

Business Models

for Islands of Innovation Transitions

Han Brezet - Texel Island | Digital Citizen Estonia
Em. Prof. TU Delft | Prof. AAU Aalborg University - (Eco)Design Practice

in cooperation with PhD Sybrith Tiekstra & Dr. Duygu Keskin
Saaremaa - Estonia 2019



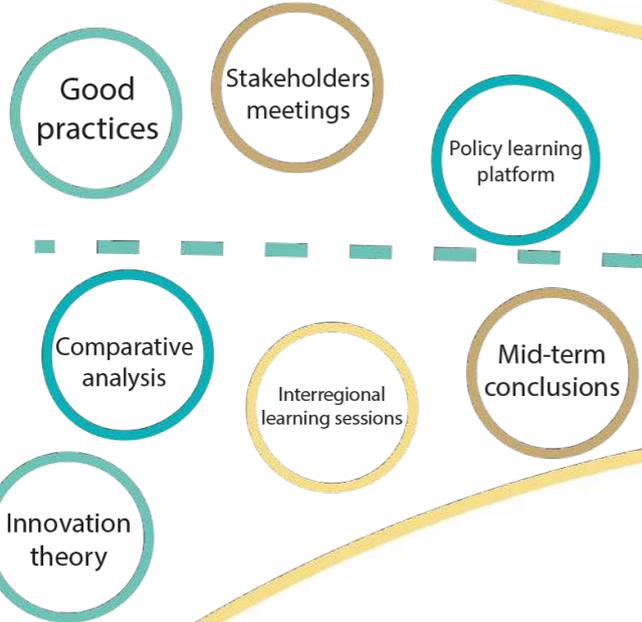


TIPPING - The Innovation Program's Perspective for Islands' New Governance

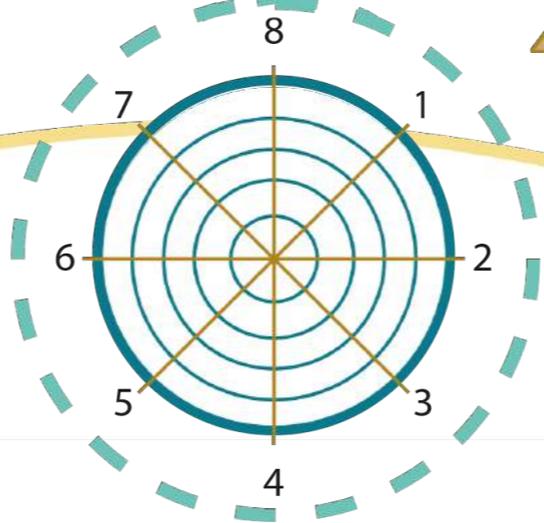


Existing Innovation Ecosystem

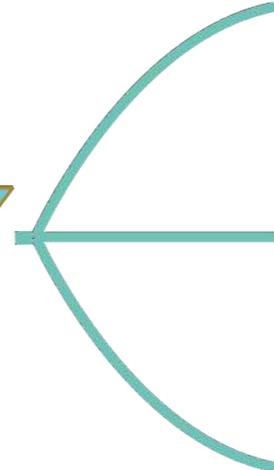
New Innovation Ecosystem



Dancefloor



TIPPING WHEEL



What is innovation?

Chapter3_definitions

Home Insert Page Layout Formulas Data Review View

Calibri (Body) 12 A A

Wrap Text Merge & Center

General

Conditional Formatting Format as Table Cell Styles

A123 fx improved products and processes.

	A	B	C	D	E	F
1	Definition	Year	Author(s)	Source	Field	Doc.no
2	New service experience or service solution that consists of one or several of the following dimensions: a new service concept, new customer interaction, new value system/business partners, new revenue mode or new organizational or technological service delivery system.	2014	Breunig	Witell et al.	Service Innovation	B1
3	A type of product innovation involving the introduction of a service that is new or significantly improved with respect to its characteristics or to its intended uses.	2014	Giannopoulou et al.	Witell et al.	Service Innovation	B1
4	A new way of business thinking to reform relatively conservative and inflexible operational procedures and processes, which can transform organizations to better meet the needs of their markets.	2014	Kuo, Kuo, and Ho	Witell et al.	Service Innovation	B1
5	The creation of new value propositions by means of developing existing or creating new practices and/or resources, or by means of integrating practices and resources in new ways.	2014	Skalen et al	Witell et al.	Service Innovation	B1
6	Enterprises' intangible activities formed in the process of service, using a variety of innovative ways to meet customer needs and maintain competitive advantage.	2013	Jian and Wang	Witell et al.	Service Innovation	B1
7	Introduction of new or significantly improved services and products.	2012	Cho, Park & Kim	Witell et al.	Service Innovation	B1
8	The introduction of novel ideas that focus on services that provides new ways of delivering a benefit, new service concepts, or new service business models through continuous operational improvement, technology, investment in employee performance, or management of the customer experience.	2012	Enz	Witell et al.	Service Innovation	B1
9	New services have been introduced into the market, or (ii) existing services have been significantly improved or important changes have been made to their basic characteristics, intangible components desired purposes.	2012	Santamaría et al.	Witell et al.	Service Innovation	B1
10	As the extent to which new knowledge is integrated by the firm into service offerings, which directly or indirectly results in value for the firm and its customers/clients.	2011	Salunke, Weerawardena, and McColl-Kennedy	Witell et al.	Service Innovation	B1
11	An idea for a performance enhancement that customers perceive as offering a new benefit of sufficient appeal that it dramatically influences their behavior, as well as the behavior of competing companies.	2010	Berry et al	Witell et al.	Service Innovation	B1
12	Fundamental change in services that represent revolutionary changes in technology or service benefits.	2010	Cheng and Krumwiede	Witell et al.	Service Innovation	B1
13	Manufacturers' engagement in various innovation activities to enhance customer satisfaction, including after-sale services, warranty policy, maintenance routines, and order placement systems.	2010	Lin, Chen, and Chiu	Witell et al.	Service Innovation	B1
14	New or significantly improved service.	2010	Love, Roper, and Hewitt-D	Witell et al.	Service Innovation	B1
15	Offering not previously available to the firm's customers—either an addition to the current service mix or a change in the service delivery process—that requires modifications in the sets of competences applied by service providers and/or customers.	2010	Ordanini and Parasurama	Witell et al.	Service Innovation	B1
16	May be regarded as novel mechanisms of delivery that offer customers greater convenience and improve a firm's competitive position.	2009	Chen, Tsou, and Huang	Witell et al.	Service Innovation	B1
17	New service or such a renewal of an existing service which is put into practice and which provides benefit to the organisation that has developed it; the benefit usually derives from the added value that the renewal provides the customers. In addition, to be an innovation the renewal must be new not only to its developer, but in a broader context, and it must involve some element that can be repeated in new situations, i.e. it must show some generalizable feature(s).	2009	Toivonen and Tuominen	Witell et al.	Service Innovation	B1
18	An offering not previously available to a firm's customers, resulting from additions to or changes in the service concept.	2008	Gebauer	Witell et al.	Service Innovation	B1
19	Finding new ways of co-solving customer problems.	2008	Michel, Brown & Gallan	Witell et al.	Service Innovation	B1
20	New products, services, systems, and processes.	2014	Bjork	Witell et al.	Innovation	B1

Sine Celik
PhD

253	Innovation is a multi-facets notion that can be effectively addressed, no matter what is the socio-economic context, only if the innovation endeavour is based on a large amount of (relevant, high quality) knowledge.	2012	Panfilis & Missikof	Panfilis & Missikof	innovation	S44
254	Innovation is deliberate changes people make or cybernetic systems they design, which replace the existing state of affairs with the others, positively evaluated in the light of certain criteria and making up progress.	2012	Jablonksi & Jablonski	Jablonksi & Jablonski	innovation	S45
255	Innovation means a new, yet unknown way of meeting new needs.	2012	Jablonksi & Jablonski	Jablonksi & Jablonski	innovation	S45
256	Innovation is changes in the production process connected with different quality of inputs and production factors.	2012	Jablonksi & Jablonski	Jablonksi & Jablonski	innovation	S45
257	Innovation refers to any good, service or idea that somebody perceives as new. The idea may exist for a long time, but it is an innovation for the person who sees it as new.	2012	Jablonksi & Jablonski	Jablonksi & Jablonski	innovation	S45
258	As new ideas which are based on innovatively interlinking hitherto separated elements that had proved to be working and reaching social goals.	2012	Mulgan	Lubelcova	social innovation	S48
259	Mould-breaking ways of confronting unmet social need by creating new and sustainable capabilities, assets or opportunities for change.	2008	Adams & Hess	Neumeier	social innovation	S52
260	Societal achievements that, compared with already established solutions, provide improved solutions that are to a lesser extent defined by their absolute novelty more than by their consequences.	2000	Gillwald	Neumeier	social innovation	S52
261	Social innovations on the basis of modernisation theory quite generally as new societal practices, especially new forms of organising and new forms of regulating new lifestyles that change the direction of social change, solve problems better than former practices and are worth being imitated and institutionalised.	1989	Zapf	Neumeier	social innovation	S52
262	The conversion of knowledge and ideas into a benefit, for either commercial use or the public good, whereas the benefit may be new or improved products, processes or services.	2007	Refitt et al	Neumeier	innovation	S52
263	Innovation is more often invoked than described, and it is more often described than defined.	1995	Suchman	Willis & Matrofski	innovation	S57
264	Innovation involves not just managing an organization but thinking creatively about how to improve it.	2011	Kang & Jaskite	Kang & Jaskite	organizational innovation	S62
265	Innovation means to try and bring something new into the church that has never been done in the church before.	2011	Kang & Jaskite	Kang & Jaskite	organizational innovation	S62
266	The process of making improvement by introducing something new, is realized as a one of the vital resources, which helps organizations staying competitive.	2010	Ye & Ye	Ye & Ye	innovation	S63
267	Introduction of a new concept, idea, service, process, or product aimed at improving treatment, diagnosis, education, outreach, prevention and research, and with the long term goals of improving quality, safety, outcomes, efficiency and costs.	2010	Omachanu & Einspruch	Omachanu & Einspruch	healthcare innovation	S67
268	Innovation that results in a reduction of environmental impact, no matter whether or not that effect is intended.	2009	OECD	OECD	eco innovation	S70
269	Innovation is a process of assembling and re-assembling. It is neither an invention nor an object per se, even if later it acquires an 'object-like' status.	2009	Tytler et al.	Tytler et al.	innovation	S71
270	Innovation involves a process of assembling and maintaining that is both dynamic and iterative.	2009	Tytler et al.	Tytler et al.	innovation	S71
271	A creative and insight process to solve troubles.	2009	Laria et al	Laria et al	social innovation	S75
272	Instrument whose role is to protect from the volatility of basic financial market parameters.	2006	Stradomski	Micuila	financial innovation	
273						

Focus

Other Notions

Policy —> Governance = together with partners

Goal: contributing to quality of life/the 17 UN sustainable development goals



Top-down and Bottom-up integrated decision process making

NOT included 100ds of articles like:

Research Policy 45 (2016) 1620–1635



Policy mixes for sustainability transitions: An extended concept and framework for analysis



Karoline S. Rogge^{a,b,*}, Kristin Reichardt^c

^a Fraunhofer Institute for Systems and Innovation Research (Fraunhofer ISI), Breslauer Straße 48, 76139 Karlsruhe, Germany

^b SPRU—Science Policy Research Unit, Jubilee Building, University of Sussex, Brighton BN1 9SL, UK

^c Copernicus Institute of Sustainable Development, Utrecht University, Heidelberglaan 2, 3584 CS Utrecht, The Netherlands

ARTICLE INFO

Article history:
Received 19 July 2013
Received in revised form 24 March 2016
Accepted 19 April 2016
Available online 14 May 2016

Keywords:
Policy mix
Policy strategy
Policy making and implementation
Consistency
Coherence
Credibility
Sustainability transitions
Innovation
Technological change

ABSTRACT

Reaching a better understanding of the policies and politics of transitions presents a main agenda item in the emerging field of sustainability transitions. One important requirement for these transitions, such as the move towards a decarbonized energy system, is the redirection and acceleration of technological change, for which policies play a key role. In this regard, several studies have argued for the need to combine different policy instruments in so-called policy mixes. However, existing policy mix studies often fall short of reflecting the complexity and dynamics of actual policy mixes, the underlying politics and the evaluation of their impacts. In this paper we take a first step towards an extended, interdisciplinary policy mix concept based on a review of the bodies of literature on innovation studies, environmental economics and policy analysis. The concept introduces a clear terminology and consists of the three building blocks elements, policy processes and characteristics, which can be delineated by several dimensions. Based on this, we discuss its application as analytical framework for empirical studies analyzing the impact of the policy mix on technological change. Throughout the paper we illustrate the proposed concept by using the example of the policy mix for fostering the transition of the German energy system to renewable power generation technologies. Finally, we derive policy implications and suggest avenues for future research.

© 2016 The Author(s). Published by Elsevier B.V. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

1624

K.S. Rogge, K. Reichardt / Research Policy 45 (2016) 1620–1635

Table 2

Type-purpose instrument typology (with instrument examples).

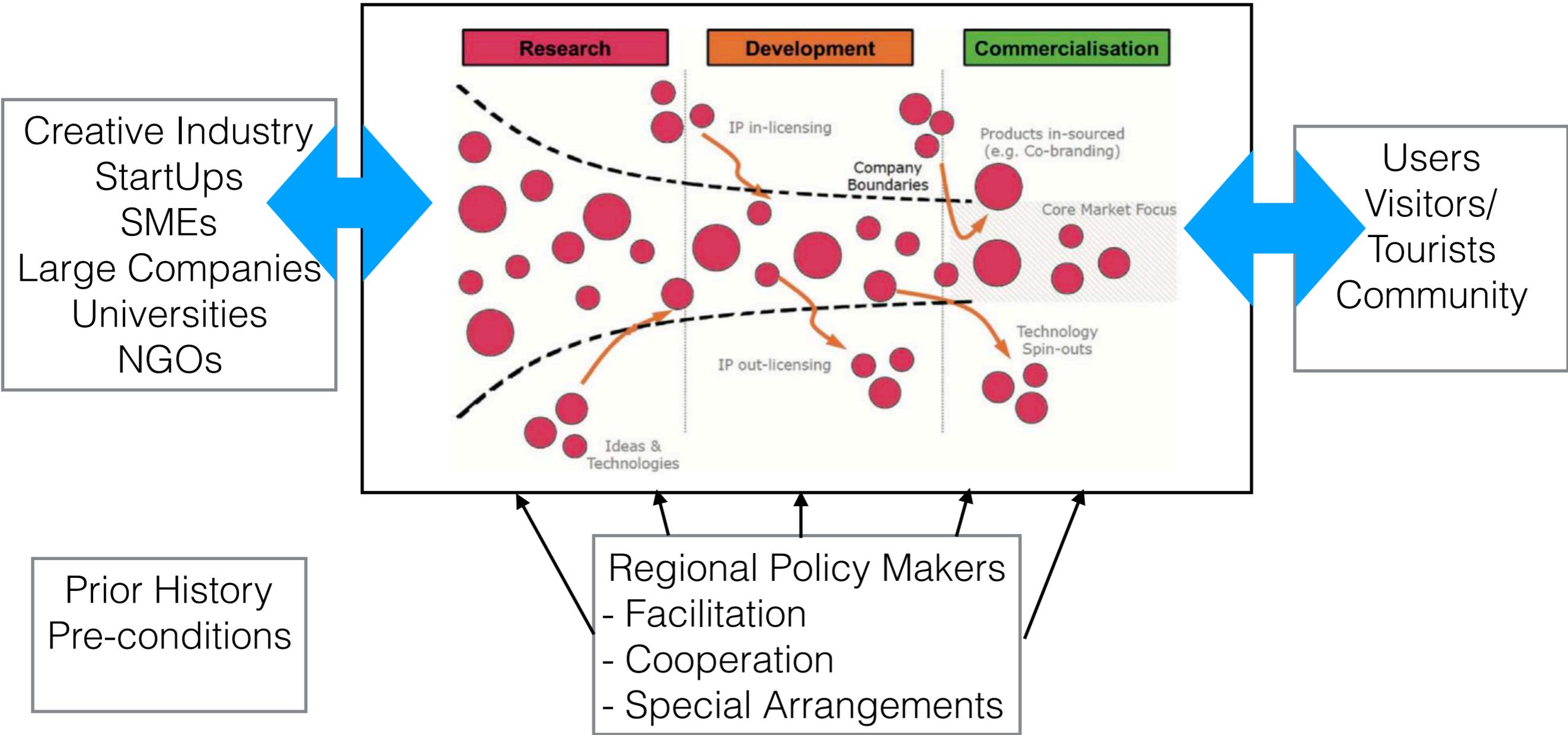
PRIMARY TYPE	PRIMARY PURPOSE		
	Technology push	Demand pull	Systemic
Economic instruments	RD&D* grants and loans, tax incentives, state equity assistance	Subsidies, feed-in tariffs, trading systems, taxes, levies, deposit-refund-systems, public procurement, export credit guarantees	Tax and subsidy reforms, infrastructure provision, cooperative RD&D grants
Regulation	Patent law, intellectual property rights	Technology/performance standards, prohibition of products/practices, application constraints	Market design, grid access guarantee, priority feed-in, environmental liability law
Information	Professional training and qualification, entrepreneurship training, scientific workshops	Training on new technologies, rating and labelling programs, public information campaigns	Education system, thematic meetings, public debates, cooperative RD&D* programs, clusters

Source: Own elaboration (based on del Río González, 2009a; Edler and Georghiou, 2007; Hemmelskamp, 1999; Hufnagl, 2010; IEA, 2011b; Mowery, 1995; Rammer, 2009; Rennings et al., 2008; Smits and Kuhlmann, 2004; Sterner, 2000; Wiczorek and Hekkert, 2012).

