

# Seizing entrepreneurial opportunities in ecosystem-based adaptation

A set-theoretic approach towards opportunity exploitation

3 December 2015, Debora de Block



# Ecosystem-based adaptation and entrepreneurs

## Ecosystem-based adaptation

The use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people adapt to the adverse effects of climate change (CBD 2009)

## Entrepreneurs

Actors with a drive to grasp opportunities, enabling them to bring about change (Shane and Venkataraman 2000)



# Research questions

## **Main research question:**

Under which conditions are entrepreneurial opportunities in ecosystem-based adaptation exploited?

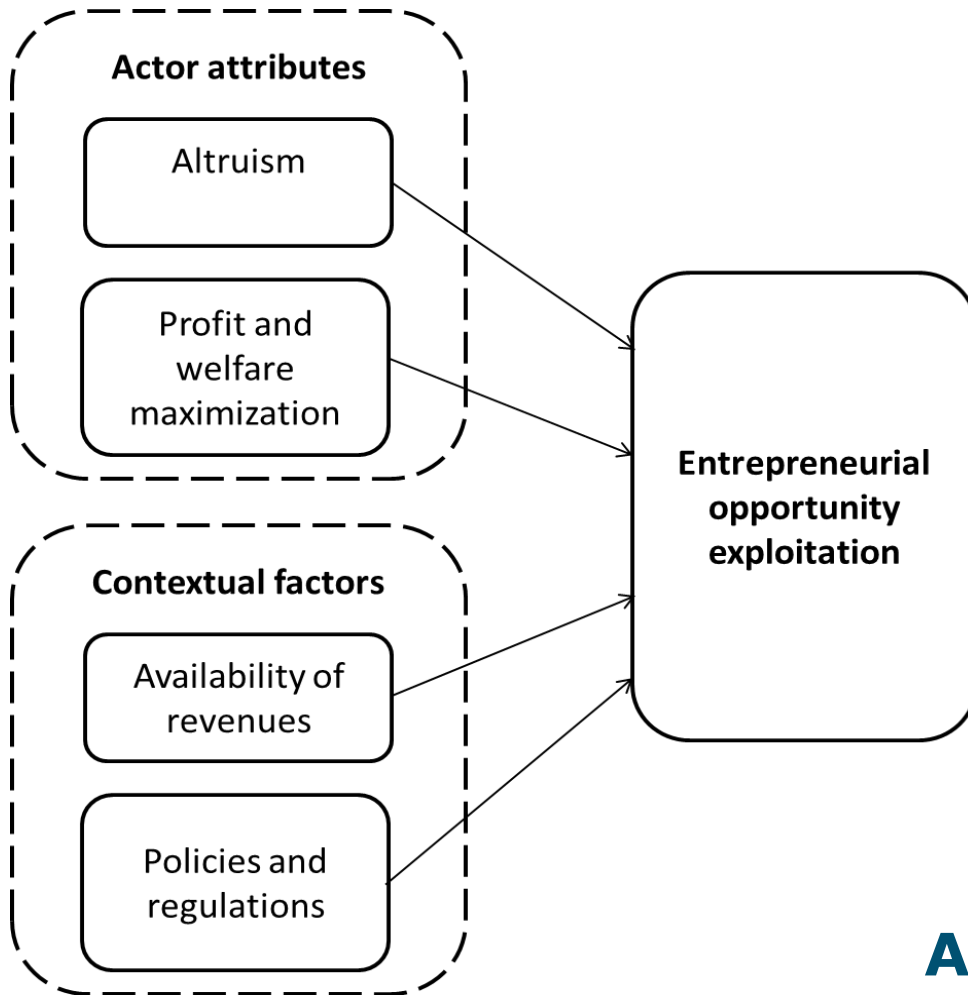
- Which combination of conditions lead to successful entrepreneurial opportunity exploitation in EbA?
- What are the necessary conditions for successful entrepreneurial opportunity exploitation in EbA?

# Entrepreneurial opportunity exploitation

Entrepreneurial opportunities consist of a set of ideas, beliefs and dreams discovered or created by entrepreneurs (Sarasvathy et al. 2005; Short et al. 2010). Subsequent to discovery and creation, and entrepreneur must decide whether or not to exploit the opportunity (McMullen and Shepherd 2006).

