Chapter 1. Introduction

“… [P]rojects continue to fail at an astonishing rate. At the same time, the role complexity, chaos and uncertainty play within our projects and project environments is gaining recognition in both research and practice” (Thomas & Mengel, 20081, p304).

1.1 Problem statement

As a result of industrialisation and rapid urbanisation, a number of persistent challenges are threatening the viability and integrity of our planet and therefore need to be tackled urgently. These challenges include air pollution, climate change due to the emission ‘greenhouse gasses’, the depletion of natural resources, increased land use and poverty. The development of more sustainable practices and businesses is proceeding slowly. To support change into a more sustainable direction, several of the persistent challenges have been labelled as ‘Grand Challenges’ by the European Union (Kuhlmann & Rip, 2014) and there are increasing calls for a more sustainable world from civil society, policy-makers, the business community and scientists.

These calls have resulted in a wide variety of initiatives to bring about change in, for instance, our food production, energy production and consumption patterns. Examples of these kinds of initiatives in the area of agriculture comprise closed greenhouses (greenhouses that store excess heat in the summer for use in winter, see Dieleman et al., 2010), agroparks (in which several agricultural and industrial functions are clustered to create closed energy and nutrient cycles, see Smeets, 2009), new retail business models (in which farmers and consumers are directly connected), and novel housing systems in poultry farming (combining efficient production with improved animal welfare, see for

1Thomas and Mengel are project management scholars. In this article they focus on project management education, addressing the question how managers can be prepared to deal with the increasing level of complexity, chaos, and uncertainty currently found in complex project environments.
example van Niekerk & Reuvekamp, 2011). These initiatives start from a Triple P perspective, aiming at balancing and maximising people, planet and profit (Triple P) values. Even though the advantages of these initiatives for individual entrepreneurs are unclear in their pre-competitive stage, local consortia of entrepreneurs have sensed opportunities and commenced these Triple P initiatives. However, these initiatives have proven to be notoriously hard to bring to fruition.

This raises the question of why so many of these Triple P initiatives are not successful. The characteristics of these initiatives can explain this. Triple P initiatives often combine low-tech and high-tech innovations and often involve radical changes in technologies, processes and practices. As a result of this highly innovative character, there are few available practices and strategies for bringing about the intended radical changes. Given that the practices and strategies developed for existing businesses cannot be followed, managers and teams implementing such initiatives are often working in uncharted territory. Although there is literature on managing sustainability initiatives and on knowledge brokering, it does not provide sufficient guidance to support managers in coping with extremely complex and unpredictable situations. Managers and project teams thus face high levels of task uncertainty in realising initiatives with a Triple P purpose.

In recent years, many innovation programmes have aimed to facilitate the development of Triple P initiatives, such as TransForum, a Dutch system innovation programme to stimulate the sustainable development of agriculture. The main aim of these innovation programmes is to increase the chance of success for Triple P initiatives, by supporting them in knowledge brokering, by involving different actors, and by facilitating learning within and among these initiatives. These programmes provide an opportunity to study the processes involved in realising Triple P initiatives.

This thesis recognises the high level of task uncertainty that project managers and teams face when establishing a Triple P business. I use the term ‘manager’ interchangeably with ‘project manager’, ‘entrepreneur’ and ‘project team’, to refer to the (group of) persons that are committed to realising Triple P initiatives. Such managers may include initiators of pioneering Triple P business initiatives but also intermediaries who bring together all relevant actors. In this thesis, I aim to develop a better understanding of the governance of this type of initiative and to provide practical guidance to project managers by developing a framework and tools to reduce task uncertainty in reaching the sustainability purpose of Triple P initiatives.
1.2 Theoretical background

Insights from different fields may be useful in reducing the high task uncertainty managers face in the governance of Triple P business initiatives. Before elaborating on what is already known about the governance of Triple P initiatives and the types of uncertainty managers encounter, I first describe the sustainable development context in which this research has been conducted and what I mean by Triple P initiatives and why the management of such initiatives is so challenging.

1.2.1 Sustainable development

The concept of sustainable development was first introduced in the report ‘Our Common Future’, published by the World Commission on Environment and Development (Brundtland Commission, 1987). This report reflected growing awareness of the global link between environmental problems, such as large-scale environmental pollution, global warming and the depletion of natural resources due to the industrial development of specifically the Western world, and socio-economic issues such as poverty and inequality. Moreover, the report addressed the need to safeguard a healthy future for humanity (Hopwood et al., 2005). In order to address these problems, the Brundtland Commission introduced the concept of sustainability as a guiding vision for future development. The term sustainable development was introduced to describe “development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Commission, 1987, p43). Although there is broad agreement on the importance of sustainable development, sustainability remains an ambiguous concept in practice with different meanings for different people (Hopwood et al., 2005). The elaboration of the different definitions of sustainable development is beyond the scope of this thesis (see e.g. Dixon & Fallon, 2008; Mebratu, 1998 for extensive reviews). However, given that it is a central concept within this thesis, I will describe below how the concept of sustainable development is used in the present study.

Following from Elkington’s (1994) concept of Triple Bottom line in business accounting, sustainability is often referred to as ‘Triple P’, identifying three pillars of sustainability: people, planet and profit. In this context, the people aspect refers to taking into account sociocultural values and is operationalised as the impact of a business or organisation on the social system within which it operates (Jamali, 2006). This implies that for example businesses should consider human rights and the labour conditions of their
employees. The planet pillar addresses an organisation’s impact on the environment, including both living and non-living ecosystems (Jamali, 2006). This means that businesses and organisations should for example minimising the emission of harmful gasses and particles, but also taking into consideration animal welfare issues. ‘Profit’ considers economical values, referring to the financial viability of an organisation (Jamali, 2006). A business that incorporates sociocultural and environmental values, but does not make money, is thus not considered sustainable. The Johannesburg Declaration on Sustainable Development (United Nations, 2002, p5) stressed the need to integrate the three dimensions as a “collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development – economic development, social development and environmental protection – at the local, national, regional and global levels.” Sustainable development thus entails the integration of social, environmental and economic values, meaning that all three dimensions need to be incorporated and balanced. In sustainable business, the values of people, planet and profit are integrated in what is called the business model.

The notion of sustainable development as the integration of Triple P values has been used beyond the areas of environmental protection and corporate social responsibility. Essink et al. (2010), for instance, in their study of sustainable development as a guiding vision in health system innovation, proposed that balancing core values is one of the underlying principles of sustainable development. The three other principles underlying the concept of sustainable development, according to Essink et al., comprise (1) the acknowledgement that a system is based on core values; (2) a high sense of urgency to change the current system; (3) a long-term vision for change which goes beyond the needs of the current generation. This latter point means that the system not only addresses the needs of people in the present, but also takes into account the needs of future generations. In sustainable development, whether it concerns agricultural or health systems, the balancing of core values is thus essential. In efforts to bring about sustainable development, values are not necessary shared by all relevant stakeholders and the specification of the core values will change over time. Sustainable development is thus considered a dynamic concept (e.g Newman, 2005; Veldkamp et al., 2008). This makes establishing a Triple P business additionally challenging because it involves different types of values, needs to take into account different perspectives on the values by stakeholders, and needs to integrate the different values into one business model. Innovation programmes support this process of Triple P business development by bringing together actors, organising guidance and reflection, and providing a protected space in so-called niche experiments.
1.2.2 Niche experiments

Innovations for sustainable development may involve product innovations, process innovations, or combinations thereof (e.g. Cooper, 1998; Rowley et al., 2011). New products developed in the context of Triple P businesses include wind turbines, organic foods and eggs produced with respect for animal welfare and the environment, while the shortening of the producer-consumer chains and the implementation of sustainable waste processing are examples of process innovations. Combinations of product and process innovations are, for example, found in agroparks in which agricultural and industrial functions are clustered to create closed energy and nutrient cycles. These product and process innovations comprise “new ways of doing things that can be commercialized leading to new and improved configurations with the surrounding physical and social environment” (Bouma et al., 2011, p287), that is, they are Triple P businesses. I define a Triple P business as ‘a viable business (profit) that incorporates planet and people values’. The term Triple P initiative is used to refer to these new, innovative business initiatives with a Triple P purpose that are still in the protection of the niche - the niche experiments.