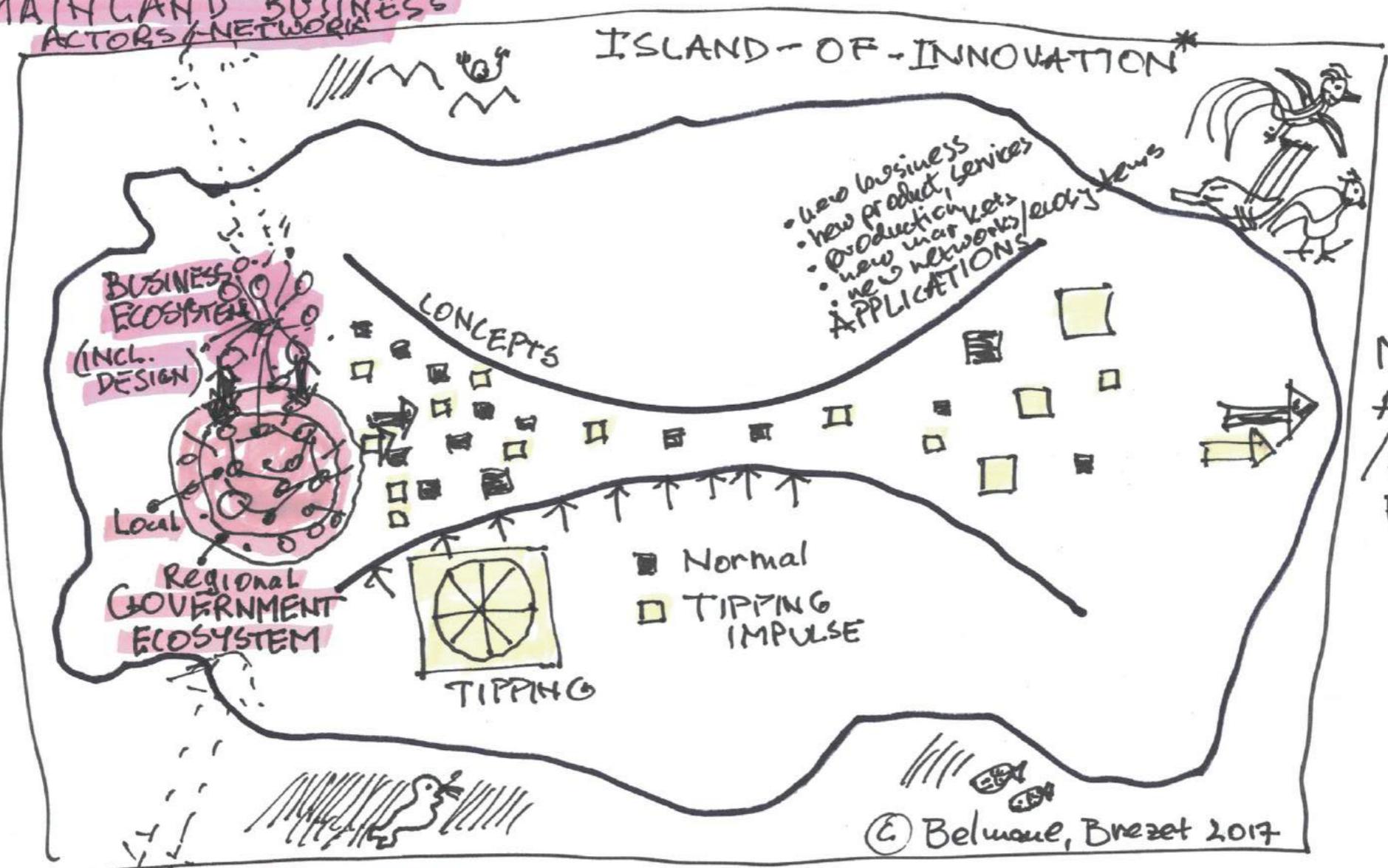
* RD&D = Research, development and demonstration.

Basics

Open Innovation for Regional Policy Makers (adapted from Chesbrough, 2003)



MAINLAND BUSINESS ACTORS/NETWORKS



MAINLAND GOVERNMENT ACTORS/NETWORKS

* = SUSTAINABLE INNOVATION
= CONTRIBUTING TO 17 SD
ON GOALS (MORE OR LESS)



Global Startup Ecosystem Report 2019

with New Life Sciences Ecosystem Ranking

in partnership with  hello
tomorrow

crunchbase



TECH
NATION

Learn more and get connected at startupgenome.com

Our Global Network



State of the Global Startup Economy

The global startup economy continues to grow, creating \$2.8 trillion in value between 2016 and 2018.¹ This is a 20.6% increase from the previous period and more than double what it was just five years ago. This value creation is on par with a G7 economy and bigger than the annual GDP of the United Kingdom. Relatedly, 2018 saw a decade-high \$220 billion in total VC investments.

In 2012, Startup Genome, together with Steve Blank, published that “the writing was on the wall” for an economic revolution. We were in between two major economic eras, in the Great Transition from the Industrial to the Information Economy. Today, it’s clear this Great Transition has happened. In addition to the \$2.8 trillion in value created by just startups — excluding established tech companies — the list of large corporations are now dominated by tech. In 2008, only one of the 10 largest companies in the globe was technology-based: Microsoft. Today, it’s seven out of 10, and three of those are in Silicon Valley.

1. Measured from January 2016 to the first half of 2018.

Largest US companies in 2018 vs 2008

2018				2008			
Rank	Company	Founded	USbn	Rank	Company	Founded	USbn
1.	Apple	1976	890	1.	Exxon	1870	492
2.	Google	1998	768	2.	General Electric	1892	358
3.	Microsoft	1975	680	3.	Microsoft	1975	313
4.	Amazon	1994	592	4.	AT&T	1885	238
5.	Facebook	2004	545	5.	Proctor & Gamble	1837	226
6.	Berkshire	1955	496	6.	Berkshire	1955	206
7.	J&J	1886	380	7.	Google	1998	198
8.	JP Morgan	1871	375	8.	Chevron	1879	192
9.	Exxon	1870	367	9.	J&J	1886	192
10.	Bank of America	1909	316	10.	Walmart	1962	184

Source: *Milford Assessment Management*, from Bloomberg and Google

TECHSECTOR Er is geen Duits Facebook, geen Duits Google. Met subsidies wil de Duitse regering industriële giganten helpen ontstaan. Digitale voorlopers. Het plan oogst ook kritiek.

Duitsland vreest zijn positie en wil digitale kampioenen kweken

Wilfred van de Poll
BERLIJN

Best leuk hoor, die start-up-scene in Berlijn. Maar waar blijft de Duitse of Europese Google of Facebook? Waar zijn de nieuwe Duitse toponderingen als het gaat om de industrieën van de toekomst, zoals kunstmatige intelligentie? De Duitse minister van economische zaken Peter Altmaier (CDU) ziet ze niet. Volgens hem loopt zijn land, net als heel Europa, te ver achter de troepen aan.

Hij wil dat Duitsland en Europa met subsidies de industriële giganten van de toekomst helpen kweken: écht grote spelers, die in de champions league van de digitale wereld de finale halen. Altmaier ontvouwde zijn plannen in zijn 'Nationale industriestrategie 2030' uit februari.

Hij oogste er veel kritiek mee in zijn land. Industrieleiders, onderne-

mers en economen keerden zich tegen hem. En de kritiek ebt niet weg. Vooral Altmaiers nadruk op de rol van grote bedrijven steekt – hij wil Duitse en Europese 'kampioenen'. Maar in Duitsland is men juist trots op de vele kleine, gespecialiseerde bedrijven, die op hun terrein de wereldmarkt aanvoeren. Bijvoorbeeld in het bouwen van specifieke machines of machineonderdelen.

De 'hidden champions' worden ze genoemd: verborgen kampioenen. "Die komen in Altmaiers strategie amper voor", zegt Tomaso Duso van het Duitse instituut voor economisch onderzoek DIW. Juist door hun lenigheid zijn ze zo succesvol, aldus Duso. Ze worden als kracht gezien achter de Duitse boom van de afgelopen tien jaar. Duitsland werd wereldkampioen exporteren: Exportwereldmeester.

Het is een medaille die het land zich graag omspeldt. Maar de trots gaat gepaard met angst: raken we onze po-

sitie niet kwijt? Ook in Altmaiers industriestrategie klinkt huiver voor neergang. Bij nieuwe, revolutionaire industrieën geldt volgens de minister: wie aan de start de beste positie heeft, groeit uit tot bijna almachtige leider, anderen kunnen slechts volgen.

Altmaiers Duitse en Europese kampioenen moeten daarom stevig in nieuwe sleuteltechnologieën investeren: robotica, digitale platforms, kunstmatige intelligentie, elektrische mobiliteit. Ook wil Altmaier bedrijven beschermen tegen Chinese overnames, bijvoorbeeld door een fonds dat Duitse bedrijven koopt waar China zijn oog op heeft laten vallen.

Robotbedrijf

De angst dat Chinezen hoogwaardige Duitse technologie uit overgenomen bedrijfjes opslurpen, is groot, zegt Duso. "Exemplarisch was het debat rond het succesvolle robotbedrijf Kuka. Een Chinees bedrijf wilde het kopen.

Moest de staat dat uit nationaal belang verhinderen?" Dat gebeurde niet: in 2016 ging het over in Chinese handen. Buso vindt de angst voor 'de Chinezen' wel wat overdreven: "Er worden bedrijven gekocht maar het zijn er niet extreem veel."

Directe achtergrond van Altmaiers industriestrategie was een fusieplan van de Duitse en Franse treinbouwers Siemens en Alstom. Door die fusie zou een Europese reus ontstaan die de concurrentie aankon met het grote Chinese spoorbedrijf CRRC (ontstaan uit het samengaan van twee staatsbedrijven). Maar de Europese Commissie blokkeerde dat, omdat de fusie tegen de mededingingsregels was.

Duso: "De Duitse en Franse politiek steunden de fusie wel heel erg. Direct na het mislukken daarvan kwam Altmaier met zijn visiedocument. Twee weken later presenteerde zijn Franse evenknie, minister Bruno Le Maire, een soortgelijke strategie."

Samen zetten Frankrijk en Duitsland druk op de Europese Commissie, aldus Buso – noem het een nieuw soort Frans-Duitse as. Ze willen een meer interventionistische industriepolitiek, waarbij fusies tussen grote bedrijven makkelijker worden. Andere machtsblokken stellen hun eigen belang immers ook steeds schaamtelozer voorop.

De nieuwe Duits-Franse koers stuit bij veel academici en gezaghebbende economen op verzet. Ook Duso's eigen instituut DIW keert zich er tegen. "Wij vinden: de Europese controle op oneerlijke concurrentie werkt tamelijk goed, ze schept een gezond klimaat. Om dat op te geven, alleen om internationaal mee te kunnen doen, dat is de verkeerde weg. De bescherming die Altmaier wil, zorgt voor zwakke reuzen. Ze past ook niet bij Europa. Duitsland is geen China. En ze pakt nadelig uit voor de consumptie."



Een werknemer van Kuka bouwt een robot in het Duitse Augsburg. In 2016 namen Chinezen het bedrijf over. FOTO GETTY

'De bescherming die Altmaier wil, zorgt voor zwakke reuzen'

Toch zetten Altmaier en Le Maire door. Een eerste succes oogsten ze deze maand met een Frans-Duitse samenwerking voor het vervaardigen van accu's voor elektrische auto's, met honderden miljoenen euro's ondersteuning vanuit de EU en de Duitse en Franse overheid. Buso: "Dat is een voorbeeld van hun nieuwe politiek."

De Duitse en Franse autobouwers willen omschakelen naar elektrisch, maar de accu's moeten nu nog van buiten Europa komen, met name uit China. Dat willen Altmaier en Le Maire veranderen. Er komt nu een accufabriek in Frankrijk, daarna eentje in Duitsland. En meer moeten er volgen, gesteund door de staat.

**Lessons to be
learned**

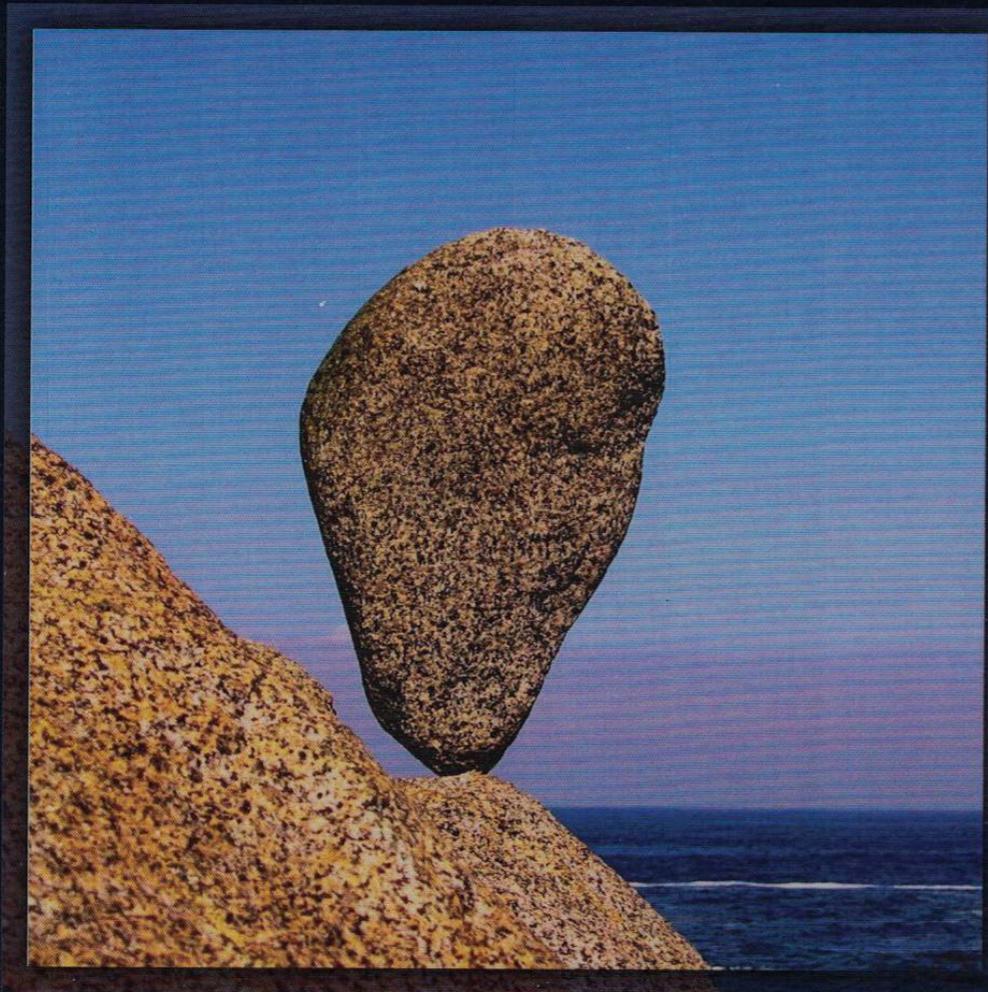
TIPPING Wheel 1.0

Island:
Sector:
Project:



