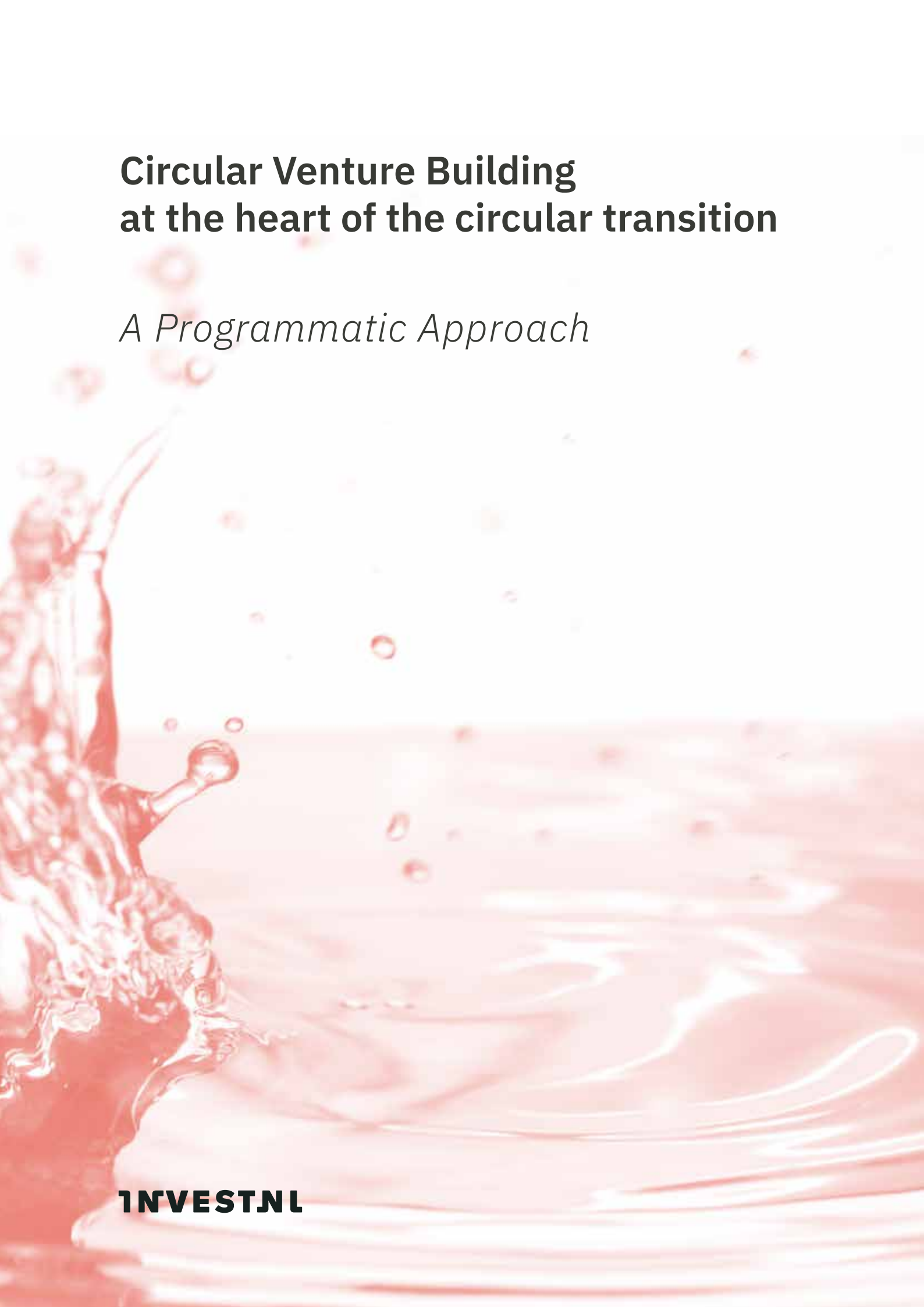
Circular Venture Building at the heart of the circular transition

A Programmatic Approach



INVESTNL

Circular Venture Building at the heart of the circular transition

A Programmatic Approach

Amsterdam, February 7, 2023

Content

Preface

The assignment

The original assignment of Invest-NL to ScaleUp Practitioners and Sustainnovate.today

"To develop and test a pragmatic methodological approach to facilitate selection, assessment, and support for the most promising circular innovations to be used in venture building programs and investment decisions of Invest-NL and its partners by end 2022."

Source: Project proposal May 11th 2022

Adjustment (July)

Based on the research the Assignment was adjusted to (July)

"To develop and test a pragmatic methodological approach to facilitate selection, assessment, and support of the most promising circular innovations to be used in venture building programs ***aimed at developing circular ecosystems,*** *and investment decisions of Invest-NL and its partners by end 2022."*

Management Summary

The Dutch government has committed to become a 100% circular society by 2050, and to reduce the use of virgin materials with 50% by 2030. Currently the state of the Dutch economy is estimated at 24% circular. A significant shift in economic systems, material flows and earning models is therefore required to achieve the national circular ambition.

Inspired by Schumpeter and Christensen we believe that entrepreneurship and innovation can play a major role in the realization of this transition. Venture development and Venture support should therefore be an integral element of any Circular Transition 'Roadmap'.

To build a business that embraces circular principles within a primarily linear reality is difficult. The aim of this study is to identify design principles for venture development support aimed at those 'circular' ventures.
In this context we define circular ventures as:

1. Ventures that deploy or develop towards a 'circular business model'
2. Ventures that play a key role in the transition of a linear chain to a circular value network

Circular ventures operate in a 'hostile' environment: the players, prevailing regulations and existing infrastructure do not support their development. How can Invest-NL support circular entrepreneurs to accelerate the industrial circular transition?

To frame that question it helps to look at the circular transition as simultaneous innovation at three levels (Frank Geels, 2002):

1. At Macro (landscape) level: The national circular ambition as defined in the materials transition agenda
2. At Meso (regime) level: Innovation of 'how things are organized': regulations, infrastructure, finance structures
3. At Micro (niche) level: Emerging pockets of breakthrough technologies and novel business models

Invest-NL can play a role at all levels in both The Netherlands and in Europe.

We then looked at existing venture support programs, and identified a number of practices which are helpful. However, we also identified (at least) 10 specific challenges for circular ventures which are not usually addressed in existing programs. Without a (significant) number of circular venture success stories, it is too early to formulate evidence-based rules for circular success. But we have found a few examples that we can learn from. We use that inspiring practice to formulate the first design principles for circular venture support.

Building the practice of circular venture development-next steps
On February 7th 2023, Invest-NL will kick off a 'learning community of circular venture practitioners' with the aim to advance this field so more ventures can help accelerate the circular transition.
We cordially invite you to participate in that discussion.

Introduction

Invest-NL aims to support the financing and realization of societal transitions by facilitating entrepreneurship, where market dynamics fail. Invest-NL is a National Promotional Institute (sovereign wealth fund) with a clear impact mission and a focus on energy transition and the development of a circular economy. The organization consists of two main pillars:

1. The Business Development group, with a focus on creating the right conditions for impact enterprises to develop and grow and be financed appropriately, and
2. The Capital team, which is tasked with investing Invest-NL's capital (1,7 bln Euro) in promising ventures with technologies, products or services that contribute to the desired transition. This report is written for the Invest-NL(Business Development Circular Economy) team.

Early 2022, Invest-NL asked the 'simple' question to define a Terms of Reference (TOR) for a 'venture building' program for circular ventures. Once we started the work, we realized how wicked this question was, as it contained two major paradoxes:

- **Linear tools for a circular objective**

  Venture building and start-up accelerators are usually associated with exponential growth models and risk capital: linear economy in extremis. How can we combine practices from these methodologies with the principles of a circular economy? What are suitable design principles for a circular venture support program?

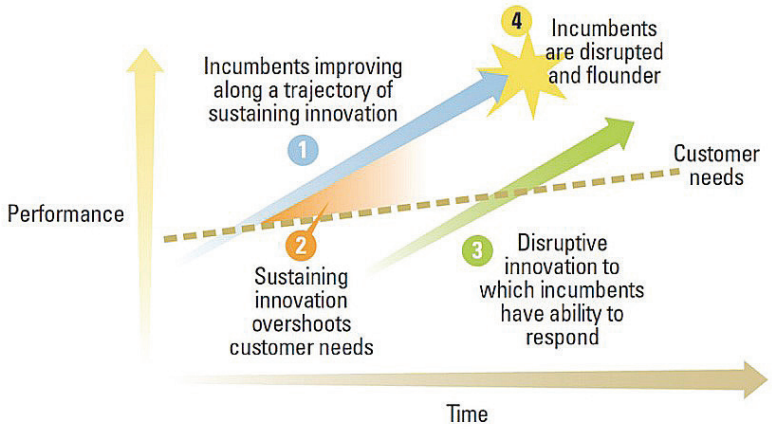
- **Circular models in a linear world**

  Truly circular business models thrive in a truly circular economy. Today's economy is mainly (92%) linear. The principles, infrastructure and regulations that enable this linear reality limit the potential of a circular business model. The definitions of success, 'traction' and growth will be difficult to align amongst stakeholders. How do you create maximum impact while your stakeholders may be looking for maximum financial return?

Prof Christensen describes disruptive innovation in terms of the displacement of incumbent industries by new entrants who radically change the 'Performance Standard' in the market. A well-known example is the move from "Robustness" (eg. Nokia) to "Multifunctionality" (Apple) in the early mobile phone industry. A new player disrupts the market by under-delivery of the incumbent performance indicator and (over) investing in the new one. A circular example could come from the sleep industry where Auping challenges the over-delivery on sleep-comfort from incumbent parties with a return and lease model for mattresses with simplified material composition.
In both concepts, entrepreneurs play a pivotal role. The lead the destruction of old systems and the creation of new combinations.

Figure 0.1

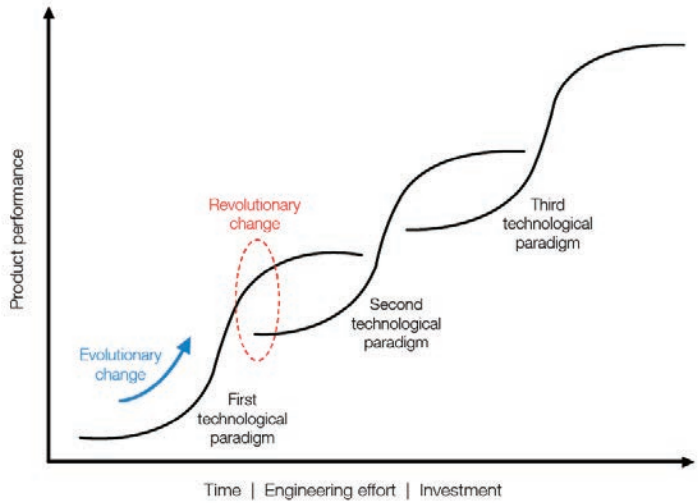
Christensen: Disruptive innovation



Schumpeter, the founding father of innovation, defines innovation as the “destruction” of the “old” and the replacement, creation of new combinations of new or existing knowledge, resources, equipment and other factors. This is the foundation of the concept of “jumping the s-curves”.

Figure 0.2

SChumpeter: Jumping the s-curves



We reframed the original starting question into a more relevant research question: ‘How can the transition towards a circular economy be supported by venture development?’. Venture development as a “Means” rather than as an “End”. We have taken an innovative look at circular examples in the current linear reality and define ‘what could be done’ to accelerate and combine the current practice into the emerging circular future.

This report describes the journey we made during the eight months we worked to unravel the world of ‘circular venturing’: we interviewed many people in the field, re-read classic literature with fresh eyes, immersed ourselves into new articles and even initiated some circular experiments within ‘linear’ accelerators. The flow of this report is a bit more logical than our learning curve, but we hope that we still breathe the excitement we feel while unraveling the current reality.

The flow of this report is as follows:

In **Chapter 1**, we start at Macro, National, level. What is the Circular transition, why is it important and what are the Dutch national objectives of the Circular transition (CT) and the related Energy transition and Materials transition.
Then we zoom in to the Meso, ecosystem, level and explore the potential role of ecosystem development in the CT.
And finally, we will zoom in even further to the Micro, venture development level and take a closer look at the circular transition and the role that small innovation initiatives like ventures can play in accelerating large scale transformation.

In **Chapter 2**, we dive into the most common start-up and scale-up development methodologies, which form the basis of modern linear venture building.

Circular ventures are the topic of **Chapter 3**: we look into the complexity of building (elements) of circular behavior in a 2022 company, and suggest the first contours of a framework and nomenclature which helps frame the development and financing of a circular venture within a linear financial system

In **Chapter 4**, we take a look at the type of interventions available to national impact investors such as Invest-NL. We will focus on the industry of accelerators, incubators and studios, and the design dimensions thereof. We will also visit “types of intervention” at ecosystem level.

In **Chapter 5** we describe the inspirational practices we encountered in our search for live examples of circular venture building,

Chapter 6 will describe a set of recommendations for initiatives which Invest-NL can deploy to accelerate circular ventures and ventures that enable the circular transition. We propose a coherent approach which aims to boost the impact of circular innovations on the circular transition: orchestration, experimentation and learning.

With **Chapter 7** we will conclude with a set of recommendations and the Terms of Reference for those recommendations for which Invest-NL might look for external support.

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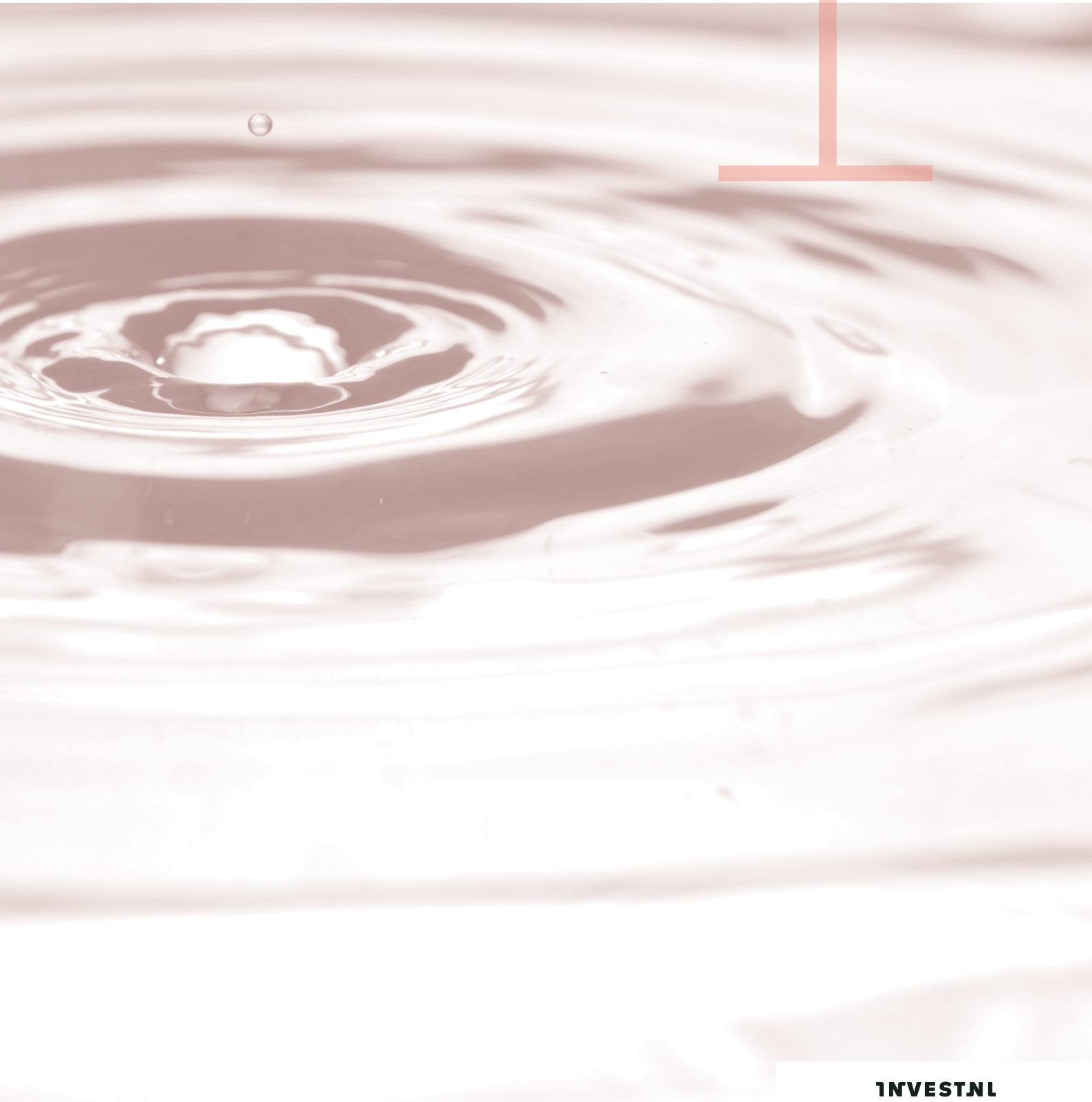

Transitioning to a Circular Economy

1.1 Introduction

In this chapter we start at Macro, National, level. What is the Circular transition, why is it important and what are the Dutch national objectives of the Energy and Material national agendas of the Circular transition and the related Energy transition and Materials transition.

Then we will zoom in to the Meso, ecosystem, level and explore the potential role of ecosystem development in the Circular transition.
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1.2 Why do we need a Circular Economy and what is it?

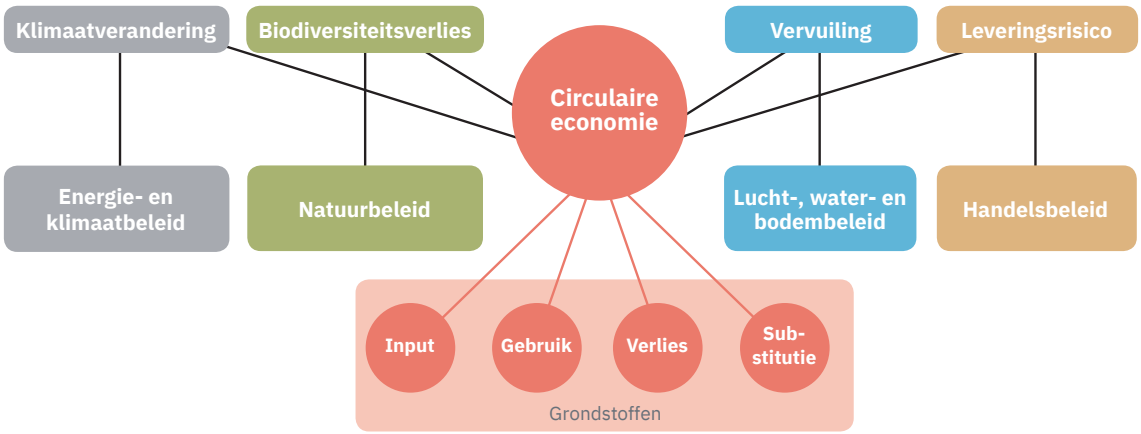
Already in 1972, the Club of Rome wrote the disturbing report 'Limits to growth'. The main message was: continuous exponential growth is impossible on a finite planet. Even though the report created a shock wave in the Western world, our socio-economic systems remained guided by the principles of economic growth in a linear economic system till today. However, in today's world the boundaries of that planetary eco-system are becoming very clear: we are facing extreme weather due to climate change, we see major loss of biodiversity, and we are rapidly depleting the natural resources which are essential to keep our society running (to name a few 'signals').

There is a growing consensus that our society will grind to 'a halt' without a major overhaul of some of its basic principles. One of the building blocks of that new economic system will be the reduction of use of primary materials through the advance of the 'circular economy'.