Entrepreneurs initiating Triple P businesses initiatives not only face the many challenges associated with starting up a new business, they also face the challenges associated with the radical nature of the innovations necessary to achieve sustainable development. Radical innovations by definition are difficult to achieve within current systems. Moreover, these Triple P initiatives take place in dynamic markets, namely environments that are characterised by unclear market boundaries where change occurs often and in non-linear and unpredictable directions (e.g. Eisenhardt & Martin, 2000). For a Triple P initiative to become successful, it needs to respond to these changing market demands (Zarmeena et al., 2014). Meeting these demands requires managerial flexibility (Zarmeena et al., 2014) in which options for manoeuvring towards the purpose are identified and captured. These characteristics make managing Triple P initiatives a challenging task. Rather than making minor changes to existing practices that are associated with a high level of familiarity and experience and a low need for new knowledge (Dewar & Dutton, 1986), innovations for sustainable development often entail radical changes (Schaltegger & Wagner, 2011) and are therefore characterised by a low level of familiarity and experience (Dewar & Dutton, 1986). In such circumstance, entrepreneurs cannot depend on their existing knowledge base alone. They have to acquire new knowledge on how to bring about the changes during the process towards radical innovation. But what if it is unclear which knowledge, at what moment, with which actors, needs to be acquired? In that case, the entrepreneur
has to rely on intuition on how to organise the knowledge development process. Intuition refers to affectively charged judgments based on unconscious, often rapid associations (Dane & Pratt, 2007) and is increasingly linked with increased creativity and innovativeness (e.g. Aarum Andersen, 2000) but also with failure because intuition can lead to poor decisions. However, if such initiatives do succeed and if they are developed, implemented and widely diffused, they will contribute to sustainable development.

Government-funded\(^2\) system innovation programmes, such as the TransForum programme\(^3\), make it possible for Triple P initiatives to operate in a protected space, a ‘niche’ in which selection pressures prevailing in current systems (also referred to as regimes by Geels, 2002), such as regulatory requirements and demands for competitiveness and profitability, are reduced during the most vulnerable start-up period (Geels & Schot, 2007; Schot & Geels, 2008). I therefore have chosen to refer to Triple P initiatives and their supporting networks as ‘niche experiments’. A niche experiment is thus defined as a multi-stakeholder initiative focused on establishing a Triple P initiative in a protected space with the aim to support the Triple P business to survive after the withdrawal of protective measures. In this thesis, I focus on the challenges faced by the managers of niche experiments in their efforts to establish a Triple P initiative. I have chosen to use the term ‘governance’ rather than ‘management’ to connote the diverse range of interests and multi-actor aspect of niche experiments (see for example Ahola et al., 2013; Rijke et al., 2014; Too & Weaver, 2013).

In the next section, I consider what can be learnt from different research areas in terms of action perspectives for managers of Triple P initiatives. Strategic niche management,

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\(^2\) TransForum was not entirely financed by public money; through co-financing or matching, 50% of the funding was brought in by research institutes and entrepreneurs.

\(^3\) TransForum was one of the three sustainable system innovation programmes (next to Knowledge Network System Innovations (KSI) and Transumo) funded by the Dutch government in the context of the national programme (ICES/KIS 3, also referred to as BSIK) to strengthen the country’s research and development capacity. During its grant period, from 2004 until 2010, TransForum supported over thirty niche experiments (action experiments using TransForum terminology) with the aim of contributing to the sustainable development of the Dutch agricultural sector (Veldkamp et al., 2008). Within these niche experiments, local practices (of farmers, growers, civil servants) were brought together with the aim to induce changes in both science and practice.
reflexive governance and transition management provide insights that can be applied to system innovation programmes and niche experiments.

1.2.3 Governance of niche experiments: insights from literature

In the last 20 years, there has been a considerable amount of research on how system change has taken place in the past (see for example the transition from sailing ships to steam ships in Geels, 2002, and the change in the Dutch gas system from coal to gas in Correljé & Verbong, 2004). Since the 2000s, several scholars of past change processes have drawn lessons for the successful governance of system change in the future (e.g. Loorbach & Rotmans, 2010; van der Laak et al., 2007). Niche experiments are considered essential to instigate the fundamental changes in structures, cultures and practices that are needed for system innovation. From this perspective, the study of niche experiments primarily focuses on identifying strategies and pathways to move from a collection of niche experiments at local level to accelerate change at regime level (and vice versa). My research, however, is not directed towards understanding this transition process but, rather, to better understand the governance of niche experiments themselves, as they can be considered a necessary condition for the entire transition process. I aim to increase understanding of how successful Triple P businesses can be established, focusing specifically on the continuous process of integration of the various and heterogeneous activities and on developing strategies and tools for their managers to deal with this heterogeneity and the associated task uncertainty. Given that niche experiments play a central role in studies of system innovation, I position my research in this context and discuss the extent to which prevailing insights and recommendations are applicable to my study.

Reflexive governance and transition management

Literature on reflexive governance and transition management mainly provides recommendations on how to realise and manage system changes from the policy or programme perspective, rather than the actual day-to-day management of niche experiments with which I am concerned. Reflexive governance is a new mode of governance that acknowledges uncertainty of knowledge, a fundamental ambivalence of goals and unequal distribution of power, and emphasises participation, experimentation, and collective learning as key elements of governance (Voß et al., 2006). Theories on reflexive governance recommend that knowledge is co-created in a multi-stakeholders process, the vision takes into account the ambivalence in values and interests, and learning in innovation processes is key. The approach of reflexive
governance acknowledges that governance activities are embedded in wider contexts and are “partly shaped by the (side-) effects of its own working by inducing changes in the world which affect their own working” (Voß & Kemp, 2005, p7). Reflexive governance comprises several management designs, including transition management (Voß & Bornemann, 2011).

Transition management is based on a process-oriented strategy that takes into account the complexity and uncertainty aspects that are associated with transition processes. Instead of striving for the development of a specific, pre-determined innovation (Rotmans et al., 2001), transition management aims to explore a range of options as outlined by multiple actors from different disciplines and with different backgrounds, using the transition management framework. This framework states that the multi-actor approach is facilitated by the implementation of a cyclical process based on four clusters of activities, namely strategic, tactical, operational and reflexive processes (Kemp & Loorbach, 2003; Loorbach, 2010). The first cluster focuses on strategic activities, operationalised as the development of the transition arena. A transition arena is a small network of frontrunners with different backgrounds in which different perspectives and perceptions of the problem can be confronted in order to structure the problem and to develop guiding visions for the future. The second cluster of tactical activities focuses on the formulation of the transition agenda, including the transition paths and interim objectives to reach the vision formulated in the first cluster, and the formation of a coalition. The third cluster, the operational activities, involves establishing and implementing transition experiments. During the fourth, reflexivity cluster, the transition experiments are monitored and evaluated. This may lead to the formulation of lessons learned which are subsequently used to adjust and refine the vision, transition agenda and coalitions developed during earlier phases (Loorbach, 2010).