Inspiring Theories

Critical Transitions in Nature and Society



Marten Scheffer

PRINCETON STUDIES IN COMPLEXITY

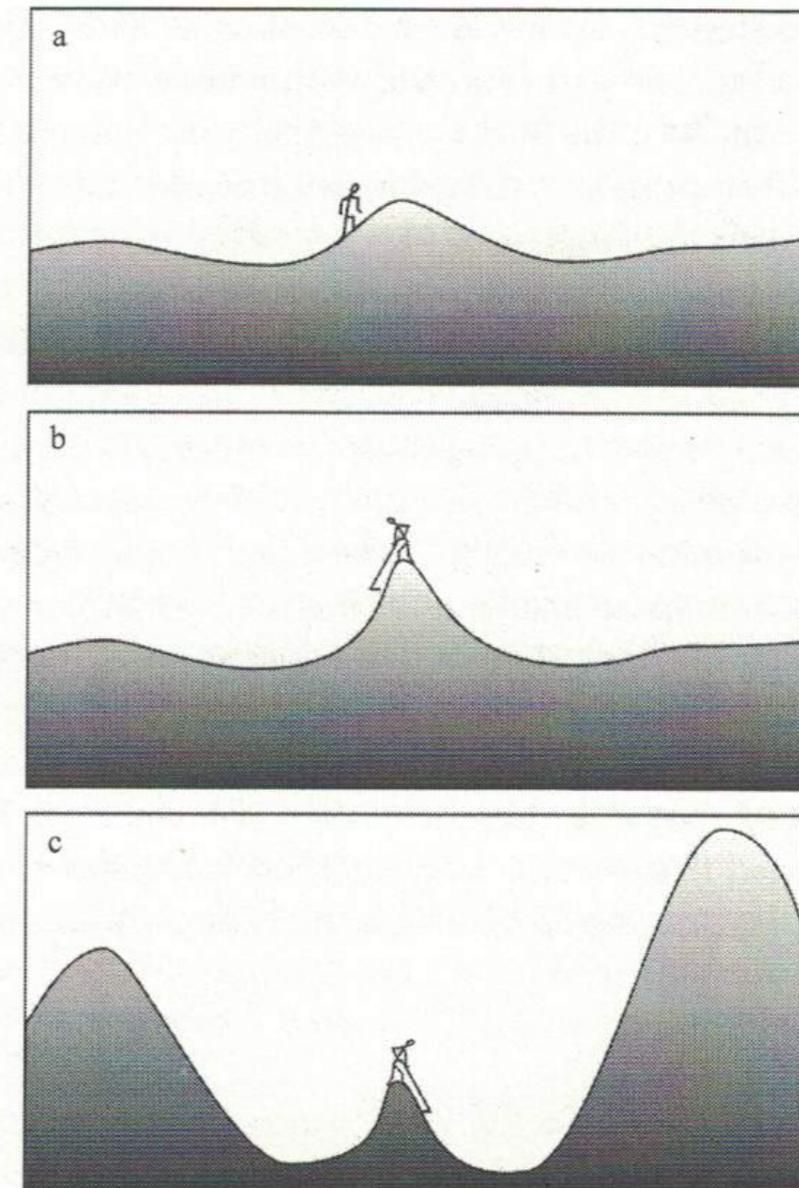
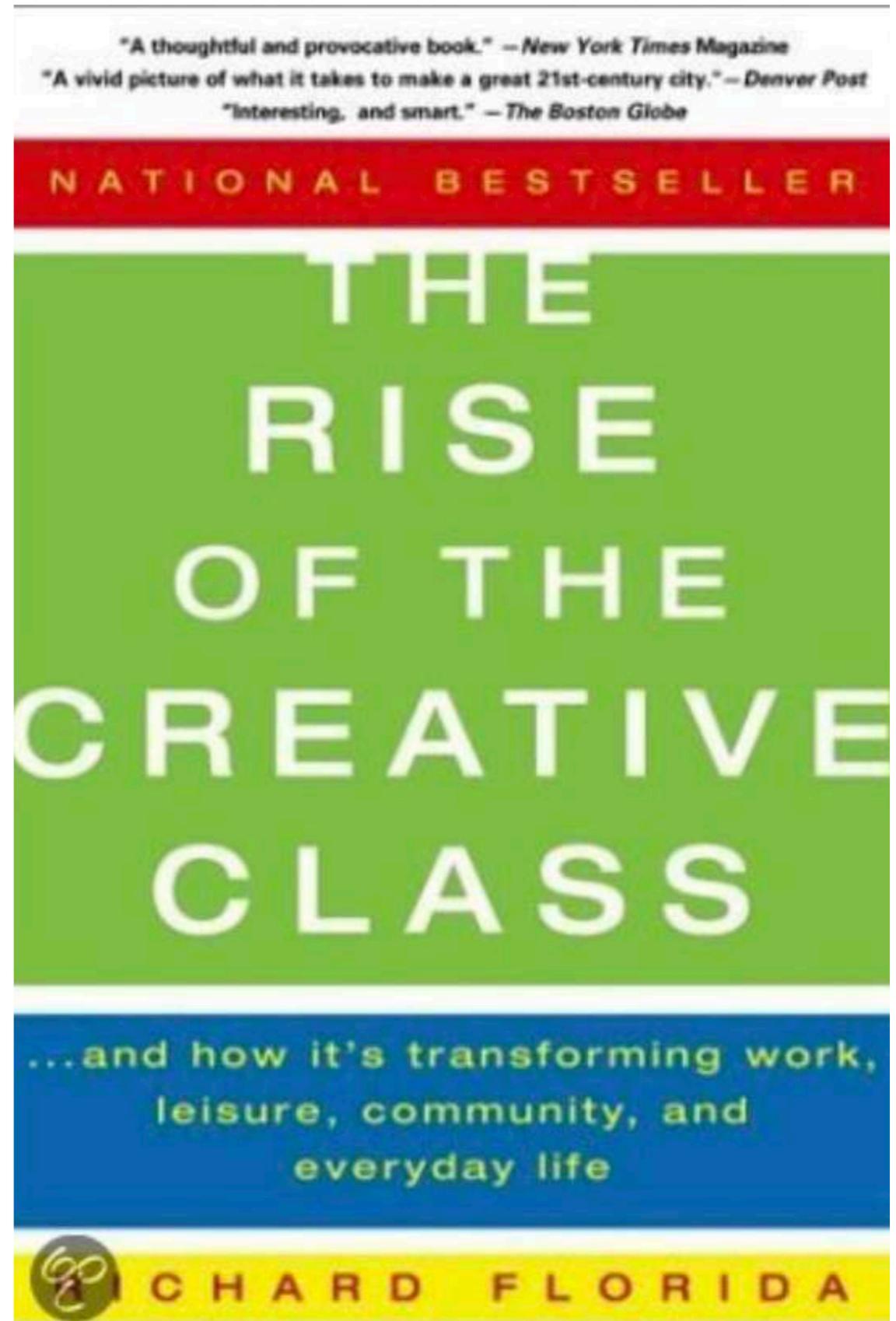


FIGURE 12.5. Illustration of the efficiency trap. If exploration has revealed an optimum in the fitness landscape (panel a), a person, group, or company may shift to an exploitative mode where improved efficiency and specialization enhances the fitness further (panel b). However, in such a behavioral mode, the explorative capacity to scan for alternative options is reduced. This implies the risk of becoming trapped in a situation that may seem optimal from a myopic view but is suboptimal compared to potentially much better places in the changing fitness landscape (panel c).

Technology Talent Tolerance



A FINANCIAL TIMES
BEST BOOK OF THE YEAR

the
ENTREPRENEURIAL
STATE

"ONE OF THE MOST INCISIVE ECONOMIC BOOKS IN YEARS."
—JEFFREY MADRICK, *NEW YORK REVIEW OF BOOKS*



DEBUNKING PUBLIC
VS. PRIVATE SECTOR MYTHS

REVISED EDITION

MARIANA MAZZUCATO

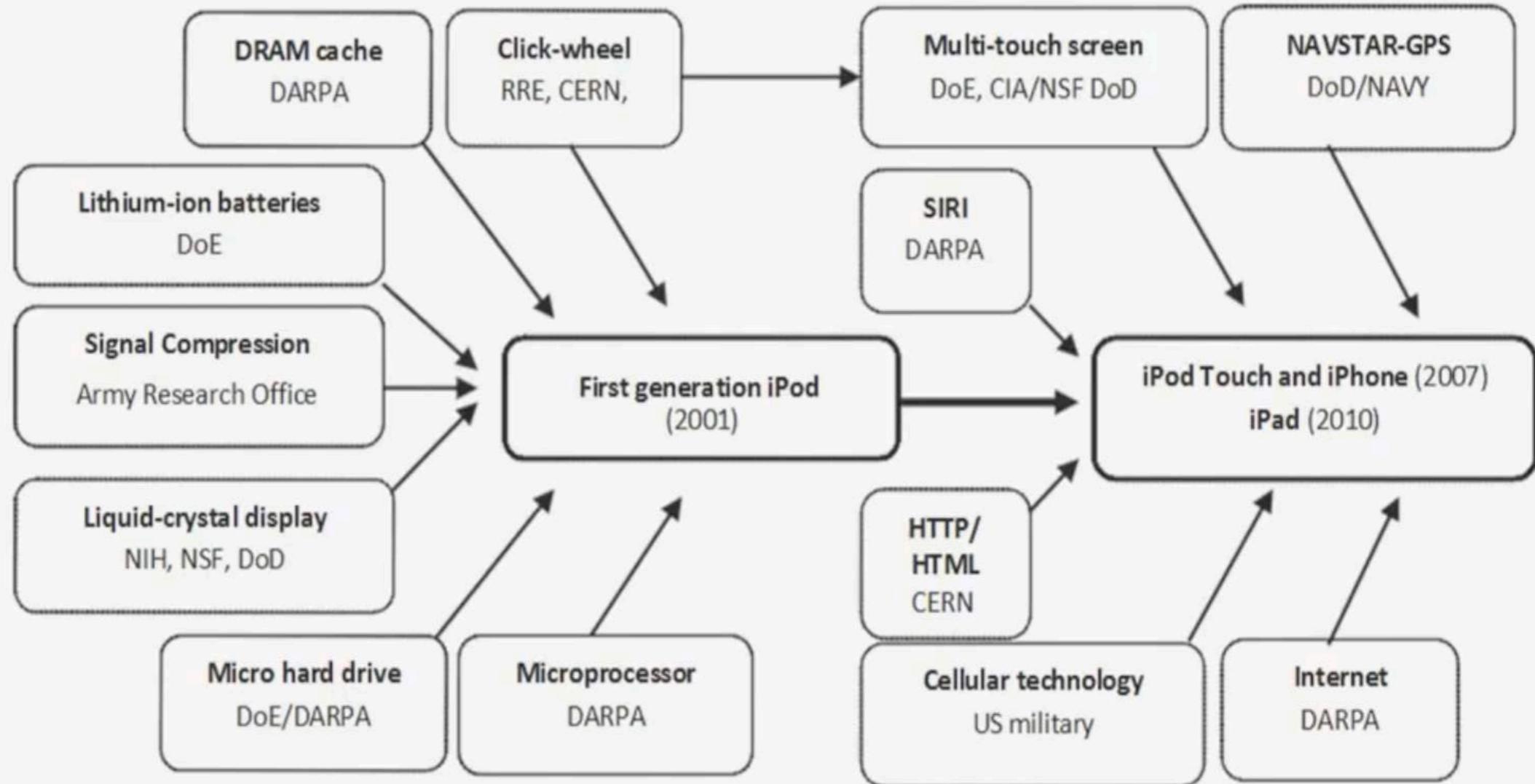


Source: Mazzucato



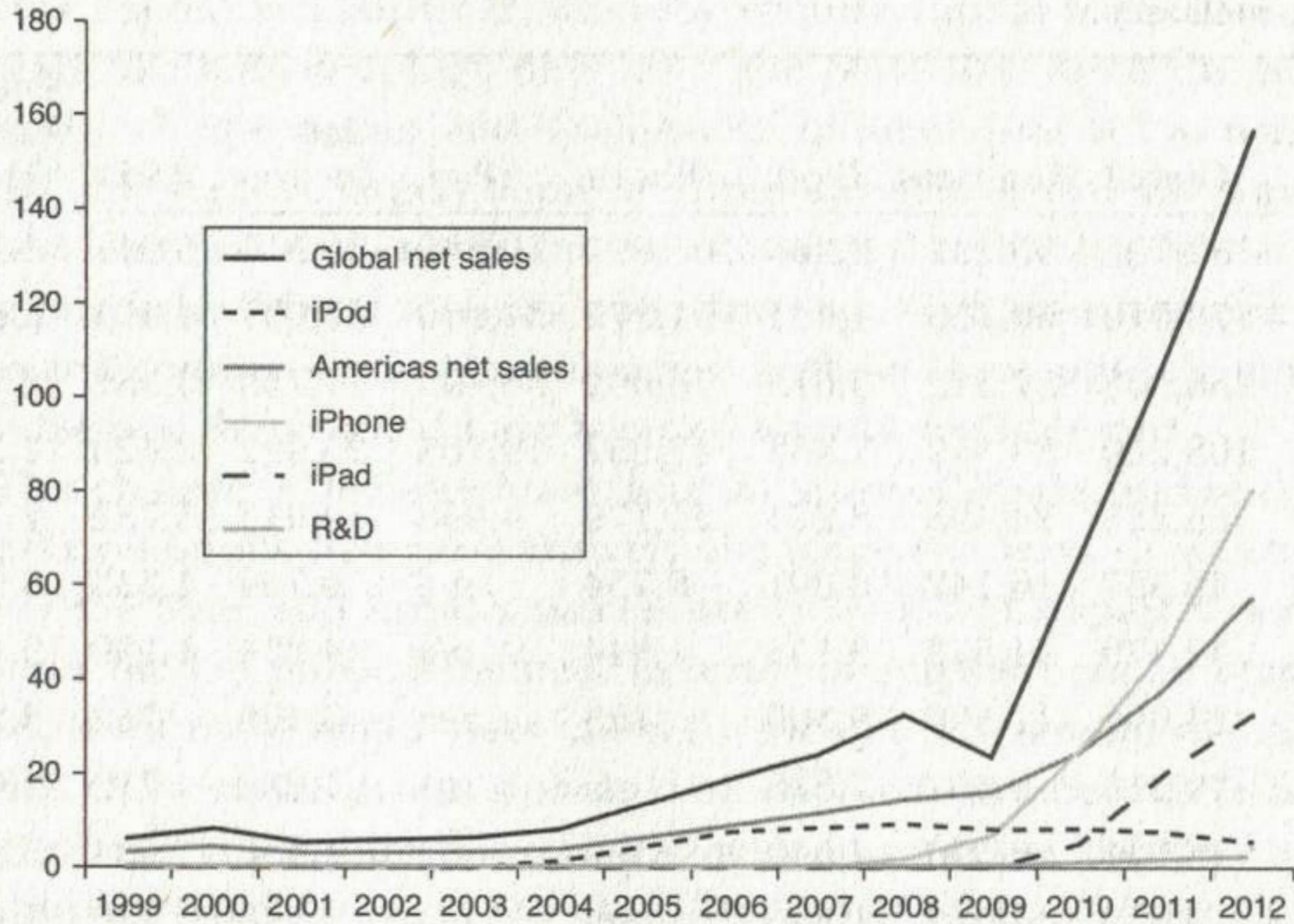
all
government
funded

What makes the iPhone so 'smart'?



Source: Mazzucato (2013), p. 109, Fig. 13

FIGURE 10. Apple net sales by region and product (US\$, billions)



CREATING MARKETS NOT ONLY FIXING THEM

According to neoclassical economic theory that is taught in most economics departments, the goal of government policy is simply to correct market failures. In this view, once the sources of failure have been addressed—a monopoly reined in, a public good subsidized, or a negative externality taxed—market forces will efficiently allocate resources, enabling the economy to follow a path to growth. But that view forgets that markets are blind, so to speak. They may neglect societal or environmental concerns. And they often head in suboptimal, path-dependent directions that are self-reinforcing. Energy companies, for example, would rather invest in extracting oil from the deepest confines of the Earth than in clean energy. In other words, our energy system moves along a carbon-intensive path that was set up more than

Building a green innovation ecosystem (symbiotic not parasitic)

Innovation cannot be pushed without the efforts of many, and it cannot proceed without a long-term vision that sets the direction and clarifies objectives. When government policies fail, public dollars can be wasted and promising technologies may fail to meet their potential, because politicians or taxpayers refuse to commit more resources. When businesses fail, thousands of jobs can disappear, investors lose confidence and the reputations of the technologies are scarred. Uncer-

novation in clean technologies that mitigate climate change and promote energy diversity. The long-term vision is to transform our current productive system into a sustainable green industrial system. That is a mission set on producing long-lasting benefits to the public while delivering on a promise of superior economic performance.

Key to the future of the green revolution taking off will be the building of innovation ecosystems that result in *symbiotic* public-private partnerships rather than parasitic ones. That is, will increased invest-

STARTUP COMMUNITIES



FELD

STARTUP COMMUNITIES

BUILDING AN ENTREPRENEURIAL
ECOSYSTEM IN YOUR CITY

neurship are at the heart of America's long-term economic growth story. of Technology Officer, I heard a great deal of interest in strategies to foster es beyond Silicon Valley. In this book, Brad Feld captures the essence of and development of startup communities and provides a clear road map n expanding the entrepreneurial ecosystem wherever they live."

nior Advisor, The Advisory Board Company, former U.S. CTO

n be the home of a vibrant startup community. Many of the principles to the ones we are applying at DowntownProject.com to help revitalize nsform our city into one of the leading startup communities in the world. les are applicable to any city that wants to reinvigorate itself through the ip." —**TONY HSIEH**, *New York Times* bestselling author of *Delivering Happiness*

novation are the key drivers of the emerging creative economy. *Startup* re playbook of how communities can harness the power of creative r long-run economic growth and development. Feld gives entrepreneurs aders a powerful framework filled with examples on how to build vibrant ities." —**RICHARD FLORIDA**, author of *The Rise of the Creative Class*; onto, NYU; Senior Editor, *The Atlantic*

in the Startup America Partnership since its inception has heavily and approach to accelerating startup communities throughout the United many of the ideas in the book with community champions—successful nd the country—who are leveraging them to build vibrant growing **SCOTT CASE**, CEO, Startup America Partnership

nic growth at any level this book will help you figure out how you can play p community. Brad Feld's book will become the Myth Buster of Startup quires collaboration, inclusiveness, a network of leaders, and feeders chy. All hard work and a ton of fun." —**LESA MITCHELL**, VP Innovation & ation

ptures the essence of what drives a startup community. Brad Feld high- having continual activities that engage the entire entrepreneurial stack in rm sustainable startup community. At Startup Weekend, we are doing our y people around the world experience entrepreneurship, and we are proud board member in our efforts." —**MARC NAGER**, CEO, Startup Weekend

ISBN 978-1-118-44154-1



FIGURE: © LEONTURA/ISTOCKPHOTO
DGE69/ISTOCKPHOTO

STARTUP



COMMUNITIES

BUILDING AN ENTREPRENEURIAL
ECOSYSTEM IN YOUR CITY

BRAD FELD



BRAD FIELD - Startup Communities

Building an Entrepreneurial Ecosystem in your City

The Boulder Thesis

1. LED BY ENTREPRENEURS
2. LONG-TERM COMMITMENT OF LEADERS
3. FOSTER A PHILOSOPHY OF INCLUSIVENESS
4. ENGAGE THE ENTIRE ENTREPRENEURIAL
STACK

