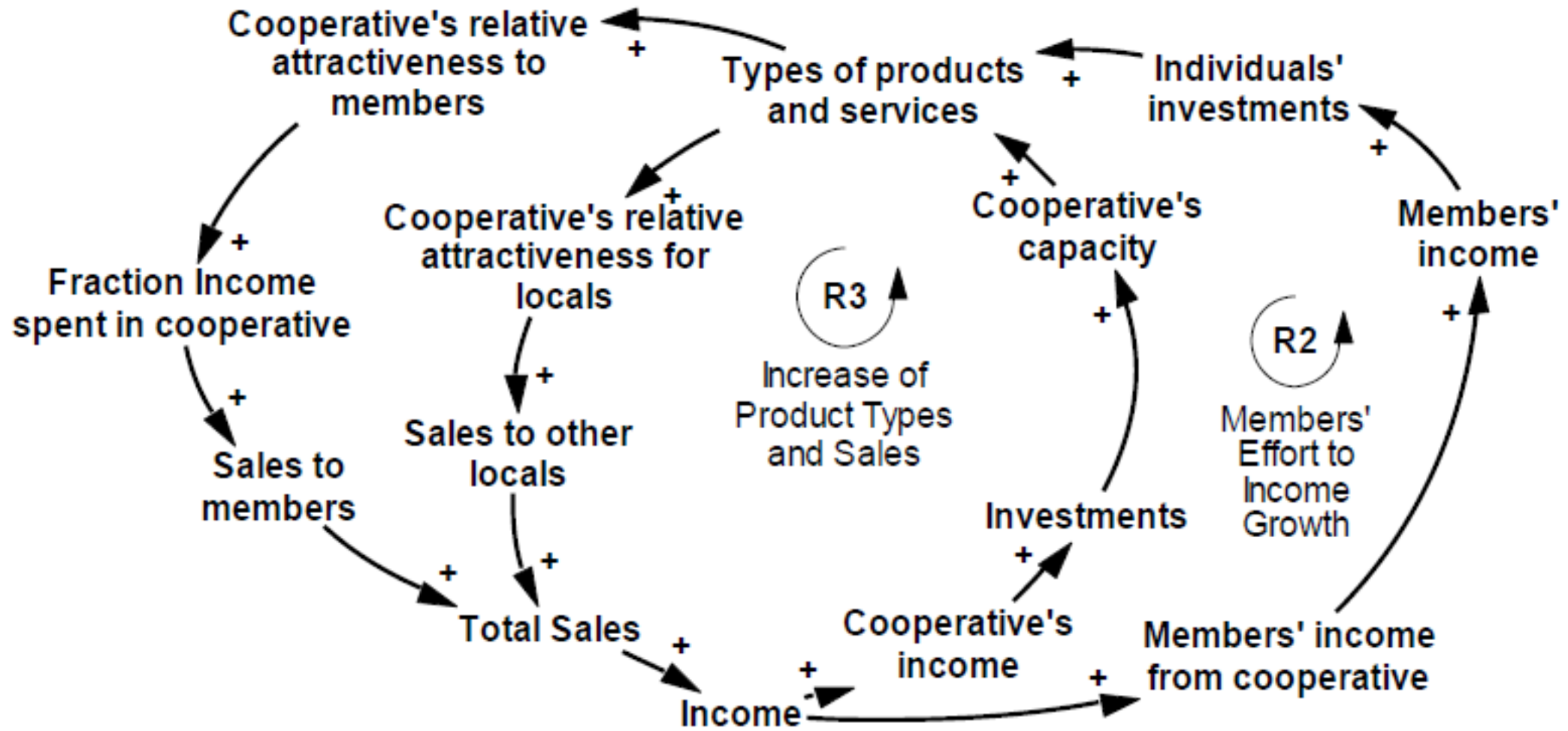
- Background
- Problem
- Process
  - Assumptions
  - Timeline
  - Interviews
  - Dynamic Hypothesis
  - Workshop
- Analysis
  - Causal Loop Diagrams
  - Simulations
- Policies
- Implementation
- Conclusions



LOCAL COOPERATION,  
 LOCAL PROSPERITY  
*Giovanni Cunico*  
*I-Chun Huang*  
*Sebastiaan Deuten*

# Analysis: Causal Loop Diagrams

- Background
- Problem
- Process
  - Assumptions
  - Timeline
  - Interviews
  - Dynamic Hypothesis
  - Workshop
- Analysis
  - Causal Loop Diagrams
  - Simulations
- Policies
- Implementation
- Conclusions