This thesis focuses on what in transition management is referred to as the operational activities. In transition management terminology, these are “activities directed towards creating and furthering new practices in a sector” (Van Raak, 2010, p76). Given that transition management aims to understand and guide long term transitions, transition management generally focuses on the strategic and tactical levels, and much less on the operational level of niche experiments. For instance, Van den Bosch (2010), in her thesis
on transition experiments\(^4\), presents ten building blocks for developing an integrated management model for transition experiments, contributing to the ‘three central guiding dimensions’: deepening (experimenting and learning in niches), broadening (repeating of an experiment) and scaling-up (embedding in the dominant way of thinking). Only two of the ten building blocks refer to the operational level, namely “developing an innovative practice” and “starting with the radically new practice and relate structure and culture on a local scale” (p240). Reflexive governance and transition management thus recommend carrying out niche experiments because they are a condition for system change. However, reflexive governance and transition management literature does not elaborate on how to manage these niche experiments.

**Strategic niche management**

Since the first study of battery powered vehicles in 1998 (Kemp et al., 1998), the systematic study of innovation processes in the context of *strategic niche management*, has led to a number of guidelines and recommendations. Within this field, several descriptive studies have been conducted to gain understanding of why a certain innovation process was a success or a failure. From these studies, it was concluded that the success was influenced by three so-called internal niche processes: the building of social networks; the shaping and articulation of visions of expectations; and a ‘good’ learning process (Kemp et al., 1998; Raven et al., 2007; van der Laak et al., 2007). From these observations, three prescriptive recommendations have been formulated by Van der Laak et al., (2007, see also Raven et al., 2010; Schot and Geels, 2008) to increase the chance of success of niche experiments, comprising (1) developing a broad network including all relevant actors; (2) developing a vision that acknowledges that different actors may have different ideas and expectations, making explicit the differences without forcing consensus, and using the differences constructively. This vision provides direction and steering capacity to the niche experiment; (3) including a learning process that is both broad, focusing on the technical as well as the social aspects of the innovation, and reflexive in which “there is attention for questioning underlying assumptions such as social values, and the willingness to change course if the innovation does not match these assumptions” (p3217; Raven et al., 2010, p. 6).

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\(^4\)Niche experiment and transition experiment are often used interchangeably (see for example Grin, 2012; Rotmans & Loorbach, 2009) when referring to innovative practices aiming for structural change.
In addition to these three recommendations, the literature on strategic niche management provides more insights for the governance of niche experiments. The literature proposes, for example, that it is essential to bring together different knowledge bases and expertise in order to co-create new knowledge on the implementation of the innovation (Caniëls & Romijn, 2008; Kemp et al., 1998). This need is implicitly linked to the recommendation to involve a wide range of actors within the niche experiment. Moreover, the organisation of niche-regime\(^5\) interaction by involving regime actors is recommended in order to reduce the competition niche experiments face from the regime (Kemp et al., 1998; van der Laak et al., 2007). Given the deeply rooted nature of the activities performed in the prevailing system, it will resist change and as a result pressure niche experiments towards less ambitious practices. This may be thus prevented by involving actors from the prevailing system. Finally, the maintenance of flexibility in the innovation process by arranging an open-ended process (Schot & Geels, 2008) and by keeping options open when formulating visions and expectations (van der Laak et al., 2007) is also recommended. This flexibility is important as the route of achieving radical innovations necessary for establishing Triple P initiatives is difficult to predict beforehand.

In sum, six recommendations for the governance of niche experiments are found in literature on strategic niche management: 1) bringing together different knowledge bases; 2) involve a wide range of actors; 3) involve also actors from the prevailing system; 4) formulate a vision that acknowledges the perspectives and values of the different actors involved; 5) support a (reflexive) learning process; and 6) adopt an emergent approach. These recommendations are however, very general and specific advice on how they should be implemented in practice is not provided. In some cases, (for example Van der Laak et al., 2007), policy guidelines for the early introduction of technologies in society are provided, regarding the three internal niche processes of shaping expectations, building a social network and learning. Policy guidelines regarding the transition towards biofuels include for instance: “Try to arrange visits between experiments, and to organise people travelling between experiments’ and keep your options open [...]. There are many different forms of biofuels, raw materials, production technologies, actors and interests” (van der Laak et al., 2007, p3223). These recommendations are clearly at a level beyond that of the focus of this thesis: the

\(^5\) The term regime was introduced by Geels (2002) to refer to the prevailing system with its shared rules and norm, providing orientation and direction to the activities performed in that system.
individual niche experiment or Triple P initiative; they are directed towards moving from experiments to system change.

1.2.4 Task uncertainty and agency

In this thesis, I use the concept of task uncertainty to refer to the lack of advice on how to govern niche experiments. The concept of task uncertainty is often used in the context of governance and management to refer to the difficulty and variability of the work undertaken by an individual or an organisational unit (Van der Ven et al., 1976). A high level of task uncertainty thus refers to a work situation in which both difficulty and variability are high, resulting in a high unpredictability of how to accomplish the work or task (Van der Ven et al., 1976). In technical terms, task uncertainty is often described as the difference between the information required to perform a specific task and the amount of information already possessed by the decision maker (Galbraith, 1973). Information refers here to the knowledge on the link between performing certain activities and obtaining desired outcomes. A low level of task uncertainty implies that it is known that certain activities will achieve the desired outcomes. When task uncertainty is high, the link between activities and desired outcomes is not known. For example, managers of niche experiments often have neither the experience nor the knowledge on what activities to conduct to achieve e.g. ‘an effective broad network around a specific purpose’, as recommended in the field of strategic niche management. In this circumstance, these managers can be said to face a high level of task uncertainty.

The high level of task uncertainty faced by managers in the governance of niche experiments implies that managers lack the agency to implement the guidelines for governing niche experiments. Agency refers to “the capacity to initiate purposeful action that implies will, freedom, and choice” (Kumpulainen et al., 2012, p169) or, in other words, the ability to act. This concept assumes that actors, managers in this case, with agency do not merely react to and repeat given practices but, rather, have the capacity to take autonomous actions (Fuchs, 2001). Agency thus involves the ability and power to bring about something and implies there is a goal towards which the actor is directed (Elgesem, 1997). The ability to act can be interpreted as the ability to initiate purposeful action towards a specific goal. About purposeful action, education scholar Field (1969) says:

“It is quite possible to compare the present state of X with the concept of a future state of X, to note the difference, and to choose, develop, modify, and perform a
A series of actions designed to reduce this difference. This process is what we mean by the term ‘purposeful action.” (Field, 1969, p11).

Although managers often have the notion that the present state does not match the future state, they face difficulties with implementing purposeful action as they do not know which activities must be conducted to reduce the difference between future and present states. In other words, they lack concrete action perspectives, namely ideas and expectations on what people can do to achieve a specific goal (Roorda, 2012). This is particularly the case for Triple P initiatives, which, by their very nature, are surrounded by uncertainties, unpredictability and value plurality. Action perspectives to reduce task uncertainty do not only consist of specific guidelines for different parts of project development. Indeed, these specific guidelines do exist. For instance, regarding the recommendation to stimulate knowledge co-creation processes to resolve complex problems such as unsustainability, more specific guidelines relate to determining whether knowledge is missing so that certain actors can be involved (Pohl & Hirsch Hadorn, 2008) and taking into account the different perspectives of the actors when identifying and structuring the problem, when analysing it and when developing and testing means to deal with it (Pohl & Hirsch Hadorn, 2008). Moreover it is argued that knowledge co-creation is stimulated by facilitating mutual learning processes among researchers from different disciplines, as well as actors from outside academia (Lang et al., 2012), and reshaping subsequent project steps and phases if necessary (Lang et al., 2012). However, these guidelines do not provide a sufficient action perspective.