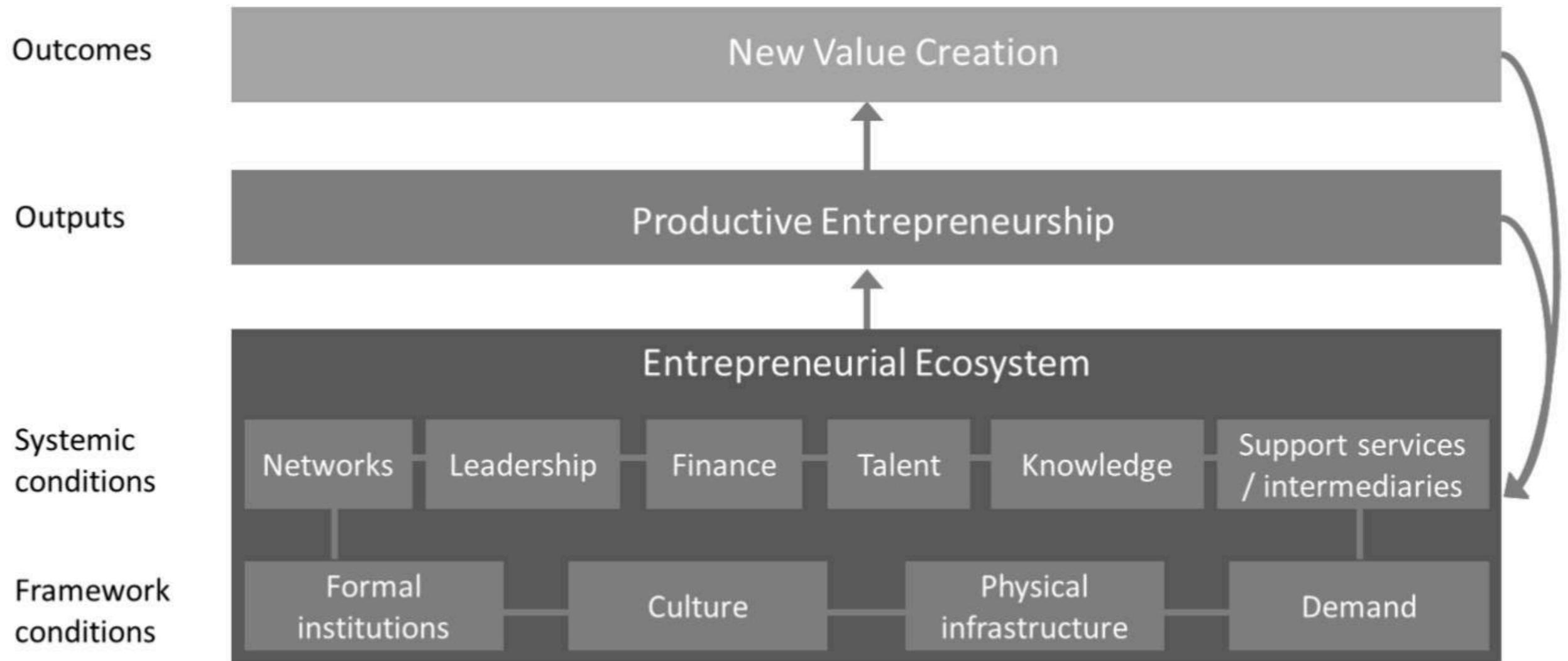


Fig. 1 Key elements, outputs and outcomes of the entrepreneurial ecosystem (based on: Stam 2015)

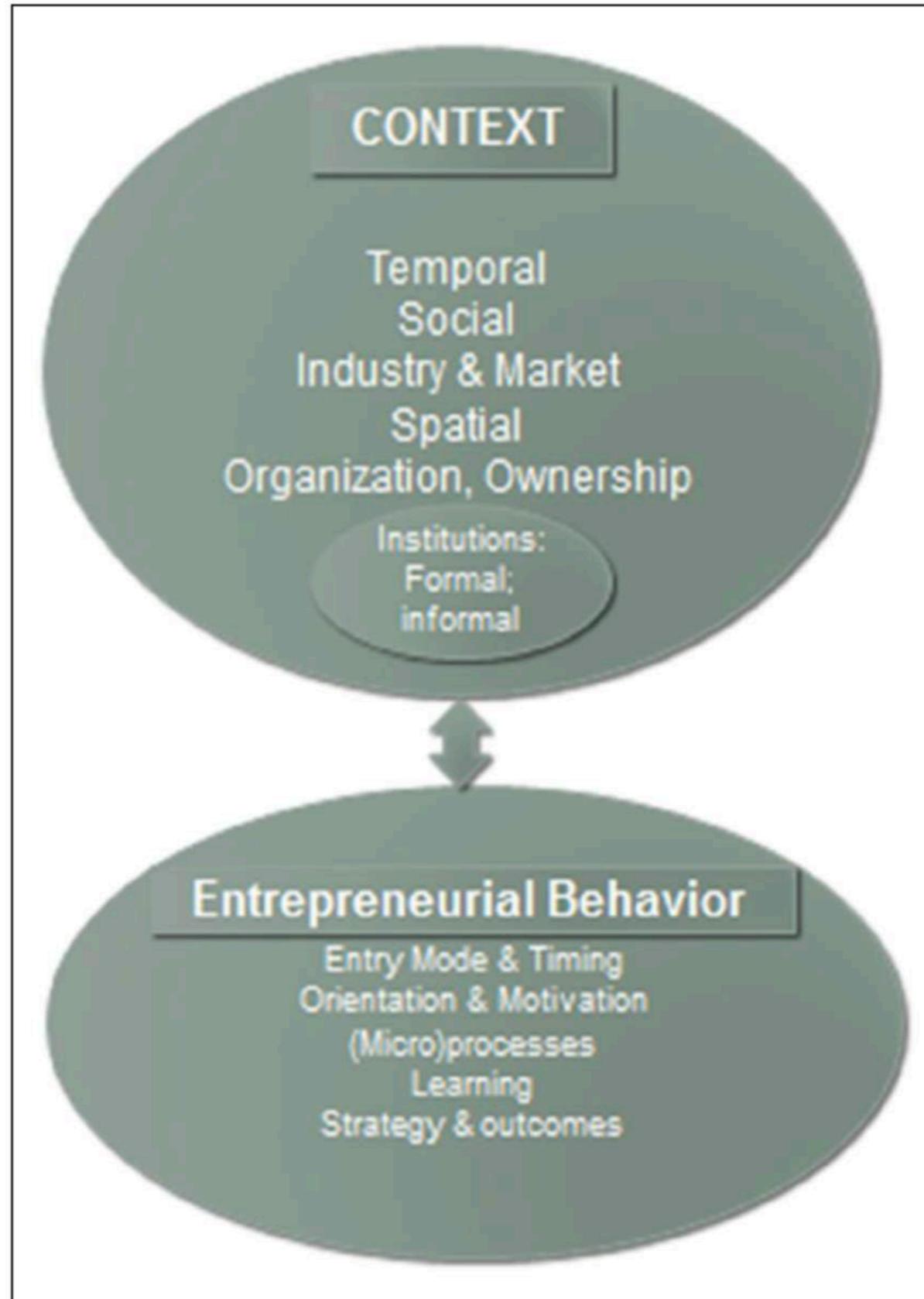


Figure 1. Context and entrepreneurial behavior.

Effectuation

Effectuation

A set of decision-making principles
expert entrepreneurs are observed to
employ in situations of uncertainty.

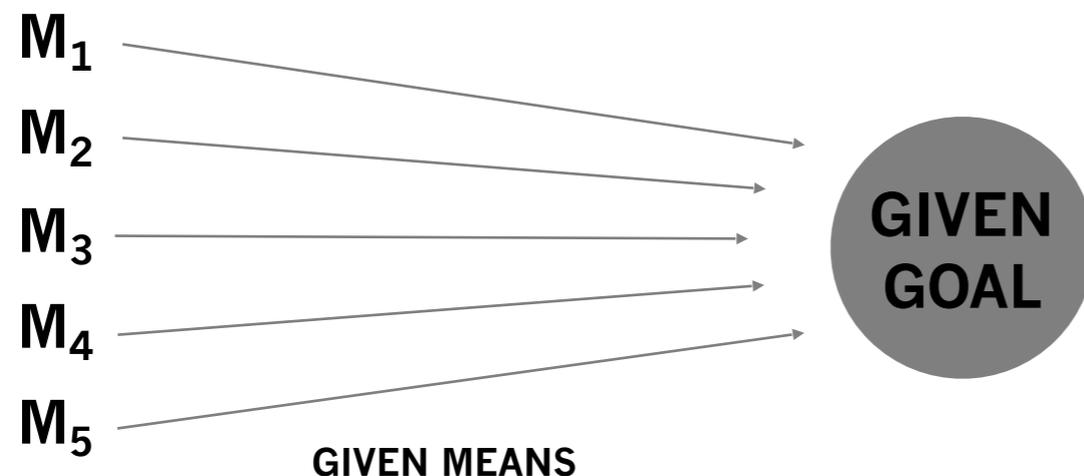
Effectuation is the inverse of causation.

Causal vs. Effectual Reasoning

Managerial Thinking (Causal)

Distinguishing Characteristic

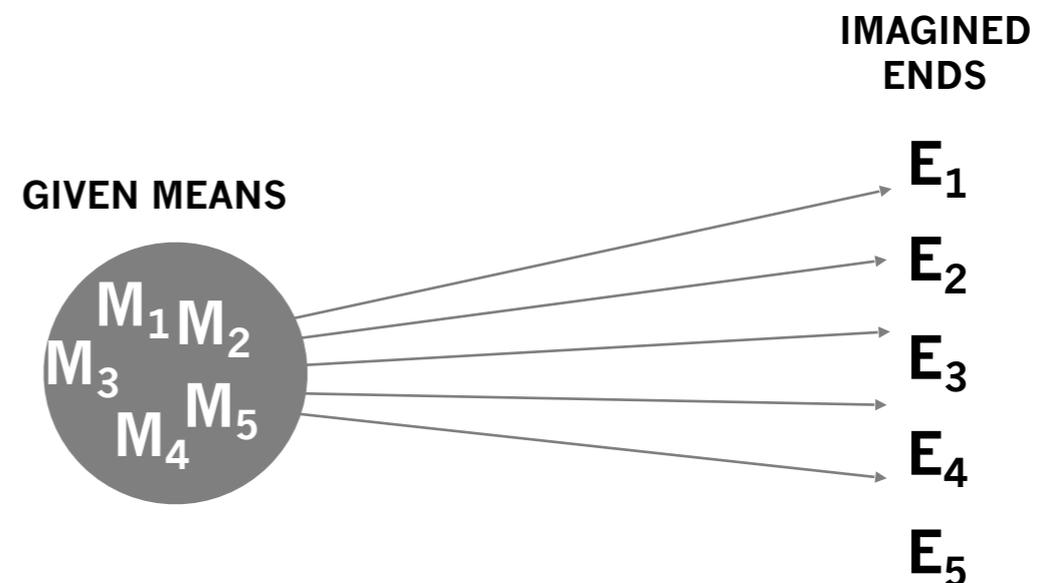
Selecting between given means to achieve a pre-determined goal



Entrepreneurial Thinking (Effectual)

Distinguishing Characteristic

Imagining a possible new end using a given set of means



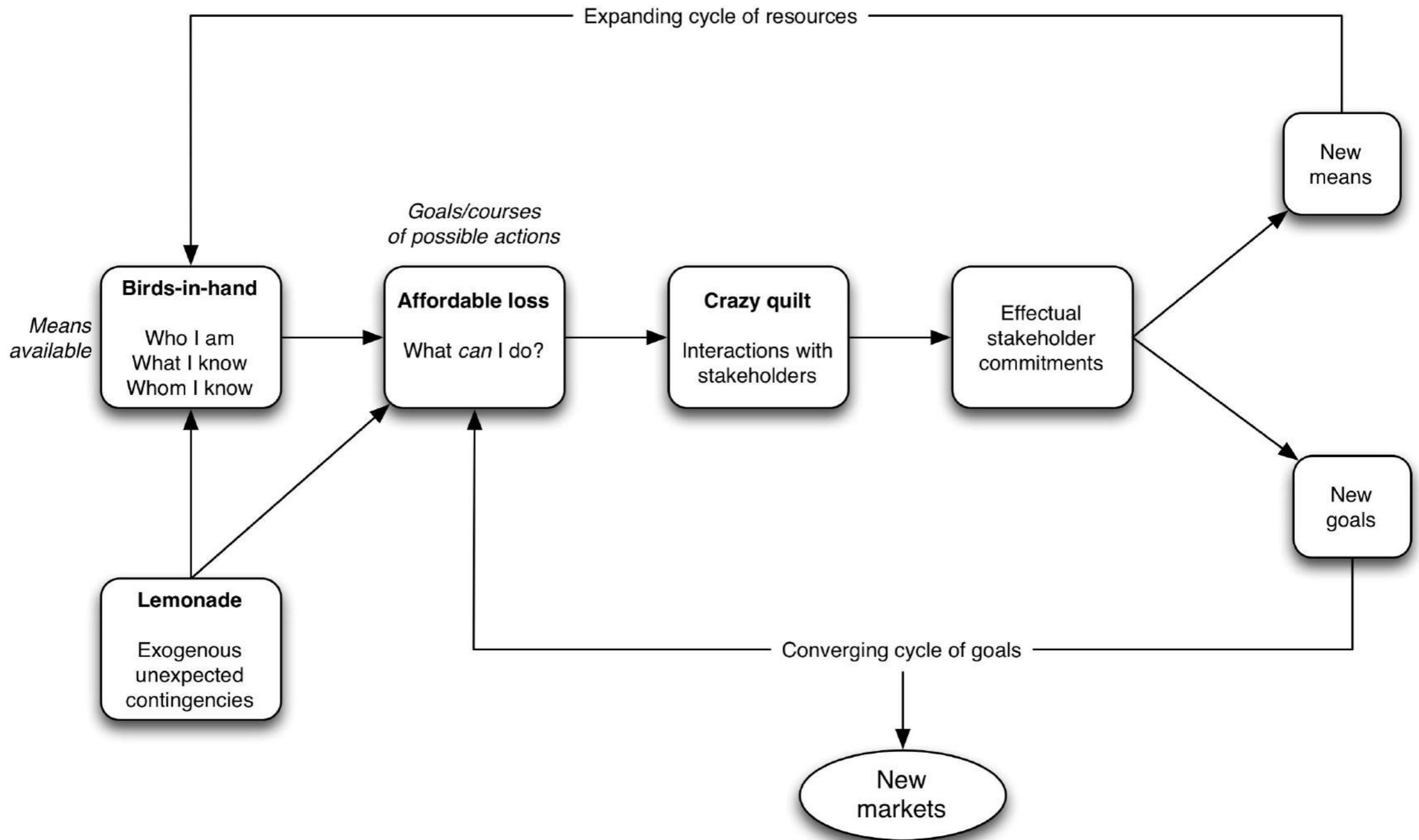
How do you cook?



How do you cook?

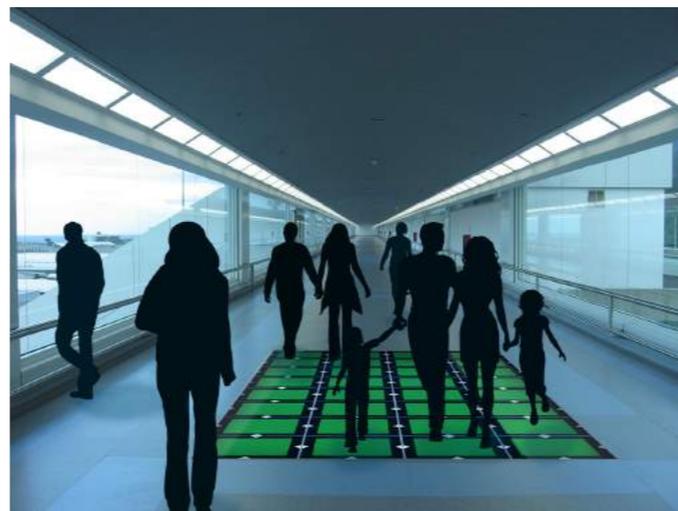


Effectuation in action



Sustainable Dance Club

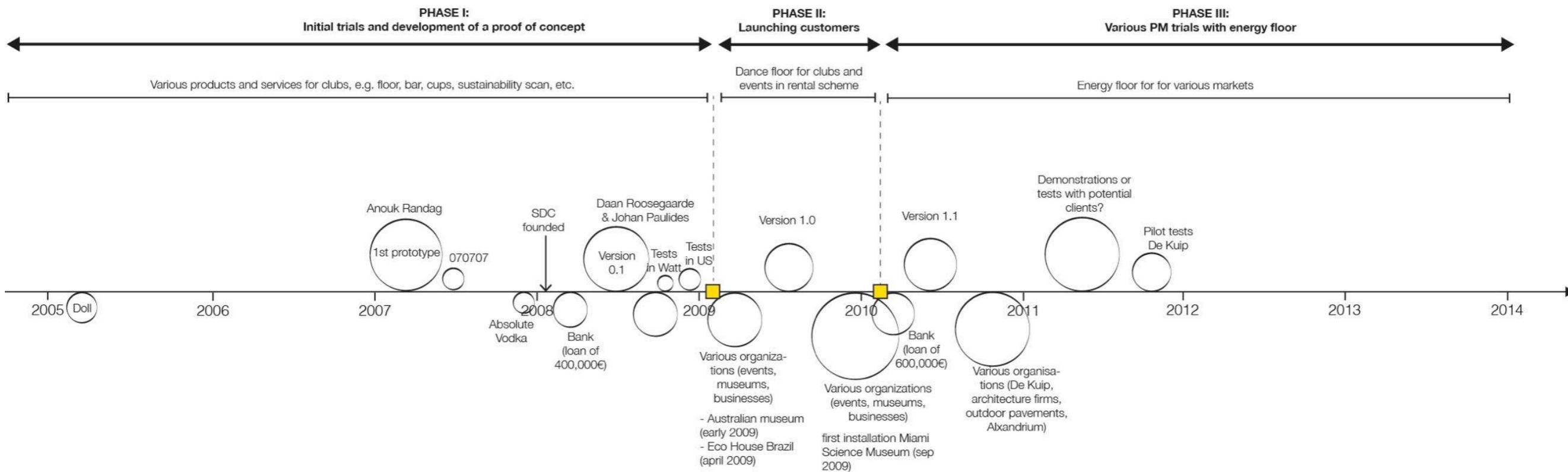
- Started with the aim of developing various products and services for club in order to decrease their environmental impact
- Focus on the development of dance floor in a rental scheme
- Currently development of the energy floor for various markets involving public spaces, such as airports, football stadiums, shopping malls, parking garages, and others



Overview of SDC's iterations

Phase	Iteration #	Period	PM definition
1	1	2005-2009	A portfolio of products for clubs
2	2	2009-2010	Sustainable dance floor for club and events in a rental scheme
3	3	2010-2014	Energy generating floor as a large scale application for public spaces

Reconstruction of innovation processes: SDC





THE GAMER

The Gamer is a smart energy floor that encourages active learning on school playgrounds.