LOCAL COOPERATION,  
 LOCAL PROSPERITY  
*Giovanni Cunico*  
*I-Chun Huang*  
*Sebastiaan Deuten*



Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

Causal Loop Diagrams

**Simulations**

Policies

Implementation

Conclusions

# Analysis: Simulations

- Structure Oriented Behavior Tests
- Validating CLDs



Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

Causal Loop Diagrams

Simulations

**Policies**

Implementation

Conclusions

# Policies

- Many recommendations ... among which:
- Encourage members to spend more time in the cooperative
- More formal representation

Background

Problem

Process

Assumptions  
Timeline  
Interviews  
Dynamic Hypothesis  
Workshop

Analysis

Causal Loop Diagrams  
Simulations

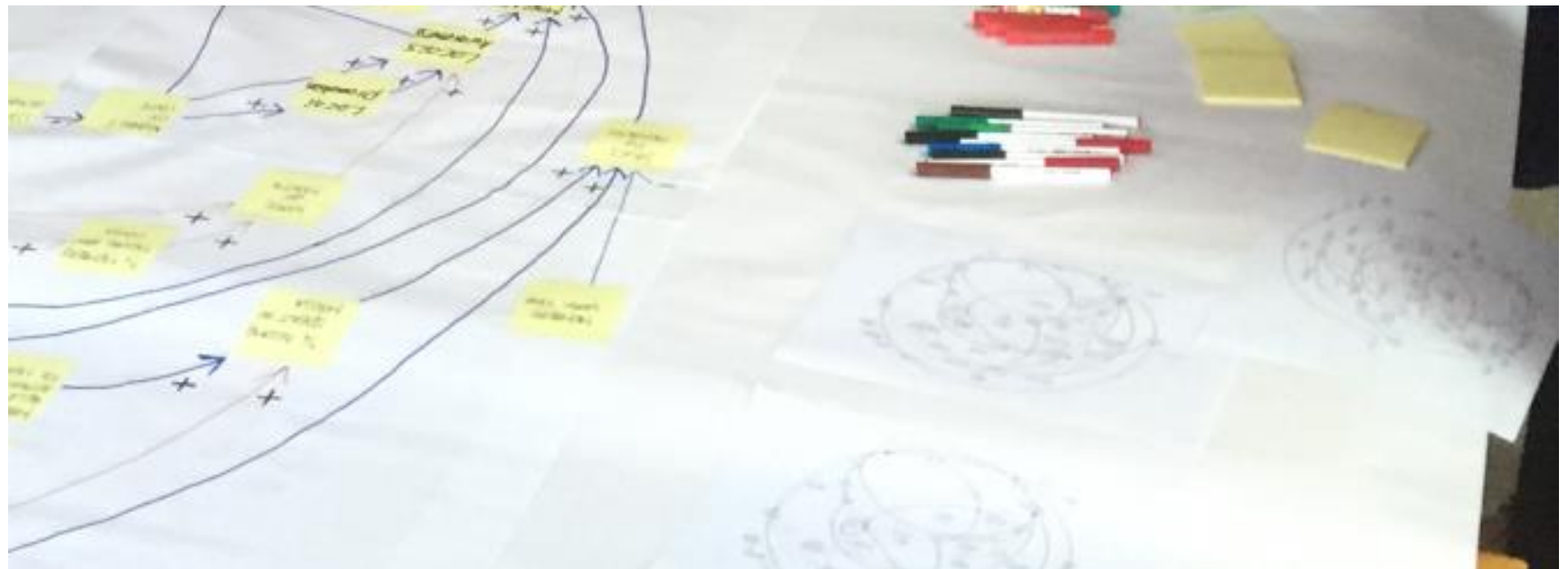
Policies

**Implementation**

Conclusions

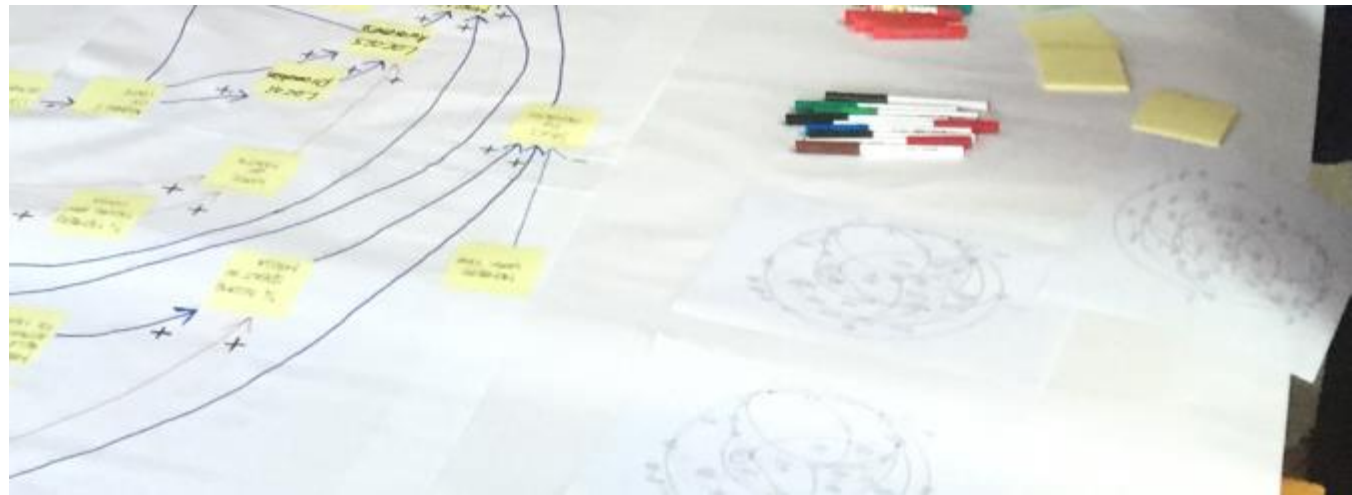
# Implementation

- Potential Members CLD
- Changes in mindset