The linear, take-make-waste, economy does not have answers to some urgent problems of the current times. The first problem concerns the **exhaustion** of the planet and loss of bio-diversity due to extraction of essential nutrients from the earth and overkill of pesticides and fertilizers, which calls for 'regenerative' agricultural practices. The second is **resource scarcity**: e.g. with the amount of electronics we are 'using' (and therefore wasting) and not mining, Europe will run out of materials which will be critical to keep society running and essential resources for enablers of the energy transition like batteries and solar panels. The third, and not the least, is the **pollution** that is formed by waste of (primarily) fossil-based materials, which is dumped or is left after use of formulated products like micro-plastics, solvents or other harmful chemicals.

Figure 1.1

The circular economy is seen as (part of the) solution to four problems by Dutch Government



Source: Uitvoeringsprogramma Circulaire Economie, PBL; NPCE 2023

The Circular transition will require the breakdown of existing economic structures and the construction of new ones. The transition is expected to bring new business opportunities: new markets, new business models and new technological solutions. The highest impact is made by an integral approach to unravel and rebuild systems with many different stakeholders (bron: Uitvoeringsprogramma Circulaire economie).

Definition
The circular economy can be seen as a Concept, as a Framework and as a Process with its main goal being to provide an alternative for the traditional take-make-waste systems (Bocken et al., 2017, Kirchherr & Piscicelli, 2019).

Basically the concept of circularity entails reducing if not completely eliminating the consumption of new (raw) materials and designing products in such a manner that they can easily be taken apart and reused after use. In a circular system, prolonging the lifespan of products can be done through reuse, maintenance, repair and recovery of raw materials from waste flows (Kirchherr & Piscicelli, 2019). The concept of circularity also implies the intention to keep materials that the products are made of at their highest utility and value all the time (Bocken et al, 2017).

The website of Invest-NL reads: ‘Circularity aims to prevent overconsumption and waste by designing products with maximum functional value, for maximum lifetime, with a minimum use of resources, to restore natural ecosystems .

The Invest-NL description is very much related to the product design basis of circularity. While the notion of circular design was already conceptualized in the 70’s, the first overarching circular concept was launched by Michael Braungart in 2002. Cradle-to-cradle design or C2C (a registered trademark) is a biomimetic approach to the design of products and systems that models human industry on nature’s processes, where materials are viewed as nutrients circulating in healthy, safe metabolisms. While

the C2C process is a very usable concept, with clear definitions, the thorough IP-protection of the methodology has limited the diffusion of circular design principles in the early days.
The Ellen McArthur foundation defines circularity in terms of economy rather than products and business models. This description, which is often cited in official publications, mentions circular products and materials, but also includes principles for a circular society and ecology.

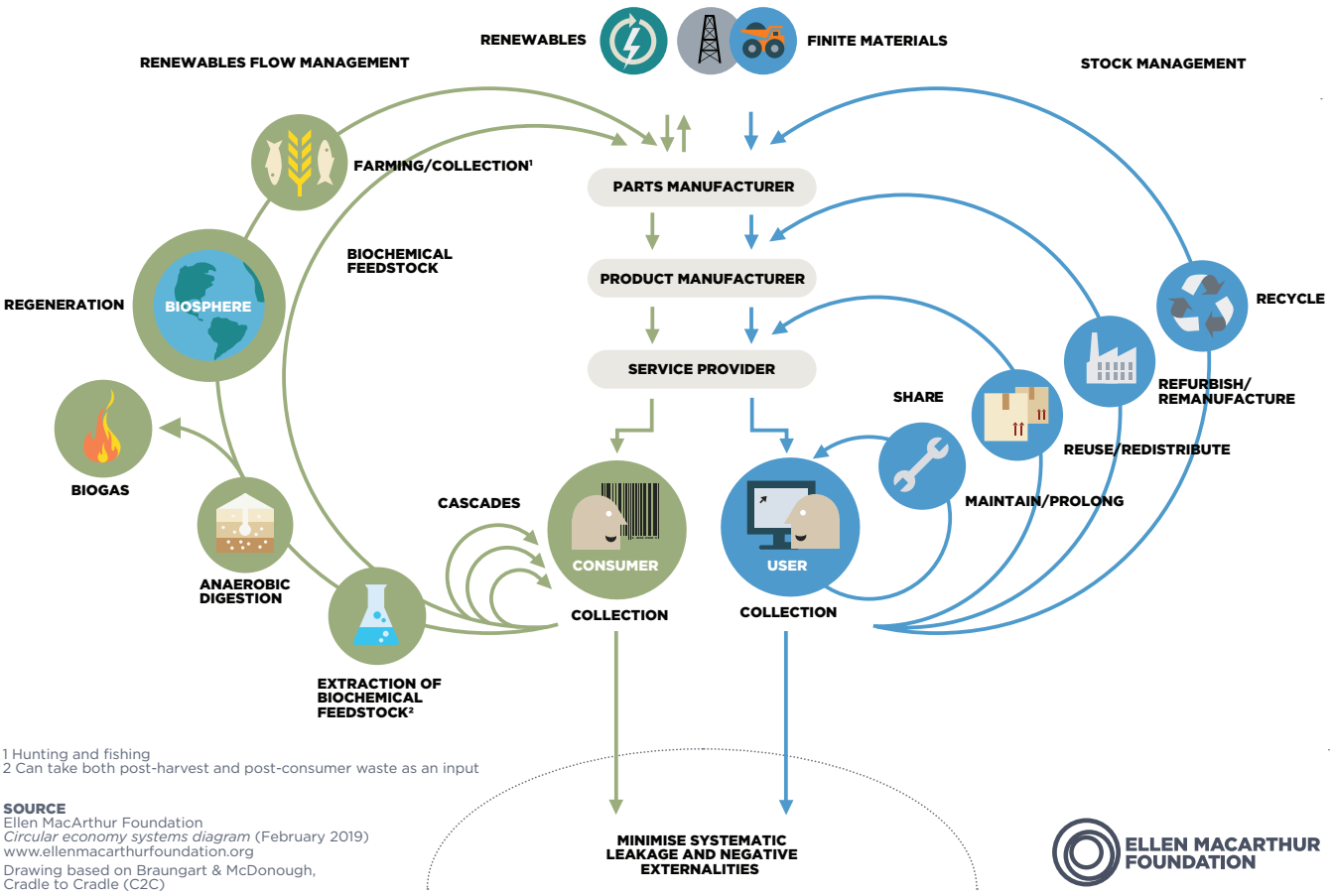
The circular economy is based on three, design driven, principles:

1. Eliminate waste and pollution
2. Circulate products and materials at their highest value
3. Regenerate Nature

A circular economy decouples economic activity from the consumption of finite resources. It is a resilient system that is good for business, people and the environment. Source: Website Ellen McArthur

Figure 1.1

Circular systems (incl. the R-strategies), Michael Braungart / Ellen MacArthur Foundation



1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input

SOURCE
Ellen MacArthur Foundation
Circular economy systems diagram (February 2019)
www.ellenmacarthurfoundation.org
Drawing based on Braungart & McDonough, Cradle to Cradle (C2C)

Looking into more recent publications around circularity we observe that the concept of circularity is spreading from the domain of industrial design and architecture to the broader domain of policy makers, agriculture, industry and socioeconomics.

The transition to a circular economy is sometimes described as a major component of a fundamental overhaul of our economic and societal principles. An exponent of this is the Doughnut Economy identified by Kate Raworth (2017), which takes the planetary boundaries as leading guideline for society design. Another exponent is the thinking on 'Regenerative Economics' at the Capital institute of John Fullerton. We use these insights as inspiration but focus on the transition which the circular economy requires in material streams and product use.

Caution: While the design principles for circularity are developing, official definitions, standards and grading systems are still evolving, which may lead to misalignment and confusion of objectives and impact.

Measurement of Circular Impact
The most 'scientific method' to express circular impact is probably to measure the impact on the materials transition, or total material balance. The mass balance methodology is also the guiding principle behind the calculation of the Circular Transition Indicators (CTI), which is also used, amongst other measures, by Invest-NL in the evaluation and monitoring of investments.

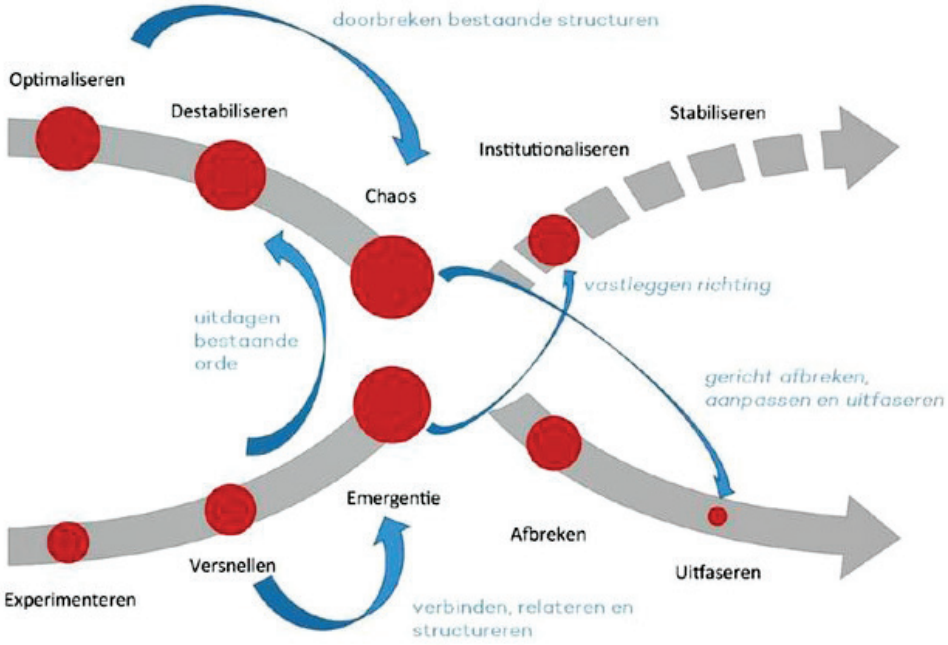
Today, business models of one company will probably contain both circular and linear elements. We recognize 3 levels of circularity in ventures

1. Fully circular: Ventures that operate a fully circular business and will thrive in a circular world (and consequently face many challenges in a linear reality)
2. Circular practices: Ventures that apply certain circular practices in business model, culture, behavior and finance structure in a linear world
3. Circular enablers: Ventures with a basically linear model, which contribute to the circular transition of a value chain

1.3 A world in transition: From (mainly) linear to (mainly) circular

Currently the state of the Dutch economy is estimated at 76% Linear and 24% Circular (Circle Economy, 2020). A significant shift in economic systems, material flows and earning models is required to achieve the 2050 waste-free society ambition. This transition is expected to be a turbulent period, characterized by creative destruction and disruptive innovation, in which circular and linear realities will co-exist, even within single companies.

Figure 1.3.
Transitions (from a linear to a circular society and economy)
Source: *Loorbach et al., DRIFT*



The objective is that this transition from a linear to a circular society and economy is made before 2050. This implies that until that time we will be living, working and managing in three worlds at the same time; a linear world, a circular world and an in-between world.

Such a systemic transition is characterized by a high level of complexity in which many processes are interconnected and not easily unraveled and redirected. An example is the reshuffling of the materials streams, which will change relations between value chain parties, and may require new infrastructure, regulations, and a change in consumer behavior. The level of complexity makes it difficult to predict the impact and effect of any planned intervention upfront.

A wicked problem
A problem with such a complex structure, is often referred to a s a wicked problem: the problem is not understood until after the formulation of a solution (Conklin). Wicked problems cannot be ‘fixed’ by a number of ‘top-down’ measures; but understanding the nature of the complex transition will help us to formulate the type of interventions and activities we can initiate to accelerate the transition.

Wicked Problems (Rittel and Webber, 1973)

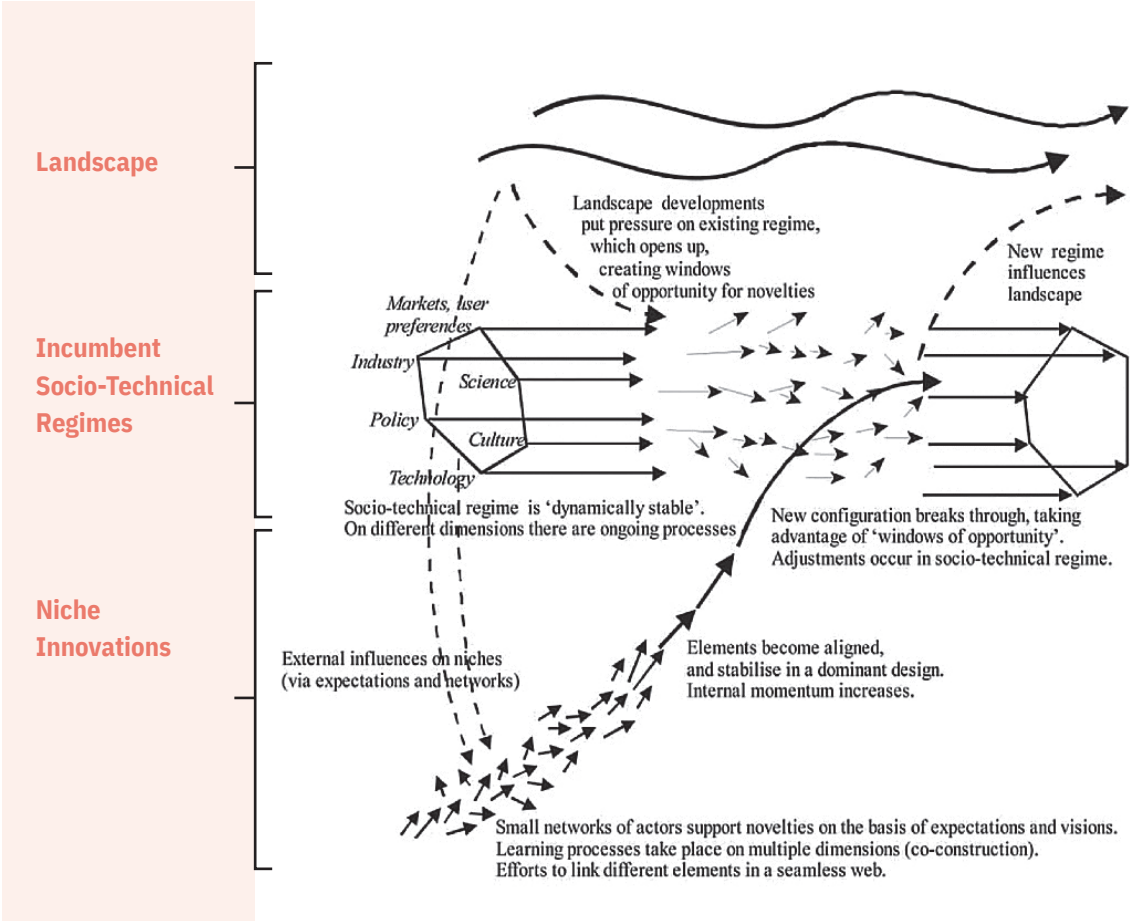
1. *They do not have a definitive formulation.*
2. *They do not have a "stopping rule." In other words, these problems lack an inherent logic that signals when they are solved.*
3. *Their solutions are not true or false, only good or bad.*
4. *There is no way to test the solution to a wicked problem.*
5. *They cannot be studied through trial and error. Their solutions are irreversible so, as Rittel and Webber put it, "every trial counts."*
6. *There is no end to the number of solutions or approaches to a wicked problem.*
7. *All wicked problems are essentially unique.*
8. *Wicked problems can always be described as the symptom of other problems.*
9. *The way a wicked problem is described determines its possible solutions.*
10. *Planners, that is those who present solutions to these problems, have no right to be wrong. Unlike mathematicians, "planners are liable for the consequences of the solutions they generate; the effects can matter a great deal to the people who are touched by those actions."*

To address the wickedness of the transition we like to point out that transitions require innovation at three levels. In practice, the circular transition can be regarded as a systemic innovation program with a Multi-Level, multi-stakeholder perspective:

1. At Macro-level, the transition agenda is guided by the 2050 ambition for a circular economy and the in-between milestones that will be defined for the materials transition agenda.
2. At Meso-level: the innovation is aimed at the ''regime'; the way things are organized, regulated and practiced. At this level, the innovation will target reorganization or material streams, which involves (large) investments at existing companies, and infra structure redesign of eco-systems and value chains, and modifications to financing practices and regulations or standardization
3. At Micro-level: Innovation is created in niches: pockets of breakthrough technologies, new business models and financial tools.

Figure 1.4

Multi-Level, multi-stakeholder perspective on systemic transitions, Frank Geels, 2000



Invest-NL is in the position to intervene on each level, and can support other stakeholders in the alignment between levels. At Micro-level it could be an investment in circular bike company. At Meso-level the development of a financing structure to enable a complete circular value chain, or the development of regulation for a biobased economy. Or at Macro-level, working together with companies, knowledge institutions and government, for example to come to a truly circular long-term Materials policy in the Netherlands.

Micro-level innovations will not be efficient to 'tilt the system' and make our economy more circular. As long as the 'regime' is linear, ventures with circular ambitions will probably make concessions to their principles to survive and become successful. Truly circular business models will only flourish in a 'circular regime'. We expect Invest-NL to stay involved in initiatives at Meso-level like regulation, financing regimes and ecosystem orchestration. Transformation at Meso-level will require additional investments in infrastructure and support for existing companies, which are supported by other funds (like Groeifonds and public and private budgets) – here coordination is desired.

1.4 Transition to a circular economy at Macro -level – the landscape of EU and NL policy

The European Commission adopted the new circular economy action plan (CEAP) in March 2020. It is one of the main building blocks of the European Green Deal, Europe's new agenda for sustainable growth. The EU's transition to a circular economy will reduce pressure on natural resources and will create sustainable growth and jobs. It is also a prerequisite to achieve the EU's 2050 climate neutrality target and to halt biodiversity loss.

The new action plan announces initiatives along the entire life cycle of products. It targets how products are designed, promotes circular economy processes, encourages sustainable consumption, and aims to ensure that waste is prevented and the resources used are kept in the EU economy for as long as possible.

It introduces legislative and non-legislative measures targeting areas where action at the EU level brings real added value.
Today a wide range of directives are in development that will deeply influence all regulation and all businesses in Europe.

The Government-wide Program for a Circular Economy, entitled 'A Circular Economy in the Netherlands by 2050', was presented to the House of Representatives on 14 September 2016. The program sets out what we need to do in order to utilize our raw materials, products, and services in more efficient and smarter ways, thus enabling us to realize the circular ambition for 2050.
This Program includes an Action agenda in which a select number of (short- and long term) innovation projects were identified, with a focus on impact and in which attention is given to bottlenecks; coherence with other social goals in an international context (such as climate objectives and SDGs); cross-sectoral connections with the other transition agendas; the implementation process, including a clear interpretation of the roles and responsibilities of the relevant Partners.
The Program includes a knowledge agenda, including the development of the correct indicators; a social agenda in which attention is given to labor market effects and circular business models; and an investment agenda that addresses the barriers to financing the circular economy, with insight about what is necessary to achieve sound and financeable business cases, and the possible financial interventions that can remove these barriers. The program is monitored by the PBL (Planbureau Leefomgeving) which issues a dedicated monitor every other year.

The Dutch government has translated its five circular transition goals also into a materials transition agenda, and into a nationwide implementation program (Uitvoeringsprogramma Circulaire Economie 2020-2023). In the beginning of 2023, this plan was succeded by the Nationaal Programma Circulaire Economie 2023-2026, supported by four ministries.
The overall goal of the program is to limit the use of virgin materials by 50% in 2030, to enable the transition to a 100% circular economy by 2050.