[READ MORE](#)



CONTAINER CLUB

Off-the-grid container club featuring solar panels and energy generating dance floor.

[READ MORE](#)



SUSTAINABLE DANCE FLOOR

The world's first energy dance floor that converts kinetic energy of dancing people to electricity.

[READ MORE](#)



SUSTAINABLE ENERGY FLOOR

The world's most efficient energy converting pedestrian floor system for high footfall areas.



PHOTO BOOTH

In this innovative photo booth you need to dance to generate energy to activate the camera.



SUSTAINABLE MINI CLUBS

Plug & play self-sustaining festival solution equipped with 4 Sustainable Dance Floor tiles.



ENERGY FLOOR PLUGINS

Choose an Energy Floor Plugin to visualize the amount of energy generated on the floor.

[READ MORE](#)



GLOBAL DANCE CHALLENGE

Four hours of dancing on a 64-tile Sustainable Dance Floor: who generates the most energy?

[READ MORE](#)



VIDEO ENERGY FLOOR

High res visuals, movies and games interact with the movement on the Sustainable Dance Floor.

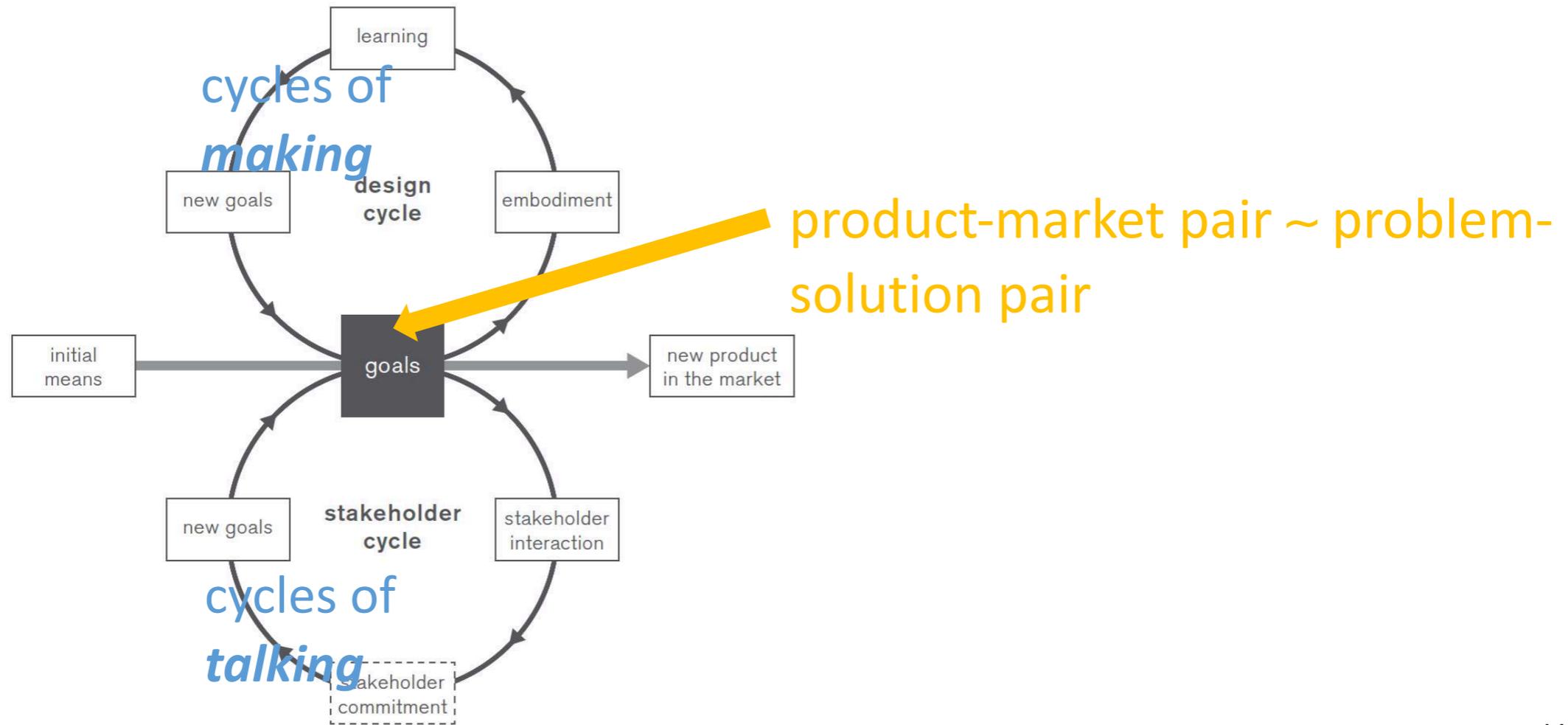
[READ MORE](#)



SILENT DISCO

Dance on the Sustainable Dance Floor while you listen to music on wireless headphones.

Product innovation process in new ventures



5.3.1. Defining bricolage

Zooming in, bricolage is a theory that brings insight into learning, adaptation, and embedding processes to add value in emergent contexts. The French structuralist anthropologist, Lévi-Strauss (1967:17), coined bricolage as the “science of the concrete”. Bricolage is a process that is linked to observation and assessment of resources available in the environment, and then taking a preference for using “whatever is at hand,” rather than searching for new resources. Despite negative connotations, associating bricolage with patchwork or haphazard solutions, the theory has since been appropriated by diverse fields including social psychology (Weick 1993), entrepreneurship (Baker, Miner, and Eesley 2003; Baker and Nelson 2000; 2005), social entrepreneurship (Domenico, 2010), innovation research (Garud and Karnøe 2003), organizational studies (Duymedijan and Ruling 2010), and economic geography (Faulconbridge 2012), to name a few. Figure 5.2. shows a synthesis of entrepreneurial bricolage by Baker and Nelson (2005).

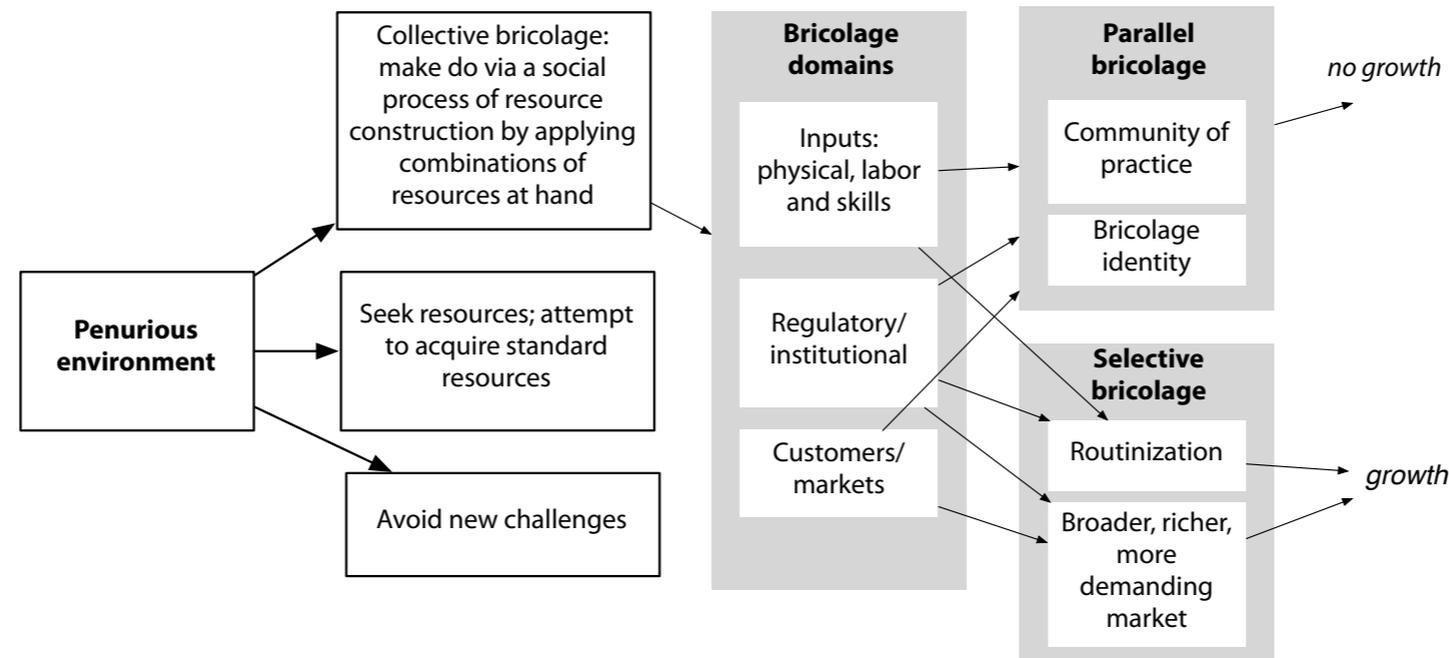


Figure 5.2. Entrepreneurial bricolage (adapted from Baker and Nelson 2005).

Bricolage is a survival approach to exploit opportunities and create value in environments of resource scarcity. The flexible and situational nature of bricolage makes it suitable for application in “penurious” (Baker and Nelson 2005; Penrose 1959) or “turbulent” (Duymedjian and Ruling 2012) environments of material and social scarcity (Linstead and Grafton-Small 1990).

Circular/Sustainable Business Models

Sustainable Business Models: Definitions

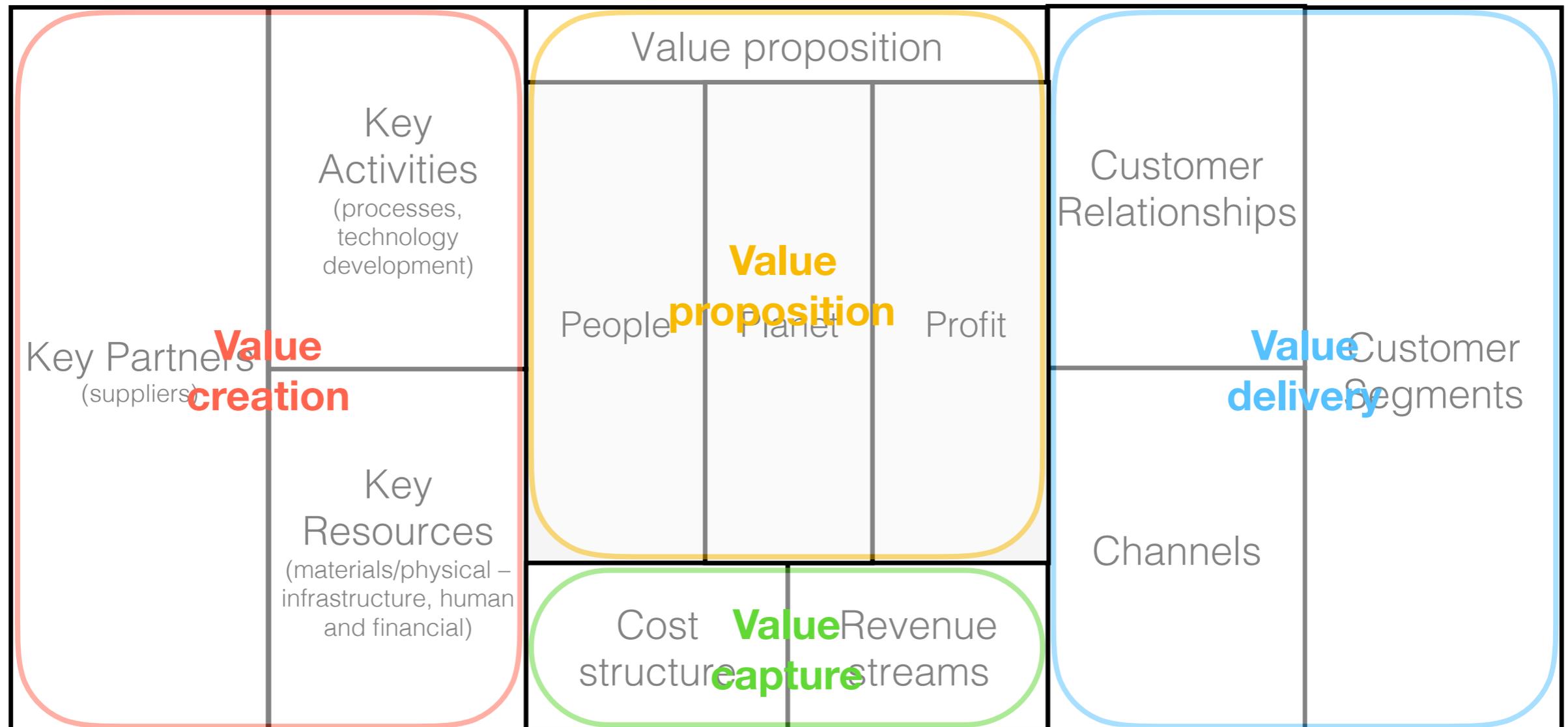
[Bocken et al., 2013](#) “Sustainable business models seek to go beyond delivering economic value and include a consideration of other forms of value for a broader range of stakeholders.” (p. 484)

[Abdelkafi and Tauscher, 2016](#) Sustainable business models, “incorporate sustainability as an integral part of the company's value proposition and value creation logic. As such, [Business models for Sustainability] provide value to the customer and to the natural environment and/or society.” (p. 75)

[Geissdoerfer et al., 2016](#)) “we define a sustainable business model as a simplified representation of the elements, the interrelation between these elements, and the interactions with its stakeholders that an organisational unit uses to create, deliver, capture, and exchange sustainable value for, and in collaboration with, a broad range of stakeholders.” (p. 1219)

[Evans et al., 2017](#) Sustainable business models are described with five propositions, “1. Sustainable value incorporates economic, social and environmental benefits conceptualised as value forms. 2. Sustainable business models require a system of sustainable value flows among multiple stakeholders including the natural environment and society as primary stakeholders. 3. Sustainable business models require a value network with a new purpose, design and governance. 4. Sustainable business models require a systemic consideration of stakeholder interests and responsibilities for mutual value creation. 5. Internalizing externalities through product-service systems enables innovation towards sustainable business models.” (p. 5ff)

SBM: A framework



Adapted from:
www.businessmodelgeneration.com
 (Osterwalder & Peigneur)

SBMAs: A framework

Value proposition

1. Product/ service,
2. Customer segments and relationships,
3. Value for customer, society, and environment

What value is provided and to whom?

Value creation & delivery

4. Activities,
5. Resources,
6. Distribution channels,
7. Partners and suppliers,
8. Technology and product features

How is value provided?

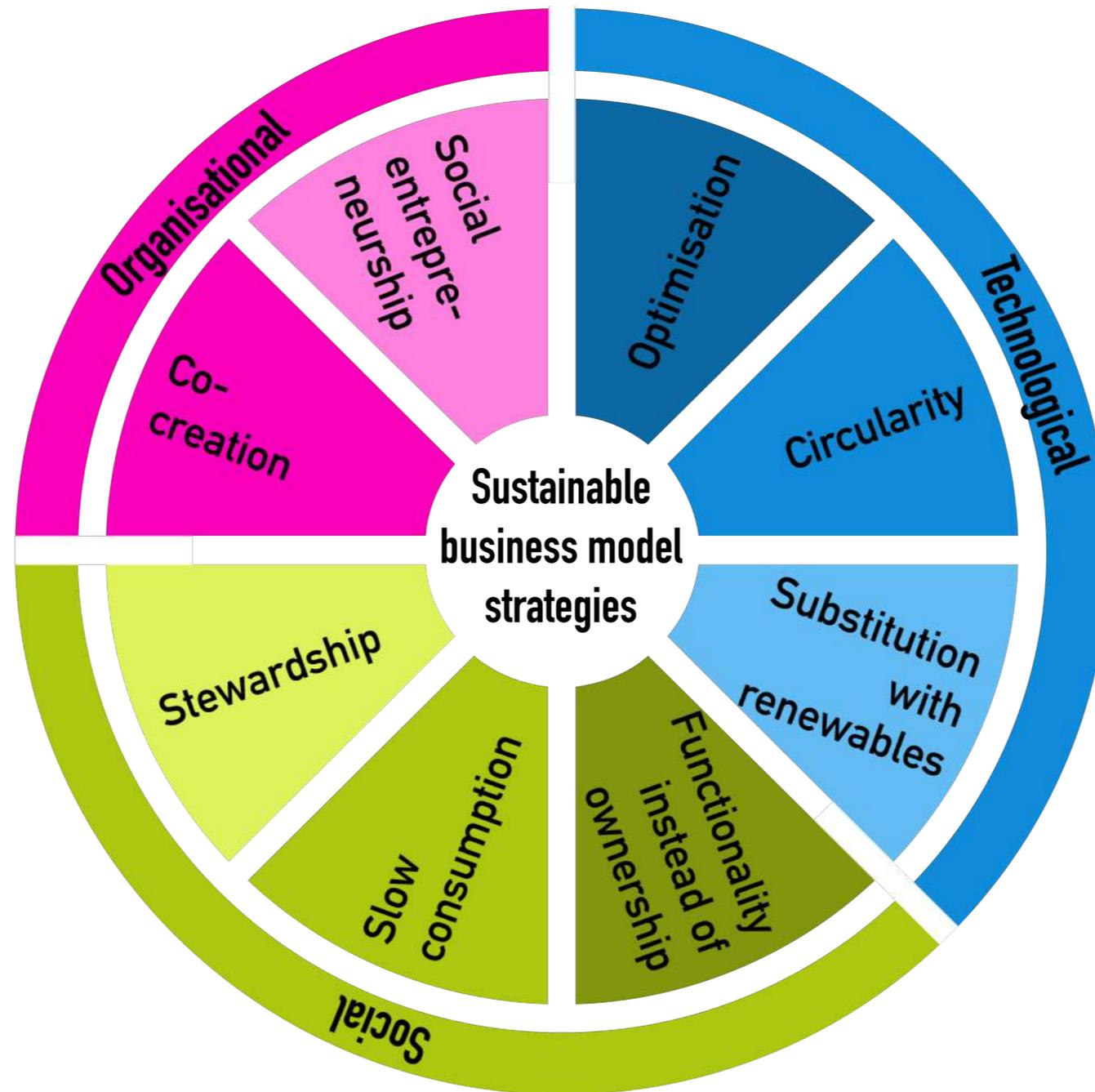
Value capture

9. Cost structure & revenue streams,
10. Value capture for environment & society
11. Growth strategy/ ethos

How does the company make money and capture other forms of value?