To differentiate between general recommendations and action perspectives, I use the distinction between strategic task uncertainty and functional task uncertainty as proposed by Whitley in the context of his research on the organisation of work in different scientific disciplines (Whitley, 1984). Whitley defines strategic task uncertainty as: “uncertainty about intellectual priorities, the significance of research topics and preferred ways of tackling them” (Whitley, 1984, p122). Strategic task uncertainty concerns choices of problems, goals and approaches (Bunders, 1994). Functional (also referred to as technical) task uncertainty is defined by Whitley as: “the extent to which work techniques are well understood and produce reliable results in various scientific fields” (Whitley, 1984, p121). A high level of functional task uncertainty thus refers to a situation in which there is no agreement on the research procedures and techniques to be used. Translating these definitions to the context of the governance of niche experiments, strategic task uncertainty for managers in niche experiments seems relatively low because the literature summarised above, provides clear guidance on the general strategies that can be used to reach goals and objectives. I assume that it is the
high degree of functional task uncertainty, namely the uncertainty with regard to procedures and techniques that can be used to realise the purpose, which creates the difficulties managers encounter with the governance of niche experiments. More specifically, functional task uncertainty in Triple P businesses refers to determining what consequences a change in one part of the project has for decisions regarding other parts of the project and for the whole.

1.2.5 The need for a framework and tools

In this section, I will combine what can be learned from the literature on the governance of niche experiments with insights from the field of new business development, arguing that, in order to reduce the functional task uncertainty faced by managers in establishing Triple P business initiatives, there is a need for a framework and associated tools.

There are numerous models that structure the process of establishing Triple P business initiatives in different ways. For instance, discovery, incubation and acceleration (Slater et al., 2014) or, perhaps more relevant in the context of this current study, proposing, creating and capturing value as proposed in the connected value development approach by TransForum (Bouma et al., 2011; van Latesteijn & Andeweg, 2010). Building on these models, and the recommendations from strategic niche management, I would like to propose a framework that integrates the following activities: developing a vision or a Triple P purpose; involving multiple stakeholders in the Triple P initiative; co-creating knowledge that is needed from various sources; and creating alignment between niche and regime. Moreover, these activities need to take place in an open-ended process of broad and reflexive learning. These recommendations are based on multiple studies in the area of strategic niche management and, as elements of a framework, they are assumed to be instrumental in pushing the initiative towards the achievement of a Triple P purpose. In addition, the framework needs to support the development of agency. Which procedures and techniques are helpful? For this, I consider recent literature on new businesses in highly dynamic environments (see e.g. Newbert, 2005) that tries to understand how the competitive advantage of a business can be acquired and improved (e.g. Eisenhardt & Martin, 2000).

The literature contends that businesses require dynamic capabilities: the “ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (Teece et al., 1997, p516). Dynamic capabilities are different from operational capabilities. Operational capabilities concern the current operations of
an organisation whereas dynamic capabilities refer to “the capacity of an organisation to purposefully create, extend, or modify its resource base” (Helfat et al., 2007, p4). Resources are created, integrated, recombined and released (Eisenhardt & Martin, 2000). This approach to resources is highly relevant to Triple P initiatives because, by definition, these initiatives imply changes to current ways of working and the development of new practices that better fit the purpose of sustainable development. The route towards sustainable development is often not straightforward and Triple P initiatives may encounter various unexpected challenges along the way (Wu et al., 2012). If a Triple P initiative is to be able to deal with these unexpected and unpredictable events, it is essential that available and potential resources are developed and employed dynamically.

Tatikonda and Montoya-Weiss (2001), suggest, in line with this analysis, that in the context of highly complex projects, tasks with high levels of uncertainty require greater information processing capacity and that organic, as opposed to mechanistic, organisational approaches may provide this capacity. Following traditional routines of project management may result in a well-designed, managed and executed project with the desired outcomes and deliverables but it may still fail because of unpredictable responses of the wider system. The adoption of an innovation in the system is an emerging process. In this process, many decisions have to be taken and activities planned and executed. What tools or techniques are available to support the manager throughout this process?

Eisenhardt and Martin consider that dynamic capabilities consist of the many ‘well-known’ organisational and strategic processes by which managers alter their resource base, such as product innovation, knowledge creation and brokering, alliancing, acquisition processes and strategic decision-making (2000, p1116). There is an abundance of tools to examine aspects of the proposed innovation, its business context and its environmental context, in order to derive strategies and take decisions, such as Porter’s 5 forces (Porter, 2008), SWOT analysis (e.g. Pickton & Wright, 1998), the evolutionary model of product life cycle (e.g. Klepper, 1996), and the opportunity evaluation matrix (Ardichvili et al., 2003). In addition, empirical literature is available on organisational processes and techniques for new product development projects (e.g., simultaneous engineering (Hauptman & Hirji, 1996), stage/gate systems (Cooper & Kleinschmidt, 1990), or development team composition (Ancona & Caldwell, 1992), quoted in Tatikonda & Rosenthal, 2000). Even though tools are available, evidence from the field of strategy research has shown that a haphazard combination of tools and associated sub-strategies can be counterproductive (e.g. Lawless, 1987; Nadler, 1980;
Shih & Chiang, 2005). Each tool or sub-strategy focuses attention on one important aspect of the process, whilst leaving out other aspects. Moreover, executing various sub-strategies side by side, such as conducting an opportunity assessment, performing an actor analysis or developing and integrating new knowledge, may result in progress on various pathways that are difficult to bring together productively when required. Therefore, a congruence model should be followed in which the success of the design and implementation of a strategy depends on the congruence of the different elements of the strategy, rather than on the successful development of the separate elements (Nadles, 1980). Tatikonda & Rosenthal (2000) differentiate between the success of product development by looking at the degree of achievement of separate sub-objectives and the degree of achievement of the combination of sub-objectives, which, in the context of this thesis, entails the concurrent achievement of planet, people and profit values.

From the above, it can be determined that the relationship between the different elements of the framework (Triple P purpose, multiple actors, knowledge integration, and alignment) is more important than the separate elements. Attuning and integrating sub-strategies needs to take place continuously, right from the start. For example, if market for the Triple P initiative changes, product development needs to be adapted, implying that sub-strategies need to change accordingly. The framework, if used in a cyclical manner, brings coherence in the tasks to be executed and the tools to be employed. Functional task uncertainty can be reduced if managers have guidance in attuning, integrating and adapting the different sub-strategies in order to realize the overarching strategy and thus achieve the purpose. Therefore, in addition to ‘well-known’ tools, new tools are needed to support the employment of the framework in a productive way.

Given that managers of Triple P initiatives face high functional task uncertainty, lacking appropriate practices and tools, how can a process be initiated to develop, monitor and improve dynamic capabilities in practice? Most of the Triple P initiatives that were studied for this thesis took place in the context of the innovation programme, TransForum. As a standard procedure of its niche projects, TransForum included a ‘project monitor’ in its project teams (see Beers et al., 2013; Hoes, 2011a; Regeer, 2009). These monitors were able to study these processes but also to identify needs for supportive practices and tools. The monitoring methodology (referred to as Reflexive Monitoring in Action) employed aimed to assist project teams through on-going monitoring, reflecting on the relationship between ambitions and practice, and developing strategies to deal with obstacles (van Mierlo et al., 2010). It was based on
principles of fourth-generation evaluation (Guba & Lincoln, 1989), responsive evaluation (Abma & Stake, 2001; Stake, 1983) and action research (Kemmis & McTaggart, 1988a), approaches that resonate with the need for dynamic capabilities. In the next section, I describe the research approach in more detail, including how the different studies contribute to the development of a strategy framework and tools that help managers of Triple P initiatives to build dynamic capabilities to reduce task uncertainty.