**Entrepreneurial opportunity exploitation (outcome):**  
Gathering and combining resources by entrepreneurs to implement new business models in the field of EbA, enabling them to pursue an opportunity discovered or created

# Factors influencing opportunity exploitation



## Hypothesis:

Altruism (AL) or profit and welfare maximization (PWM) combined with availability of revenues (AR) and policies and regulations (PR) are sufficient for successful opportunity exploitation

$$AL + PWM(AR * PR) \rightarrow OE$$

# Methods

1

- Identifying measures for (preliminary) conditions, indicators and outcome

2

- Developing the interview guideline

3

- Developing anchor points and interview coding

4

- Summarizing the interview data to qualitative classifications

5

- Determining the precision of fuzzy sets and defining their values

6

- Assigning and revising fuzzy-set values



# Methods

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- Identifying measures for (preliminary) conditions, indicators and outcome

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- **Determining the precision of fuzzy sets and defining their values**

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- **Assigning and revising fuzzy-set values**

# Interview coding and determining fuzzy set values

Coding value	Description	Fuzzy value	The element is ...
1	Very prominent; spontaneously mentioned	1	Fully in
2	Very prominent; in response to a question	0.83	Mostly in
3	Somewhat prominent; spontaneously mentioned	0.67	More in than out
4	Somewhat prominent; in response to a question	0.55	Just in
5	Little prominence; spontaneously mentioned	0.33	More out than in
6	Little prominence; in response to a question	0.17	Mostly out
7	Not expressed, not available, non-existent or no influence	0	Fully out



Fuzzy value	Description	Coding value
0	No expression of climate change awareness or risk perception	7
0.17	Little prominent expression of climate change awareness or risk perception, in response to a question	6
0.33	Little prominent expression of climate change awareness or risk perception spontaneously mentioned	5
0.55	Somewhat prominent expression of climate change awareness or risk perception, in response to a question	4
0.67	Somewhat prominent expression of climate change awareness or risk perception, spontaneously mentioned	3
0.83	Very prominent expression of climate change awareness or risk perception, in response to a question	2
1	Very prominent expression of climate change awareness or risk perception, spontaneously mentioned	1

# What are the necessary conditions for successful entrepreneurial opportunity exploitation in EbA?

Cases	AL	PWM	AR	PR	Y
Abbotts Hall	0.55	0.83	0.63	0.83	0.67
Blue Green Dream	0.48	0.58	0.29	0.17	0.33
Blue Green Global	0.48	0.33	0.41	0.17	0.33
Building with Nature	0.41	0.69	0.72	0.75	0.67
Bureau Stroming	0.73	0.33	0.39	0.69	1
Butterfly Beef	0.71	0.42	0.18	0.83	0
CAFCA	0.48	0.92	0.56	0.17	0.33
Climate Resilience Ltd.	0.44	0.17	0.61	0.75	1
Inlandshore					
Wieringermeer	0.41	0.69	0.46	0.33	0.33
Landbouw op Peil	0.33	0.33	0.78	0.42	0.67
Nienhuis Architects	0.2	0.83	0.33	0.61	1
Pastures New	0.8	0.17	0.79	0.585	0.67
Roof doctors	0.69	0.83	0.61	0.165	1
Stelling 2.0	0.61	0.25	0.66	0.33	0.33
The Green City	0.64	0.44	0.74	0.61	0.67
Trent and Thame river valleys	0.61	0.42	0.64	0.83	0.67
Water holding	0.48	0.83	0.74	0.75	0.33
Working with Nature	0.42	0.58	0.48	0.17	0