Source:

SBM Archetypes



Source:

Bocken, Short, Rana & Evans (2015) A literature and practice review to develop sustainable business model archetypes

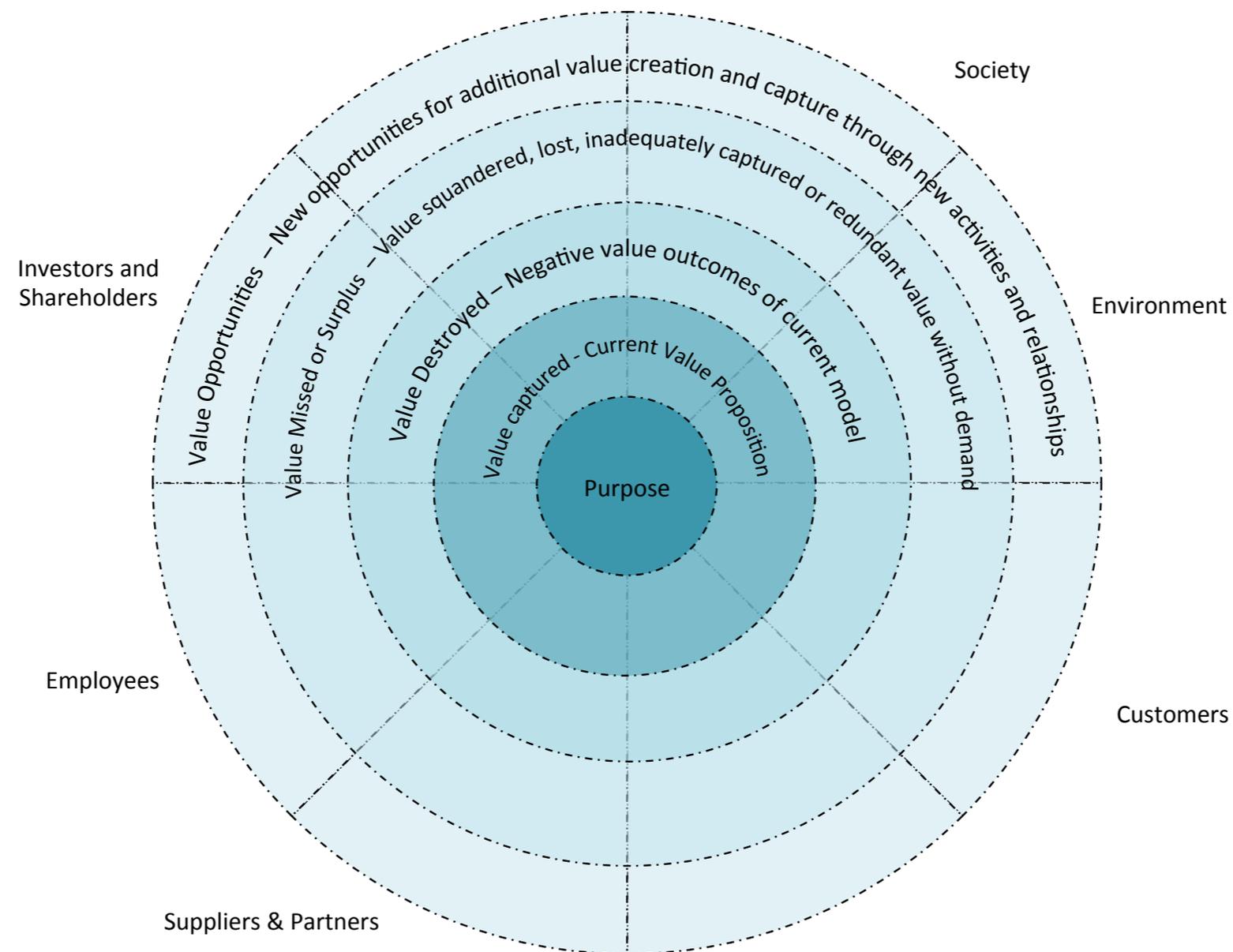
SBM Strategies

	Strategies	Examples							
Technological	Maximise efficiency and productivity	Lean manufacturing	Low carbon manufacturing/solutions	Additive manufacturing	De-materialisation	Increased functionality			
	Closing material loops	Circular economy	Cradle-2-Cradle	Industrial symbiosis	Reuse, recycle, remanufacture	Take back management	Use excess capacity	Sharing assets (ownership & consumptions)	Extended producer responsibility
	Substitute with renewables and human-centric solutions	Move from non-renewable to renewable energy	Solar and wind power based innovations	Zero emissions initiative	Blue economy	Biomimicry	The Natural step	Slow manufacturing	Green chemistry
Social	Deliver functionality, rather than ownership	Product-oriented PSS: maintenance, extended warranty	Use-oriented PSS: rental, lease, share	Result-oriented PSS: pay per use	Private Finance Initiative	Private Finance Initiative (PFI)	Design, Build, Finance, Operate (DBFO)	Chemical Management Services (CMS)	
	Encourage sufficiency	Consumer Education (models)	Demand management	Slow fashion	Product longevity	Premium branding/ limited availability	Frugal business	Responsible product marketing	
	Adopt a stewardship role	Biodiversity protection	Consumer care - promote consumer health and well-being	Ethical trade (fair trade)	Choice editing by retailers	Radical transparency about impacts	Resource stewardship		
Organisational	Create inclusive value through collaboration	Collaborative approaches	Incubators and entrepreneur support models	Licensing, Franchising	Open innovation (platforms)	Crowd sourcing/funding	"Patient/slow capital" collaborations		
	Repurpose for society/environment	Not for profit	Hybrid businesses, social enterprises	Alternative ownership - cooperatives, collectives	Social and biodiversity regeneration initiatives	Base of pyramid solutions	Localisation	Home based flexible working	

Source:

Bocken, Short, Rana & Evans (2015) A literature and practice review to develop sustainable business model archetypes

Value Mapping for Sustainable Business Modelling



Source:

Bocken, Short, Rana & Evans (2013) A value mapping tool for sustainable business modelling

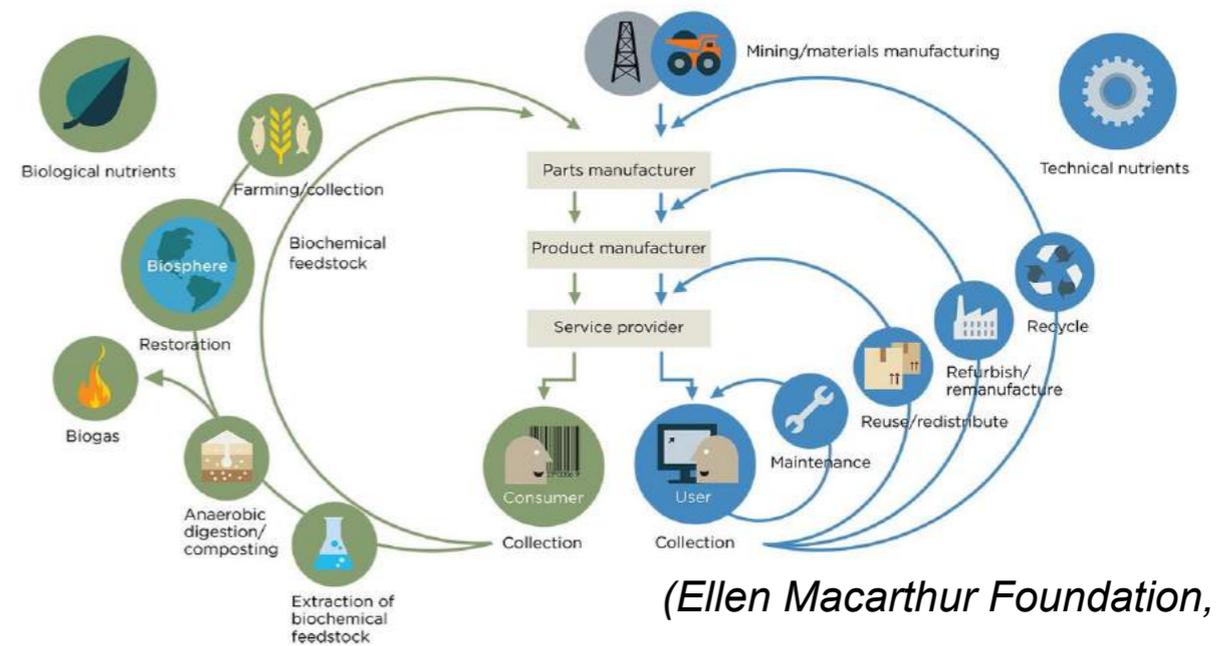
Source: Jonas Pagh Jensen, PhD Study on Circular Economy for the Wind Industry. AAU Aalborg, 2018

Circular Economy

'The circular economy contrasts with the traditional linear economy as the aim is to shift from generating profit from selling artefacts, to generating profits from the flow of materials and products over time.' (Bocken et al, 2016)

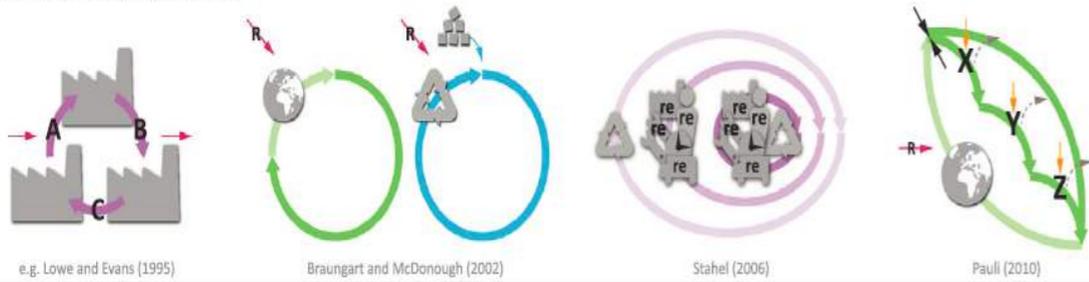
'The circular economy is based on a fragmented collection ideas derived from a range of scientific and semi-scientific concepts' (Korhonen et al, 2018).

Circular economy is an umbrella concept that covers all aspects of *'reducing, reusing and recycling activities in the process of production and circulation'* (Naustdalslid, 2014)



A range of definitions and models

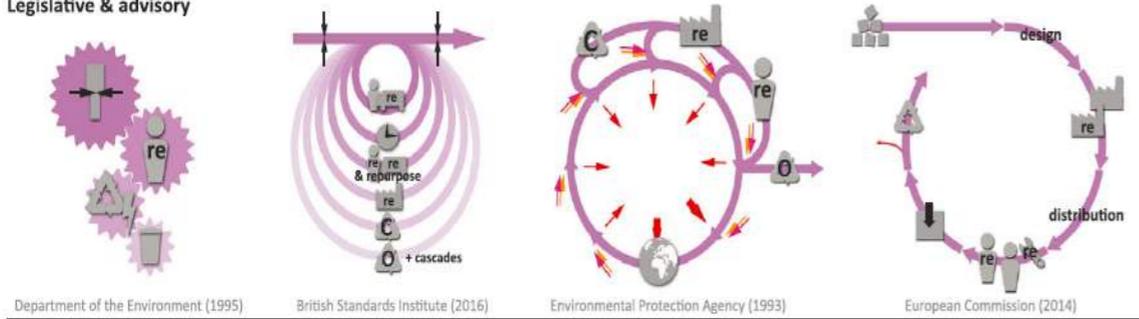
Seminal thinkers/ frameworks



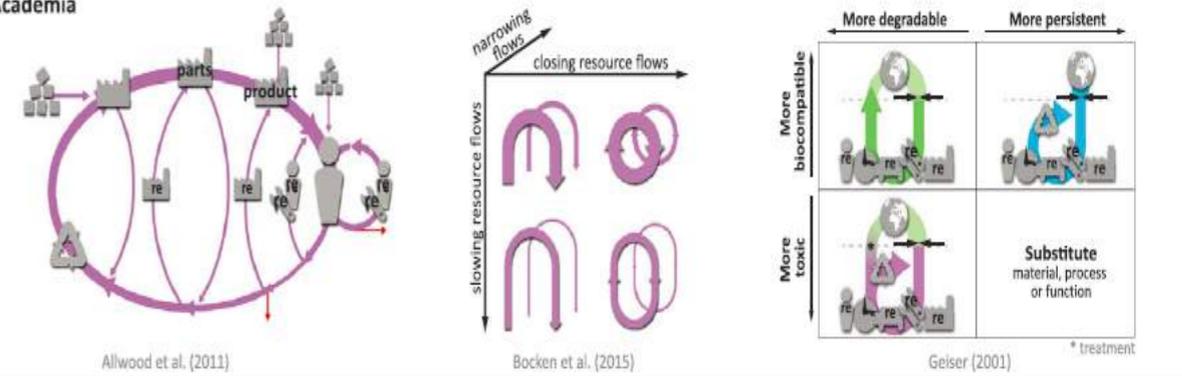
Think tanks



Legislative & advisory



Academia



Business

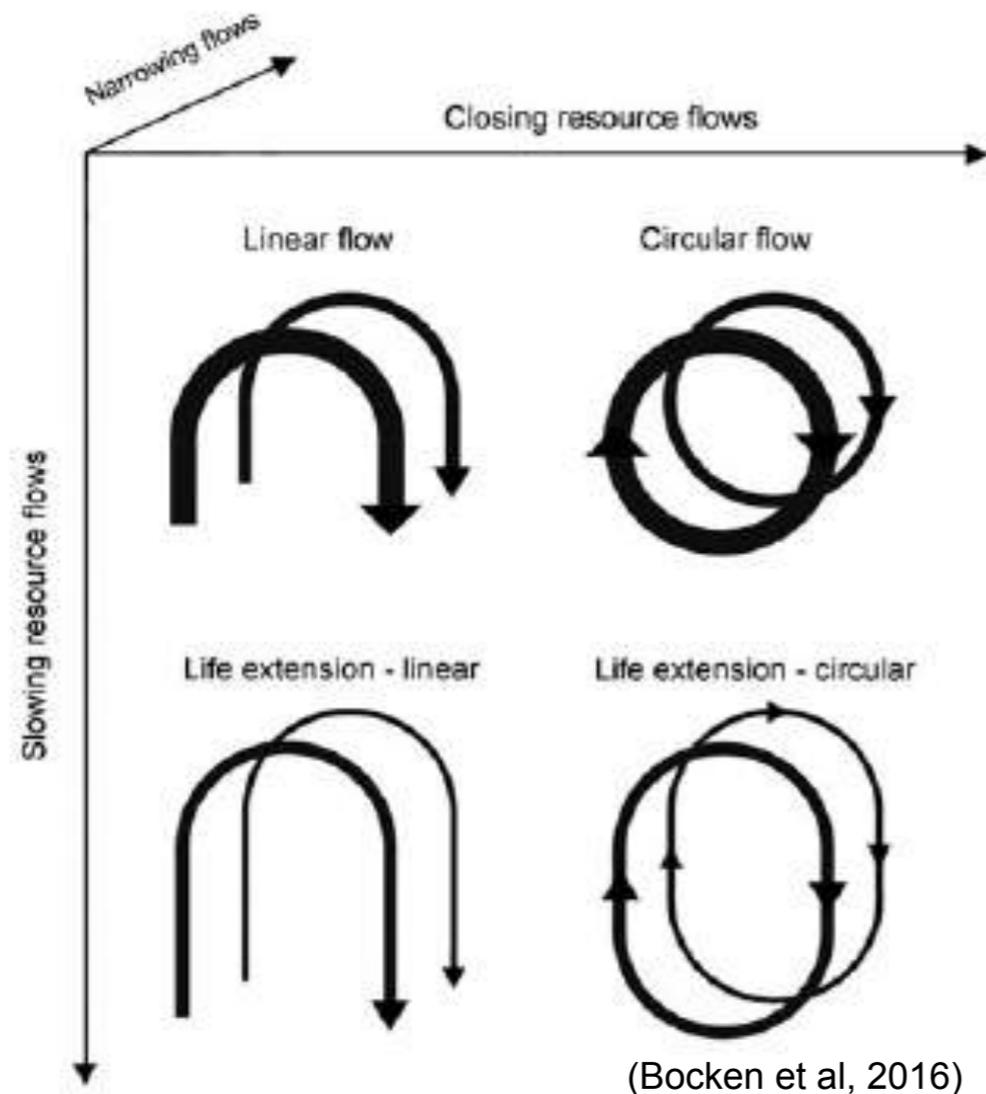


technical	losses or residuals	raw materials input extraction, supplier, procurement or materials manufacturer	consumer/ user	maintain	recycling
biological incl. return to biosphere	additional material, or labor inputs	manufacturing production end/ or assembly	reuse	repair	C = closed loop, O = open loop
biological or technical extracted flow/ benefit	energy	reconitioning remanufacture, refurbishment	redistribute sharing, rental, service	product life extension	A, B, C resource exchanged
dematerialize/ efficiency	r = reusable	knowledge	biosphere	disposal, trash, end-of-life	X, Y, Z cascade through biological kingdom
					decreasing preference

(Blomsma & Brennan, 2017)

Source: Pagh Jensen, 2018

The framework applied in the thesis



Narrowing: The aim is to use less resources per product/functionality. In short, increasing the resource and material efficiency

Slowing: The aim is to slow down by extending or intensifying the utilisation period of products. Supporting business models are ie. performance models, extending product value or classic long-life models.