This desired state is referred to as 'a waste-free economy that runs as much as possible on sustainable and renewable raw materials, and in which products and raw materials are reused'.
The overarching principle for material use to arrive at that waste-free society are stated by PBL as 'Less, different, again and longer)' (*'Minder, Anders, Opnieuw en Langer'*).

A circular venture support program which is supported by Invest-NL should obviously be aligned with the national circular transition agenda. Starting from the overall objective and the 2030 targets, a National Plan for a Circular Economy 2020-2022 was presented by the Minister of Infrastructure and Water Management. This plan relied on many voluntary initiatives. Beginning of 2023, the successor of this plan was presented which details many initiatives.

In September 2022, the SER wrote an insightful report on the relation between the circular economy and the climate transition. This report contains some clear guidance for future policy and public funding decisions towards these measures, but for this study, we will revert to the current policies.
The Dutch plan aligns with the larger European context

Next to this, the Netherlands is member of PACE (Program for the acceleration of the Circular economy, driven by public and private leaders from 40 countries). At its start, Invest-NL has translated these different agendas into 5 focus areas for circular investments. These will be extended with the growth of the institute.

Table 1.2

Dutch National Transition Agenda and Invest-NL Focus Themes

Govt. of the Netherlands A**ccelerating the transition to a circular economy.** 5 transition agenda's	**Invest-NL** **Focus Themes**
• Biomassa & Voedsel • Kunststoffen • Maakindustrie • Circulaire Bouweconomie • Consumptiegoederen	• Food • Plastics • Biobased Materials • Critical Raw Materials • Textile • Electronics

Obviously, the different material streams will all be at different stages of circular development, and the interventions required will be eco-system dependent.
Ideally, a venture development program is designed for that particular material stream in which ventures can make the largest contribution to the circular transition (in the material streams that Invest-NL is focused on). To be able to make that selection it makes sense to look a bit deeper in the fundamentals of the circular transition.

1.5 Meso-level – Regime level; Circular Ecosystem Development

As the transition to a circular economy will require unbundling of current value chains and rearrangement into new ecosystems, the transitions at Micro, Meso and Macro-level will be strongly intertwined. This means that the impact of single interventions will be impossible to predict upfront. ("Big Choices": How to Bundle and Unbundle circular systems, also combining elements from the linear economy).

We illustrate this unbundling and re-bundling with the above table: at the top level, we have plotted the Transition Themes ('UitvoeringsProgramma Circulaire Economie') – we call this the 'Application Level'. We have left space for others. The second level shows the 'Enabling services', which today are also organized for a linear economy and will be rewired for the Circular future. The third level is the infrastructure level. This level will probably require significant investments in new hardware to allow the Transition. At the same time, the different ecosystem transitions do not always require bespoke infrastructure. To enable the Applications to run on the Infrastructure, Enabling Services ("System-) are needed. 'Het Uitvoeringsprogramma Circulaire Economie' has identified 9. We have added some elements at the second level.

Given the entanglement of material flows, infrastructure and regulatory structures it makes sense to take an eco-system approach when looking at circular venture development. This approach brings together incumbents, government, ventures, and regulatory and standardization experts to develop initiatives towards circular transition through collaboration, partnerships and innovation.

The challenge of the eco-system approach is to redefine and redistribute earnings, costs and investments and to develop metrics which enable definition of performance indicators. This is the sweet spot of Invest-NL, who can drive the transition from a neutral perspective and supports the necessary interventions with development money and knowledge. The development and financing of ventures that develop critical enabling capabilities for a given eco-system transition could be an area for Circular Venture building initiatives.
An ecosystem approach brings together the key players in an ecosystem to identify innovations, standards and partnerships that move the supply chain into circular loops. An interesting example in this context is the Irish initiative 'Circuleire' which is an initiative from a number of European and National governmental organizations to work together with Technology Institutes, Regulatory and Standardization experts and existing companies to identify the main investments required for circular transition in the Irish 'Make' industry. An associated fund is available for prioritized investments.
In the Netherlands these ecosystem discussions are organized through 'Circo-tables', and the Moonshot initiatives from the Dutch 'Versnellingshuis'. The amount of funding available to enable tangible outcomes of these 'discussion tables' is yet very limited. Invest-NL has prepared a dedicated fund for investments in the circular economy with the European Investment Bank.

To make an ecosystem circular, the stakeholders first must assess the system structure, how the Applications, Enabling Services and Infrastructure have been bundled in this specific **linear,** ecosystem. Then they have to unbundle the linearity of this combination of Applications, Enabling Services and Infrastructure. And finally, they have to bundle them into a **circular** ecosystem, a new combination of Applications, API's and Infrastructure.
This is an excellent example of Joseph Schumpeter's theory mentioned already 80 years ago; creative destruction and the development of "neue kombinationen".

Mind you; ecosystem development is not "only" the unbundling and bundling of elements. The elements themselves also must be innovated. This happens at Regime level. If we look at the Enabling Services, then Invest-NL /BD is very well positioned to play an impactful role in this. Invest-NL is already developing new financial instruments together with the Dutch banks and investment community. It is discussing (how to develop) circular standards with standardization bodies.

1.6 Micro-level; Venture Development

Invest-NL invests in innovative ventures that can play a role in the circular transition. As an eco-system player, Invest-NL also contributes to accelerators and venture building programs that help promising innovation teams find finance to build the business. We call such ventures 'circular ventures', which means that they operate (elements) of a circular business model. Innovation in this context is much wider than technological: innovation in the transition to a circular economy will often be related to business models, social inclusion and other "soft" innovation, rather than technology innovation. (See e.g. Larry Keeley, ten types of innovation).

Nevertheless, we expect that a significant target group for Invest-NL investments will concern capital -intensive companies with innovative technology: companies with a strong technology base (often initially developed at knowledge institutes or universities as a result of multi-year programs) which require asset heavy novel production capacity to scale. (It is good to realize that in The Netherlands, such ventures with over 10 FTEs and significant capital raised are often (inadequately) referred to as 'Scale-ups").

The world of venturing and startups/scaleups has a natural connotation with rapid financial growth and risk capital, which feels counterintuitive with the principles of the circular economy and less applicable to asset-heavy business models. At the same time, the circular economy will require innovative teams to 'create novel and viable business models' to enable the required transition.

We will see later in this report that circular ventures face different challenges than 'traditional 'linear' ventures'. It is expected that ventures with circular business models will require specific support in order to flourish and become 'investor ready'. In the following chapters we will look at existing practices to try and learn to identify suitable methodologies for circular venture development and support.
But before we start to explore that level of complexity, we first take a look at some methodologies and terminology related to venture development.

1.7 Conclusions

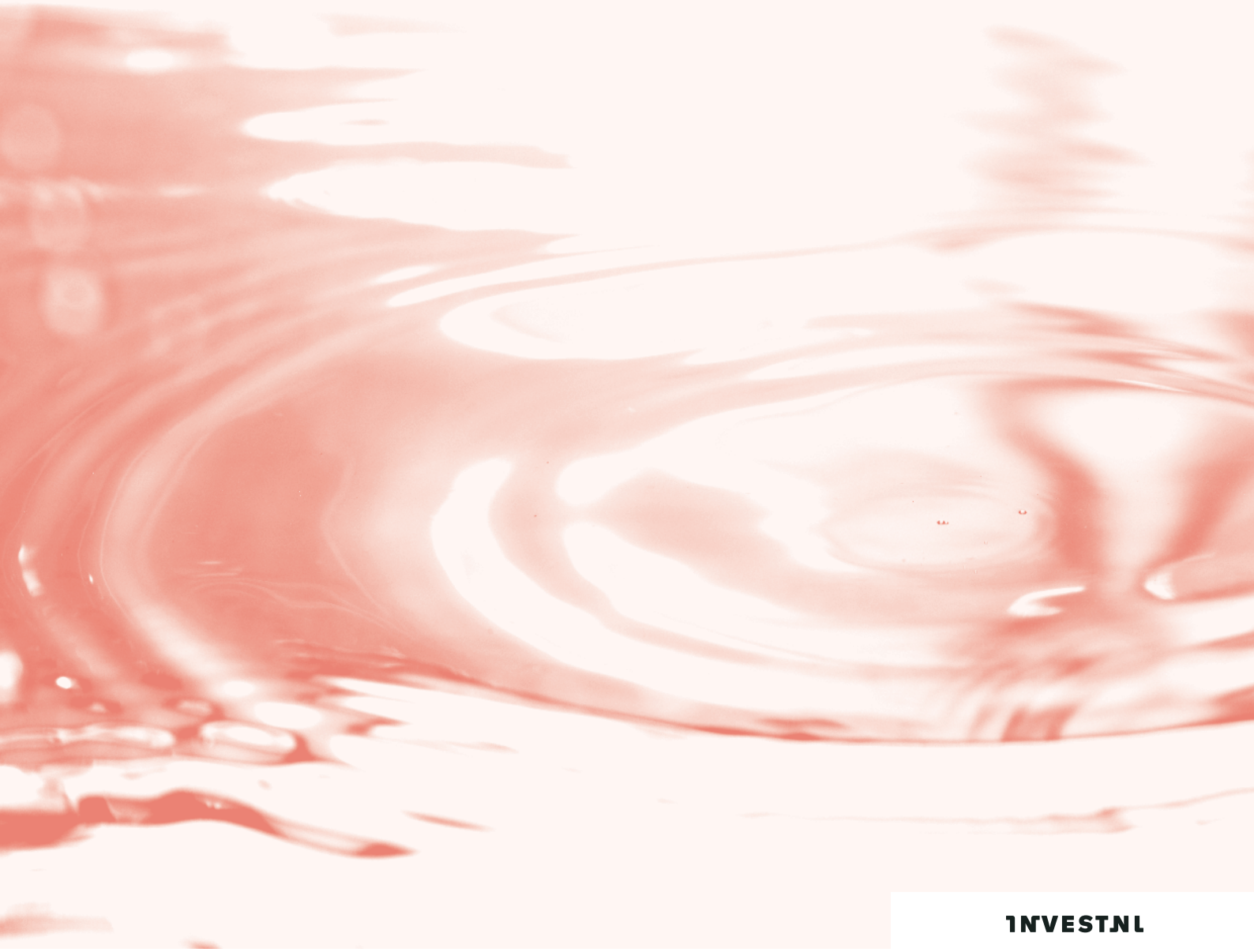
- **Creative destruction meets disruptive innovation**

The circular transition is a combination of creative destruction at industry level and disruptive innovation at company level.
Linear value chains will need to be "unbundled", decomposed, and "rebundled", and reconfigured into circular ecosystems.

- **Multilevel, multistakeholder approach**

To effectively support the circular transition with a venture development approach, a multilevel, multistakeholder approach is needed. it is not enough to "only" intervene at Micro-level with investments in ventures or venture support. To be successful, Invest-NL has to intervene at Meso-level, and sometimes even at Macro-level.
Multiple stakeholders will need to be involved: ventures, investors, authorities, certifying bodies, insurance companies, and obviously knowledge institutions and the users: the civil society.

2



(Current) Linear Venture Development Methodologies

2.1 Introduction

In Chapter 2, we dive into the most common start-up and scale-up development methodologies, which form the basis of modern linear venture building.

2.2 Venture Maturity Sages

The Oxford English Dictionary Online defines a startup as "a business enterprise that is in the process of starting up", usually as applied to a "startup company."
The OED traces the origins of the term, used in its modern sense, back to a 1976 Forbes article, which uses the word as follows: "The ... unfashionable business of investing in startups in the electronic data processing field." A 1977 Business Week article includes the line, "An incubator for startup companies, especially in the fast-growth, high-technology fields." (source: the Crimson, 2011)

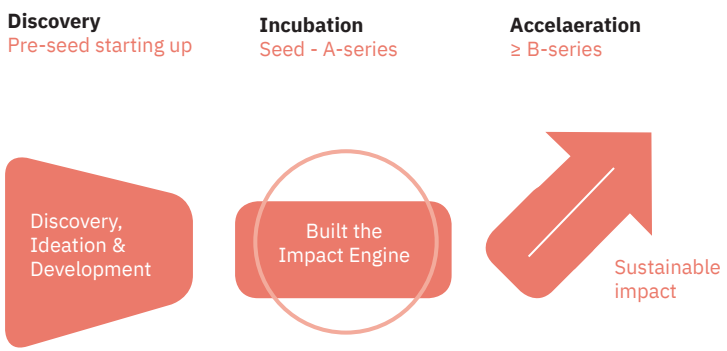
Start-ups are organizations in 'search' for a repeatable and scalable business model, that will have a major impact on their given market ('disrupt'). Once the repeatable and scalable business model is in place, the venture (now a scale-up) will focus on 'scaling the business' to claim market dominance and maximize the value of the company for its shareholders.
Financing these ventures is the domain of 'venture capital': Venture Funds, Venture Debt, Angels, Innovation Loans etc. Venture Capital players are willing to place high bets on high-risk start-ups with the aim to 'cash' on the exit of a highly valuated portfolio company.

Venture building differentiates from 'building a small business' on a number of axes:

- Innovation: startups build on a NOVEL competitive advantage,
- Time to profit: startups usually require (external) investment for a significant time until they become profitable or get sold.
- Impact: Startups have the ambition to (significantly) alter the dynamics of the markets they enter.

Figure 2.1

The essence of venture capital is the financing of early-stage ventures to help them through the equity gap in the loss-making phase (also called "the valley of death")



Source: Venture Capital Deal Terms, De Vries et al, 2016

Figure 2.2
Life Cycle of Startup

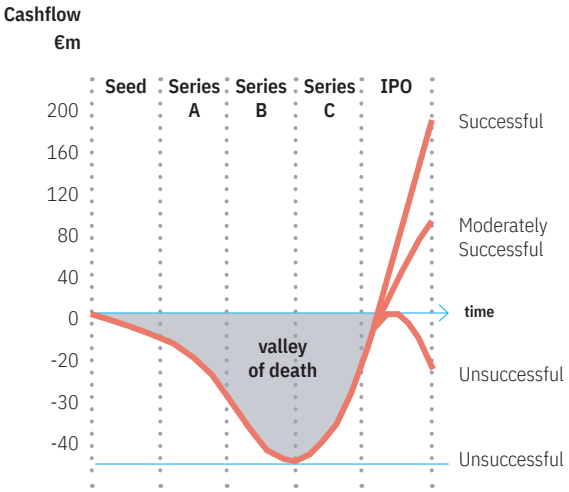
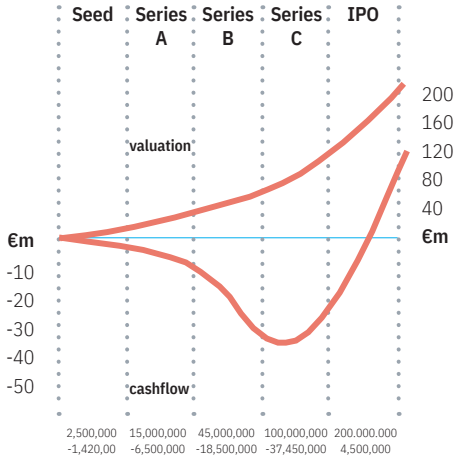


Figure 2.3
Early Stage Phase



The Job-to-be-done by a venture and its investors is to minimize the trough: to minimize the time to break even and to maximize valuation (and in the end Peak Sales). This is a very different objective from the circular economy, which does not aim at peak sales but at maximum welfare for the longest period of time. Venture Capital is typically a high-risk business: most VC's will aim at a success rate of 10-20%, which means that for every successful scaleup, there will be 8-9 failures. It is interesting to note that valuation of ventures is related to expected future value, and is not related to profitability of cash flow.

Silicon-valley inspired startup methodologies often read like a recipe: "how to get rich fast". Before looking at theories and methodologies from / about the start-up world, it is important to realize that start-up thinking and 'venture building' are relatively new fields (see box) and most theories have only been around for less than 2-3 decades, even if standing on the shoulders of giants like Schumpeter, Rogers and Schon.

We expect that the field of startup accelerators and venture building has generated methodologies that can be translated to support programs of circular ventures, but that adaptation is required to allow for circular principles to be included.

2.3 Venture Development Methodologies

In the following chapters we give an overview of terminologies and related methodologies that have been developed to classify the development stages of start-ups and scale-ups, to monitor progress and to identify 'next steps' on the venture journey. This overview is by no means complete but provides us with a set of lenses to frame venture maturity and support.

2.3.1 Single-dimensional development - Maturity in terms of capital raised – Classic VC

The first lens we use, is that of 'equity rounds'. Typically, we consider the following types in terms of 'venture capital' rounds:

Table 2.1

Typical size and focus of investment rounds in early stage ventures

Type	Grant or Loan	Pre-seed	Seed	Series A	Series B and onwards
Typical source	Friends, Family, Fools	Angels, Early Stage VC, Incubators	Early Stage VC, Venture Debt	VC, Strategic Partners	Beyond VC, PE, Banks, Exit Partners
Typical value	10-100k	50k-3 mio	1-1-mio	5mio-20mio	10-100+mio
Focus	finalize business concept	validate business potential	Pilot phase Create commercial traction	Scale-up Professionalize (commercial) processes,	Commercial Scaling, Transform into Enterprise
Commercial Revenue (typical)	-	-	<1 mio	1mio-3mio	>3mio

Inspired by: Adventure Finance, Power, 2022

The model of many VC's is based on 'spreading the risk' – early phase investors will typically put small amounts ('tickets') in pre-seed and seed rounds, and once the winners become clear (Series A), the funds with larger ticket sizes will fund accelerated commercial growth for the companies with commercial traction and a (proven) scalable model.

As venture capital firms usually have a minority stake in early stages, their approach is often 'hands-off' until seed. In Seed stage and Series A, venture firms get vested deeper and will claim board seats and take a more active stance in steering the company's future. VC firms typically focus on specific stages: pre-seed, seed and Series A. The larger tickets required beyond Series A often come from Private Equity or Strategic Investors (including M&A). Different from Private Equity funds, VC's do not have a majority position in a venture and will always need to work with the other players at the cap table to influence the direction (and composition) of the venture team.

2.3.2 Single-dimensional development: Technology Perspective

TRL's, or Technology Readiness Levels have been developed by NASA to identify the stage of technology development of 'deep tech' innovations. Many European Union and National Organizations use the TRL model to clarify the target group for the support programs, subsidies, or investment funds. Invest-NL targets at TRL 4-8.

TRL 1 Basic principles observed
TRL 2 Technology concept formulated
TRL 3 Experimental proof of concept
TRL 4 Technology validated in lab
TRL 5 Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
TRL 6 Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

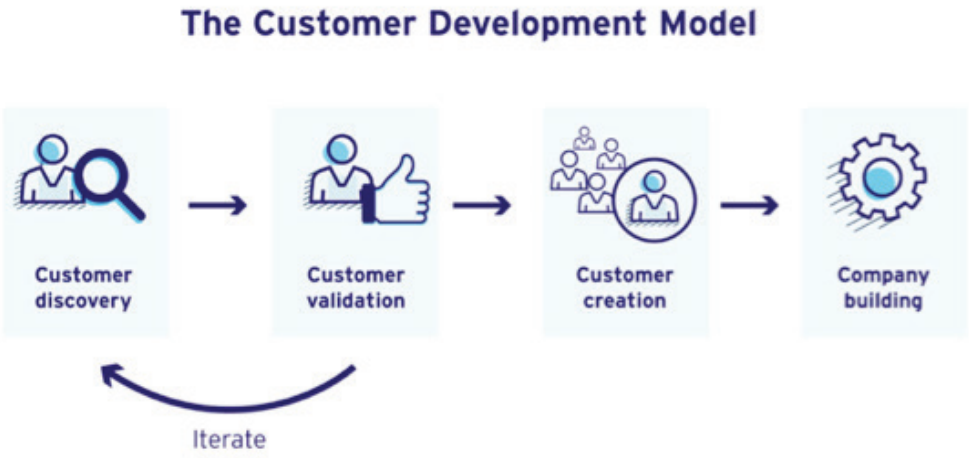
TRL 7 System prototype demonstration in operational environment
TRL 8 System complete and qualified
TRL 9 Actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)

2.3.3 Single-dimensional development: Maturity in terms of customer traction – Blank and Ries

The dominant framework for start-up development/venture building was developed by Steve Blank in 2004: 'The Customer Development Process'. His model distinguishes 4 phases in startup development, which are then divided in clear milestones which ventures should deliver before moving to the next phase. A Venture is called a 'Startup' as long as it is developing its first commercial customers (Phase 1 and 2) and a 'Scale-up' when it starts to expand that customer base beyond the first movers.

