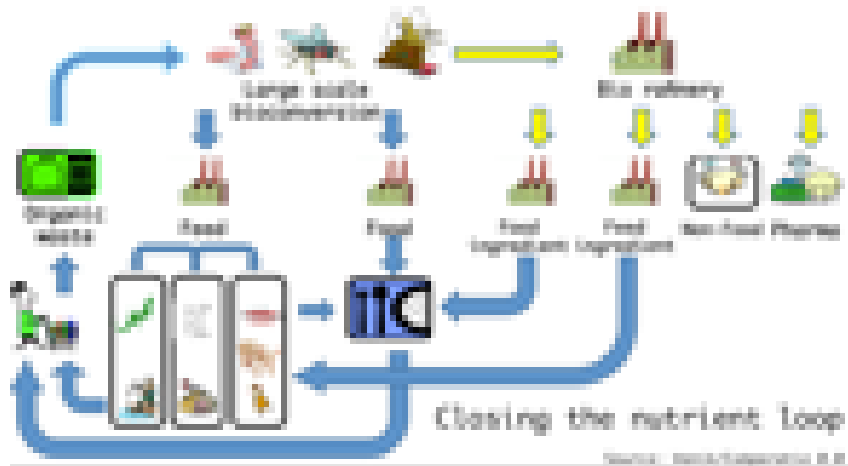


Insect eco-system to scale

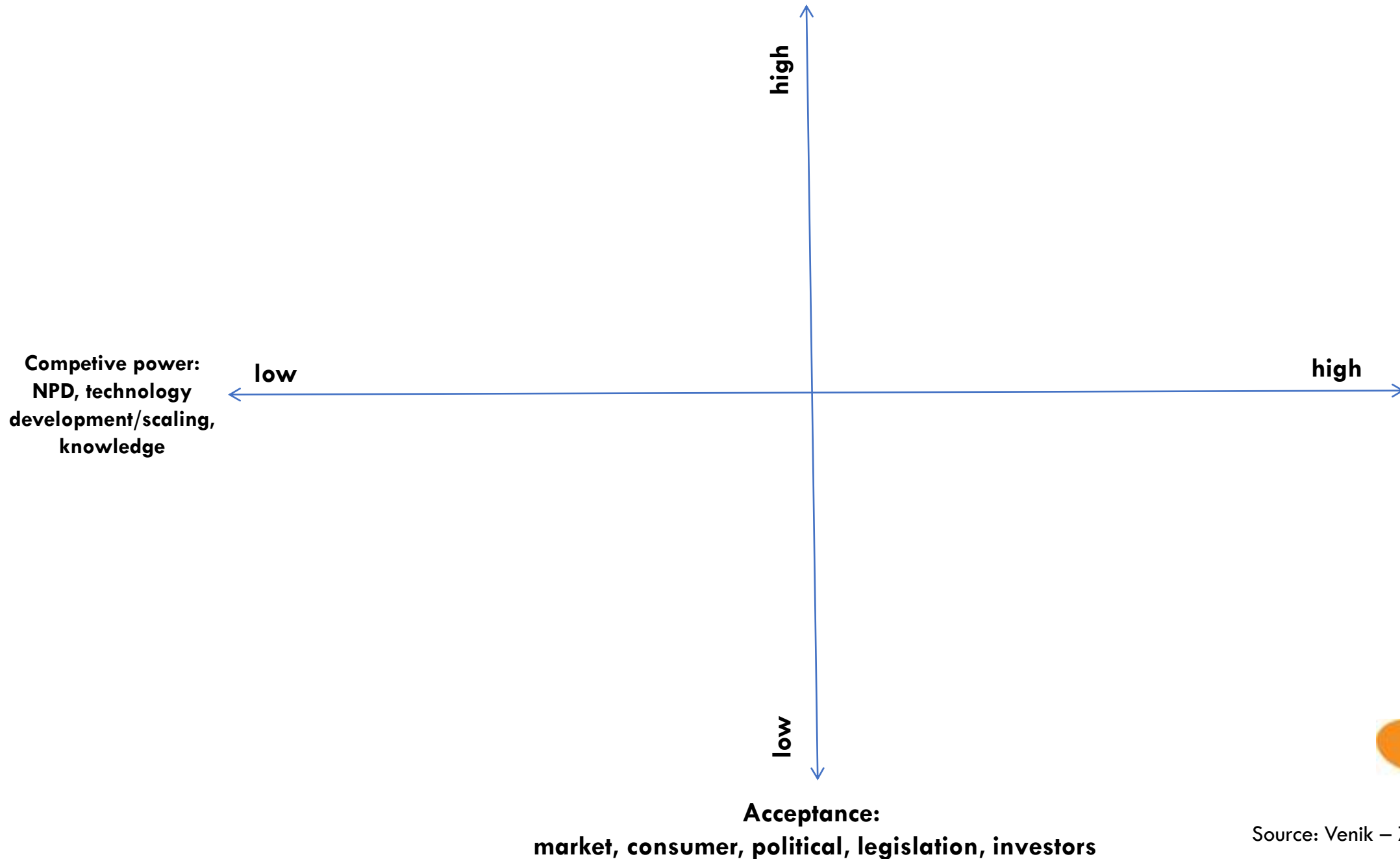
Marian Peters



Challenges = research

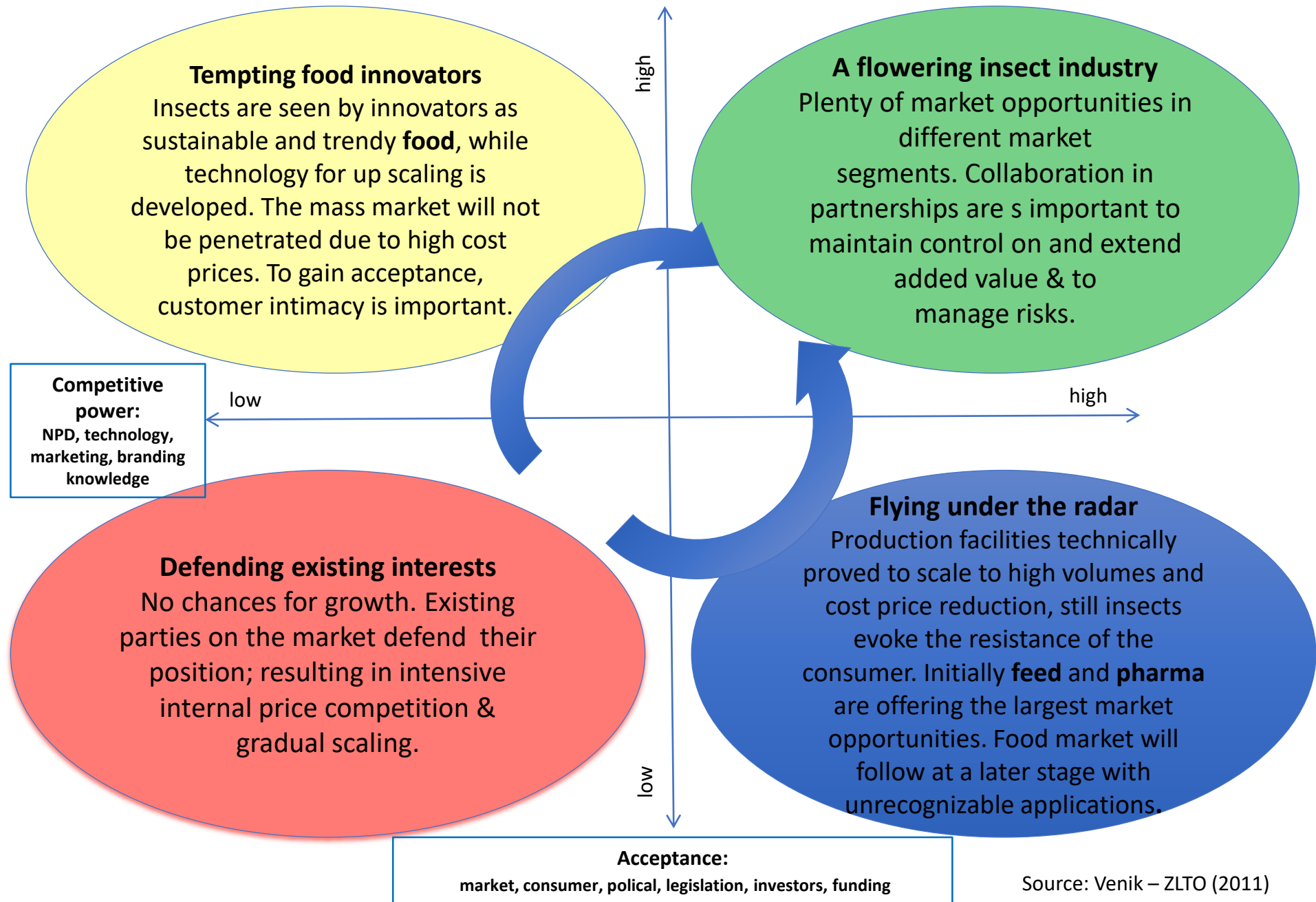


Future scenario's towards a flowering insect sector



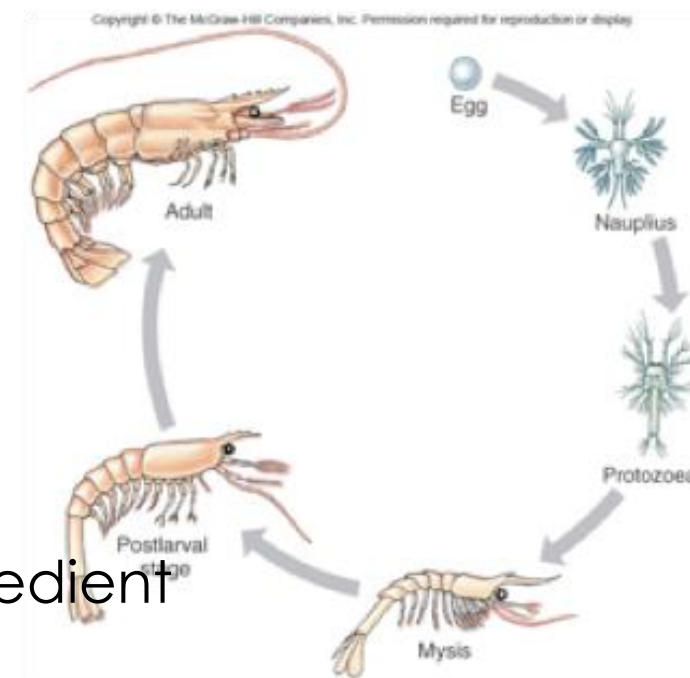
Source: Venik – ZLTO (2011)

2011: 2 routes to sustainable growth



Market for mini-livestock

- Current market
 - Niche markets: pet-food
 - Products: whole insect (alive or dried)
 - High turn-over per kilo
 - Small operations
- Future market
 - Bulk markets (feed, food)
 - Products: composed products, mini livestock as ingredient
 - Low turn-over per kilo
 - Industrial production