1.3 Research design

This section describes the research design of this thesis, providing a description of the research approach and research methods used to answer the study questions and main research questions. In order to answer the study questions, several studies were conducted, building on each other in an iterative way. At the end of this chapter, issues related to validity are addressed and the outline of the thesis is presented.

1.3.1 Main research question and study questions

The theoretical background shows that current literature on the governance of niche experiments provides insufficient action perspectives to support managers in the day-to-day practice of governing Triple P businesses; managers face high functional task uncertainty. To reduce this and to support managers in their tasks, the aim of this thesis is two-fold. The thesis aims to contribute to (1) the understanding of the processes involved in the governance of niche experiments that aim to achieve Triple P ambitions. Insights are gained by studying niche experiments. At the same time, the study of the niche experiments, through reflexive monitoring, aims to support the manager of niche experiments, leading to the second aim: the development and implementation of a framework and tools to reduce the functional task uncertainty managers face in the governance of niche experiments. Consistent with this objective, the research question was formulated as:

What framework can be developed to understand and guide the integrative processes involved in the governance of niche experiments and what tools can be identified to reduce the functional task uncertainty faced project managers in the governance of niche experiments with a Triple P purpose?
I formulated six study questions that further specify the main research question:

1. What elements should a framework comprise to reduce functional task uncertainty in the governance of niche experiments with a Triple P purpose?

My research started from the position that managers of niche experiments need support in order to reduce the functional task uncertainty they face. This study aimed to articulate simultaneously a useful framework and support the employment of the framework in practice by developing tools. A second study question of this thesis is therefore:

2. What tools can be identified to support the employment of the framework, and thus the governance of niche experiments with a Triple P purpose?

The next study question focuses on the role of the Triple P purpose in the governance of niche experiments:

3. How can the process of shaping a Triple P purpose, and its role in governing niche experiments, be understood?

The challenges and difficulties experienced by managers are specific to their context but, at the same time, it is expected that niche experiments with a Triple P purpose share some common characteristics. To reduce functional task uncertainty, managers can thus learn from the experiences of managers of other niche experiments. This requires the exchange of experiential knowledge. The fourth study question is therefore:

4. How can the exchange of experiential knowledge about the governance of niche experiments with comparable dynamics be supported in order to reduce functional task uncertainty?

From the perspective of a funder, a policy programme starts with clear goals and objectives and the niche experiments are held accountable for the extent to which these objectives are reached in the given period and budget. This need is not necessarily be compatible with the emergent character of and the learning approach often taken by a niche experiment. This discrepancy often translates into different perspectives on the role of evaluation in the context of niche experiments. The fifth study question therefore is:
5. What strategies can be identified to deal with and overcome tensions between monitoring aimed at stimulating learning within projects to reduce functional task uncertainty and monitoring directed towards the accountability requirements of funders?

The tools to support the employment of the framework for the governance of niche experiment explored under study question 2, were first developed and experimented with in the context of the sustainable development of agriculture and mainly employed by researchers as external monitors. To determine whether the tools are also relevant in other contexts, the following study question is formulated:

6. To what extent can the tools, developed and implemented to reduce functional task uncertainty in the governance of niche experiments aiming at the sustainable development of agriculture, be applied to other contexts?

I expect that studying these six questions will provide scientific as well as practical insights into the challenging, complex and important practice of governing niche experiments for sustainable development.

### 1.3.2 Research approach

Given the dual objectives of gaining insight in the processes involved in the governance of niche experiments and developing a framework and tools to reduce the functional task uncertainty faced by managers, an iterative conceptual-methodological study approach was taken. This means that studying the process involved in the governance of niche experiments and the development of the framework, and of ways to effectively employ the framework in practice with the help of tools, took place simultaneously during this study. By engaging with managers of niche experiments in practice through Reflexive Monitoring in Action (RMA), the framework and tools were continuously realigned and refined by iterating between the design of the framework and tools, and the practice of governing niche experiments. This iteration process is visualised in Figure 1.1, which will be explained in more detail below. This research can thus be seen as a form of design research which aims at ‘both developing innovative interventions and identifying underlying design principles or theories’ (Plomp & Nieveen, 2013). For this study, an iterative research approach is necessary because of the emergent, adaptive interaction between experiments in niches and the system. An iterative research approach allows the use of practical experiences to improve the conceptual model and to create a set of effective tools.
To develop a coherent framework and set of tools, an iterative, continuous process of conceptualisation and methodological employment needed to take place during this study. In recent years, new research methodologies have been developed to gain insights into the processes involved in the governance of niche experiments that, at the same time, reduce the functional task uncertainty of managers. Reflexive Monitoring in Action (RMA)\(^6\) is one such methodology. The core of the methodology is the participating in and monitoring of the niche experiment processes by participating as so called ‘monitors’. RMA combines the methodology of Reflexive Process Monitoring (RPM) in the agricultural sector, developed by researchers at Wageningen University and Research centre (see, for example, van Mierlo et al., 2010) with the Interactive Learning and Action (ILA) monitoring approach\(^7\) (see e.g. Regeer et al., 2009) developed by a team of researchers at the VU University (including the author of this thesis).

Initially, monitoring was considered primarily a research activity conducted by an independent person, focusing mainly on making observations, analysing the findings and presenting these to the project team (orally and/or in writing), much like standard on-going evaluation. Increasingly, monitoring began to focus on sharing observations with the project team in shorter feedback loops and collaboratively developing responses to the findings (e.g. strategies to deal with obstacles), thereby connecting learning to action (and vice versa). Moreover, it was recognised that the role of monitor could be played not only by an external researcher but also by the project manager, a team member, or any combination thereof (van Mierlo et al., 2010).

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\(^6\) RMA was developed in the context of the M&E van netwerken (Monitoring and Evaluating networks) project, which was funded by LNV (former Dutch Ministry of Agriculture, Nature and Food Quality). The knowledge and insights acquired during the monitoring of four niche experiments were central within this project, namely Regional Fresh Chains (Regionale Versketens), Agromere, Farming with Future, the maize case (Telen met toekomst, de mais casus), and Cow Power (Kracht van Koeien).

\(^7\) The ILA monitoring approach is based on the Interactive Learning and Action (ILA) approach which was developed in the late 1980s and early 1990s to adapt agricultural innovation to the needs of small-scale farmers in developing countries (Bunders & Broerse, 1991). The ILA monitoring approach was initially developed in the context of the Dutch system-innovation programmes, such as the TransForum programme and NIDO-DSV programme for sustainable urban development, but is currently also applied to other contexts. The NIDO programme (Dutch National Initiative for Sustainable Development) has been conducted in the context of ICES/KIS 2. This programme was funded by the Dutch government to strengthen the country’s research and development capacity. One of its programmes was de programme on Sustainable Urban Renewal (DSV).
In the process of monitoring niche experiments, participant observation played an important role. Many of the data on which this thesis is built has been gathered through the observation during meetings, but also more in general through the participant observation during the process of establishing a Triple P business. Participant observation enables researchers to study and to learn about the activities of the people under study in the natural setting through observing and participating in these activities (DeWalt & DeWalt, 2002). Through exposure to and in the involvement in the day-to-day activities of participants in the research setting (Schensul et al., 1999), researchers are able to gain a holistic understanding of the context and the phenomenon under study (DeWalt & DeWalt, 2002). In this study, participant observation was used to gain an in-depth understanding of the governance of niche experiments. Given that the governance of niche experiments is a complex process, it is hard for actors involved to describe and share their experiences. Through observing while participating a better understanding of the process of governance could be obtained.