Figure 2.2

The basic principles behind the lean startup methodology: validate your product-market fit through learning loops before you scale



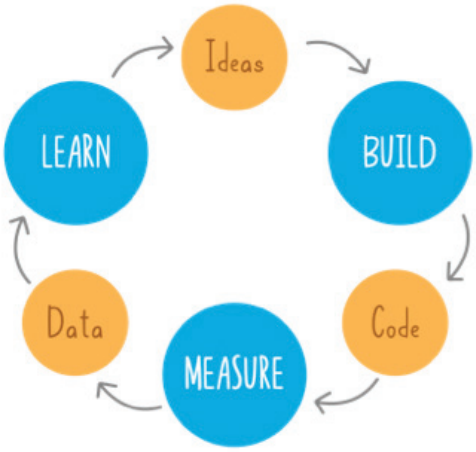
Source: The StartUp Owners Manual, Blank & Dorf, 2012.

The lean startup process (published by Eric Ries in 2011) prescribes how startups can test their business case hypotheses (in phase 1 and 2) through learning loops: Build-Measure-Learn. In the process the ventures sharpen their business model, and validation is achieved by bringing on the first real commercial customers. The lean startup process is often combined with a design thinking process to define the first hypotheses for business opportunities.

Both Lean Startup and the Customer Development Process were developed in the context of Software development, in which pivoting and product adaptations are often still possible, and in which the investments needed in Phase 1 and 2 are limited.

Lean Startup does not address the complexities which come with developing business models from asset-heavy new technologies which require significant capital investments to validate the customer use cases and the production process at scale. Venture teams with such 'hardware' innovations will often not be able to simply run the lean startup process to develop their venture into a commercial success. Such

companies may take decades to turn their inventions into full-fledged enterprises. Theoretically, such companies will qualify as 'Start-ups' (ventures without commercial income) for their pre-commercial life, but in reality, face a level of complexity that is more similar to the scaling phase, with large teams, multiple stakeholders and significant capital raised.



"Lean StartUp" approach, Ries

For ventures with circular business models, the 'Blank-Ries' approach becomes complicated when the definition of the customer gets blurry. In circular business models, customers may become suppliers, partners and investors, which will make application of the underlying toolbox challenging.

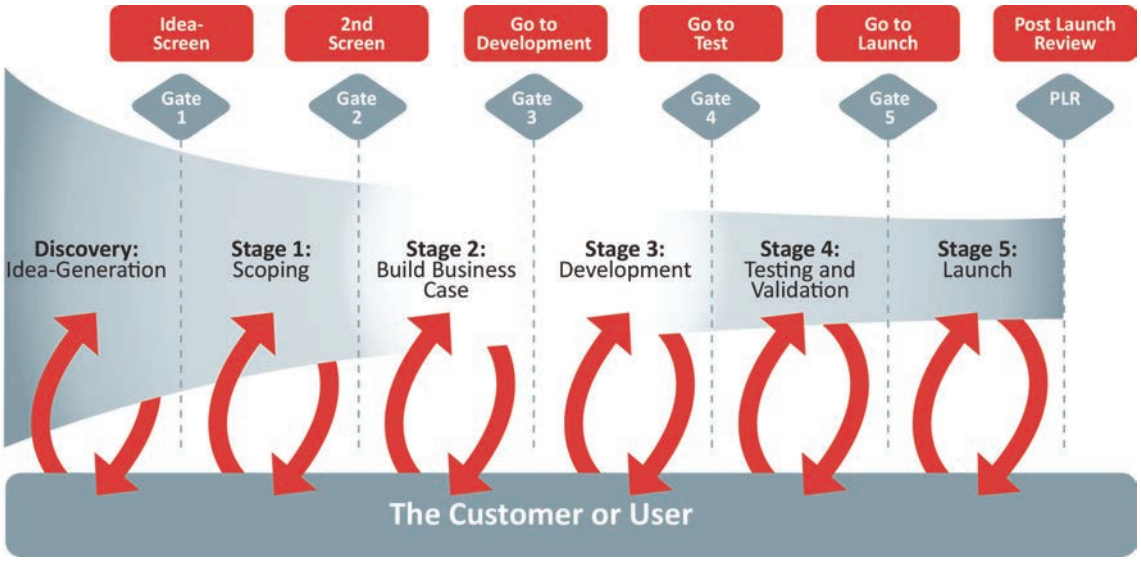
For completeness sake, it is good to also mention the '24 steps process for disciplined entrepreneurship' (often referred to as 'the MIT way' – as opposed to the 'Stanford based' Customer Development process). The 24 steps process prescribes to great detail the steps startup entrepreneurs should take to validate the customer/market potential of their business (phase 1). This methodology is not often used within accelerators but is highly recommended as a checklist for customer traction.

2.3.4 Single-dimensional development: Maturity in terms of product and process development - Dr. Cooper's Stage-Gate

Stage-Gate, which was first published by dr. Robert Cooper in 1988, is a methodology which has become very popular in corporate innovation, and is therefore often ignored on the start-up planet. The Stage-Gate process structures the product development process in a number of phases (usually 5) from idea to launch. The idea behind the gates is to minimize the risks before investing heavily in development and factory scale-up. In every phase, the project team works on a specific set of questions (on market potential, technical feasibility, production roadmap and so on) that will allow the 'Gate Keepers' (or investment committee) to decide on a Go/No-Go for further investment in the next gate.
The size of a project team usually grows and the project budget expands as gates are passed and the product launch comes closer. To 'pass gate', innovation teams need to show proof on prescribed milestones in the product development process, like market potential, technical feasibility, cost-in-use estimates or raw material availability. Dependent on the maturity of the phase, the deliverables become more detailed, as the new product becomes reality.

Around 2010, Dr Cooper added agile learning loops to the prescriptive process to adopt some of the practices from lean start-up. That could not prevent that Stage-Gate is losing some of its popularity. The model encountered a lot of critiques from innovators as it appears to structure innovation as a linear process, and company leaders do not like the idea to 'jump through hoops' to achieve their dreams. The original idea however, to align decision making on investments and next steps on innovation projects with key deliverables from the project or venture team is valid and proven practice.

Figure 2.3
Stage Gate model for Product Development (Dr Cooper)



The Stage-Gate process is originally designed in light of product development for the linear economy, but it should be very well possible to define gate criteria that relate to circular product and business model design principles.

2.3.5 Multi-dimensional development. Maturity in terms of venture stage reached – Bell Mason

The single-dimensional models that describe the progress of a venture in terms of investment round, Technical Readiness, Customer Traction or Product Readiness are all useful to frame specific 'tasks' related to innovation development and venture building. These 'frameworks' do not seriously address the venture development process that is more 'behind the scenes': organizational development, technology development, production processes and financial structure (including investors).

For venture teams that build their business on technology innovations and/or capital intense production processes, the commercialization process can be very complicated and costly. And for venture teams that are building a disruptive circular business the single dimensions of Customer, Technical and Product progress are not sufficient to monitor the complexity of company progress.

Such venture teams will therefore find limited support from using only the Customer Development or milestones or Product Development Stage Gates, and the Lean start-up methodology will not be sufficient to build a company. First of all, most deep tech inventions do not allow for significant technology pivots in Seed stage: they are often the result of multiple years of scientific research (e.g., a new fermentation process) and the customer value can only be validated through costly experiments at industrial

scale. Such companies often spend many years in the 'Seed phase' working on the realization of their commercial business model., which in most cases requires a significant 'pivot' from the original ideas they had at the start. As earning models are not immediately clear and actionable, venture capital firms have low appetite for the big sums required, and many venture will find additional income streams through 'contract research', 'consultancy', 'paid trials' and 'paid Joint Development' to realize their dream. Obviously, these companies will need to reach the same 'Blank' commercial milestones before they can scale their business (if they ever reach that phase). However, to describe venture building for these more complex cases, it is essential to look at more than customer development and market traction to judge venture maturity.

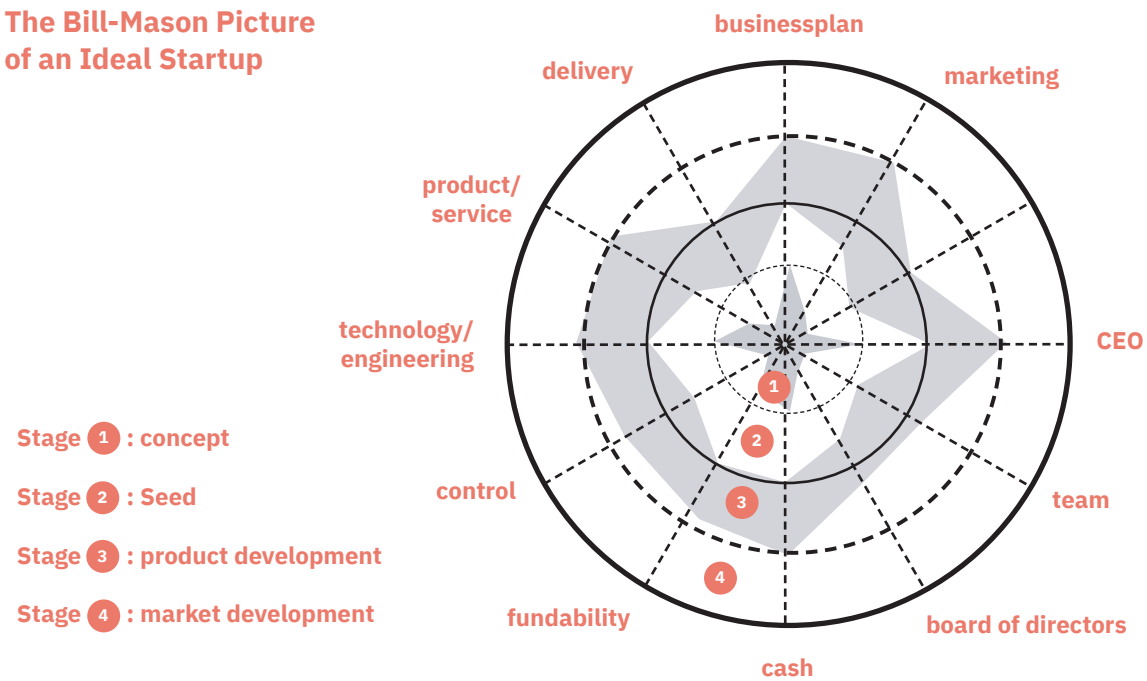
The best-known framework which incorporates a broader spectrum of key building blocks in 'venture development' is the Bell-Mason five stage venture development model. as described in "The Venture Imperative" by Heidi Mason et al, which identifies five phases (Concept, Seed, Alpha, Beta and Market Calibration (C for C-series), which correspond with the typical venture investment rounds (pre-seed, seed, Series A, Series B-D). This approach distills all the best practices of a number of venture capitalists and is being used across the globe by (corporate) venture funds. The Bell Mason approach is agnostic to the type of venture (BtB, BtC, Service Based, Product based etc.).

The Bell Mason methodology is based on two key principles:

1. The identification of 4 key venture defining axes (and 16 sub-dimensions) that have to be developed in parallel (a. Technology/Product, b. Market/Customer, c. Team and Organization and d. Finance and Governance);
2. The classification of 5 development stages with clear descriptions of the desired output and outcome of each phase, linked to the "classic" VC finance rounds.

Figure 2.4

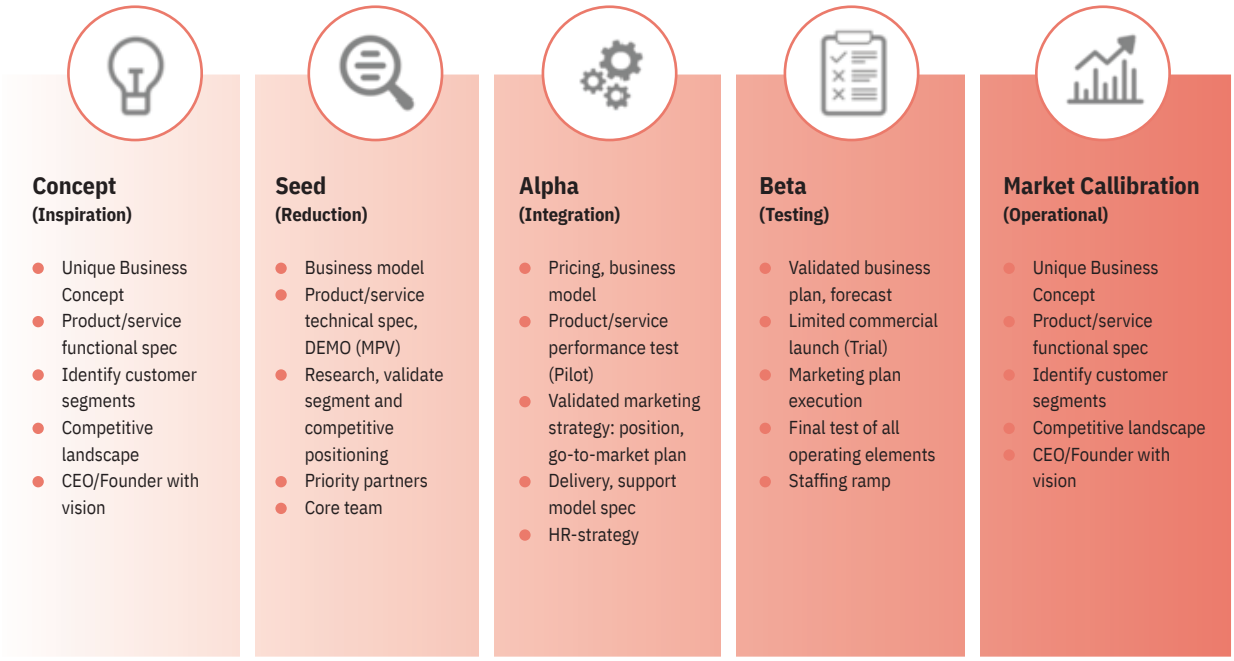
The Bell Mason Spider depicts the desired maturity per venture development phase on 12 axes



Like the Customer Development framework, Bell-Mason allows venture leaders, support teams and investors to create a common language about the maturity of the venture and clarify gaps in development and identify clear go-no go milestones. The basic principles of the classification and methodology however, probably form the only integral, multi-dimensional and research-based framework for venture building from scratch to stable in general and between pre-seed and series A in particular.
In corporate venture capital, investment decisions related to 'stage-gates' are subject to thorough review processes which serves as input for a senior-level go-no-go decision. Like the Dr Cooper product development process, the Bell Mason approach helps teams and investors prioritize their actions and attention based on best practice from experienced venture teams (which is made explicit in the process flow)

The Bell Mason process for venture development was obviously developed for the development of companies within a linear economy, with a linear business model. It would be interesting to apply the same design principles to the development of circular ventures and include circular adaptations where required.

The Bill-Mason Framework for Future Development ™







Concept (Inspiration)	**Seed** (Reduction)	**Alpha** (Integration)	**Beta** (Testing)	**Market Callibration** (Operational)
Product/Service	Product/Service	Product/Service	Product/Service	Product/Service
Venture Platform: Defensible uniqueness identified & outline af required minimum viable ecosystem	**Venture Platform:** Venture Platform for pilot in place & Minimum Viable ecosystem is defined	**Venture Platform:** Venture platform validated by the alpha customers & minimum viable ecosystem in place	**Venture Platform:** Venture patform performs as expected in the field under real use conditions (testimonials of beta customers and influencers). Ecosystem established	**Venture Platform:** Fully operational and roadmaps based an platform for next generations in place
Product/Service: Outline of the Minimum Viable Whole Procuct	**Product/Service:** Definition of the Minimum Viabe Whole Product	**Product/Service:** Minimum Viable Whole Product validated with first pilot-customers	**Product/Service:** Whole Procuct validated in the market	**Product/Service:** Proven performance and product roadmaps available
Delivery: Supply chain is outlined for Minimum Viable WP	**Delivery:** Supply chain in place for pilot phase (minimum Viable WP)	**Delivery:** Supply chain (including after care) in place for Whole Product	**Delivery:** Scalable Supply chain (including aftercare) in place and proven	**Delivery:** Fully operational and prepared for expansion
Marketing	Marketing	Marketing	Marketing	Marketing
Business Plan: Plan for a Business plan	**Business Plan:** Business plan with alternative scenario's (what if?) in place, including the key milestones to be reached end of a alpha ('alpha test plan')	**Business Plan:** Integral Business plan tested in the market (pilot stage) + translation of business plan in tactical plan on functional level	**Business Plan:** Business plan (and tactical functional plans) tested in the field under real use conditions	**Business Plan:** Business Plan for the next bowling pins in place
Marketing: Ouline market segmentation and positioning, and potential first target group and its value proposition	**Marketing:** First target group and corresponding value proposition identified & commitment of first pilot customers	**Marketing:** Value proposition first market segment has been validated and next target customers/market(s) identified and prioritized. Commitment of first beta customers	**Marketing:** Ready for full launch. First commitments of customers of the next market segments in place.	**Marketing:** Leverage market exposure to new segments and geographies. First market segments has led to next segments
Sales: Firt ideas on go-to-market approach defined	**Sales:** go-to-market approach for Alpha in place and effective to get first pilot customers on buard	**Sales:** Pilot to learn, not launch to sell. Sales channel and corresponding customer relationships for scaling the business defined	**Sales:** First real test in the market, preparing for growth. Sales channel and corresponding customer relationships for full launch in place	**Sales:** Growing in line with forecast, building up (entering new markets)
People	People	People	People	People
Management: The entrepreneur & founder	**Management:** The entrepreneur & leader	**Management:** Making the transition from developing the strategy to implement it	**Management:** Scaling the business	**Management:** Managing growth
Team: Core team in place	**Team:** Venture team in place for piloting the venture in the market	**Team:** Team has pilot the venture successfully in the market and is ready for scaling	**Team:** Al partners on board and functions fully staffed; business ready for full launch	**Team:** Team and partners performing as planned
Venture Board: Incubation environnant established	**Venture Board:** Agraement on 'borrow, forget and learn' and external mirror in place (managing the generation gap)	**Venture Board:** Effective way of living apart together has been established	**Venture Board:** Preparing transition from adolecscent to adulthood.	**Venture Board:** successful exit: ventura has become a business unit (from teenager to adult)
Finance	Finance	Finance	Finance	Finance
Cash: Budget adequate for Seed stage	**Cash:** Budget adequate for the first pilot in the market (Apha)	**Cash:** Budget adequate for commercial testing for scalability (Beta)	**Cash:** Budget adequate to become cash-to-tash positive	**Cash:** Venture is cash-to-cash positive for headpin
Financing: (executive) sponsorship of parent for developing concept	**Financing:** Seed round funding	**Financing:** Series A round funding	**Financing:** Series B round funding	**Financing:** Series C round funding
Control: definition of the leap of faiths (key assumptions		**Control:** validated venture proof of concept in the market	**Control:** validated business model under real use conditions	**Control:** predictable business (performing in accordance with plan)

2.3.6 Eco-system development: Maturity in terms of systemic impact - Metabolic Ventures

While the traditional venture building builds on a market opportunity that arises from a technological invention, a customer need, or new regulations, systemic venture building starts from an ecosystem approach. The basic idea behind systemic venture building is that the transformation of ecosystems, like the circular transition or transition to regenerative agriculture, will be enabled by for-profit ventures and present entrepreneurial opportunities for impact driven venture teams.