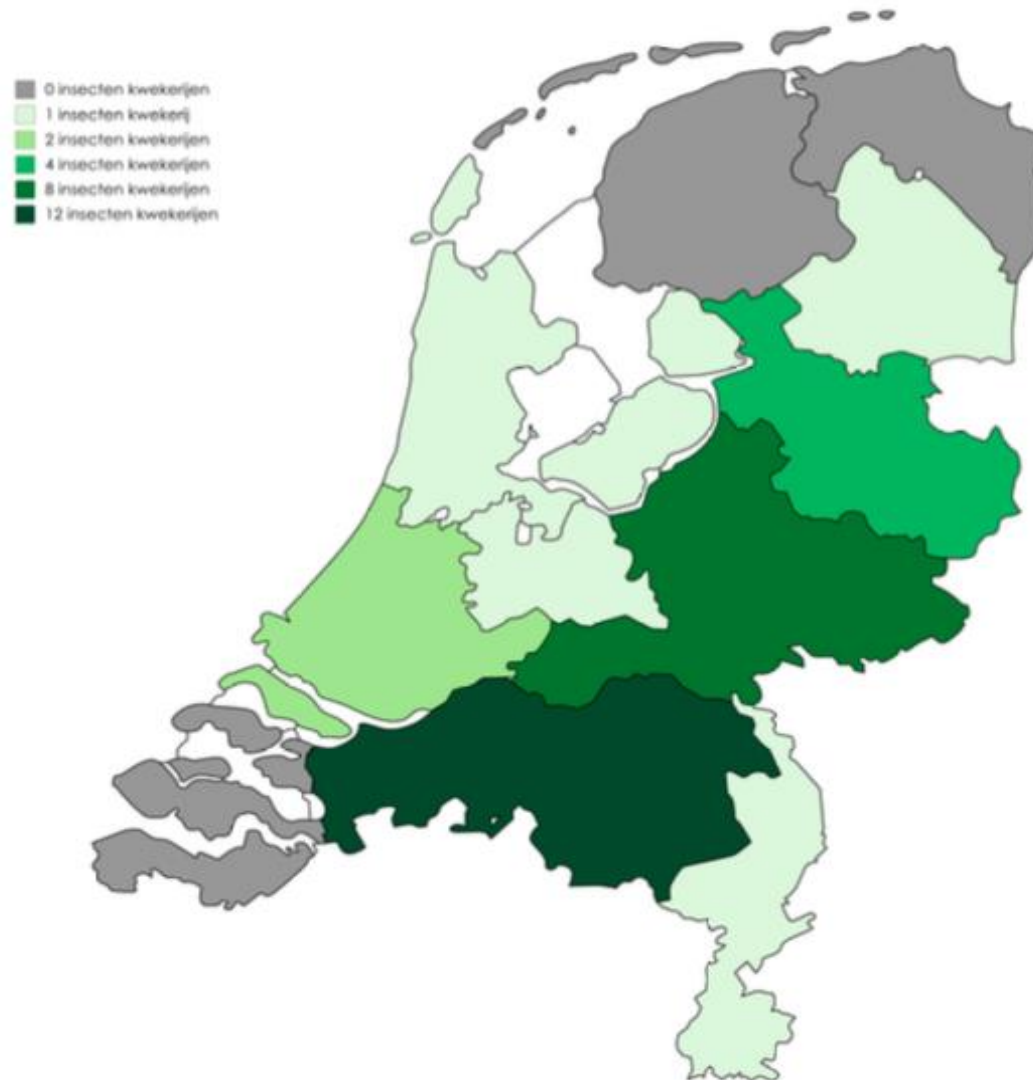
System Innovations: things are on the move

2009 Insect research typically at Plant sciences groups
Insects considered as pest or contaminant
insect production for special pet food

2019 insects as production animal
insects as ingredient for feed & food
Industrial insect production takes of

GEOGRAFISCHE SPREIDING INSECTENKWEKERIJEN OVER NEDERLAND

Totaal: 31 kwekerijen in Nederland per januari 2019.



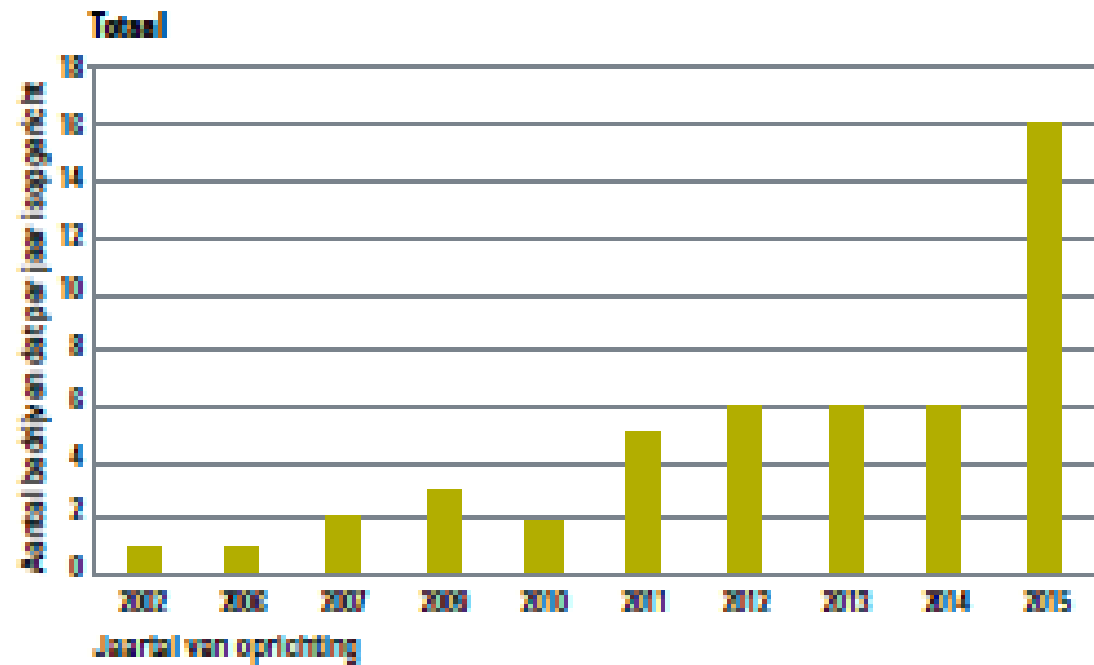
Insect species farmed in NL	nr. farms
locust	9
cricket	5
Mealworm	13
Buffaloworm	3
Morioworm	2
Black Soldier Fly	4
Blow fly	2
House fly	2
Other	4
Total farms	31



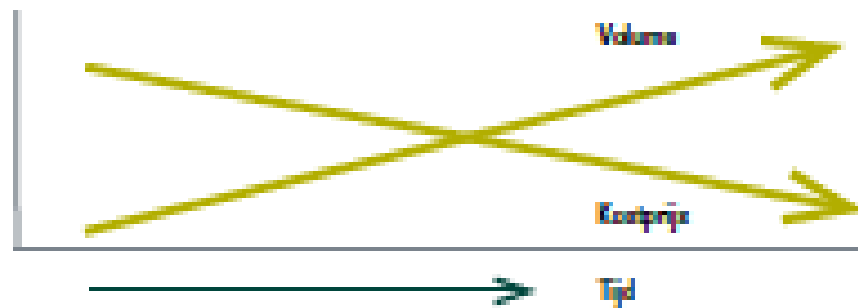
Succesfactoren: kennis, kapitaal en ketenaanpak

Insectenkweek: kleine sector, grote kansen

Figuur 2: De groei van het aantal bedrijven dat BSF kweekt wereldwijd (bron: NBN)



Figuur 8: met de tijd zal het geproduceerd volume van insectenmeel toenemen en de kostprijs per kilogram dalen



Bron: ABNAmro 2016

Good news

RTLnieuws

13 juni 2017 14:32

Aangepast: 14 juni 2017 08:15



Het Nederlandse bedrijf Protix krijgt maar liefst 45 miljoen euro om de productie van veevoer gemaakt van insecten uit te breiden.