This design research involved the iteration between theory (developing tools and the framework) and practice (the monitoring of niche experiments), as visualised in Figure 1.1. The upper oval reflects the monitoring of niche experiments, while the lower oval represents the development process of the framework and associated tools. The practice part of this research entails the RMA monitoring of a range of niche experiments, mainly aiming at a more sustainable agriculture. Monitoring of the niche experiments was conducted by a team of monitors, working at the Athena Institute, VU.
University Amsterdam (in which I was involved). The VU monitoring team further consisted of: Dr Regeer, Prof. Dr Bunders, Dr Hoes, Dr Beekman, Dr van Amstel, Dr Caron-Flinterman and Prof. Dr de Cock-Buning. In total, 10 niche experiments were monitored by this team. These niche experiments are visualized as stars within the oval ‘monitoring niche experiments by VU monitoring team’ in Figure 1.1. However, other projects and programmes, some of which also featured involvement of the VU team (not as monitors, but for example as researchers in the final evaluation of Transumo), provided insights that were also used in the development of the framework and tools.

These programmes and projects are indicated as stars outside the monitoring oval. In this thesis I have made explicit or more implicit use of the knowledge and experiences acquired during the monitoring of and involvement in all these niche experiments, that were congregated and reflected upon in the monitoring team of which I was part. Two of the projects in which I was involved, namely Regional Fresh Chains (Regionale Versketens) and the Thematic Learning Programme (TLP) on the inclusion of people with disabilities in development practices, are more explicitly scrutinized in the different articles of this thesis.

The research activities in the lower oval, the development of the framework and tools, was based on the insights and experiences acquired during the monitoring of the niche experiments and vice versa. This iteration between practice and theory is visualised by the double arrows between the two ovals. The dots in the lower oval represent the different research activities that were undertaken to develop the framework and tools. Specific projects or studies focused on the development of the framework or the tools, visualized as dots in the theoretical circle of developing tools and framework. For example, in the TransLearning project of TransForum a specific tool to disseminate knowledge acquired in niche experiments, was developed and evaluated; and Monitoring and Evaluating networks (M&E van netwerken), a project on the further development and refinement of the RMA monitoring methodology also contributed to the development of the tools. In short, observations during the monitoring of niche experiments, supplemented with insights from literature, and experimentation with several tools resulted in a framework and congruent tools that were further developed during this research. My involvement in the different niche experiments and projects related to the development of the framework and tools is described more extensively below.
Involvement in the niche experiments

This section elaborates on my involvement in these niche experiments and programmes (see Table 1.1). I was involved in four niche experiments that were monitored by the VU monitoring team, namely Regional Fresh Chains, Streamlining Greenport Venlo, New Mixed Company, and Green Care Amsterdam. In addition, I participated in three niche experiments and programmes in which the VU team was involved but not as monitor: Greenport Betuwse Flower, Transumo, and the Thematic Learning Programme (TLP) on the inclusion of people with disabilities in development practices (see Table 1.2).

Table 1.1. Author’s involvement in the niche experiments of TransForum

<table>
<thead>
<tr>
<th>Niche experiment</th>
<th>Involvement</th>
<th>Publications with contribution by author</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regional Fresh Chains</strong></td>
<td>Monitoring by VU monitoring team Author:</td>
<td>Liesveld, R. (2008) The making of an audiovisual learning history… A study to the effectiveness of an audiovisual learning history as a monitoring tool. Amsterdam: VU University, Athena</td>
</tr>
<tr>
<td></td>
<td>• Monitoring through participant observation</td>
<td>• Translearning.net</td>
</tr>
</tbody>
</table>
| **Streamlining Greenport Venlo** | Monitoring by VU monitoring team Author:  
| **New Mixed Company** | Monitoring by VU monitoring team Author:  
- TransLearning (interviews with stakeholders)  
- Eye-opener workshop (with A. Hoes) | • Translearning.net |
| **Green Care Amsterdam** | Monitoring by VU monitoring team Author:  
- Contribution to Learning History (interviews with farmers and clients) | • Liesveld, R. (2007) Zorglandbouw voor ouderen. Een kwalitatief onderzoek naar de visies van verschillende stakeholders op de huidige inbedding van zorglandbouw binnen de reguliere gezondheidszorg. Amsterdam: VU Amsterdam  
| **Greenport Betuwse Bloem** | Author:  
- TransLearning (interviews with stakeholders) | • Translearning.net |

In the Regional Fresh Chains\(^8\) experiment I investigated the process of establishing a Triple P business through participant observation at the store in which the first products were sold, and interviews with team members (which were conducted within

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\(^8\) The Regional Fresh Chains experiment was one of the over 30 experiments supported by TransForum and aimed at re-establishing a connection between producer and consumer. More information on Regional Fresh Chains is found in Box 1.2.
the framework of the TransLearning project). In Streamlining Greenport Venlo\(^9\), I was involved in the final evaluation of the functioning of the project team and their experiences, conducting semi-structured interviews with the project team members. My involvement in the New Mixed Company\(^{10}\) (Nieuw Gemengd Bedrijf) experiment consisted mainly of filming and coding the interviews with project team members in the context of TransLearning. I also co-organised an eye-opener workshop, making use of the film fragments made for TransLearning.

<table>
<thead>
<tr>
<th>Programme</th>
<th>Involvement</th>
<th>Publications with contribution by author</th>
</tr>
</thead>
</table>

A more detailed description of the TransLearning project is provided when addressing study question 4. In the niche experiment Green Care Amsterdam\(^{11}\), I conducted

\(^9\) Streamlining Greenport Venlo was also conducted in the context of the TransForum programme and aimed at the sustainable development of the region around Venlo, a city in the southern of the Netherlands.

\(^{10}\) In New Mixed Farm, a TransForum experiment, a new large-scale pig farm has been developed, consisting of a combination of large-scale broiler farm, a slaughterhouse and a bio-energy power station in a more or less closed system.

\(^{11}\) Green Care Amsterdam was also part of the TransForum programme and focused on care farming in and around Amsterdam.
interviews with farmers and clients on ‘green care’ (care farms) to gain insight in the embeddedness of care farming in health care. In the Greenport Betuwse Flower\textsuperscript{12}, I produced and coded film fragments of interviews in which project team members tell about their learning experiences within the context of the TransLearning project.

My involvement in Transumo\textsuperscript{13}, a national programme on sustainable mobility funded by the Dutch government, consisted of the analysis of the interviews conducted with members of the project team and a document analysis in the context of the final evaluation of the programme. In the TLP, I was involved in the process of formulating the purpose of the programme. In addition to attending a reflection meeting on this matter, and being involved in formulating a learning history to achieve the purpose.

1.3.4 Research methods

This thesis consists of three parts, comprising five studies that cover diverse aspects of the research process. Part I covers the whole iteration process and introduces the framework and tools as they were articulated at the end of chapter 2. Part I thus provides answers to the first two study questions. In Part II, different studies are presented, focussing on specific aspects of the framework and tools. Finally, Part III comprises a study which examines whether the tools developed for the governance of niche experiments in the context of sustainable agriculture (as presented in Part I and Part II) are also relevant in other contexts.

Part I

Part I of the study covers the entire study, as visualised by the accolade in Figure 1.2. The two circles indicate that this part specifically focuses on the development of the framework (study question 1) and the development of an associated set of tools (study question 2).

*What elements should a framework comprise to reduce functional task uncertainty in the governance of niche experiments with a Triple P purpose?*

\textsuperscript{12} Greenport Betuwse Flower aimed at establishing close cooperation between the different agricultural sectors that are situated in the Betuwe region.

\textsuperscript{13} Transumo was, just like TransForum, part of the ICES/KIS-3 (BSIK) programme.
Given the body of literature on the governance of niche experiments, an extensive literature study was undertaken to address the first study question. This search yielded an overview of key concepts and guiding principles for the governance of niche experiments, derived from literature on reflexive governance, transition management, and strategic niche management.