Metabolic

The systemic venture building methodology as described by Chris Monaghan (Metabolic) suggests the first contours of a framework for venture development for Systemic change:

Concept development	Theory of Change	Venture Studio	Seed	Scaling for Impact
Systemic Problem Analysis + Team Competences	Definition of potential impact to be made and how to achieve	Validate the earning model for the systemic venture	Attract additional investors and/or partners to launch	Strategize and grow to maximize systemic impact

In this approach, they use the 'impact generated' as key performance indicator for the venture's success. The field of 'impact metrics' is still evolving. Following 'Paris' and the calls to limit climate change, the CO2 reporting and metrics have become standardized and professional. For Circularity, there is no consensus about metrics. (Interviews Aart, Circle Economy). It could be interesting to develop an impact development roadmap similar to the Blank approach of 'customer development'?

2.4 Conclusions

- The only integral venture development methodology is the Bell Mason Venture development framework; this framework lacks sustainability and circular performance indicators
- The systemic approach as developed by Metabolic is the only venture maturity framework with sustainability and circularity performance indicators

3

Circular Venture Development

3.1 Introduction

Circular ventures are the topic of Chapter 3: we look into the complexity of building (elements) of circular behavior in a 2022 company, and suggest the first contours of a framework and nomenclature which helps frame the development and financing of a circular venture within a linear financial system.

3.2 Circular Ventures – definition

We define circular ventures as:

1. Ventures that deploy or develop towards a 'circular business model' (EZK report)
2. Ventures that play a key role in the circular transition of a (currently) linear chain

Circular (breakthrough) innovation initiatives as developed in circular ventures are essential to the circular transition. At the same time, as long as the world primarily operates a linear economy, operating a circular venture may feel like building a colony in alien (or even hostile) territory. Support and investments from institutions like Invest-NL are required to accelerate the development of these innovative niches, and to ensure that they do not fall back into linear practices in order to survive (Market Failure).

As explained in the previous chapters, as long as the economy is in transition between, business models within one company will probably contain both circular and linear elements. We identify 3 different levels of 'Circular Readiness':

1. Fully circular: Ventures that operate a fully circular business and will thrive in a circular world (and consequently face many challenges in a linear reality) (e.g. bio-regeneration projects)
2. Circular practices: Ventures that apply certain circular practices in business model, culture, behavior and finance structure in a linear world (e.g. SWAPfiets)
3. Circular enablers: Ventures with a basically linear model, which contribute to the circular transition of a value chain (e.g. waste upcycling, recycling companies)

As opposed to linear business models which basically run from feedstock to value creation and waste, circular business models and circular chains aim to eliminate waste and connect the value chains within eco-systems. Circular business models are novel, and still under development, but several emerging options can be identified (Quick Scan Circular Business Model, EZK):

1. Resource models: recycle, repurpose, reuse and recover (critical) materials (e.g. plastic recycling)
2. Design models: design products for circularity (e.g. to build in re-use, re-purpose, modular designs, or to use bio-based materials from the start
3. Lifetime extension models (maintenance, repair, repurpose of existing products)
4. Platform models: models which allow use of e.g. equipment or tools without buying: sharing, pay-per-use
5. Product as a Service
6. Extended Product Responsibility: SAAS models for tracking, tracing and use
7. Life Cycle models: Lifecycle product ownership by producer (allows full control of recycling and re-use loops)

The choice for a circular business model (in a world that primarily operates a linear model) leads to many typical 'circular venture' challenges, which will vary from regulations and permits, feedstock availability, to partnership deals, finding an earning model and ownership structure or financing models that fits the circular mission. In this chapter we explore the challenges, but also identify some pointers for methodology.

The 100$ question is: Can we apply practices from the existing start-up/scaleup world to develop design principles for circular venture support? Or do we need an entire new framework?

3.3 Ten factors that complicate circular venture development with existing, linear methodologies

1. **Customer-Supplier Definition**
   A circular venture has a different business model than a 'linear venture', in which the definition of 'customers' and 'suppliers' is not static but dynamic: suppliers become customers, and customers become suppliers. The development of an earning model often requires deals with multiple of ecosystem partners. In such case, Steve Blank's model for customer development does not suffice.

2. **Systemic change as starting point**
   Many venture programs start with a technology or a customer problem and build a customer value proposition around it. The transition to circular chains in e.g. plastics or critical metals requires a full overhaul of the current linear (source->waste) systems. In that transition, a plethora of venture opportunities (and needs) exists. It is necessary to orchestrate venture creation and development around specific ecosystem transformations.

3. **Circular innovation is complex at ecosystem level**
   The transition into a circular system usually requires the development of and investment in a large number of complementary assets by various players in the value network: technology, capital-intense "hard-ware" (infrastructure and equipment), services. To become effective, a circular supply chain will also require the right standards, certification, guarantees, insurance and financing. Strategic decisions by partners, investors, launching customers, production locations and technology routes are very much intertwined and determine the future of these companies and their partners. Alignment of these activities requires a high level of orchestration and direction.

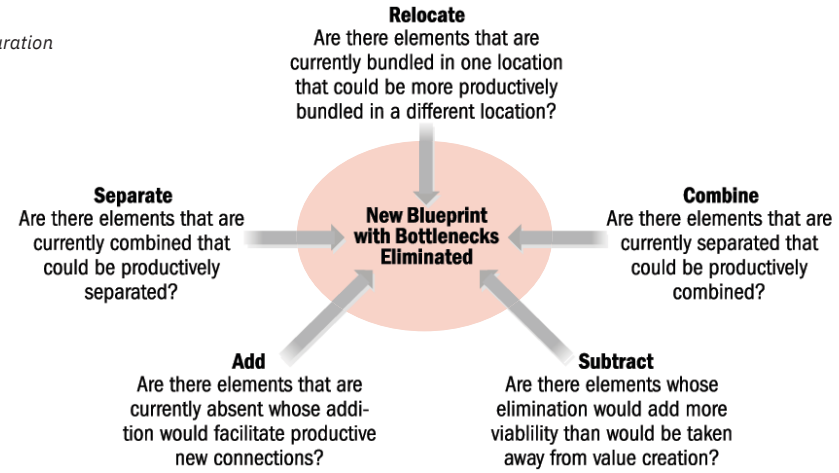
The need for collaboration at all levels to achieve the transition is not without risks: Intensified Ecosystem Risk, Co-Innovation Risk, Execution Risk and Adoption Chain Risk (Ron Adner, *the Wide Lense*).

A wide lens: seeing the hidden traps

- An eco-system view uncovers hidden traps

Figure 3.1

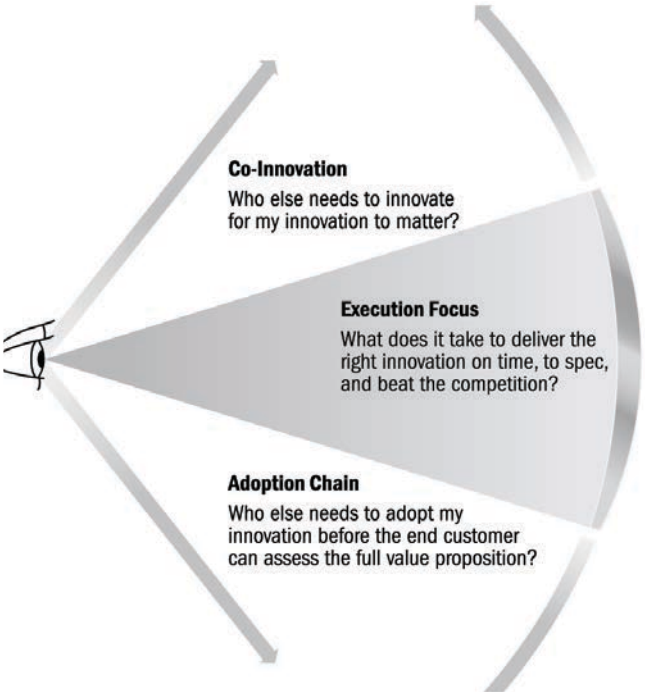
5 Levers of Ecosystem Reconfiguration

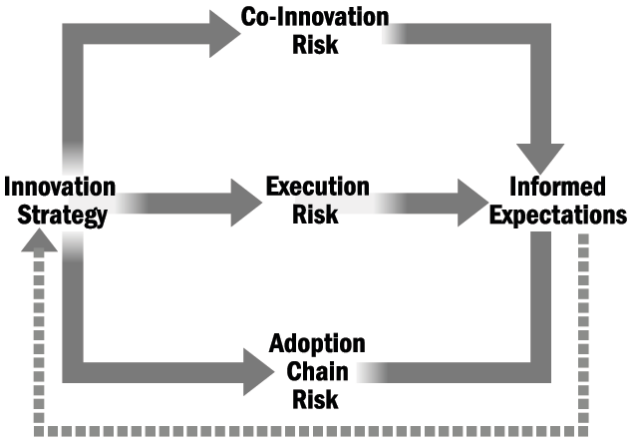


- Two distinct types of risk:
  - Co-innovation of Risk
  - Adoption Chain Risk

Figure 3.1.

Investing with a "Wide Lense"





Source: The Wide Lense, R. Adner

4. **Partners as investors: Redistribution of value within the ecosystem**
   The circular practitioners that we have spoken (team Niaga, Horticulture Reststromen, Wil van Duivenvoorden, Susphos) look at existing companies in their value chain for co-financing the investments in new technology and production locations. They find that 'venture capital', banks and PE are usually not so keen, and those ecosystem partners are co-owners of the problem. Development and negotiating partnerships should probably be one of the key elements of venture support "Ecosystem Self-Finance".

   Redistribution of costs and benefits within an ecosystem is very likely a challenge in the circular transition. While the total size of the pie may not grow, there are more parties to share with. Without external (regulatory or public) pressure, incumbents are unlikely to make a 'circular' move: "what is good for the hive, is good for the bee. What is good for the bee is not necessarily good for the hive', in "How to allocate Costs and Benefits over the Ecosystem?" (Teece, *California Journal of Management*).

5. **Time-shifting of Benefit appropriation and Cost Allocation – From "Instant Gratification" to "Postponed gratification"**
   The full benefit of a circular product / value proposition is only achieved years and years after the sale, but the costs may be incurred right away. An example are PaaS concepts, which will require significant upfront investment in the products which are 'delivered as a service'. Financing these models upfront, without proof for the entire business case is difficult for financiers (banks and investors) because the time horizon involved extends beyond the time horizon they are used to, and their systems have been optimized for linear risks. For circular ventures, financing by banks is impossible because of the significant balance sheet extension and the increase in risk exposure - let alone the lack of experience with financing services. At the same time, as costs and income become detached, bookkeeping requires administrative adaptations, e.g. in rest value regulation.

6. **The Winner cannot take it all**
   In the current economy, and the platform economy in particular., the "winner takes all" dynamic rules. This is also stimulated by classic VC strategy / business model: one big success has to make up for the losses on the other 9 investments.
   The transition towards a circular economy will require **many** ventures (and existing businesses) to develop innovations and identify new earning models. The transition will only become reality if the inventions of the various teams work together in an ecosystem approach – in which some of the original ventures may be 'swallowed up' by other ventures or incumbents. The venture capital concept, which throws millions at single early stage ventures, to compete for the large opportunities, which will only be rewarded to the happy few, will not deliver the impact required. Support to circular ventures may need to focus on 'raising the floor' for the entire ecosystem instead of 'raising the ceiling' for tomorrow's stars.

7. **Venture Capital model does not fit**
   The venture capital model, which aims to limit the losses in the pre-commercial stage and maximize earnings (through valorization maximization) does not fit circular models, which often require a long time to develop an earning model, and do not scale in the traditional way, but often require a repeatable modular approach to maximize impact. Investment models that allow long term – stable returns (e.g. based on percentage of realized cash flow or profits) with 'patient' time-lines fit better.

8. **Portfolio optimization at Ecosystem level rather than at venture level**
   In order the make an ecosystem successful some of the investments will probably earn back their costs at best, whereas some other players in the ecosystem / value network will be very successful. For instance, in a printer ecosystem, money is made on the ink, not on the printer machine. In this case, that is ok because it is the same firm. But what if these would be different firms? Who would want to make Printers? In the circular economy several closed loop systems require chemical and mechanical recycling and take-back systems. Often these functions are performed by different actors. Today, not all of these activities are financially viable. How can we finance the complete cycle?

9. **Impact as KPI; "Doing well by doing good"**
   A fundamental choice for a venture building program lies in the prioritization for scalable impact (with an earning model) vs scalable *commercial growth*. Impact delivery starts with a clear, impact-driven Theory-of- Change (which systemic impact will the venture have?) and a disciplined tracking system towards the impact created. That does not mean the venture is a not-for-profit organization: healthy ventures work towards an earning model which allows for salaries for the employees and continued investment in future innovation. As pressure of investors or the market make it difficult to prioritize impact over financial growth, impact ventures are experimenting with alternative ownership structures like cooperatives and steward ownership.

10. **Impact vs Impact (e.g. Energy consumption vs Circularity)**
    While a venture maximizes its performance on the chosen circularity indicator, other SDG areas may be harmed. How to deal with positive **and** negative impacts of a circular venture (success) in the other domains? How to value circular performance on a part of the business model, while the other aspects are linear? Impact is not an easily quantifiable and objective measure contrarily to financial returns. Even if the company decides to put 'impact' first, the calibration and prioritization between aspects of impact will remain open for multiple interpretations.
    Circular impact is now mostly defined in terms of material balance, or reduction of the use of virgin materials and the amount of waste. This has direct impact on climate change; however, a clear relation yet needs to be established and will differ per value chain. This is the topic of specific developments in regulation, and therefore important on Meso-level.

These 10 factors should be considered when developing a circular venture (portfolio) and/or circular venture support programs.

Source of inspiration:

Metabolic: Systemic Venture Building Ideas for next steps: systemic venture building program for 1-2 key eco-chains, interviews, discussions with CVB team, experience of the authors.

3.4 Proposal: Design Principles for Circular Venture Development Methodologies

In order to develop circular ventures, we propose to use a multidimensional and interdisciplinary 'Bell Mason' based development framework to track the maturity of circular ventures and to frame interventions and projects that are designed to accelerate the circular transition.

To address the challenges as outlined in 3.3., we could envision a number of elements to be woven into the 4 quarters of the Bell-Mason structurel as described in 2.3.5. This list is not exhaustive but meant as a first attempt at design principles for a multidisciplinary framework for circular venture development.

Include Circularity considerations into the framework

We could envision that in a more mature circular version of a venture building framework these additional

Theory of change as a starting point

Impact (guiding principle for all dimensions) as a result

Product	1. Include Circular Design principles in product development deliverables (the product or service contributes to 'closing the loop') 2. Make regulatory and legal (if required) processes part of the development plan and milestones
Market	1. Take an ecosystem or value network approach as the frame for 'market opportunity' and 'brand-building' 2. Reframe 'customer development' as 'ecosystem development' 3. Include transitionary stages in your commercialization and scaling strategy (from a linear to circular environment)
Team (including Partners)	1. Organizational and reward structure designed to stimulate collaboration over competition. 2. Development of extended team (partnership) with clear stakeholder management 3. Configure for innovation and learning (across all aspects) 4. Develop a partnership strategy. Early stage partners might not remain late stage partners)
Finance	1. Include partnerships, joint development and joint venture approaches in the investment strategy 2. Organize financial administration for circular business models – ground operational targets in this framework 3. Make realization of circular impact a core requirement for the financing strategy (and ownership structure) 4. Develop a financial strategy to last through the period up to full value realization

elements are broken up in phase-related development milestones and included in the overall approach. More work is needed to validate these additional design hypotheses, and to develop a useful framework for circular venture building.

Although a venture framework will help to frame maturity, progress and development priorities, it cannot be used as 'recipe' to build successful ventures. Circular venturing means 'Innovation in complexity': it is difficult to predict how the ecosystem will change, what Side effects your actions cause and what unexpected reactions a venture calls for. It is essential to regard 'building a circular venture in a linear economy' as an intense learning journey in which project goals and objectives may need to be shifted along the way to eventually deliver upon the vision.

3.5 Circular Investment at Invest-NL

The investment guidelines of Invest-NL have ambitious circularity criteria. The composition of the current investment portfolio suggests that the practical application of these criteria is not as dogmatic, but there is room to optimize impact from investments in a certain focus area by a theory-of-change based portfolio and co-investment strategy.

Current Invest-NL investment considerations:

- Create the highest possible functional value
- that is regenerative by design
- with the longest lifespan and as little material as possible
- using renewable energy throughout the chain and creating no waste
- through a closed loop approach

Source: Invest-NL

Product substitution – Changing materials for products to less emissive ones, closing of value chains, especially valorizing waste streams

Source: Invest-NL

3.6 Conclusions

- There are 10 factors making circular venture development different from linear venture development. To be successful, all 10 factors have to be addressed.
- The circular perspective has to be integrated in all dimensions of integral venture development (rather than addressing it separately).
- Investments in circular enablers require a holistic view on investment and returns, there is a need to shift focus from investing in single ventures to investing in circular value chains (to close the loop). Investment in 'ecosystems' or 'value networks' may result in a loss on certain individual investments in order to have the overall desired (societal) return at ecosystem level.

4

Existing Venture Development Support

Introduction

4.1 In Chapter 4, we take a look at the type of interventions available to national impact investors such as Invest-NL. We will focus on the industry of accelerators, incubators and studios, and the design dimensions thereof. We will also visit "types of intervention" at ecosystem level.

Micro-level: The Venture Support 'Industry'

4.2 In the wake of publication of the customer development framework, the lean startup methodology and Business Model Canvas, a plethora of initiatives around startup support, incubators and accelerators has been developed. In the Netherlands alone, this 'industry' counts more than 250 programs (Gritd).

It is important to realize that the Startup movement builds on the government organized entrepreneurship programs (which started in the 1980s), and really took a flight between 2010 and 2020 (with a peak in 2017). (SIM 2019) The Social Monitor (2019) (which is probably the most coherent overview of types and size of startup/entrepreneurship programs within EU) estimates the total 'industry' to have over 10,000 employees in Europe alone (the report finds over 7100 employees in France, Germany, Italy, Spain and UK who annually support 6700 companies).

Although many incubators and accelerators have a commercial income stream, the majority of funding still comes from regional, national and European subsidies. The main objective of many of these subsidies is to stimulate economic activity in a given region, and the success is expressed in numbers of FTEs employed. The support that accelerators are giving is in line: it focuses on 'getting the business going': providing office and lab space, create access to capital, business networks, technology partners and support on managerial tasks like HR and administration.

The commercial income of incubators, accelerators or startup labs comes from a combination of real estate, renting office space to the participating young companies, while others employ equity models (they get shares in the participating companies), are sponsored by corporate stakeholders or receive fees from the participating companies.

There is no universal alignment about the Performance Indicators for Venture support programs. Most programs self-report success rates terms of:

a FTE growth of ventures
b Venture Capital raised after the program and
c Net Promotor Score for participants.

The UBI Global world rankings of Business incubators and accelerators uses the most comprehensive set of KPI's for programs, which they divide in 3 categories:

- Value for the eco-system (economy enhancement, talent retention)
- Value for the startups (competence development, access to networks access to funds)
- Value for program (program attractiveness, post-graduation performance)

Unfortunately, the UBI list is also based on self-reported performance (and accelerators pay to be part of the list), but the set of KPI's are a good reference.