Feed navigator.com



By Jane Byrne

29-Nov-2018 - Last updated on 29-Nov-2018 at 13:26 GMT

InnovaFeed, an Evry, France-based biotech company producing Black Soldier Fly (BSF) derived protein for the feed industry, has raised another €40m in funding from international investors, bringing to over €55m the total amount of funds it has generated in 2018.

Britten bouwen grote larvenfabriek in België

03 december 2018 11:32



Johan Jacobs van Millibeter en zijn zwarte wapenvliegen. ©Wim Kempnaers

Het Britse insectenbedrijf AgriProtein neemt zijn Vlaamse tegenhanger Millibeter over. Het investeert meteen 15 miljoen euro in een Belgische fabriek om larven van zwarte soldaatvliegen te kweken als voedsel voor vissen.

Feed navigator.com

News & Analysis on the Global Animal Feed Industry

21-Feb-2019

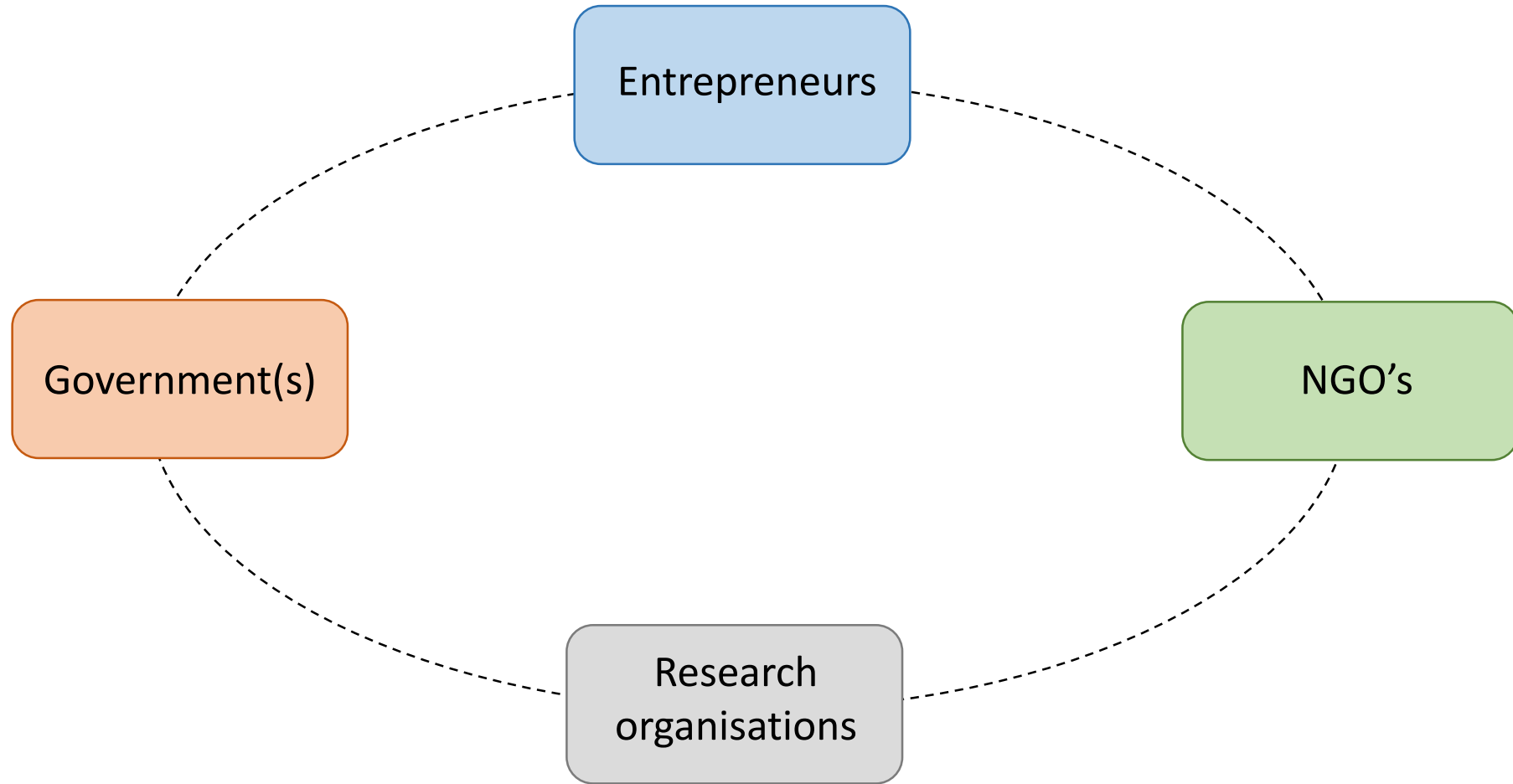
TODAY'S HEADLINES



French insect protein producer, Ynsect, raises \$125m in an investment round

Led by Astanor Ventures, and backed by established international funds including Bpifrance, Talis Capital, Idivest Partners, Finasucre and Compagnie du Bois Sauvage, Ynsect said this \$125m (€110m) investment is the largest-ever ag-tech funding deal outside of the US... [Read](#)