In addition, 30 semi-structured interviews with managers and participants of niche experiments aiming at sustainable development were conducted. Nineteen of these interviews were conducted in the context of TransLearning to identify the needs of potential users (managers and participants of niche experiments) with regard to web-based systems to facilitate learning, such as TransLearning. To gain insight into the needs and expectations of potential users, we first asked what challenges they faced in the niche experiments they were involved in before specifically focussing on the design of learning systems like TransLearning. The list of challenges that resulted from these interviews was verified and extended during 11 semi-structured interviews with managers of niche experiments. Together the 30 interviews resulted in an overview of challenges and difficulties faced by managers of niche experiments.

The challenges mentioned during the interviews were combined with the guiding principles from literature, resulting in a framework for the governance of niche experiments. During five design sessions, the research team (de Wildt-Liesveld MSc, Prof. Dr Bunders and Dr Regeer) jointly reflected upon and verified the framework by testing whether the framework fitted our experiences with monitoring and governance.

Figure 1.2. Schematic representation of the focus of Part I (Chapter 2)
of niche experiments in practice. These sessions consisted of talking, thinking, reflecting and trying, applying the framework to specific situations we encountered during our involvement in several niche experiments. Based on these design sessions, the framework underwent several rounds of further development and refinement, resulting in the framework for the governance of niche experiments. More details on the research methods are given in Chapter 2.

Like the framework, the development of tools happened simultaneously and in interaction with the process of monitoring niche experiments. A description of the developed tools has been provided in several publications (Regeer, 2009; Regeer et al., 2011; van Mierlo et al., 2010), however, an analytical study on the action perspectives these tools can offer for managers was lacking. Therefore, a more in-depth study of the tools was necessary to formulate action perspectives for managers to employ the framework, answering study question 2:

What tools can be identified to support the employment of the framework, and thus the governance of niche experiments with a Triple P purpose?

To answer this second question, three specific tools were developed and experimented with: TransLearning, the Dynamic Learning Agenda (DLA) and reflection sessions within the Regional Fresh Chains experiment. The three specific tools were explored and analysed using multiple research methods. TransLearning was evaluated by two group sessions (five participants) with potential users of the web-based system; actors participating in niche experiments aiming for sustainable development. The reflection sessions in the Regional Fresh Chains project were studied through participant observation during the sessions and the reflection on the effects of the sessions on the development of a Triple P purpose. The use of the DLA was studied through participant observation, (informal) interviews with actors using the DLA, and an evaluation session.

Furthermore the relation between RMA tools and the framework was explored by the research team. Monitors from the VU monitoring team, together with monitors from Wageningen University and Research centre, jointly reflected upon and further developed the RMA monitoring methodology by inter alia identifying relevant tools. From these relevant tools, we selected six tools that were developed and/or used by the VU monitoring team: TransLearning, DLA, actor-analysis, causal analysis, timeline-workshop and eye-opener workshop. In five design sessions, the research team (de Wildt-Liesveld MSc, Prof. Dr Bunders and Dr Regeer) identified their underlying assumptions and strategies, by jointly formulating the main objective and outcomes.
Subsequently, these tools were related to the central elements of the framework: integrating knowledge generation, embracing diversity and creating alignment with surrounding systems.

**Part II**

Where Part I focused on the outcomes of the entire research process, the iteration between theory and practice, Part II (Chapters 3-5) zooms in on several specific aspects of the governance of niche experiments (see Figure 1.3). Chapter 3 elaborates on the TransLearning project, in which the learning experiences of four niche experiments were captured and archived (indicated with arrows drawn out of the TransLearning circle). In Chapter 4, the focus is on the Regional Fresh Chain experiment, exploring the dynamics in the formulation of a Triple P value proposition. Chapter 5, elaborates on the RMA project and specifically on the accountability versus learning issue. In this chapter, findings from four niche experiments were used, visualized by the four arrows that are attached to the accountability study RMA circle.

Study questions 3 reads:

> How can the process of shaping a Triple P purpose, and its role in governing niche experiments, be understood?

*Figure 1.3. Schematic representation of the focus of Part II (Chapter 3-5)*
The operationalisation of the Triple P purpose was explored and analysed in the Regional Fresh Chains experiment. The study of the Triple P purpose took place in an early phase of the research project when monitoring focused more on gaining insights and understanding of processes involved in the governance of niche experiments by observation than on supporting and intervening in these processes. To explore the mechanisms at work in formulating a Triple P purpose and gain insights into the difficulties that entrepreneurs encounter, 20 semi-structured interviews were conducted in three interview rounds with the project team and other stakeholders. During the interviews we asked the actors involved in the experiment to articulate their vision on the ‘dream’ of MijnBoer (MyFarmer, see Box 1.2), which is the business part of Regional Fresh Chains, resulting in an overview of how the ‘dream’ of MijnBoer developed over time. In addition, the interviews were used to reflect on and gain insight into the process of establishing a new Triple P business, by identifying obstacles and opportunities they faced. Moreover, participative observation during the project team meetings and informal talks were used to gather information. In addition, I organised four collective sessions in which the project team, consisting mainly of entrepreneurs, reflected on the process of formulating the Triple P purpose. The insights acquired during these research activities were combined with a document analysis on the ‘dream’ of MijnBoer, providing in-depth insights into the development of the Triple P purpose. More details on the research methods can be found in Chapter 3.

Box 1.2. Regional Fresh Chains

Regional Fresh Chains was a niche experiment involving a new sustainable business initiative, MijnBoer (MyFarmer). MijnBoer was set up to counter several trends in the current agricultural chain, such as the lack of fresh, sustainably produced, high quality food for the consumer; the declining variety of fresh food; the low price paid to farmers; the dominance of the retail sector which is motivated by price rather than quality; and finally the resulting disconnection between the city and agriculture with farmers being dispensable because they have been selected on the basis of price.

In order to deal with these issues and to re-establish a connection between producers and consumers, MijnBoer aimed to shorten the agricultural chain and to create transparency in the supply chain by investing in long-term relationships with farmers and selling their produce to third parties without an auction. This enabled consumers to trace where produce has been harvested and to buy fresher food than in the current agro-food chain where food travels long distances via several links. As part of the investment in long-term relationships, farmers received a fair price for their produce which was higher than their production costs.
Understanding that the knowledge and experiences generated in, for example, the creation of a Triple P value proposition could also be helpful to managers of other niche experiments, led to the fourth study question:

*How can the exchange of experiential knowledge about the governance of niche experiments with comparable dynamics be supported in order to reduce functional task uncertainty?*

This question was addressed in the TransLearning project. The aim of the project was to support learning within, between and from niche experiments that were part of the TransForum network through developing and experimenting with a web-based environment that archives, analyses and disseminates learning experiences. The project resulted in the release of the TransLearning system in December 2011, accessible via www.translearning.net. TransLearning is a web-based environment that archives the personal stories and learning experiences of the actors involved in three TransForum experiments\(^{14}\). These stories are reflected in film fragments in which the actors tell about their experiences of their niche experiment. In this way, learning experiences are shared and learning within and between niche experiments has been facilitated.

In the TransLearning project, I first conducted a *literature study* to determine what design principles were relevant to the development of the system. Moreover, the 19 *semi-structured interviews* with potential users, that were conducted in Part I to understand what challenges managers face, were used in Part II to gain insights into their needs regarding a system for disseminating experiential knowledge. *Thirty interviews* took place with project team members of three different niche experiments (Regional Fresh Chains, New Mixed Company\(^{15}\) and Betuwse Flower) on their learning experiences in governing and participating in niche experiments. These interviews were videotaped. Film fragments were edited and provided with codes (reflecting their content) and subsequently placed in the web-based system. Next, the web-environment was evaluated to determine its usefulness in the exchange of experiential knowledge on the governance of niche experiments. This evaluation focussed specifically on the

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\(^{14}\) The experiments in which I was involved comprised: Regional Fresh Chains, New Mixed Company, and Greenport Betuwse Flower. Another member of the VU monitoring team was involved in the filming and coding of interviews conducted in the context of Streamlining Greenport Venlo.