The Dutch company Gritd has developed a scan which measures 'commercial maturity' and scaling coherence, based on the models of Blank and Ries. They monitor the progress of ventures by taking a scan before and after any given program (with a focus on The Netherlands). They find that most NL programs do not accelerate progress on the customer validation axis, and that if they do (like Yes!Delft), the customer focus usually levels off to pre-program levels within months after participation in the accelerator.

As quantitative performance data are lacking, we have to question the overall effectiveness of the business of incubators, accelerators and entrepreneurship programs – even if we believe that venture support programs are an essential element of an ecosystem that stimulates entrepreneurship and innovation.

The following paragraphs contain a description of types of approaches that we have encountered in our search for inspiring practices for circular venture building stimulation.

4.3 Overview of inspiring practices in venture support

During our search for success factors for circular venture building, we did not come across a program or approach that has a proven methodology and track record in the circular space. However, we identified a large number of inspirational practices which we could learn from or make part of a circular venture building program. Below table is an overview of approaches we found interesting and contain 'inspiring practice' to consider.
More in-depth information about each program can be found in Attachment B (Interviews CVB Summer 2022, on request).

Table 4.1

Overview of inspiring practice in (Circular) Venture Support

Program	Phase/ Objective	Ownership	Earning Model	Methodology	Cohort/ Individual/ Time	Circular elements	Inspiring Practice
Breakthrough Energy Ventures	Seed	Bill Gates Foundation	Sponsorship	--	Fellowship	NO	--
Circo	Ideation and collaboration	ClickNL	Subsidies	Value chain approach -identify circular opportunities	Individual or intercompany	YES	Allows ventures to rethink 'circularity'
Circular Factory	Pre-seed: Get ready for first production at 'factory' scale	Tekkoo/ BueCity	100% sponsored	Based on experience of founders	Cohort 12 months	YES	Hands-on, Focused approach link ventures with real expertise
Circular Valley	Pre-seed, Circular transition of regional industry	Circular Valley Foundation	Subsidies (EFRO) and Corporate soonsors	Partnership creation	Cohort 3 months, on-site	NO	To claim global leadership circularity for region
Circular@ Scale	Scaling Phase, Building companies	Powered by Meaning	95% sponsored, 5% fees	Art of Scaling & eco-system approach	Cohort 9 months	YES	---

Program	Phase/ Objective	Ownership	Earning Model	Methodology	Cohort/ Individual/ Time	Circular elements	Inspiring Practice
Circulars Accelerator	Pre-seed: ?	Accenture/ WEForum	?	Blank/Ries?	Cohort 6 months	YES	Exposure of circular innovation
Covestro venturing	Concept: Develop business opportunities outside mainstream Covestro strategy	Covestro	R&D Budget	No clear methodology	Individual, >years	YES	N/A
DSM corporate venturing	Early Stage-Commercialization	DSM	Shares (100%)	Bell Mason	Individual	NO	Methodological approach
EIT Climate KIC Deep Demonstration	Government scale; City, Region, Country	EIT	Subsidies _ Consulting Fee	Systems Innovation Methodology (Climate-KIC)	Ecosystem	YES	Create fully circular practices
Enviu	Idea-SeriesA	Enviu	Grants/Foundation	Hands-on, in-company support – Enviu co-owns with the intent to exit @1,5mio T/O	Hands-on Individual Support, co-owner ('studio')	YES	Share the risk, bring expertise and support
Fastlane	Seed (F&A): Get ready for next funding round	FoodValley/ InvestNL	Subsidies	Combination of Bell-Mason with OKR	Cohort+ Individual, 6 weeks	NO	Tailored scaling plan and support
Fresh Ventures	Ideation: Launch systemic ventures	Metabolic/ Impact express	Fees, Funding, Shares	Systemic Venture Building	Cohort, 6 weeks program, 1 year studio	YES	Ecosystem challenges as starting point
Green Chemistry Accelerator	Seed, Green Chemistry: get ready for next funding round	GCNE	100% sponsored	Stage Gate & OKR	Cohort 3 months	YES	--
HiTechXL	Concept, Build business plans around spin-out technology from partners (companies, academia and TNO)	HiTechXL	Subisides, sponsorships and venture shares	BMC, Co-founder matching, Value proposition development, Business plan	Cohort	NO	Venture building (pre-seed) around promising IP
InvestNL	Seed-Series B	Invest-NL	Shares or Subsidies	Ad-hoc support to remove regulatory or financial blockers	Individual	YES	Modifies policies to allow circular practices
Investor Readiness Program	Concept: Attract (pre-) seed; Validate customer traction	Gritd	Subsidized (ROMs)	Blank /Ries	Cohort, 10 weeks	NO	Disciplined and data-driven customer validation
Pole Position	Pre-seed; Professionalize and inspire DeepTech teams	Techleap	Subsidized	Art of Scaling and Blank/ries	Cohort, 6 weeks	NO	Well-connected with serial entrepreneurs
Sabic Ventures	Pre-Seed: Plug in external technologies onto Sabic R&D roadmap	Sabic	Shares (8-12% of total cap table	Hands-on support: strategy, management, process development	Individual, >years	YES	Long term eco-system view as basis for investing

Program	Phase/ Objective	Ownership	Earning Model	Methodology	Cohort/ Individual/ Time	Circular elements	Inspiring Practice
ScaleUp Company	Scaling phase: Accelerate Commercial growth of SME	ScaleUp Company	Fees, membership	Rockefeller Habits; venture coaches	BOTH, >years	NO	Simple Frame-work
TNO Tech Transfer	Pre-seed: Spin out technology	TNO	20% shares	Concept	Individual, about 6 months	NO	Pipeline of breakthru technology
Toilet Board	Pre-seed-seed	Toilet Board (Kimberly-Clark, unilever etc)	100% sponsored	Corporate challenges become business opportunities for startup	Cohort, 3 months, leading to longer partnerships	YES	Challenge based business opportunities for existing ventures
Tuinbouw reststromen	Concept-Scale	Cooperation of horticulture companies	Horticulture companies pay	'Ketenregisseur' Identifies and organizes business opportunities	Individual, >years	YES	Current players co-own the problem
Versnellings huis – Moonshots	Early Stage / SME	Government (EZK/IenW)	100% subsidies	Hands-on 'make it happen' Moonshots: Material/Product analysis leading to concrete actions	Individual, or gathered around a theme	YES	Access to pragmatic support to make circular business possible
Y-combinator	Pre-seed	Y-combinator	Shares, Fund and Sponsors	?	Cohort	NO	--

We reviewed the most commonly used methodologies in line with the typical (VC) funding rounds.

Very early stage Concept	Pre-seed	Seed	Scale-up	Scaling
Development Grant or Loan	Business model development First round (FFF)	Business Engine Validation Seed funding	Scale-up of earning model Series A	Rapid commercial growth Series B+

4.3.1 Very Early Stage: Concept Development Programs

Very early stage programs are often sponsored by 'problem' or 'technology' owners and usually combine concept development with a 'matchmaking' program for co-founders. Most commonly, these programs help the teams to build a Business Model Canvas and a pitch deck and find potential co-founders. The winning teams often receive a grant or access to an accelerator program as a follow-up

Even though the research question in this report aims at the principles of venture building in seed and scaling, it is relevant to look at some of the very early stage 'ideation' or phase to understand where ideas come from, as these programs usually work towards linear business models.

Examples are:
Technology-based initiatives University ‘programs (like Wageningen StartHub), the TNO ‘spin out’ initiative or HiTechXL tend to take the ‘technological invention’ or patent position as a starting point for a business model: teams are formed to build a hypothesis for value proposition and business case. One of the first of these programs was the business plan competition of NewVenture, a highly successful McKinsey program that ran in the Netherlands (and other McK countries) from mid-nineties to 2012 and produced hundreds of companies.

Ideation and Business building around societal, environmental issues or opportunities: examples are the wool hackathon in Blue City, the Fresh Ventures program on Regenerative Agriculture or the Business model challenge from Impact Hub.

4.3.2

Pre-seed Phase: Incubators and Accelerators

In the pre-seed phase, the most common methodology used is the Lean Startup process as described by Blank and Ries, combined with a program to build general business skills for founders.

The majority of ‘acceleration or incubator programs’ focuses on the ‘pre-seed’ phase, often catering to venture teams that have a conceptual business plan and a product or service which can be launched and tweaked within weeks or months (in The Netherlands, 252 out of 257 programs are focused on these early-stage venture).

The focus of these programs lies on validation of (parts of) the hypotheses behind their business model and inspiration from other companies, key speakers, investors and corporate partners. We can identify two types: incubators and accelerators. Usually the term ‘incubators’ is used for programs in which the ventures are co-located in a venue that is exploited by the incubator organizer. Accelerators are often similar in set-up, but do not include the real estate element.

Most accelerators/incubators are cohort-based: a number of ventures is selected around a central theme (e.g. Startlife for F&A, or programs within a certain region (e.g. Zuid-Holland)). Within the program, the teams work on their business plan, pitchdeck and network with investors and customers, and get training on relevant topics like finance, business development, impact and marketing. The objective is to sharpen the business plan, the team and the commercial traction of the participating ventures. Programs end with a ‘demo-day’ in which the participants will ‘pitch’ their upgraded plans to investors and sponsors.

Most accelerators are free of charge and funded by subsidies and sponsors, but in some cases (e.g. Rockstart, HighTechXL for instance) the organizer will claim an equity share of cash contribution in return for the support. The duration of a program is usually between 6 and 26 weeks.

Impact and social accelerators are defined as programs that select ventures for whom ‘societal impact’ is explicitly part of the company mission. The most interesting example for Circular Ventures is the ‘Circular Valley’ accelerator, which runs in Wuppertal and aims to connect the incumbent industry players in Germany with circular innovators (early-stage ventures) from all over the world.

In the Netherlands, about 50% of venture accelerators identifies as ‘impact focused’. Research from SIM however, shows that even though societal impact is clearly part of the selection process, the content of the ventures does not significantly differentiate from ‘commercial’ programs. That is not surprising, as

long as most programs aim to generate general economic activity instead of quantifiable impact and (if at all) monitor success in terms of jobs created and Capital raised as a result of the interventions.

4.3.3 Startup Studios: Hands-on and Skin in the Game

A totally different approach to venture building combines ownership with hands-on support and funding; the startup studios. Dependent on objective (and available funding) Studios develop ventures from incubation to seed round or Series A. The income they receive from exits or revenue from commercialized companies flows back to the studio and is invested in new ideas. Studios often have specific focus (market, technology, impact) and employ experienced teams, own specific equipment and create strong networks with customers, investors and network partners to maximize the return on the investments in the venture.

The first Startup Studio was probably *Idealab*, which was founded in 1996, other very successful examples are Berlin-based *Rocket Internet* (from which came Zalando, HelloFresh and Delivery Hero). The Startup Studio concept is gaining popularity. A 2019 overview published by Avance Ventures counted 560 studios worldwide, of which 319 were founded between 2015 and 2020.

Contrary to accelerator programs, Startup studios act as 'co-founders' within the venture team. Dutch examples in the circular space are for instance *Enviu, Fresh Venture Studio* and *NLC* , the latter focusing on one theme, health care. These studios employ venture building experts with deep knowledge of grant submissions, funding, product design processes, contracts and business development. Most studios also have access to capital. Rather than 'just' giving advice, studio teams roll up their sleeves and develop the business concepts into real companies. In return the studio team builds a strong equity position in the company, which it will capitalize along the way. Studios often work with a 'stage-gate' type process to focus their efforts on the best concepts and business plans.

Startup Studios claim much higher success rates than the 'hands-off' venture development as operated in the traditional incubators. In studios, about 60% of the initial ventures make it to Series A. The main (and most impactful) difference is made between seed and Series A. For studio ventures that raise a round, 72% manage to raise Series A, for 'VC' ventures that percentage is 42%. Also interesting is the development rate: Studio ventures move from first investment to Series A more than twice as fast as 'VC' ventures (source: GSSN Whitepaper 2020).

4.3.4 Support in Seed phase: Business Engine Development

In the Corporate world, corporate venturing programs tend to take venture development management between seed and Series A very seriously, because this phase of venture development is often cash-intense and returns are not at all guaranteed. The Bell-Mason methodology, which incorporates the corporate notion of risk vs. return and the principles of 'stage-gate' innovation management, is used for risk management and development support.
Most VC funds will monitor (often in a board seat) the progress of ventures in the seed phase based on financial performance indicators and may intervene if targets are not met. There are not many funds that provide more general 'venture building' support, but there are some examples like Antler and Rockstart, who will support their portfolio companies through programs and 'entrepreneur in residence' structures. These investors are not always very transparent on the methodologies used for venture development and support.

For most Ventures outside the corporate domain support during the seed-phase is therefore limited to individual coaching. Many companies in the seed phase will employ a board of advisors or venture-coaches with help them realize (part of their) business potential. The challenge in such constructs is to maintain independence and prevent group think between advisor and venture team. Coaches (often with a track record in business or corporate life) too often base their advice on their own business and life experience and lack a methodological view on venture development

The Regional Development programs have noticed the lack of support in this phase, and are developing venture support modules, which are based on the 'Coherence Model' (Pepijn Herman, BOM). The ROMs are planning to implement these principles into a new support approach for "Seed companies or Late-stage Startups' in 2023.

Cohort based programs (like accelerators) for Seed Phase companies are relatively new in the Netherlands. In 2021 for example, out of 257 Startup/ScaleUp Support programs, only 2 programs recruited companies in seed phase. The few Venture Programs that target companies in the seed phase tend to focus on 'network building' with potential customers or supply chain partners, and exposure to industry experts and potential investors (for example PolePosition and Rise by Techleap and EIT Rising Food Stars).

Newer (2022) programs (like Circular Factory, Green Chemistry Accelerator, and Fastlane (for Food&Ag)) combine the networking and inspiration of these programs with more hands-on coaching and dedicated venture support. Again, the success rate of these programs is reported in amounts of additional funding that companies were able to attract during or after the intervention the jury is still out – but in terms of the 'money KPI' this cohort-based individualized approach seems successful; all 4 participants in the first cohort of Fastlane managed to raise a new round within 6 months after the program.

The most successful program in this phase is also the one with the most secretive setup: Y-combinator in the US, which combines superior venture support and team building, investment schemes and corporate networks to develop world-class ventures with impressive success rates (in terms of funding raised and economic impact). Well-known success stories from their approach are AirBnB, HelloSign, and Dropbox. Y-combinator was founded by Silicon Valley veterans, and participants have access to the significant VC funds and networks.

In our interviews venture coaches stress the realization of 'commercial traction' as prerequisite for raising additional capital as Key Performance Indicator. The sponsors of Fastlane and GCA mention 'Capital Raised', the Circular Factory uses '# Factories built'.

It would be interesting to understand how the setup of all the programs would alter if 'Circular Impact' would become the key performance indicator.

4.3.5 Scale-Up Phase: Growth Acceleration

The most commonly used methodology for Scaling is based on the Rockefeller Habits as described by Verne Harnish. In this methodology, scaling companies are trained and supported to take a very disciplined effort to grow towards a self-defined BHAG. The Framework is built on four axes: People, Strategy, Execution and Cash. Participating companies are supported by experienced and certified scaleup coaches (often serial entrepreneurs) to deliver upon their plans. ScaleUpCompany is the main provider of these 'Scaling Services' in The Netherlands and applies the methodology primarily to SME's

that aim to get back on a growth path. An important element of the offering of ScaleUpCompany are the networking events, during which participants will be inspired, exchange ideas and connections and meet companion CEO's. Success rates are not reported.

An alternative to the Rockefeller Habits is the Art of Scaling, which was developed at ScaleUpNation based on the 'McKinsey' school of thought. Art of Scaling primarily focuses on the identification of conditions which maximize scaling potential. The Art of Scaling identifies five critical Scaleup Success factors: (1) ScaleUp DNA (vision, competitive edge, Delighting Customers), (2) Ambidextrous Leadership, (3) Business Flywheel, (4) Lean Operations and (5) Learning Velocity. This approach focuses more on strategy definition composition than on 'habit formation'. Given the strong emphasis on vision creation and leadership, this methodology gives more 'handles' for ventures that aim to create positive societal impact. ScaleUpNation claims to double the chances of scaling for ventures.

In *'Naar een gezond groeibedrijf in vijf stappen'*, Justin Jansen and Tom Mol prescribe the route to growths in 5 steps: (1) Discover the growth landscape, (2) Discover your growth formula, (3) Tell your growth story, (4) Develop growth skills, (5) Strengthen the growth engine. This methodology, is inspired and based on experiences from *CoolBlue, Jumbo, Just Eat Take Away* and *Young Capital*. It is not at all linked to circular principles or impact creation.

Key performance indicator in this phase is the commercial growth rate, FTE growth and access to subsequent funding rounds (or exit). For these growing companies, in particular the ones that are externally funded, tracking of and reporting on impact parameters like CO2 footprint and potentially CTI index are increasingly becoming part of investor and customer requirements; but these elements are not part of the programs.

4.4 Venture development support at Meso-level

To improve the chances of success for (circular) impact ventures, support activities at Meso-level need to complement the venture support activities at Micro-level. These activities are a.o. :

- Responding to Extended Product Responsibility regulations
- Formalization; Legislation, Standardization and Certification
- Design Principles
- Purchase principles
- Market Incentives
- Finance tools
- Learning competences; monitoring, knowledge and innovation
- Behavior and education

Source: national CE strategy

4.5 The Most important Design dimensions for venture development support

As outlined in the previous paragraphs, the term ‘venture development program’ can mean many different things to different people. One can identify a number of design dimensions that are the basis of any program. The effectiveness of any program will increase if the design dimensions align with the desired outcome for that program. Appendix A provides a more detailed description of some of the dimensions.

Table 4.1 gives an overview of the most commonly used design parameters for venture support programs. Regardless of the quality of the design, the real quality of any program, studio or intervention will be strongly correlated to the quality, experience and industry or technology knowledge of the support team, and the relevance of the program for the development stage of the venture.

Table 4.1

Overview of most commonly used design parameters for Venture Support

Dimension	Most commonly used in practice			
Venture commitment	Time	Equity	Fee	Location (rent)
Maturity Stage	Ideation	Concept	Seed	Scale-up
Focus Area	Region	Technology	Market	Eco-system
Interaction	Cohort	Individual	Cohort+ Individual	Co-location (incubator and studio)
Ownership	No equity	Minority stake	Lead investor	Majority stake / Co-founder
Approach	Lectures	Workshops	Coaching /Consulting	Hands-on
Duration	Days	3 months	6-12 months	Years to exit
Methodology	Lean Startup	Bell Mason	Verne Harnish	None
Outcome	Pitch deck and Network	Venture team and Business plan	Funding for next phase	Commercially successful venture
KPI	FTE growth	Capital raised	#companies created	Societal Impact

4.6 Conclusions

- **Pre-seed**

In the NL alone, there are more than 250 accelerator programs (source: Gritd), with the majority focused on early-stage start-ups. The objective of these programs is usually to stimulate economic activity within a certain region or market domain, and there is no standardized methodology to track or report performance. Success is expressed in terms of jobs created (FTEs), money invested, and number of companies created. Most programmes are built on the principles of the 'lean start-up methodology', which was originally developed for SaaS-based business models.

- **Seed – Series A**

The most surprising finding from this overview is probably that there is hardly any organized support available for the venture teams in Seed Phase (Gritd study reports 2 programs in 2021). Given the insight that the Seed phase is often referred to as 'Valley of Death' it is not surprising that many ventures that make it to Seed Phase never close a Series A (almost 60%).