Closing: The aim is to close the loop between post-use and production. Supporting business models are extending resource value or industrial symbiosis.

Source: Pagh Jensen

CIRCULAR BUSINESS MODELS

INNOVATION JOURNEYS TOWARDS A CIRCULAR ECONOMY

by

Eva Guldmann



AALBORG UNIVERSITET
DENMARK

Dissertation submitted 2011

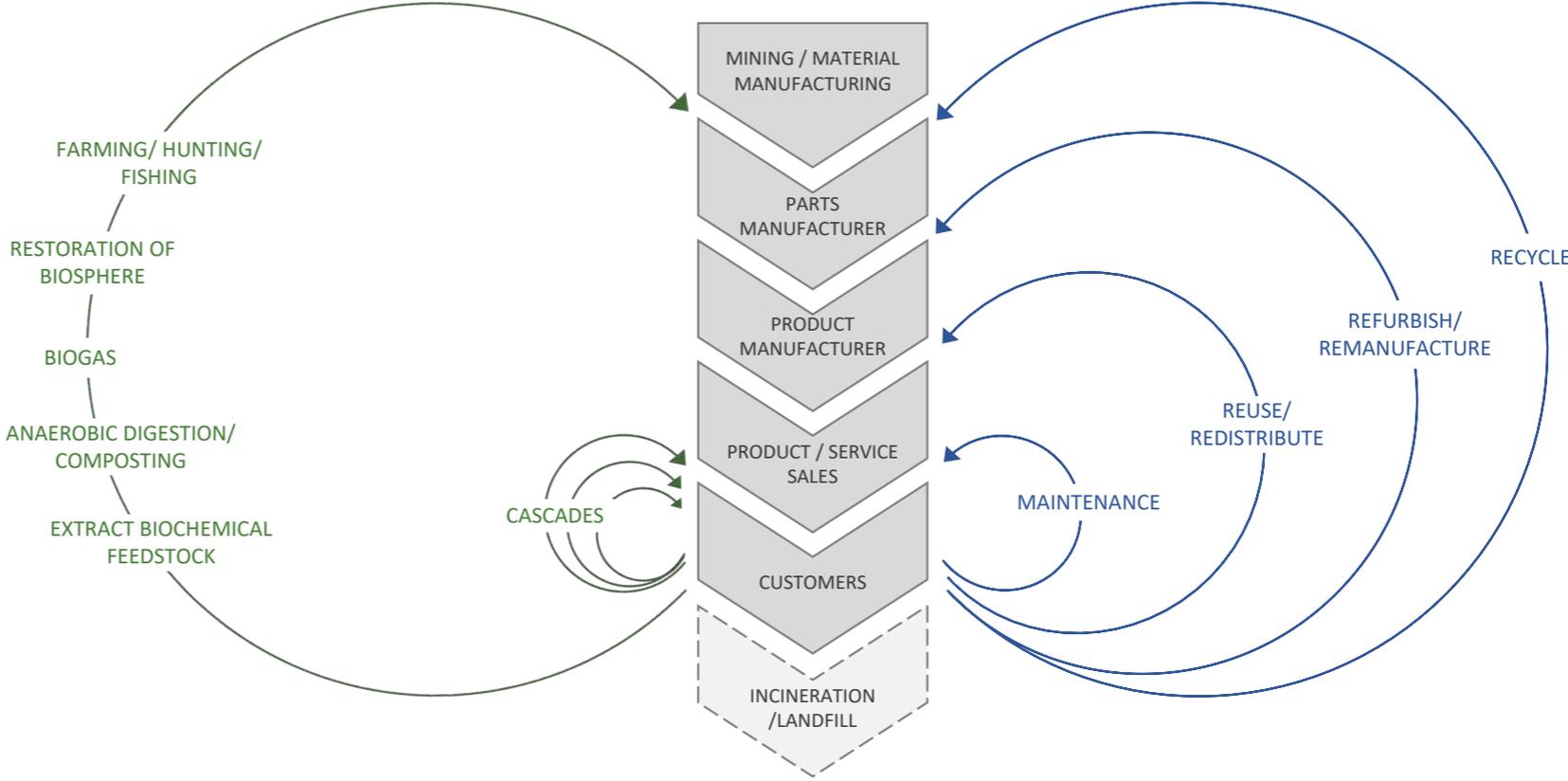


Figure 5-1. System diagram depicting biological (green) and technical (blue) resource loops in a CE. Based on Ellen MacArthur Foundation (2013b, p.24).

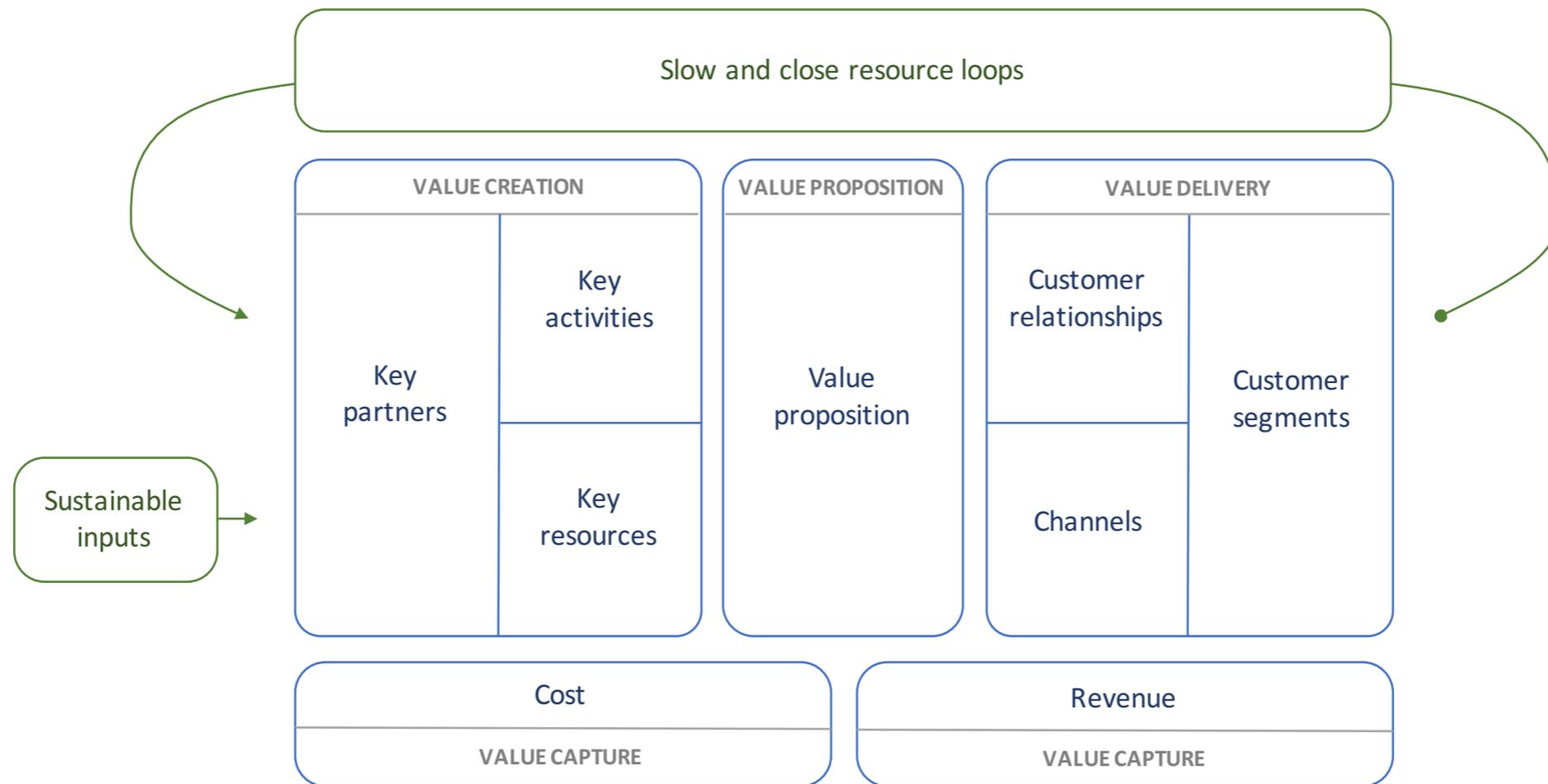
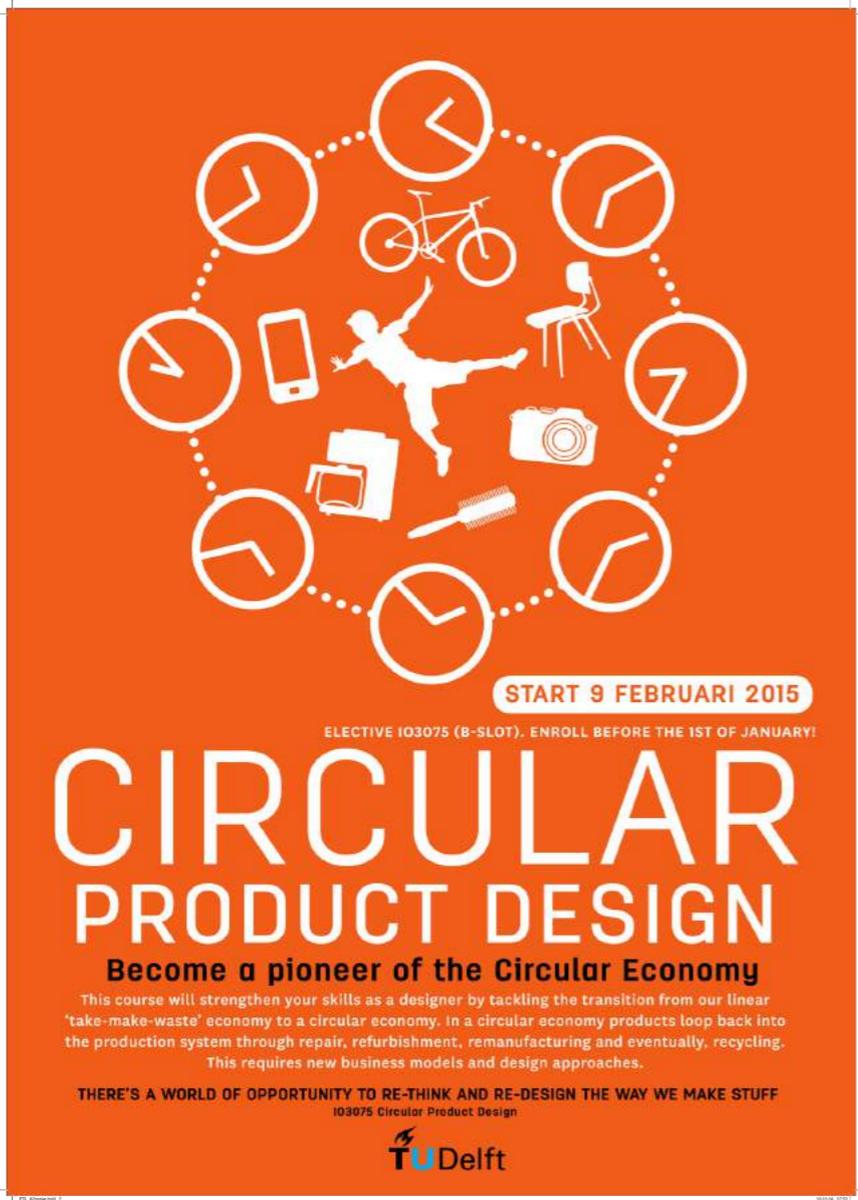


Figure 5-2. Circular business model canvas. Developed from Osterwalder and Pigneur (2010), Richardson (2008), Bocken et al. (2016) and Ellen MacArthur Foundation (2013b).

Guiding principles	<ul style="list-style-type: none"> •Systemic perspective •Collaboration across functions, perspectives and experience bases inside and outside the organisation •Iterative cycles of moving through innovation spaces •Emphasise learning 				
Innovation spaces	INTRODUCTORY SPACE	EXPLORATORY SPACE	ALIGNMENT SPACE	IDEATION SPACE	PROTOTYPING AND TESTING SPACE
Aim of spaces	Determine company setting including basis for CBMI. Present CE and CBM principles. Inspire action	Explore CBM opportunities in the specific company setting	Investigate alignment between CBMI and extant strategies and aspirations	Generate multiple CBM ideas. Seek higher-order thinking and systemic solutions	Examine CBM ideas and develop best ideas further
Tools and techniques for individual spaces	<p>Communication tools:</p> <ul style="list-style-type: none"> •Company presentation •Presentation of CE and CBMs using system diagram, CBM principles and best practice exemplars 	<p>Communication tools:</p> <ul style="list-style-type: none"> •Presentation of CE and CBMs using system diagram, CBM principles and best practice exemplars 	<p>Communication tools:</p> <ul style="list-style-type: none"> •Company presentation including strategic agenda and aspirations •Presentation of CE and CBMs using system diagram, CBM principles, and best practice exemplars to wider range of internal stakeholders 	<p>Sense-making and ideation tools:</p> <ul style="list-style-type: none"> •CBM best practice exemplars •Brainstorming •Cluster analysis •Concept development techniques •To-be mapping e.g. using an idea map or circular canvas 	<p>Prototyping and testing approaches:</p> <ul style="list-style-type: none"> •To-be mapping e.g. using an idea map or circular canvas •Prototyping techniques such as scenario building •Assumption surfacing and testing e.g. by asking challenging questions •Testing ideas with internal and external stakeholders through e.g. interviews •Evaluating ideas e.g. against CBM principles and best practice exemplars •Assessing what resource loops are targeted by a CBM e.g. using an idea map •Field experiments e.g. small-scale market tests
Tools and techniques that span spaces	<p>Co-creation approaches:</p> <ul style="list-style-type: none"> •On-going dialogue between knowledge experts (e.g. researchers) and company participants •Engaging internal and external stakeholders (e.g. customers and existing/new value chain partners) in generation, development and testing of ideas 				
	<p>Data collection and analysis techniques:</p> <ul style="list-style-type: none"> •Dialogue, interviews, observation, desk research etc. •Competitor analysis, economic calculations, trend analysis etc. •Considering design and viability of business model elements (as illustrated in the circular canvas) • Considering overall fit between CBM ideas and image, resources, values, aspirations etc. of the company 				
	<p>Visualisation techniques, visual or narrative:</p> <ul style="list-style-type: none"> •CE system diagram •Idea map (e.g. with Post-it notes) to cluster and visualize ideas •Storytelling about new kinds of customer experiences, new company roles •Storytelling inspired by best practice exemplars 				



START 9 FEBRUARI 2015

ELECTIVE IO3075 (B-SLOT). ENROLL BEFORE THE 1ST OF JANUARY!

CIRCULAR PRODUCT DESIGN

Become a pioneer of the Circular Economy

This course will strengthen your skills as a designer by tackling the transition from our linear 'take-make-waste' economy to a circular economy. In a circular economy products loop back into the production system through repair, refurbishment, remanufacturing and eventually, recycling. This requires new business models and design approaches.