\(^{15}\) The film fragments of the New Mixed Company experiment are not published on translearning.net, as they contained sensitive information that could harm the implementation process.
learning achievements of the TransLearning system and consisted of 11 evaluative interviews with potential users (actors involved in niche experiments) and two group sessions. The results obtained from these evaluative interviews and group sessions provided insights into how TransLearning supports knowledge exchange and facilitates learning and reflection within, between and from niche experiments. More details on the research methods are given in Chapter 4.

One common issue that arises from a comparison between experiences of managers of several niche experiments (i.e. in the TransLearning project) is the alignment of the niche experiment with prevailing systems. This issue was specifically addressed in the fifth study question, with a focus on the requirements of funders:

What strategies can be identified to deal with and overcome tensions between monitoring aimed at stimulating learning within projects to reduce functional task uncertainty and monitoring directed towards the accountability requirements of funders?

To address this question, I explored and analysed the tensions between the accountability and learning in the context of evaluation in detail. This exploration consisted of a literature study on accountability in the context of niche experiments with a Triple P purpose, distinguishing three types of accountability: upwards, downwards and internal accountability, and the analysis of 30 semi-structured interviews with both funders (n=13) and managers of niche experiments (n=17). The analysis of these interviews focussed on the needs and expectations of the interviewees with regard to accountability. Based on this analysis, I proposed an adjusted accountability framework for niche experiments and strategies to deal with the apparent tension between accountability and learning. More details on the research methods are given in Chapter 5. The experiences and knowledge gained were used to further develop and refine the RMA monitoring approach. Moreover, the case provided knowledge on the learning-oriented evaluation paradigm and on how to overcome discrepancies between niche and regime level.

Part III

Part I concerned the framework for the governance of niche experiments and a set of tools that were developed in interaction with monitoring multiple niche experiments. Part II elaborated on three specific aspects (and associated tools) relevant to the governance of niche experiments. The tools discussed in Part I were first developed
and experimented with in the context of sustainable agricultural development and were employed by the research team as external monitors. For upscaling the use of the tools, it is important to explore whether they could also be useful in different contexts, posing the sixth question:

*To what extent can the tools, developed and implemented to reduce functional task uncertainty in the governance of niche experiments aiming at the sustainable development of agriculture, be applied to other contexts?*

To determine whether the tools developed were also useful in other contexts, the research team applied the Dynamic Learning Agenda (DLA) to the context of disability mainstreaming. Although other tools were also developed to facilitate the governance of niche experiments, the research team chose to implement the DLA in another context as it concerns a methodology that can be implemented in combination with a wide range of tools, such as the timeline workshop, eye-opener workshop and case story workshop. The DLA was implemented in the TLP to integrate learning and reflexivity in the social change process of disability mainstreaming in development programmes. The TLP on the inclusion of people with disabilities was initiated by five Dutch NGOs and the Dutch umbrella organisation for development PSO (Personele Samenwerking met Ontwikkelingslanden), and aimed to adopt disability-inclusive development policies and practices. To this end, actors from organisations based in the Netherlands, India and Ethiopia were brought together to systematically and collectively learn from their practices on how to include persons with disabilities in development. In the TLP, the responsibility for the formulation of learning questions and agendas was shifted from an external monitor to the participants of the TLP change processes themselves.

To gain insight in whether and how the DLA was supportive to the governance of the TLP *participant observation* during training sessions was key, generating a deeper understanding of how the DLA supported members of the TLP in the change process towards disability inclusion. In addition, *informal interviews* with actors involved in the TLP who used the DLA in their work and *an evaluation session* were conducted to reflect, together with members of the TLP, on the DLA as a tool to facilitate learning and reflection. These interviews and sessions provided in-depth insight into the key-challenges faced when applying the DLA within the TLP. Although I was not personally involved in employing these research activities, analysis was possible as all activities within the programme were carefully and explicitly documented by recording of all sessions, transcribing all data, and keeping observation and planning
logbooks. More information on the research methods used in the TLP is presented in Chapter 6.

1.3.5 Data analysis & research validity

This section addresses the question of how I ensured the validity of this research. With respect to the validity of a study, a distinction is often made between internal and external validity. Internal validity addresses the extent to which the methods used were suitable to answer the main research question and the effect of the researcher on the research setting, participants and data interpretation, while external validity focuses on whether the outcomes can be generalised and applied to other contexts. In this thesis we address the external validity mainly with the research in relation to study question 6 (Chapter 6), as well as relating the findings to broader scientific literature.

With regard to the internal validity of this study in general and specifically to the data collection methods, I used two types of triangulation to enhance the credibility of the data. I used methodological triangulation (Denzin, 1970; Morse, 1991), using a broad range of data collection methods, such as desk studies, documentary analysis, interviews, group discussions and participant observation during meetings, to minimise the limitations of any specific method. The use of participant observation also enhances the validity of the research (DeWalt & DeWalt, 2002) In addition, investigator triangulation (Denzin, 1970) was used, involving multiple researchers to reduce the bias of individual researchers.

The data generated were extensively documented. Records were kept with observations made during meetings while interviews and group discussions were recorded and transcribed verbatim. A member check (Sandelowski, 1993) was included to ensure that the interpretation of data reflected the perspectives of the interviewees. For this member check, a summary of the transcripts was sent back to the interviewees and participants of the group sessions were invited to reflect on the interpretations of the data. The analysis of the interviews and group discussions was undertaken by at least two researchers, working independently. The coding of the data was inductive. Researchers then worked together to compare and discuss the coding scheme and to reconstruct the story. In addition, the research team applied reflexivity by self-reflecting on potential biases and predispositions influencing the studies. In this way, the team sought to become self-aware and to control or manage biases. This self-awareness was also fostered by brainstorming and exchanging ideas with people who were less involved in the research process underlying this thesis.
1.4 Outline of the thesis

Chapters 2 to 6 present the findings of this thesis. The chapters are divided into three parts to explicate the differences in focus in relation to the main research question. The different chapters have either been published or are under review for publication in international peer-reviewed journal and have only been slightly adapted to ensure consistency in terminology, reference style and lay-out. As a result, some duplication may occur between the chapters, and between chapters 2-6 and the introduction of this thesis.

In Part I (Chapter 2), a strategic framework and a set of tools to enhance the adaptive capacity of niche experiments is introduced. Part II (Chapters 3-5), elaborates on specific aspects of the governance of niche experiments. Chapter 3 provides insights into the process of the articulation of a so-called Triple P value proposition at the early stages of the development of a new, innovative Triple P business initiative. Chapter 4 focuses on the question of how TransLearning supports knowledge exchange and learning across niche experiments with comparable dynamics. Chapter 5 explores the tensions between learning-oriented evaluation methodologies, such as RMA, and the accountability-oriented requirements of funders from a transition perspective, reframing these tensions as discrepancies between niche and regime level that requires alignment. Several alignment strategies are proposed to resolve the tensions between accountability and learning. Part III (Chapter 6) explores the extent to which the DLA can be applied to other innovation contexts.

Chapter 7 synthesises the findings presented in Chapters 2-6, revisiting the study questions and main research question posed in Chapter 1. This synthesis provides insights into how the functional task uncertainty experienced by project managers can be reduced using a framework. In addition, this chapter discusses and reflects on the validity of the findings of this thesis and presents recommendations for future research. The chapter concludes with a brief reflection on the aims of this thesis.