Scaling the insect sector



Stakeholders in scaling

What is scaled is not so much a technical solution

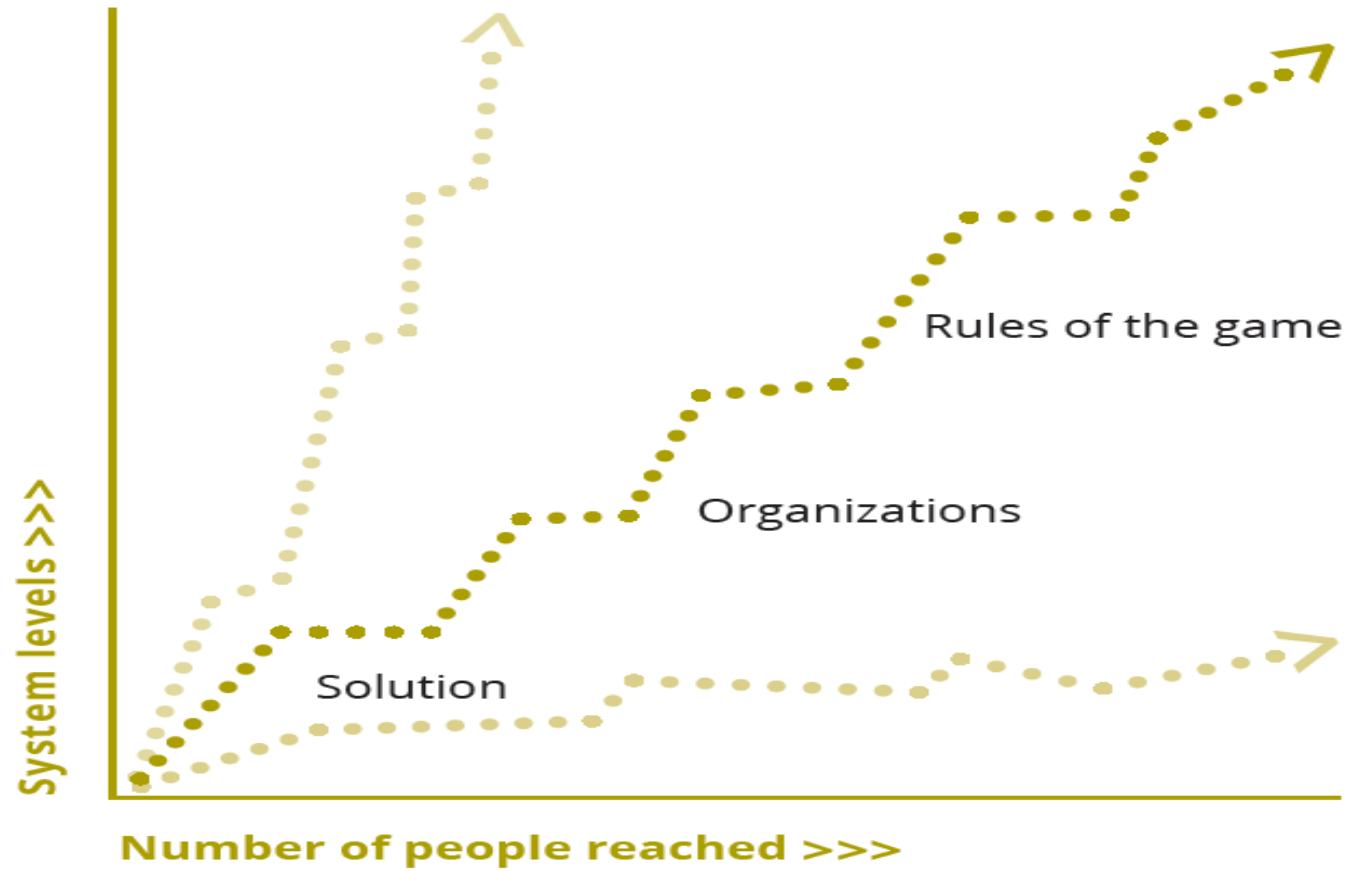
*but rather a **set of arrangements** that enables
the adoption of an improved solution/practice.*

*→ **Importance of scaling/delivery mechanisms***

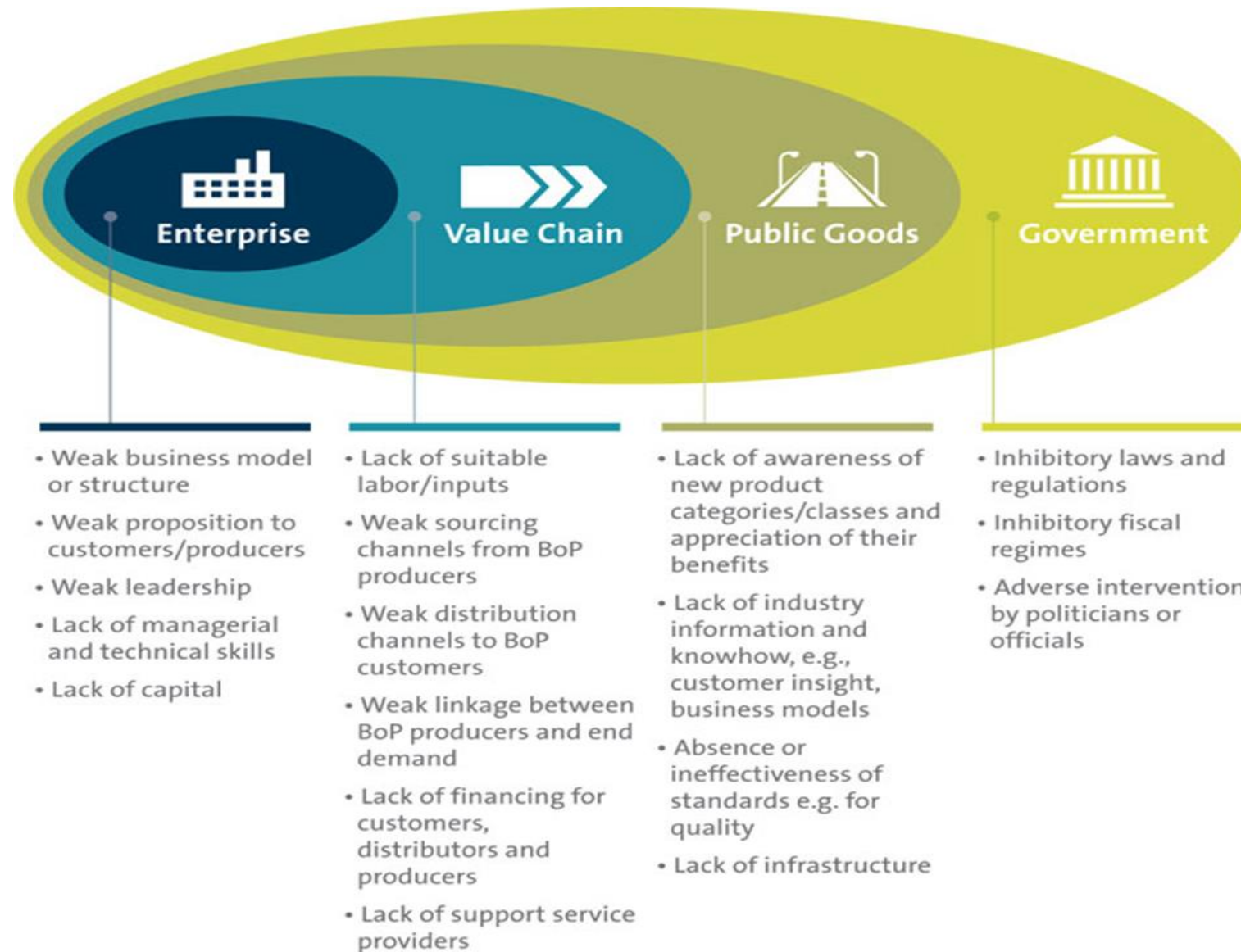
What is scaled: common elements

- Awareness and demand creation
- Availability of technical solution
- Financial arrangements
- Value chain development
- Back-up by professional knowledge
- Embedding in government policies