The trajectory between Seed and Series A is multi-faceted, and requires a program-based approach to business-building and eco-system development. This journey can take years, and requires inventiveness, stamina and cash. In this context, we note the (self-reported) success of studios in which multi-year, multi-disciplinary high-level support is provided to co-founded companies.

- **Series A and beyond**

Companies that are fully commercial and have raised growth funding can afford to build a team and hire experts to deliver on their commercial promise. Even for companies that started with am SDG-related vision, the day-to-day financial metrics become the main indicator for company success and traction. For companies in this phase, there is scope to improve the awareness and value of circular indicators in their reporting and tracking systems.

5

Inspirational practices: elements of a circular venture building approach

5.1 Introduction

In Chapter 5 we describe the inspirational practices we encountered in our search for living examples of circular venture building.

5.2 Circular Ventures for Ecosystem transformation

In the 'systemic' transition from linear to circular economy, circular ventures can act as 'innovation niches' for new technologies, business models or organizational structures. However, as we are still in the early stage of the transition, circular ventures will suffer a lot of setbacks and 'issues' (e.g. regulatory, financing, legal) in their development. In such a regime, it can be very tempting (and often even necessary) to eventually choose a linear business model, even if the initial intentions were circular. We would like to highlight a number of existing initiatives which promote the adoption of circular practices in real life.

Experienced innovation leaders and Start up experts will agree: for any breakthrough market success there are probably 100 failures. To build a significant number of circular successes we will need many more circular start-ups. We found two interesting initiatives that help Early Phase ventures off on a circular start from day 1.

Fresh Ventures in Rotterdam takes a systemic approach, and starts venture building with the end in mind: what would a truly regenerative agri-system look like? The teams in their studio program develop concepts that will enable key elements of the transformation of that agri system. Their approach is very methodological, in which the ventures develop a theory of change and regard their impact on circular transformation as key performance indicator (instead of financial growth). The most promising concepts are developed within their studio.

Circular Valley Wuppertal is more opportunistic (instead of methodological). The objective of Circular Valley is to make the North Rhein Westphalia region a world-leading example for circular chains. The venture program they organize twice a year (since 2021) invites selected early-stage circular startups from all over the world to Wuppertal. During the 'accelerator', the ventures work on the development of use cases with incumbent industry players from the regions (and the rest of Germany). The focus of the program is Match-making: to make the industry circular, the incumbents can implement technologies and solutions from the ventures in the program to build their circular value chains.

Both programs only started in 2021, and are early stage programs, which makes it difficult to draw any conclusions about impact or success rates.

Enviu is a not-for-profit venture builder, which takes a studio approach in the development of companies that show-case societal change. With a founder team, the Enviu team organizes funding (grants, subsidies and sometimes equity) and expertise support to build innovative companies which take on abuse (e.g. slavery) or pollution (e.g. waste belts) by developing an enterprise with a sustainable and fair business model. The focus of this program is to develop profitable companies and inspiring stories to help change the world.

Climate-KIC develops ecosystems through their "Deep Demonstration" approach. Deep Demonstrations are large-scale projects implemented across different positions in systems of learning (place-based, for example Slovenia, or theme-based, for example Land Use) through which they offer their **'systems innovation as a service'** model to Europe's most ambitious challenge owners – i.e. the mayors, government ministries, industries and community leaders, and funders who have the means and mandate to tackle Europe's biggest climate change challenges.

5.3 Acceleration of Circular Business Models

Too often, a high impact (circular) concept eventually ends as a linear business (example: the Lely MijnMelk project had to let go of most of the basic design elements to fit within the retail distribution system). The principles of a linear economy and linear regulatory regimes will force circular entrepreneurs to make concessions to their dreams (and too often) let go of circular principles to attract funding or remain interesting for current investors. These founders are not helped by general 'venture' or entrepreneur support, but need support from experts with experience in regulatory, financing, legal and contractual matters regarding circular business models.

An important player for ad hoc support for circular entrepreneurs is het Versnellingshuis-CE. They operate a 'support desk' for circular businesses.
Invest-NL itself is also instrumental in this field. In the first place, for companies they participate in, they can take a long-term horizon, to allow the venture to stay true to its principles (while growth may be slow at the start). At the same time, Invest-NL can research and lobby for options for the necessary regime changes (regarding e.g. end of waste regulation, financing rules, competition law) essential for flourishing circular chains; and help companies and value chains in their circular transition by customized support.

The development of circular business (beyond incubators and small-scale ventures) will benefit from clear definitions and adequate tracking systems for circular impact. Invest-NL currently embraces CTI monitoring, but this field is still in a very early stage, and investors, ventures and corporates will need to work together to find appropriate measures to track impact from one single venture on the circularity of an entire ecosystem.

5.4 Circular Venture Building Community

Building a circular venture is different from building a linear business, but that does not mean that founding teams of circular venture need to invent everything from scratch.
We have encountered a number of initiatives that aim to bring experience from (circular) innovations to the teams of circular ventures, with the ambition to speed up the route to investments and production facilities.

'Accelerator' Programs for Circular Ventures
In the Netherlands, we have found two interesting venture support programs that are aimed at companies with a circular ambition.

The first 'accelerator' aimed at circular companies was 'Circular@Scale' which took place in Q1 2021 (organized by PoweredbyMeaning and ScaleUpNation). This program focused on ventures with circular solutions for the built environment and construction industry. It was a combination of online classes on scaling practices, leadership and business development, and a number of workshops around actual circular projects, which were provided by partners in the building eco-system. The classroom program consisted of the 'Art of scaling' modules. During this program it became very clear that this standard,

linear scaling approach does not work for circular ventures. There were long discussions about ‘definition of the customer’, ‘desired leadership style;’ and ‘partnerships vs. investments’. The high energy and emotional involvement of the teams during these discussions marks the need for cross fertilization between circular practitioners, but also lay bare the need for a venture building methodology that takes circularity at the heart.

Earlier this year, the Circular Factory Program (Blue City, Rotterdam) kicked off. This is a program that supports companies that make products out of waste to build their own factories at scale. This program is really tailored at the target group and brings in hands-on experience of early-days circular entrepreneurs together with industry experience in the hands of these idealistic founder teams. This program only started 6 months ago, again too early to measure impact. Participants appreciate the opportunity to work alongside ventures with similar circular challenges, and get very specific help.

And while we’re finishing off this report, the Green Chemistry Accelerator kicks off (organized by GCNE). This industry-specific program supports ventures that have circular or non-fossil solutions for chemical problems to scale, mostly with their first semi-commercial plant. As part of the program, the companies are explicitly invited to make circular economy principles part of their development plans (a Circo workshop is part of the program).

5.5 Circular Ecosystems

The circular transition is an ecosystem game which requires a systemic approach to unravel existing value chains and develop new, circular ones. There are many initiatives (often backed by public funding) which aim to build circular chains around material flows in certain geographies (cities, regions, countries).

In the Netherlands, an important element in the circular transition agenda are the so-called Circo workshops, in which a number of companies and other stakeholders map out the ideal value chain. Sometimes these sessions lead to new collaborations or business opportunities, but there is no active follow-up of venture opportunities if they are identified. Next to the Circo workshops, there are the Moonshot projects, which are organized and supported by Versnellingshuis-CE, which aim to target the circular transition. These programs aim for solutions that can be organized by current players within the chain. There is no organized program to orchestrate ‘next steps’ but in some regions or fields, industries have come together to self-organize their circular chains. Examples are ‘The circular plastic alliance’ in Noord Holland and the ‘Platform tuinbouw reststromen’ at Brightlands Venlo.

EIT Climate KIC Deep Demonstrators are more immersive and prescriptive ecosystem experiments. Rather than relying on the self-orchestration capabilities of the existing eco-system, the Deep Demonstrators organize circular chains top-down, at city, region or country level. Because they work with high-level government sponsors, they have the option to selectively adjust the ‘regime’ within the Demonstration Areas.

5.6 Conclusions

- Currently there are very few inspirational practices for circular venture building support, especially at ecosystem level.
- To be successful, circular venture support will need to take place at all three levels of the transition: 'Micro-, Meso- and Macrolevel'.
- For (industrial) circular ventures a long term studio approach seems most appropriate.
- Clear KPI's for circularity and impact need to be defined.

6

Discussion and Conclusions

6.1 Introduction

Chapter 6 will describe a set of recommendations for initiatives that Invest-NL can deploy to accelerate circular ventures and ventures that enable the circular transition. We propose a coherent approach which aims to boost the impact of circular innovations on the circular transition: orchestration, experimentation and learning.
This project, which started with the simple question to define the Terms of Reference (TOR) for a 'support program for circular ventures in 2023' has turned into a very interesting journey that led us by transition processes, venture development methodologies and different types of accelerators. In the process, we learnt a lot from literature, but even more from the very open discussions we had with over 20 practitioners in the field of circular transition, venture building and venture support.

In this chapter, we take stock of the key insights we take home from this project, to frame the recommendations we make in Chapter 7. The 2023 Circular Venture Building initiatives should be focused on creating the right conditions for ventures to have a significant and accelerating effect on the circular transition.

As laid out in Chapter 1, the transition from a linear economy to a circular system is very complex and can well be described as a 'wicked problem'. Luckily however, there are some models that can help us 'interpret' the transition we are in and serve as reference for intervention design.

The frame we use is this study is the 3-level transition model as put forward by Geels (2003), which distinguishes transition at three levels: 'Macro' (the overall system shift), 'Meso' (changes at regime level, like regulations, finance, infrastructure) and 'Micro' (innovative niches, like local practices, new technology or ventures). Inspired by Schumpeter and Christensen, we believe that entrepreneurship can play a major role in identifying and developing the circular practices that will enable the transition.

6.2 The role of Invest-NL CE-BD in circular venture support

Macro- level
Interpret and influence developments at National and European level

Meso- level
The linear principles of our current economic system are not only the basis of most business models and value chains, but currently linear principles also define our finance system, regulations, legal structures and drive the measures of success within our HR and performance systems. A company or a 'chain of companies' which decide to adopt a circular model will experience the linear regime as hostile and limiting their potential to go 'circular'. It is likely that, given the position within the Dutch and European institutions and policy-makers, the team can use its influence to 'de-bottleneck' the regulatory, legal and financial regime for circular business models. Working on practical solutions for circular models at regime level should probably be the first priority of the team.

Micro -level
The role of ventures in a socio-technical transition can be interpreted as the 'niches' of innovation:

small scale expressions or experiments of the desired future. In this report we conclude that the field of circular entrepreneurship and circular business building is still in its infancy stage. 99% of all venture models, investment schemes and entrepreneurship support is geared towards linear business models in a linear world. In the coming years we will need a lot of 'experimentation, professionalization and reflection' to come to workable, repeatable venture models that work. For Invest-NL the logical role to play in this space is 'Orchestrator': to sponsor a number of circular venture support initiatives, to develop a learning circular venture community and to participate in research to advance the field of circular entrepreneurship.
By partnering with the most innovative initiatives in the field, Invest-NL can address and solve specific bottlenecks, for the acceleration of the circular economy as a whole; thus enabling the financing of circular ventures in a circular way.

6.3 The usefulness and necessity of incubators, accelerators or other venture programs

How to support venture teams to enable success? Some very successful entrepreneurs never went through any startup programs and strong teams developed their own support network. In reality however, many venture teams that work on critical technical or societal innovations consist of experts and impact driven individuals with little entrepreneurial experience. As a society, we need many of their inventions (technologies and business models) to become reality to contribute to the transition we need. How to do that? And when to stop?

As laid out in Chapter 4, there are many flavors of venture support available, and the majority of the initiatives is geared towards Early-stage ventures: to help them develop a business model and a pitch deck to secure the first round of funding. It is easy to become skeptical about this 'accelerator and incubator' industry, which feed on subsidies, grants and rents, and are not transparent about Performance and Track Record. Unfortunately, the vast availability of public funds and the absence of coordinated performance tracking has indeed allowed start-up initiatives to flourish without tangible results. At the same time, there are a number of very successful and highly regarded 'start-up schools' which run effective programs and are led by highly experienced staff. There is broad consensus that such programs (like Yes! Delft, Y-combinator, Startlife HiTechXL) do actually (significantly and quantifiably) contribute to the development of innovative and successful companies and the entrepreneurial eco-system.

Outside the traditional early stage 'accelerator/incubator' space, there is a plethora of alternative venture support available, ranging from individual coaching, masterclasses, entrepreneurship training to hands-on expert support in studio-type set-ups. Compared to earlier programs, we lately see a movement towards more 'hands-on' and more 'tailored' interventions, which is very clear in the movement from masterclasses to studios. The (self) reported success rate from studios vs traditional start-up programs is impressive.

There is a tendency within support programs to approach venture development in a linear, monodisciplinary fashion (i.e. focus on a pitch deck, a financing round or market development). In reality, the art of building a venture is much more complex, with interdependency of developments in different disciplines (technology, team, finance, impact, market), and success is not predictable and predictions are not reliable.

Good venture support teams can adapt their interventions and focus to the needs of the venture as they occur. Support should focus on developing the learning capacity within the venture team: coachability of the leaders, reflection on own actions and teamwork, and the ability to apply new knowledge or insights.

6.4 A first framework for Circular Venture Support

We have found that over 99% of the venture support or venture building programs utilize methodologies that were developed for linear business models in linear systems. The only useful 'guidebook' for circular venture building we found so far is the Metabolic White Paper on systemic venture development.

A complicating factor in tailoring existing venture support structures to circular ventures is that the general model for venture financing (VC) is not applicable for many circular (enabling) businesses. The essence of venture capital is financing of early-stage ventures to help them through the equity gap in the loss-making phase, to earn money as the company rapidly gains value in the scaling phase. This model is very suitable for innovative ventures that aim at fast growth markets with a highly scalable business model (e.g. SAAS or AI models). It is less applicable for circular companies which require significant capital investments upfront (for instance for product as a service or for heavy assets) and will not grow exponentially but will rather show steady, long-term performance. Successful circular venture financing may be based on predictable, sustainable profits or cashflow than on steep valuation increase. We can imagine that existing value chain partners will co-invest to abide to circular regulations and to share in the earnings of the new venture. (E.g. chemical giants investing in production facilities for bio-based ingredients). This realization has major implications for the development of the cap table, the desired governance structure and financial instruments that may be used to enable circular businesses.

And as laid out in Chapter 3, not only the financing structure and type of investors are different, the creation of a circular business model (at venture level or at value chain level) requires new frames for performance, supplier, customer and even team when building ventures with a circular ambition rather than linear companies.

Although circular venture development is clearly not the same as linear venture development, a number of principles continue to apply:

1. It is helpful to identify stages or phases in the growth and development of the venture
2. Based on our research, we hypothesize a first MVP framework (see below). This framework could be tested on the current circular portfolio of Invest-NL, and during 2023 the framework can be improved and validated in Circular Accelerator programs.

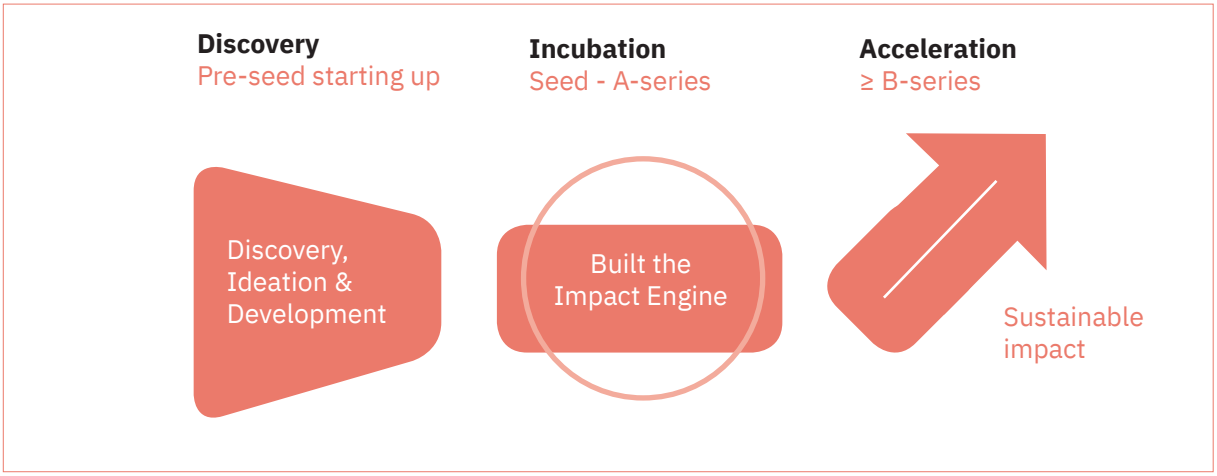
	Concept	Pre-Seed	Seed	Scale-up	Scaling
Product or Service	Circular Concept	Proven Value proposition with circular principles	Validated circular principles with partners	Showcase circular value chain with impact	Repeatable model
Production	Proven Technology	Lab scale	Pilot Scale	Demo	Roll out production (replication rather than scaling)
Value Chain	Value chain hypothesis	Key partners identified	Key partners sign up	Demonstrate new value chain	Determine optimal scale
Business Development	Customer Discovery	Customer Validation	Customer Creation (Scale Sales Processes)	Brand Development	Roll out to other chains, regions, markets
Feedstock Development (if applicable)	Feedstock Discovery	Feedstock Validation	Reliable Feedstock Delivery	Feedstock Expansion	Determine optimal scale
Regulatory & Legal	---	Hurdles identified	Solutions defined	Solution tested	Solutions validated
Team	Founders	CEO+MT	MT+functional teams+Partners	Governance structure with value chain partners	Professional Organization
Financing	10-200k	50k-3mio	2-25 mio	20-200mio	100mio+
Impact	Theory of change	Define impact performance paraments	Investors commit to the impact mission of the company	Track impact	Validate Theory of Change
Investors	Grant/loan	FFF (Friends, Family, Fools), value chain partners	Strategic – value chain partners, VC?	Strategic, (Venture) Debt, VC?	Exit or continued stewardship

6.5 Which type of circular ventures need what type of support?

We believe that there is a place for Incubators, Accelerators and Studios in the Circular domain to enhance circular entrepreneurship and to professionalize circular venture building practices. Programs that are (co-) sponsored by Invest-NL should have the intent to test and accelerate circular practices, rather than only enhance economic productivity or employment. This means that the nature of the programs will probably be more experimental and innovative than the standard 'Lean Startup based' programs. The main objective for Invest-NL to be involved in these programs is to learn about circular entrepreneurship: what does it take and what are the pitfalls? What are blockers at regime level that can be removed? What type of support is required to get more startups to move the needle? And to develop 'gut feel' for circular venture success: how to you judge maturity, team and business viability of a circular venture - all to increase the chances of success of these ventures and their eco-systems.

Figure 6.1

Key challenges of circular venture development in a linear regime per phase



Source (of the three-phase differentiation):

"Beyond the champion. Institutionalizing innovation through people", G.'O Connor

Based on some of the inspirational practices we encountered, we propose Invest-NL to become involved in the following types of programs:

Early Start-up phase – systemic approach

It makes sense to try to develop ventures which are 'truly' circular by design, from the start. Programs that aim at the development of such circular ventures would very likely benefit from a design-thinking and a systemic approach, as described by Chris Monaghan or the "Circular by Design"-workshops.

As Early Stage ventures are not necessarily the focus for the Invest-NL capital investments, we suggest to only get involved in programs that experiment with innovative methodologies or target value systems that require disruptive innovation.

Seed Stage - venture building

Most ventures that target new markets never reach the commercial stage (e.g. Gritd study for GCNE 90% of Green Chemistry startups are pre-commercial). The key blocker: it is very difficult to acquire external funding and/or to build commercial traction which is sufficient to fund the development of a minimal viable business model to commercial scale. As circular ventures by nature (1) need to develop new markets, (2) do not fit the standard VC model, (3) are facing regulatory and legal challenges and (4) need to develop new earning models this well-known 'Valley of Death' has some typical 'Circular' elements. To allow more viable Circular Ventures to turn into successful businesses, dedicated support and methodologies are required.