## Analysis with consistency threshold 0.9:

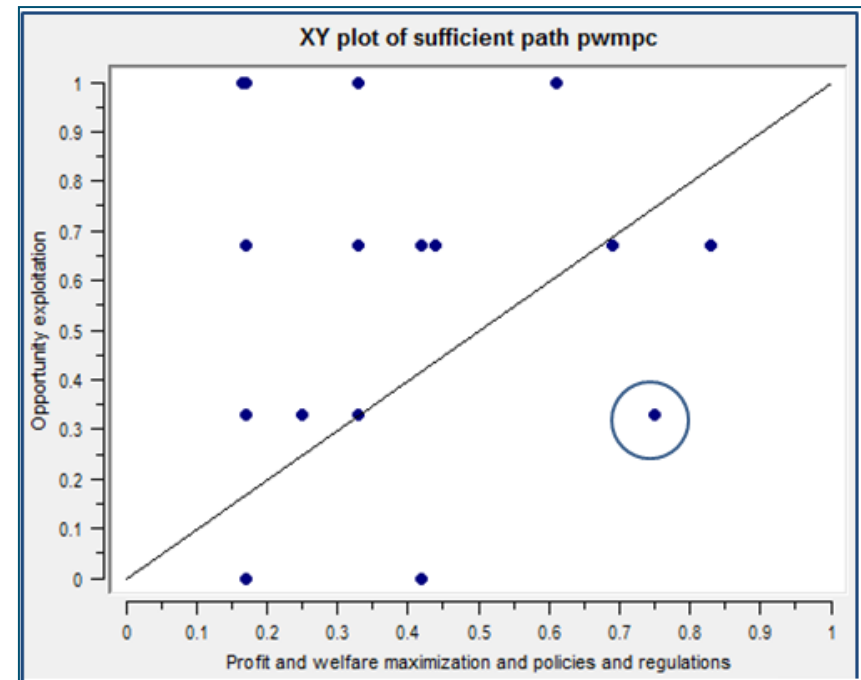
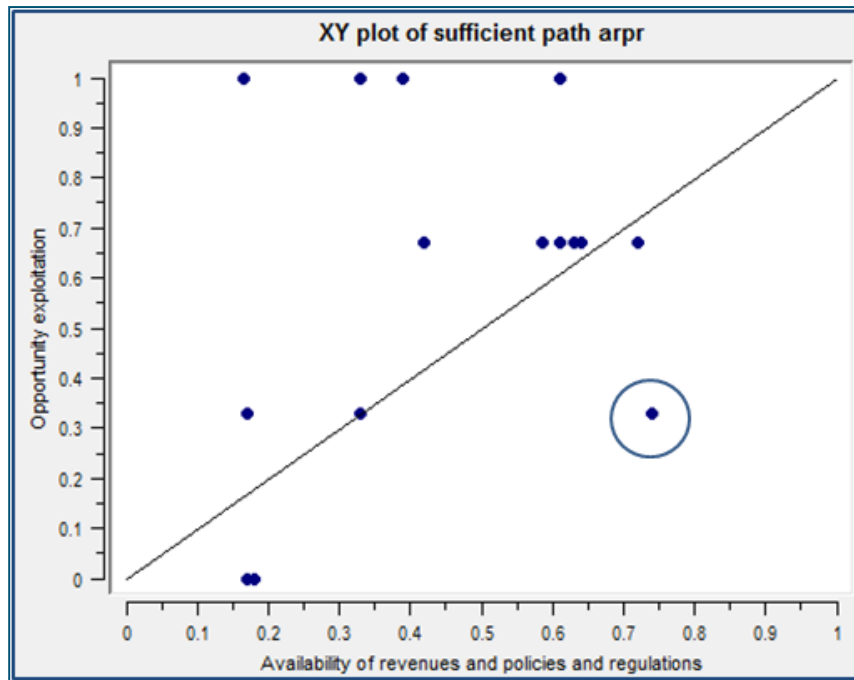
No single condition, or its negation, is in itself necessary for successful opportunity exploitation

# Which combination of conditions leads to successful entrepreneurial opportunity exploitation in EbA?

Row	Cases	AL	PWM	AR	PC	OE	Nr.	raw consist.
1	Pastures New; The Green City; Trent and Thames River Valley	1	0	1	1	1	3	0.933712
2	Climate Resilience Ltd.	0	0	1	1	1	1	0.92383
3	Abbotts Hall	1	1	1	1	1	1	0.902057
4	Nienhuis Architects	0	1	0	1	1	1	0.901814
5	Building with Nature; Water holding*	0	1	1	1	1	2	0.895853
6	Landbouw op Peil*	0	0	1	0	0	1	0.848861
7	Roof Doctors	1	1	1	0	0	1	0.8473
8	Butterfly Beef; Bureau Stroming*	1	0	0	1	0	2	0.844237
9	CAFCA	0	1	1	0	0	1	0.816288
10	Stelling 2.0	1	0	1	0	0	1	0.813176
11	Blue Green Global	0	0	0	0	0	1	0.807018
12	Blue Green Dream; Inlandshore Wieringermeer; Working with Nature	0	1	0	0	0	3	0.777778

# Sufficiency analysis

Most parsimonious solution: **AR PR + PWM PR → OE**



# Implication of the preliminary findings

- When initiating and implementing EbA, intervention in one condition should always be accompanied by intervention in another condition
- Policies and regulations play a major role in the success of opportunity exploitation. Although not indispensable, they can contribute strongly to the success of EbA

# QCA and climate change adaptation research

- Currently, most adaptation research examines small-N cases in-depth. Need to draw more general lessons (Ford et al. 2010; Ostrom and Cox 2010).
- EbA takes place in a context with many complex interactions (Jones et al. 2014). Therefore it is especially interesting to look to conditions in conjunction.
- Call for other types of research design which are well-known and applied in other areas than CC adaptation:  
What are the conditions that are necessary or sufficient in explaining why adaptation is or is not successful? (Swart et al. 2014, *Frontiers in Environmental Science*)

Questions and/  
or comments?



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