Horizontal and vertical



Scaling Barriers



Horizontal & vertical scaling

	HORIZONTAL	VERTICAL
Primary orientation	Increasing numbers, replication, business growth	Improving the enabling environment, rules of the game and institutions
Related areas of action	<ul style="list-style-type: none">• Demand & awareness• Quality of the solution• Attractive business models• Value chain development	<ul style="list-style-type: none">• Value chain governance• Sector platforms• Public policies & regulations• Tertiary sector functions

Levels in Scaling Processes

MACRO: RULES OF THE GAME AND INSTITUTIONS

- Policies, norms, standards, regulation
- Development of market/business environment
- Financing landscape and mechanisms

Actors: Government, (I)NGOs, (multi-)national companies

MESO: ORGANISATION AND DELIVERY MECHANISMS

- Coordination between relevant actors
- Delivery systems, quality assurance
- Access to knowledge & education

Actors: Local governments, service providers/SMEs, NGOs

MICRO: SOLUTION AND BASIC BUSINESS CASE

- Product/practice specifications
- Technology development
- Business case, price and competitive power

Actors: SMEs, technology developers

What to scale?

Business case

Technology

Finance

Data and ICT

Value chain development

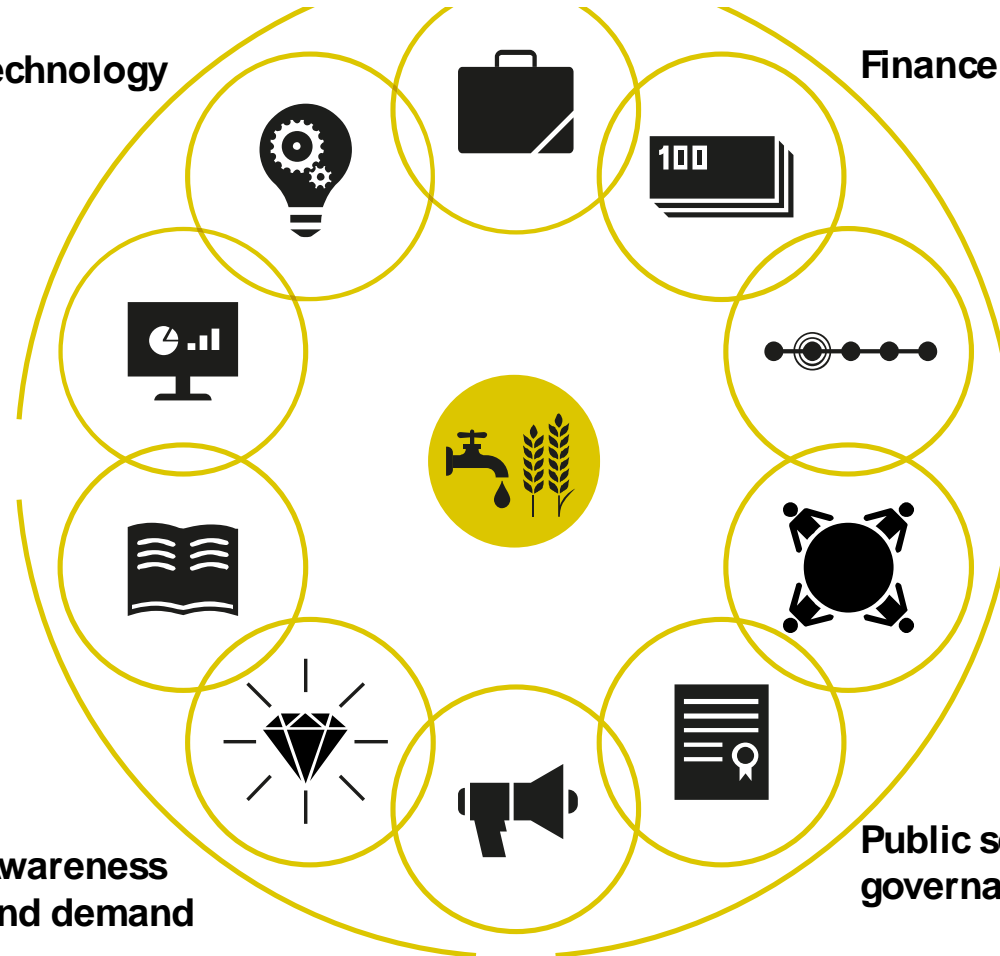
Knowledge and skills

Platforms and collaboration