The mantra of Invest-NL is to make 'financeable' what seems not be 'financeable'. Offering tailored support to promising circular ventures in 'Seed Stage' can be a powerful method to develop stronger, financeable ventures, and to learn about the desired and required investment instruments that are required to help more ventures 'bridge the gap'.
Venture support in this stage should always be tailored to individual venture needs, but could also be delivered in cohorts (like circular factory building and Green Chemistry Accelerator programs).

Scale Stage - Commercial development and IMPACT

Current programs that target the scaling phase all focus on Commercial Growth and Scalable processes. For circular ventures with traditional investors, it can become difficult to continue to emphasize impact over financial returns. As more ventures with circular ambitions become mature, it will become more important to educate and monitor circular practices, tracking tools and methodologies.

Value network vs individual venture

The development of a circular economy involves unbundling of linear material and value streams and rebundling into new, circular systems. One could question if it even makes sense to support individual ventures that are dependent on that value network for their business success. We have had long discussions about the desired focus of circular venture building: individual ventures or value chain level.

Option 1:
The value network reshuffle could target a specific set of companies and public parties for a specific material flow, design the circular chain, and support the development of ventures which enable this transformation. This approach takes the desired holistic view on circular transitions but is very dependent on the willingness to collaborate from the various value chain partners.
Option 2:
The support of individual ventures, either in a 'cohort' approach or in an individual trajectory, lacks the cohesive, integrated approach to transition a total chain, but does allow tailored support for venture teams who can contribute to the circular transition.

Given the pros and cons, we propose to keep both options open, and evaluate the effectiveness of the various programs at the end of 2023.

6.6 Conclusion & Recommendations

The field of circular entrepreneurship and circular venture building is still in its early phase, and the jury is out to define appropriate development frameworks, financing structures, performance parameters and governance models which will build the most impactful circular ventures.

For Invest-NL, the objective of getting involved in venture building programs should be to learn about the practicalities of building circular ventures (Micro-level), and based on that, develop finance tools, legal frameworks and lobby for regulation changes to support circular entrepreneurs (Meso-level).

Circular venture development can only be effective in the context of an eco-system, and venture building programs should embrace a systemic approach as an essential design principle. Circular venture building programs may take the material flows as starting point for venture development or alternatively support existing ventures to develop value in a developing circular context. With that approach programs build ventures while transforming the eco-system, and not try to ride a circular business against a linear storm.

Finally, because circular venture building is a new territory, it will be essential to develop a **Learning competence** both at Micro- and Meso-level. Invest-NL may consider to develop a "Community-of-Practice" of circular venture builders and circular venture programs, gather data around best practices in circular venture development and help the circular venture building community grow and thrive.

Creative destruction meets disruptive innovation

The circular transition is a combination of creative destruction at industry level and disruptive innovation at company level. Linear value chains have to be “unbundled”, decomposed, and “rebundled”, reconfigured into circular ecosystems (chapter 1).

Multilevel, multistakeholder approach

To effectively support the circular transition with a venture development approach, a multilevel, multistakeholder approach is needed. it is not enough to “only” intervene at Niche level with investments in ventures or venture support. To be succesful, Invest-NL has to intervene at Regime level as well. And sometimes even at Landscape level.

Multiple stakeholders will need to be involved: ventures, investors, authorities, certifying bodies, insurance companies, and obviously knowledge institutions and the users: the civil society.

Seed – Series A

The most surprising finding from venture program overview is probably that there is hardly any organized support available for the venture teams in Seed Phase (Gritd study reports 2 programs in 2021). Given the insight that the Seed phase is often referred to as ‘Valley of Death’ it is not surprising that many ventures that make it to Seed Phase never close a Series A (almost 60%).

The trajectory between Seed and Series A is multi-faceted, and requires a program -based approach to business-building and eco-system development. This journey can take years, and requires inventiveness, stamina and cash. In this context, we note the (self-reported) success of studios in which multi-year, multi-disciplinary high-level support is provided to co-founded companies (Chapter 4).

Multidisciplinary, staged approach to venture building

The only integral venture development methodology is the Bell Mason Venture development framework, which does not include circularity parameters (Chapter 2).

The circular perspective should be integrated in all 4 dimensions of integral venture development (rather than putting it separately) (Chapter 3).

Circular Ventures are different

There are 10 factors making circular venture development different from linear venture development. To to be successful, all 10 factors have to be addressed (Chapter 3).

Circular innovation requires a holistic ‘value network’ finance perspective

Ecosystem investment may mean that in order to have the desired (societal) return at overall ecosystem level, impact investors may have to take a loss on certain individual investments in that ecosystem.

The circular perspective has to be integrated in all dimensions of integral venture development, rather than putting it separately (Chapter 3).

Circular venture building is novel

Currently there are very few inspirational practices for circular venture building support, especially at ecosystem level. We hypothesize a number of design parameters of circular venture programs, which will need to be put at test in future programs.

7

2023 Circular Venture Support – terms of reference (DRAFT)

7.1 Introduction

With Chapter 7 we will conclude with a set of recommendations and the Terms of Reference for those recommendations for which Invest-NL might look for external support.

7.2 The role of Invest-NL in Circular Venture development

The role of Invest-NL is to facilitate the development of the field of circular venturing, combining the disciplines Research-Experiment-Professionalize. In 2023 the focus should be on 'Experimenting', as we are still in the early phases of developing the body of knowledge around circular entrepreneurship and company structures.

Venture support (in terms of funding, networks, support and methodologies) should be aimed at creating ventures that will move the needle. This means support and build ventures that enable circular transitions in chains that are critical in the circular transition.

We suggest the following approach for Invest-NL:

Why:	• To make The Netherlands more circular through entrepreneurship and venture building
Where to play:	• Focus on Invest-NL Strategic Areas • Select sectors in which disruptive innovation (either technology or business models) can make a significant impact on material use by 2030.
How to play:	• Orchestrate Circular venture building initiatives (proactive approach) • Develop and test systemic approaches to early-stage circular venture development • Facilitate Seed-Stage circular venture support (individual and cohort -based) • Continue and Strengthen the projects that aim at regime changes: Finance, Legal, Regulatory and other conditions to play • Develop a Community of Practice: extract working practices and develop definitions of success and progress indicators for circular venture building.

As part of the work of this project, we have developed Terms of Reference for three programs for venture and ecosystem support (Terms of Reference 1,2 and 3) . We have also developed a first description of an approach toward the development of a Community or Practice (Terms of Reference 4).

We propose that 'orchestrating' circular venture building initiative requires a more 'pro-active' approach than only publishing the Terms of Reference and wait for reactions. Apart from the organic inflow of applications, Invest-NL may want to approach representatives from relevant industry networks and investors or companies with interesting venture building methodologies to actively contribute to the development of this field of play.

Terms of Reference for circular venture development programs – Three Programs

Program 1 Circular Scale-up program: Value Network Innovation

Terms of Reference 1	Circular Scale-up program: Value Network Innovation	Scoring criteria
Background	The reshuffling of value networks and material flows will require innovations that present entrepreneurial opportunities for new and existing companies. These ventures will be circular by nature, as their essence is rooted in the systemic requirements of real material flows	Rationale for value network selected: expected circular impact
Objective	To set up (a number of) systemic venture development programs to unlock the circular transition of critical value networks through disruptive innovation	
Scope	Material streams and/or value networks within Invest-NL focus themes	
Deliverables	• A number of truly circular ventures based on systemic needs of existing value networks • Circular transitions in specific material streams • Insight on how existing or new technologies and methodologies can be used to break status-quo • Innovative partnerships (incl funding and co-development) between incumbents and start-ups and scale-ups	
Roles & responsibilities	• Chain Director (Ketenregisseur) of an existing value network or material flow (e.g. hospital waste streams, regenerative farming initiatives or horticulture ecosystems) • Program Design and Delivery for Business Ideation and Creation • Participating entrepreneurs, experts and experienced business partners • Invest-NL Invest-NL as sponsor and sparring partner • Branch organization, trade association or other network representation is leading sponsor and customer	
Stakeholders	• Branch organization or Trade association • Incumbent players within industry • Knowledge institutes with relevant technologies • Financial partners and Investors • Invest-NL and ROMs	
Expertise required	Chain Direction, Design Thinking, Systems thinking, Venture development, Innovation Processes, Facilitation skills, Finance processes	
Approach	Select Use Case: which materials flow is going to be developed. What is the evidence that this material flow can be made circular by disruptive innovation? What would be the impact on the total circular transition (material used, waste prevented, alignment with focus themes. Contract Lead Sponsor (could be trade association, entrepreneurs organization or public-private institution) Design a program which is expected to be effective (based on literature, track record, methodology hypotheses) and formulate a clear set of KPIs Recruit participating founders, partners and experts Run the program, keep track of progress, insights, and results (# new ventures, funding, co-innovation with incumbents, time to market) etc.	Expected circular impact Level of commitment lead sponsor Commitment knowledge institute Success metrics and tracking mechanism
Financing	• Invest -NL will only co-finance if 1,2 and 3 are in place. • Contributions to individual programs should never exceed 50% of the total program budget. • Participating founders may pay a fee .	Level of co-financing eco-system

Program 2 Seed -Scale Individual Venture Support – Pool of reliable venture coaches

Terms of Reference 2	Seed -Scale Individual Venture Support – Pool of reliable venture coaches	Scoring criteria
Background	Many ventures in seed stage are looking for ways to fund their 'route to demonstrate customer value'. Circular ventures in this stage will turn to Invest-NL for funding, but will often find that they do not (yet) fit the investment criteria. For companies with technologies and/or business models which could play a critical role within the desired transition in the focus areas, the Invest-NL team may choose to support the teams 'to get ready' for funding. For companies that do not fit the criteria of 'cohort -based' programs, Invest-NL is looking for alternative but reliable ways to support	
Objective	Get more circular ventures 'ready' for the right funding through tailored, individual venture building support.	
Scope	Viable and Relevant (on Focus areas) Circular ventures in Seed-Scale phase, which require funding but do not yet meet Invest-NL capital requirements	
Deliverables	• A pool of venture coaches with relevant industry and venture experience and relevant and accessible expert network (internal and external) • Training program for the venture coaches on the principles of circular venture building (paid or sponsored) • Optimize 'Circular Venture Development' methodology • Learning community of circular venture coaches	Expected quality of the expert pool
Roles & Responsibilities	• Development Circular Venture Building Framework • Recruitment and Training of Circular venture coaches • Maintain Circular Venture Coaches network	
Stakeholders	• Invest-NL BD-CE • Venture team (and potentially current investors or partners)	
Expertise required	Venture Development methodologies, Innovation Processes, Training program development, Recruitment process	Track record
Approach	• Identify if given venture fits selection criteria for tailored venture support; if yes? Continue • Determine if there is a cohort-based program which fits needs and requirements of the selected ventures. If no? Continue • Assess Venture maturity, Development needs and 'Red Flags' through framework-based interviews • With venture, develop plan 'to get ready for funding' • If relevant for broader audience, start specific project to address 'regime' limitations	
Financing	• Invest -NL can finance the assessment and the consultancy trajectory • Invest-NL can sponsor training program for venture coaches	

Program 3 Programmatic support with Industry focus – Seed phase ventures

Terms of Reference 3	Programmatic support with Industry focus – Seed phase ventures	Scoring criteria
Background	Seed Ventures that are operating within a specific segment or market (Green Chemistry, Circular Agriculture, Textiles) often face very similar but venture-specific challenges. Bringing these companies together in cohort-based programs that allow tailored support allows these companies to exchange and develop innovative circular practices while working on their own growth plans	Rationale for choice industry focus: circular impact and need for program
Objective	Get more circular ventures 'ready' for the next phase (funding, factory, market traction) through cohort-based venture building support	
Scope	Innovative ventures in seed-scale phase within a certain market sector or industry segment	
Deliverables	• Definition of the specific target area, scope and KPI of the specific program • Learn about industry specific challenges and co-develop innovative solutions • Develop the ventures in the program • Knowledge Sharing • Share insights, methodology and practices	Willingness to share learnings and insights
Roles & responsibilities	• Lead Sponsor • Program Design and Delivery • Recruitment participating ventures and partner organizations	
Stakeholders	• Lead sponsor: e.g. Industry association • Co-sponsor: Invest-NL (and potentially others) • If applicable: Existing industry players and investors	Formal Commitment of stakeholders
Expertise required	• Venture Development methodologies, Innovation Processes, Program design and Delivery, Venture recruitment, Access to Industry network and expertise	Track record
Approach	• Identify a relevant segment in which ventures face serious and industry-specific hurdles towards commercialization • Support from leading industry association (or group of entrepreneurs) • Recruit and select the target candidates based on the circular venture development framework • Design and deliver an industry specific support structure, which addresses key hurdles on 'the way to scale' • Clear Success metrics and tracking methodology	• Quality of stakeholders and participating ventures • Validated process/ Approach • Seniority and experience staff • Innovative success metrics and tracking methodologies
Financing	• Invest -NL can only co-finance if a lead sponsor is in place • Contributions to individual programs will usually be between 50-100k, but should never exceed 50% of the total program budget	Credibility lead sponsor: relevance and track record

Program 4 One ‘Circular Venture Building’ Movement

Terms of Reference 4	Circular Venture Building Learning community and Program	Scoring criteria
Background	Circular Entrepreneurship is in the early stages of development. Current venture programs are geared to deliver linear companies, and circular venture builders are experimenting, but lack frameworks to interpret experience and decisions. There is not structured exchange of ideas, knowledge and experience	How are you going to make impact
Objective	Set up learning network for Circular Venture building: Bring together Circular entrepreneurs, Investors and Venture building teams with Transition, Change and Innovation Experts to research, exchange and professionalize Circular venture development methodologies	KPI
Scope	Circular Venture development to accelerate the circular transition	
Deliverables	• Organize Research, Experiment and Professionalize • Keep the spirit alive: events, communication • Publications, podcasts • Educational Materials • Skill building	Quality of design; innovativeness, Success metrics and track record
Roles & Responsibilities	• Program director • Community manager • Discussion leads • Research leaders	Level of expertise and ‘click’
Stakeholders	• Knowledge institute • Invest-NL • Practitioners	Knowledge institute essential
Expertise required	Transition processes, knowledge networks, Reflective dialogues, Action Learning, Venture development, Innovation	Proven expertise in knowledge network development
Approach	• Community Building • Action learning • Communication Strategy	Innovativeness and effectiveness
Financing	Invest-NL (with Click-NL, RVO, NOW or Techleap)	Co-financing preferred

3.1

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Appendix A

Design Dimensions of Venture Support programs

Ownership & Business model of the Value Support program (VSP)

- Public Venture Support Programs owned by Universities (eg YesDelft) aim at valorization of their technologies and stimulating their student and graduates to pursue a career in entrepreneurship.1

The costs of the support program are typically born by the university and (sometimes) recuperated via the effectuation of the license deals in an exit (in the Netherlands universities typically charge 5% license fees to the venture)

- Public Venture Support programs owned by Regional Development Organizations (the ROM's) and International authorities, eg the EU (EIC, EIT, etc).

These programs are financed via taxes, Funds are revolving.

- Private Venture Support Programs
  - Independent VSP's get paid by corporates and public money to run a VSP (eg the Academy for Corporate Entrepreneurship, the Board-of-Innovation programs etc)
  - VSP's set up by Investment Funds to increase the Probability-of-Success (eg HTXL). They get paid by the ventures who sell part of the ownership of their venture to the VC in return for participating in their incubator / accelerator program (eg HTXL wanted 8% non-dilutable ownership of their ventures)
  - Private VSP's often have additional earning models: equity models, rent, participation fees.

- Corporate Venture Support Programs (for captive use)
  A number of Corporates run their own, internal venture support program.
  The objective is to increase the PoS of their internal ventures.

- Focus / Scope on Venture Development Stage
  Most VSP's focus on Start-ups (however, usually the ventures are already in Seed), an increasing number claims to focus on Scale-ups (Beta / B-series and onward).

- Type of engagement between (Impact) Venture Capitalist and Investee
  Hands-off / arm's length vs highly engaged (from strategic investment all the way to a Venture Support Program)

- Type of Support
  Typically the VSP offers a time-boxed Incubator and/or Accelerator support program.
  Support is offered via their Coaches (paid), Mentors (often voluntary) and Subject Matter Experts (often voluntary).

- Usually the program and the "intervention playbook" is based on Lean Start Up / Business Model Development.

- The Quality of the Support differs a lot

- Degree of Tailoring
  A program can be run as a cohort (a group of ventures are run through the program simultaneously) or Individually

- Locus of Support
  Support can be centrally (gathering all the ventures in one place for a longer period or only during sessions)

- Duration of Support
  From Ad-hoc to Time-boxed (all incubation and acceleration programs) to Continuous (Corporate venturing)

- Scale and Scope
  Focus on the venture (micro-focus), Focus on the supply chain (supply chain building – meso focus) or Focus on the ecosystem (ecosystem development – macro focus)

- Level of organizational learning (e.g. finding, sharing and scaling of best practices)

The Authors

Anieke Wierenga is an experienced leader in innovation and change. She combines almost 20 years of 'corporate innovation leadership' at Schlumberger, Unilever and Corbion, with hands-on experience with development and delivery of innovative scale-up and seed-phase support programs (ScaleUpFood, Circular@ Scale, Fastlane and Green Chemistry Accelerator). She is founding partner of the ScaleUp Practitioners.
In her work, she is always looking for novel and creative 'ways of working' to unlock the true potential of great ideas, technologies and teams. She believes that courage to experiment and learn is essential to make a significant positive impact on our society. Anieke holds a PhD in Chemistry from Utrecht (1997) and an MSc in Advanced Change Methodologies from SIOO (2010).

Arjan Rensma is a senior innovation professional with 20+ years of experience working at the intersection of new business development, sustainability and change management. Arjan runs his own company, Sustainnovate.Today, is engagement officer for the Dutch Association of Sustainable Investors (VBDO) and program director Applied Sustainability Management for SRH, a German ed-tech company.
In his work Arjan believes in the motivational power of 'Thinking big, Acting small and then Scaling fast and sustainably' will make the most.
Previously Arjan worked in banking, media, academia, consulting and (circular) industry, both for corporates as well as for ventures. As MT member of the global incubator of DSM, a multinational Materials and Life Sciences company, Arjan developed and led their venture support program for ca. 30 radical ventures, including the circular venture Niaga. Arjan holds a combined master's degree in Business Science of the Erasmus University Rotterdam and University of California at Berkeley and Davis.

Guy de Sévaux leads the business development practice of Invest-NL in the transition to a biobased and circular economy.
He studied Industrial Design Engineering in Delft, where he graduated on the marketing and design aspects of new ventures. He started working on the circular economy in 2008, after a corporate career in international innovation, strategy and business development at DSM, Philips, Orange and WPP. He was member of the Advisory Board of NewVenture and coached many startups in his career. He joined Invest-NL in 2020 from The Ocean Cleanup, where he developed and marketed new consumer products made from vintage ocean plastics.
With his team at Invest-NL he is actively involved in the design and implementation of several industrial accelerators.

Invest-NL believes that circular ventures can play a pivotal role in accelerating the circular economy. As impact investor active in industrial startups that need substantial investments in an early stage, Invest-NL is interested in increasing the (impact) success rate of these ventures, and in creating the circular ecosystem that these ventures need.

Contributors

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Bijlage(n)

Appendix A: Design dimensions of venture support programs

Appendix B: Interviews with Circular Venture Building Practitioners *(confidential)*

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