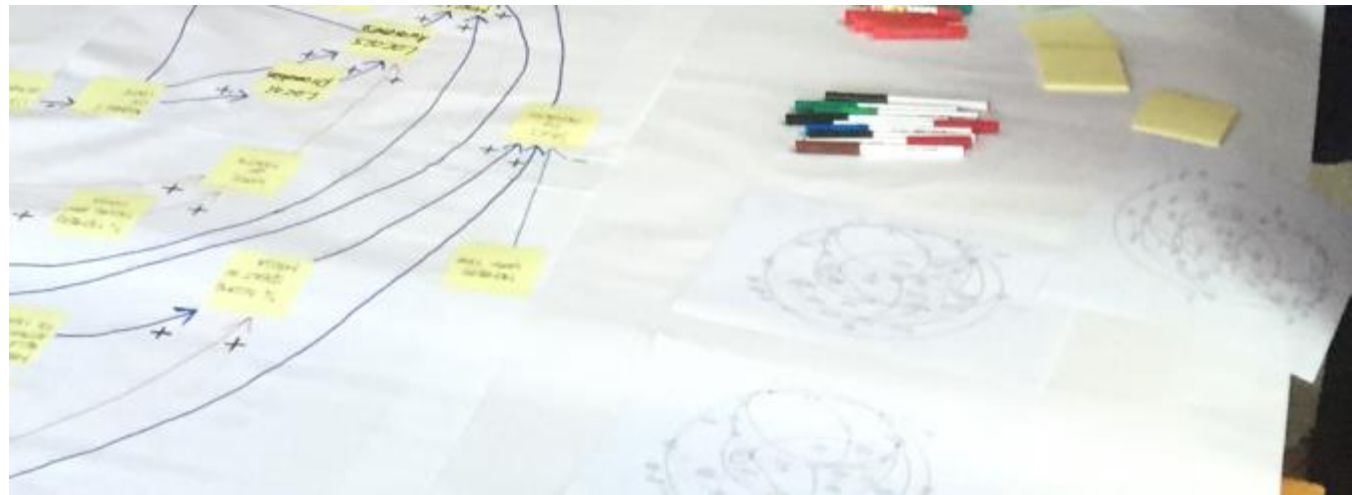
# Conclusions: Practical Lessons

- Strict agreement on session length
  - Mailing participants ourselves, keeping in touch more often in the week before the session
- Name of the loops caused confusion
  - Making a clear visible distinction between variables and loop names, explaining the illustrative name of the loop
- The language barrier indicated the need for a translator



# Conclusions: Theoretical

- GMB has the potential to ignite discussion
- Discussion has the potential to change the status-quo
  
- SD and Degrowth share common principles: GMB facilitators have a low potential of getting in conflict with GMB participants from a degrowth community



# Conclusions: Theoretical

Background

Problem

Process

Assumptions

Timeline

Interviews

Dynamic Hypothesis

Workshop

Analysis

Causal Loop Diagrams

Simulations

Policies

Implementation

Conclusions