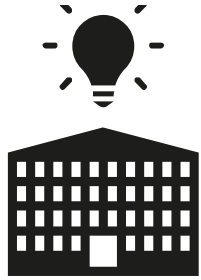
Awareness and demand

Public sector governance

Lobby and advocacy



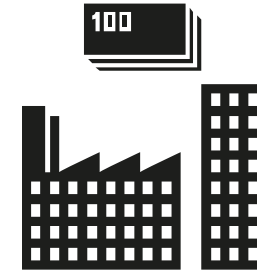
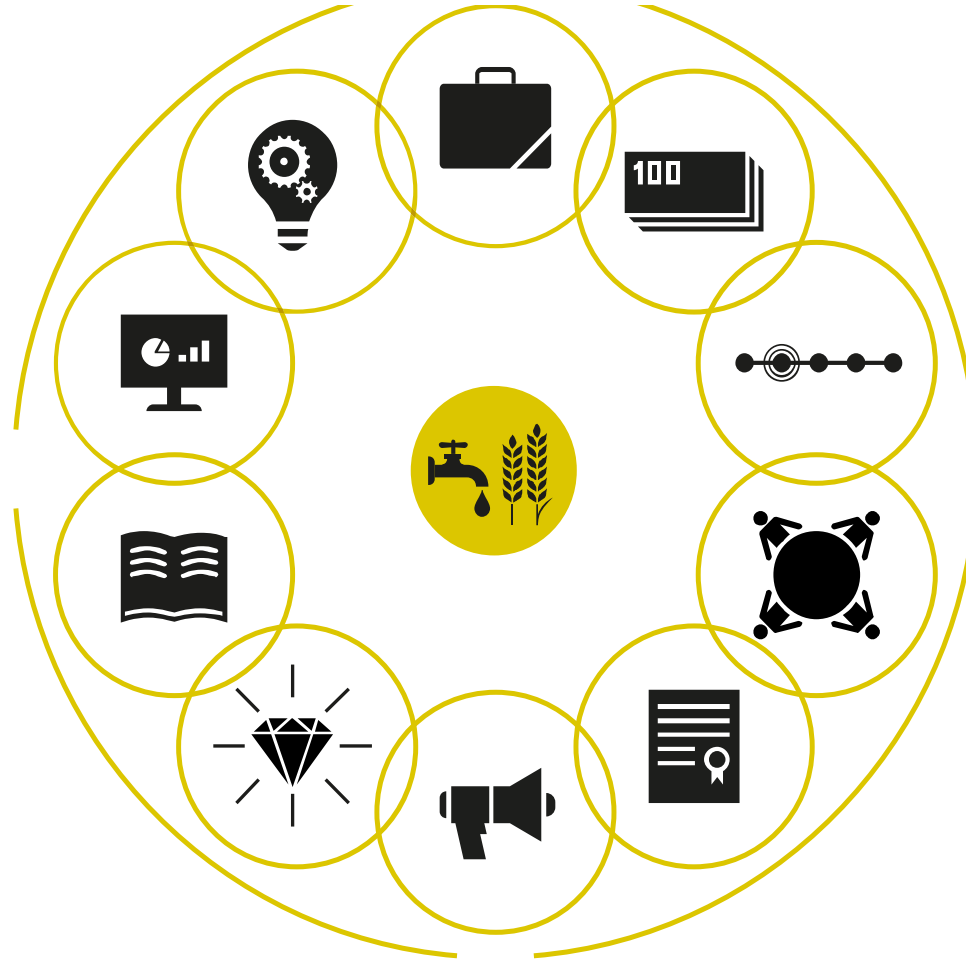
SCALING INGREDIENT	WHAT IT PROVIDES TO SUPPORT SCALING	SCALING INGREDIENT	WHAT IT PROVIDES TO SUPPORT SCALING
Technology	An effective and efficient solution for the issue at stake	Platforms & Collaboration	Strategic collaboration between key stakeholders
Business case	An attractive financial/economic proposition for users and others	Public sector governance	Enabling policies, regulations and mechanisms
Awareness and demand	A wish & readiness for users to apply the solution/practice	Lobby and advocacy	A change coalition that pursues scaling and influences others
Finance	Effective financing options for users and providers or buyers	Knowledge and skills	The required knowledge, professional capacity, recognition
Value chain development	Effective supply and provision of related services	Data and ICT	Evidence/facts that underpin and communicate the scaling ambition



Knowledge institutes



Civil society



Business



Government

Two types of scaling stages

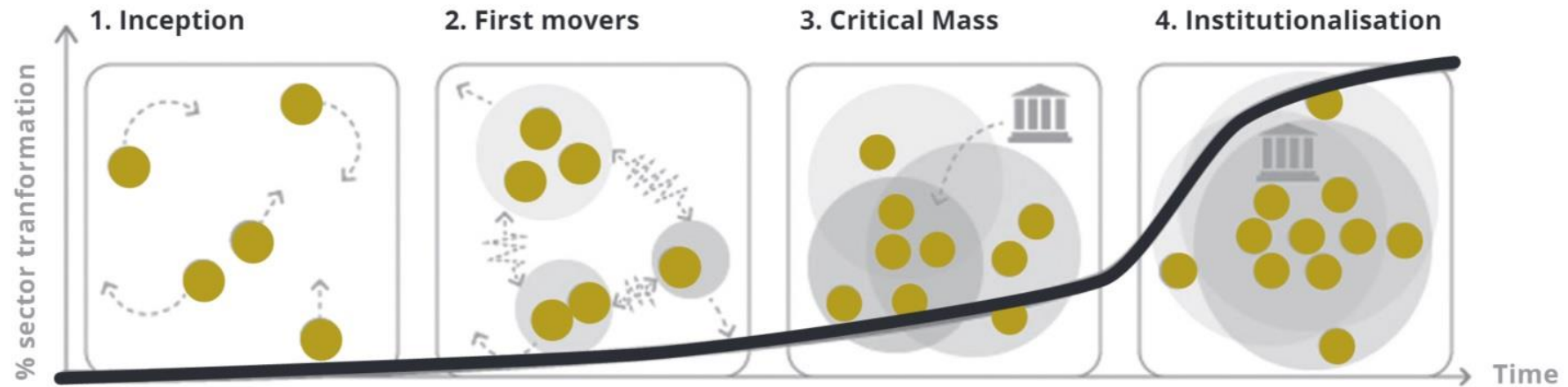
- *Individual Businesses / Propositions*
- *Sector Transformation*

Stages of scaling a business proposition



(after Koh et al. 2012)