THERE'S A WORLD OF OPPORTUNITY TO RE-THINK AND RE-DESIGN THE WAY WE MAKE STUFF

IO3075 Circular Product Design

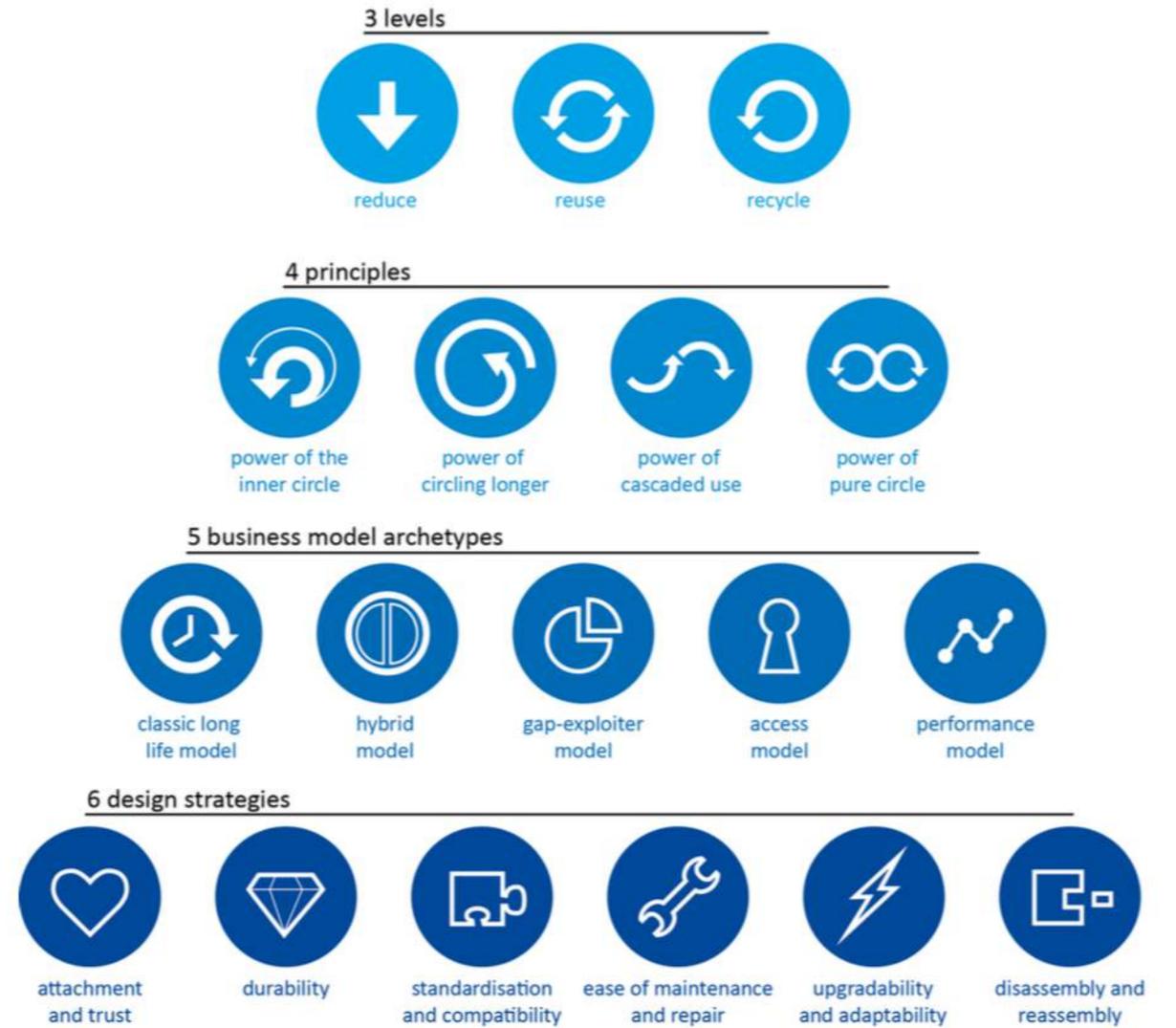
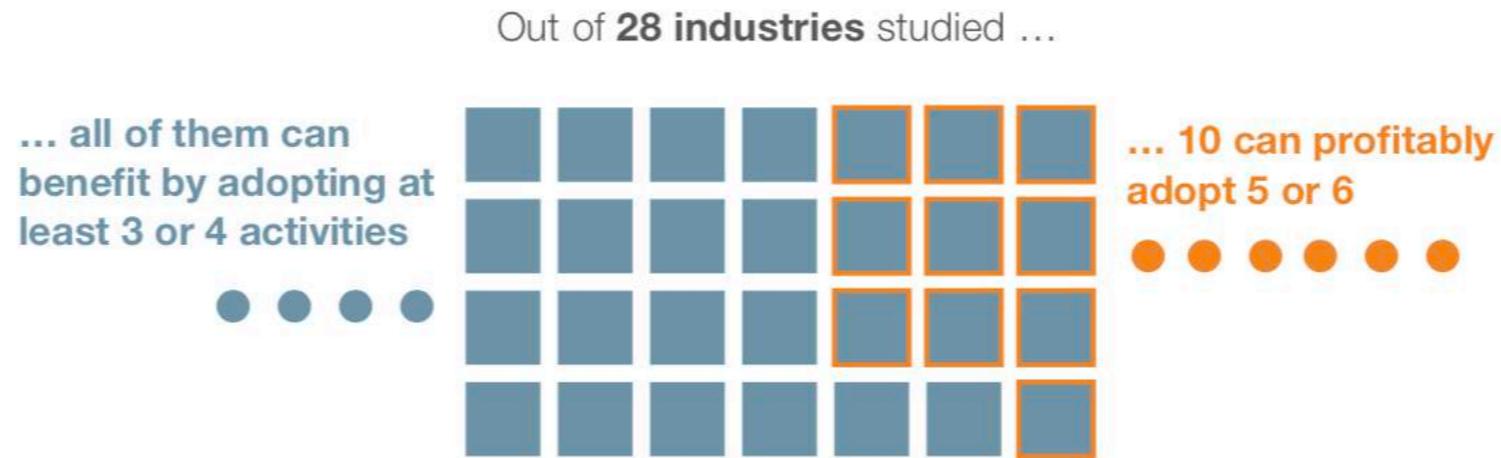



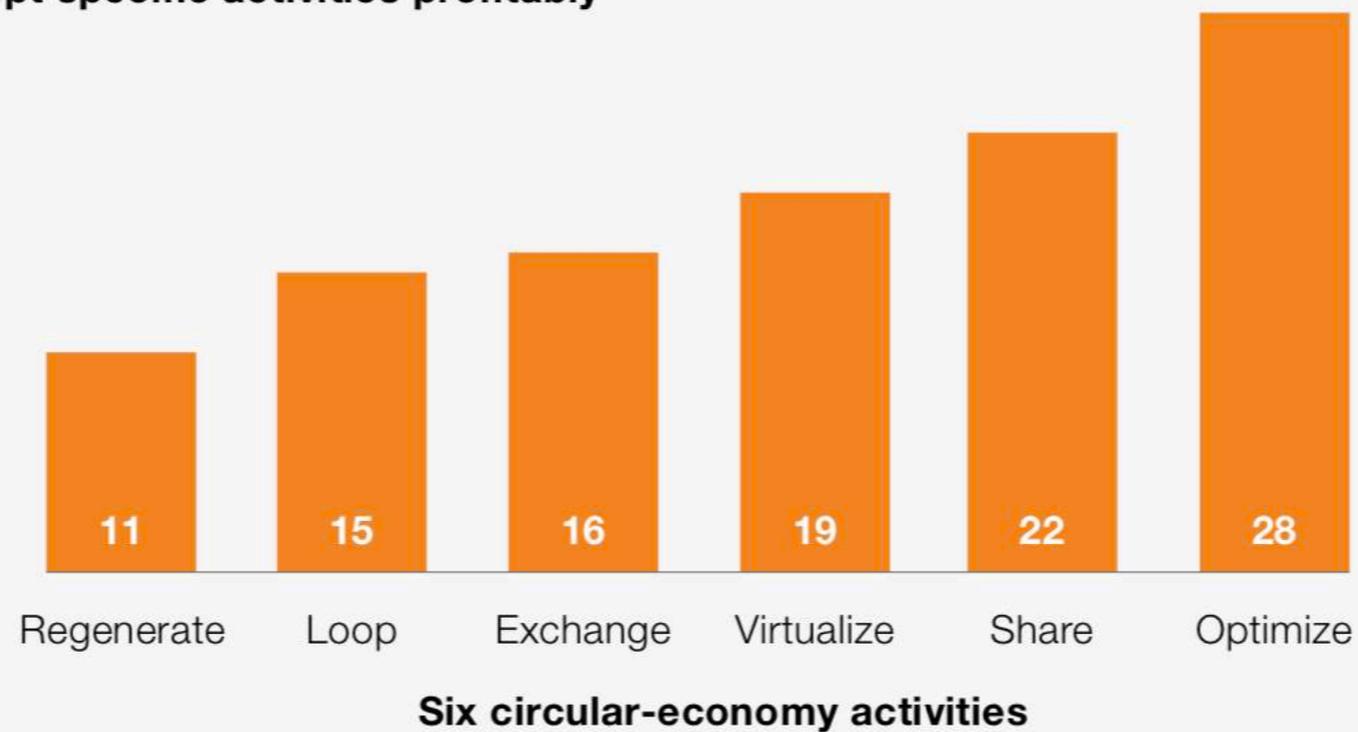
Fig.1.7 Pyramid of circularity by Holtman (2014)

Exhibit 1

Six circular-economy activities have the potential to improve performance and reduce costs for a number of industries.



Number of industries with the potential to adopt specific activities profitably



Regional Innovation

Sustainable Innovation and Regional Development

Rethinking Innovative Milieus

Edited by

Leïla Kebir

*Ecole des Ingénieurs de la Vall
University Paris-Est, France*

Table I.1 The four dimensions of sustainable innovation

Dimension	Product-oriented innovations	Institutional-oriented innovations	Flagship-oriented innovations	Territorial-oriented innovations
<i>Typical case</i>	Solar and sustainable finance in Western Switzerland and Geneva, sustainable construction in Île-de-France and Germany	Industrial projects in the Basque Country, Suwa region and Atlantique Nord	PlanIT Valley in Northern Portugal, PlanetSolar water campus in Leeuwarden	Local sustainable development projects for the tourist resorts in Savoie, and for the cultural district in Bairro Alto, local agri-food networks in Rome
<i>Innovation profile</i>	Environmentally efficient new products and services	Institutional arrangements favourable to sustainable development	Flagship products, models of experiment and demonstration	Territorial projects for quality of life, conflict resolution
<i>Sustainability focus</i>	Economic and environmental	Economic and social	Primarily environmental	Environmental, social and economic
<i>Objective</i>	Competitive renewal	Institutionalization of new activities associated with a strategy for productive reconversion	New exemplary model, process promotion, concepts	Consolidation of territorial coherence
<i>Actors involved</i>	Private actors, companies, research centres, activist consumers, etc.	Professional associations, NGOs, along with public and private actors in the sector	Private and public actors, sponsors, media, general public	Public actors, civil society, inhabitants, citizens, users, conscious consumers, etc.
<i>Coordination</i>	Market mechanism	Associative or corporatist	Promotional and media-based	Local public and community action
<i>Spatiality of the innovative organization</i>	Multi-local skills network, global market	Network embedded in the region and linked to national level	Localized or mobile organization, targeting an (inter)national media sphere	Organization centred on the local territory of use, habitat, consumption
<i>Organizational form</i>	Anchoring innovative milieu	'Classic' innovative milieu	Demonstration innovative milieu	Local community innovative milieu



'High Tech Tour' tijdens een conferentie rond clusters in 'brainport' Eindhoven, eerder deze maand.

FOTO: BRAM SAEYS

'Innovatieclubjes zijn vooral goed voor imago, niet voor het bedrijf'

Hoogleraar fileert geliefde argumenten van innovatiewereldje

Ilse Zeemeijer
Amsterdam

Een 'Green Innovation Cluster', 'Food Cluster' of het 'High Tech Cluster Drachten'. Nederland barst van de clubjes waar bedrijven, overheden en onderzoekers samenwerken aan innovatie. Maar wat levert de samenwerking op? Vrij weinig, stelt Ron Boschma, hoogleraar regionale economie en innovatiestudies aan de Universiteit Utrecht en de Zweedse Lund Universiteit.

'Een cluster is vooral goed voor het imago en de reputatie van een bedrijf of organisatie', zegt Boschma. 'Maar het verhoogt de bedrijfsprestaties vaak niet. Sterker nog, het verlaagt juist vaak de overlevingskans van bedrijven in een cluster, omdat ertoe lokale concurrenten zijn.'

De hoogleraar, tevens adviseur van eurocommissaris voor wetenschap en innovatie Carlos Moedas, weet dat hij geen populaire boodschap verkoopt. Alleen in Nederland zijn er al meer dan 350 initiatieven die publieke en private partijen bij elkaar brengen om innovatie 'aan te jagen', zo blijkt uit

'Samenwerking houdt vernieuwing tegen, want vooral belangen van gevestigde partijen worden behartigd'

een inventarisatie van het FD.

Een bekend voorbeeld is Brainport Eindhoven, naar eigen zeggen de 'innovatieve toptechnologie-regio van wereldformaat'. Ook wie een innovatieconferentie bezoekt, hoort op het podium niets dan lof over clusters en de 'triple helix', de samenwerking tussen overheden, bedrijven en onderzoekers.

Boschma is niet onder de indruk. 'In Nederland praat iedereen elkaar veelal naar de mond, zeker als het om innovatie gaat. Iedereen is wel ergens bij betrokken. Daardoor hoor je nauwelijks alternatieve zienswijzen. Ik wil die rol wel spelen. Ik hoef nergens voor te vrezzen.'

Een voor een maakt de regionaal economie gehakt van de argumenten die in het innovatiewereldje zo geliefd zijn. De 'triple helix' en de voordelen van clusters? 'Dat is vooral consultancypraat. Samenwerking in clusters is vaak een doel op zich. Dat snap ik niet. Samenwerking houdt juist vernieuwing tegen, omdat vooral de belangen van gevestigde partijen worden behartigd. Zo komt er geen echte innovatie tot stand.'

Of neem een innovatiecampus, die nieuwe bedrijven lokt met een 'uniek ecosysteem' waar toevallige ontmoetingen bij de koffieautomaat tot briljante ideeën kunnen leiden. Dit idee is afgeleid van de economie Alfred Marshall, die in 1920 stelde dat clusters onder andere succesvol zijn omdat daar

kennis 'in de lucht zweeft'.

'Dat is dus niet zo', zegt Boschma ferm. 'Slechts enkele grote, succesvolle bedrijven profiteren van de aanwezige kennis, de meeste bedrijven niet of nauwelijks. Het is business as usual.' Boschma baseert zich op eigen onderzoek van Circle, een Zweeds onderzoeksinstituut gespecialiseerd in innovatie waar hij drie jaar directeur is geweest. 'De literatuur staat vol met anekdotes over Silicon Valley of het financiële centrum in Londen. Systematisch onderzoek naar de betekenis van clusters voor bedrijven ontbreekt vaak, ook in Nederland. Iedereen roept maar wat.'

Zijn innovatieclusters dan zinloos? Nee, zegt Boschma. Innovatieclusters en samenwerkingsprojecten kunnen wel degelijk tot vernieuwing leiden, maar alleen als nieuwe spelers worden toegelaten. Denk aan burgerplatforms en buitenlandse start-ups.

En juist de nieuwe spelers ontbreken volgens Boschma in Nederland. 'Grote bedrijven, zoals Shell en Unilever, spelen een belangrijke rol in het Nederlandse innovatiebeleid. Kijk naar de topsectoren, waar gevestigde partijen via toegepast onderzoek de onderzoeksagenda kunnen bepalen. We weten al 30 jaar dat daar geen innovatie uitkomt. Toch geven overheden gevestigde partijen ruim baan. Dat is een van de grootste uitdagingen om te doorbreken.'

CV

Ron Boschma

2013 - heden
hoogleraar regionale
economie Lund
University (Zweden)

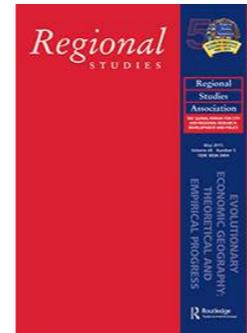
1998 - heden
hoogleraar regionale
economie Universiteit
Utrecht

2013 - 2016
directeur Center for
Innovation, Research,
Competence in
the Learning Economy
(Circle)

1995 - 1998
universitair hoofd-
docent internationale
economie, Universiteit
Twente

1989 - 1994
promotieonderzoek
economie, Erasmus
Universiteit

1983 - 1988
economische
geografie, UvA



Regional Studies

ISSN: 0034-3404 (Print) 1360-0591 (Online) Journal homepage: <http://www.tandfonline.com/loi/cres20>

Towards an Evolutionary Perspective on Regional Resilience

Ron Boschma

To cite this article: Ron Boschma (2015) Towards an Evolutionary Perspective on Regional Resilience, *Regional Studies*, 49:5, 733-751, DOI: [10.1080/00343404.2014.959481](https://doi.org/10.1080/00343404.2014.959481)

To link to this article: <http://dx.doi.org/10.1080/00343404.2014.959481>

Essential Elements for Transition

Strategies TIPPING

① New Ch. Creat. Sect. NAOs ② SMEs ③ Young Entrepr. ④ Import/Export Knowledge ⑤ Community ⑥ Crowd Co-design ⑦ Spec. Instil. Armeye ⑧ Policy Fitness

Transition Theory

- product-services design
- effectuation principles
- probing & learning
- sociotechnical approaches
- backcasting, eco-architecture

Governance Theory

- standard policy mix of regulatory, fin-ec, educ. instr.
- mission oriented approach
- common good responsibility

Regional Innovation Theory

- stimulate Technology, Talent & Tolerance
- past legacy as co-basis for innovation
- social practices as driver for innovation

Best Practices (Samsø)

- self-organization & joint leadership
- roundtables
- win-win solutions
- energy games
- local living lab
- cooperation with univ. & external comm. & lobbying
- create guest facilities

	① New Ch. Creat. Sect. NAOs	② SMEs	③ Young Entrepr.	④ Import/Export Knowledge	⑤ Community	⑥ Crowd Co-design	⑦ Spec. Instil. Armeye	⑧ Policy Fitness
Transition Theory	X	X	X	X		X		X
- product-services design		X	X					X
- effectuation principles	X	X	X	X	X	X		X
- probing & learning					X			
- sociotechnical approaches	X	X	X	X	X	X		X
- backcasting, eco-architecture								
Governance Theory								
- standard policy mix of regulatory, fin-ec, educ. instr.	X				X			X
- mission oriented approach		X			X		X	X
- common good responsibility								
Regional Innovation Theory								
- stimulate Technology, Talent & Tolerance	X	X	X	X	X		X	X
- past legacy as co-basis for innovation		X	X	X			X	X
- social practices as driver for innovation	X		X		X	X		X
Best Practices (Samsø)								
- self-organization & joint leadership		X	X		X			X
- roundtables		X			X			X
- win-win solutions					X	X		X
- energy games	X	X		X	X			X
- local living lab			X	X				X
- cooperation with univ. & external comm. & lobbying				X	X	X	X	X
- create guest facilities			X		X			X

**Theory makes sense,
be happy there is practice!**

Han Brezet, Saaremaa June 2019