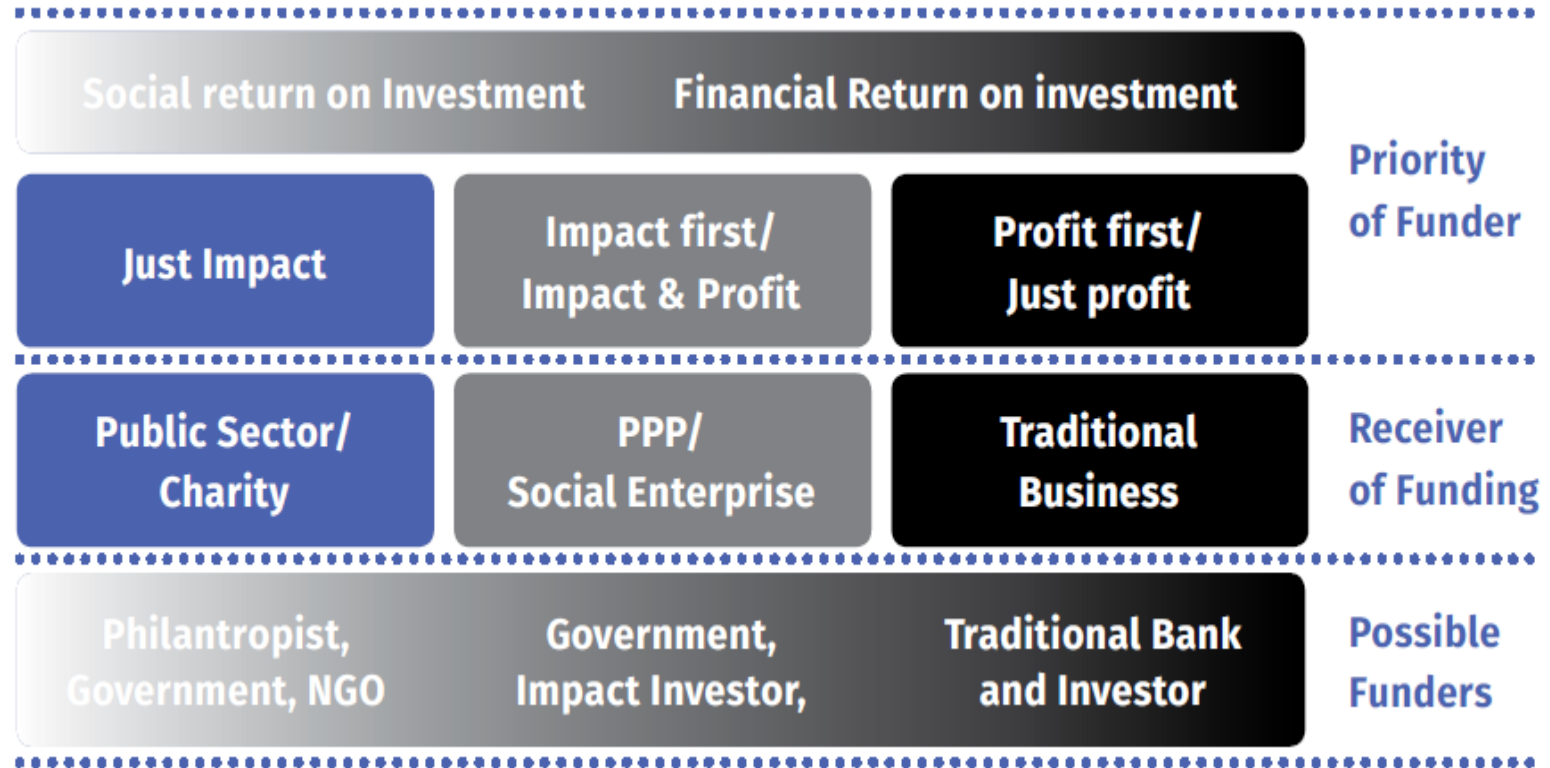
Stages of sector transformation



(© NewForesight Consultancy B.V.)

Scaling and finance

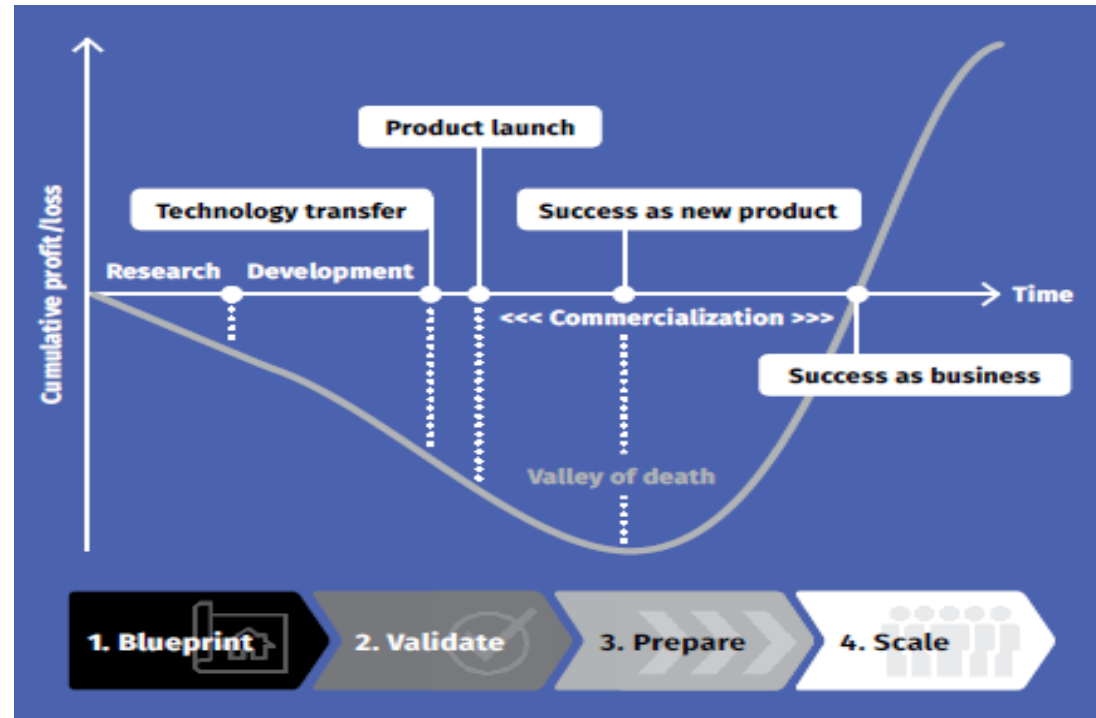
Finance – graduation



What is funded by whom and why?

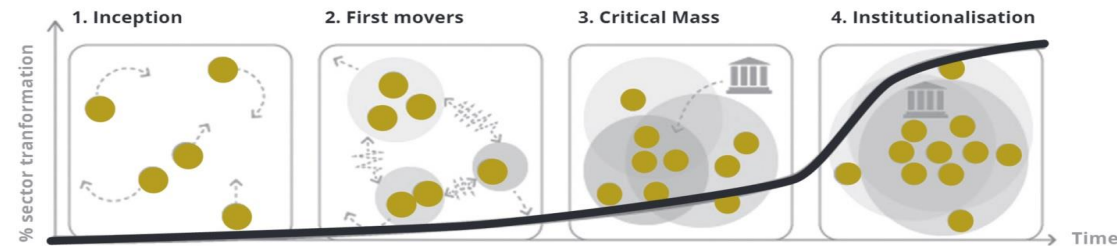
CONSIDER:

Stage of
Business Model



AND

Stage of Sector
Transformation



Questions?

Thank you for your attention!

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marianpeters@ngn.co.nl

