

Introduction

People are trapped in history and history is trapped in them. (Baldwin, 1964: 154)

In this book we develop an autecological theory of the firm and its environment. An approach we argue is necessary to fully understand the ecological interaction between individual firms, or specific types of firms, and the unique environments they both experience and modify. We outline the need for this new approach and also the theoretical and philosophical foundations of an autecological theory of the firm and its environment. We also present empirical evidence of the type of new knowledge gained from using this approach. Writing this book is a difficult challenge, for the ideas contained within will be swimming against a strong historical tide of intellectual currents. Given that we cannot rewrite this history, the best place to start is by explaining the historical literatures these *new* ideas interact with, intentionally or otherwise. Through this process, the underlying fundamental assumptions that govern differing ecological logics can be more fully appreciated. It is not the intention to merely demonstrate a sound understanding of the historical literature, but rather to illustrate an empirical *pathway* that has remained unexplored for the best part of 100 years. This book represents an intellectual endeavour to reopen that pathway, and to assist others to navigate it guided by a specific set of theoretical and philosophical insights.

It has previously been said that to ‘understand the behaviour of an organization you must understand the context of that behaviour – that is, the ecology of the organization’ (Pfeffer and Salancik, 1978: 1). This ambition represents the starting point of our intellectual journey, to fully explain the ecology of a firm (or identifiable types of firms) and the unique operational environment they experience/modify. To do so we must travel back in time to reconnect to a previously advocated method of ecological investigation. Through this process we discover a void that has waited a long time to be filled. A void that has narrowed due to dominance of sociological theories that have ignored the individual firm in order to give preference to the collective actions of populations of firms and higher-order community relations (see Hawley, 1950; 1968; Hannan and Freeman, 1977; 1989). The

front cover of this book demonstrates our specific focus on the uniqueness of individual firms. We assume that, if we could observe the firms that others so neatly categorize using discreet industry codes through a set of autecological binoculars, the diversity of their features would be obvious to see. That said, we do not seek to elevate our autecological approach over the established organizational ecology approach (hereinafter OE), just simply to restore a balance to the use of ecologic reasoning in such investigations.

For a moment, we invite you to think about the streets where you live, where there are firms that quietly survive. Firms like restaurants, which refuse to accept credit card payments, whose décor is seriously dated and who close their operations earlier than we might like. Yet they survive just fine over long periods of time in environments apparently characterised by significant environment change. The nature of such survival is *untouched and unexplained* (to draw upon Darwin's phrase) by most theories of the firm. This book is focused on the survival of such firms. Small firms increasingly contribute significantly to local employment and production globally, yet they are virtually invisible in many studies. They are either deemed too simple to study or are stripped of their individuality in aggregated datasets. Nevertheless, they are numerically the most dominant form of business globally, and therefore are worthy of our attention alongside all other forms of business. The ideas contained here are not limited to small business; they apply to all business types. However, just as common fruitflies provided Dingley and Maynard Smith (1969) with access to a unique context to observe the process of evolution, so we believe that understanding the uniqueness of the firms we are surrounded by and the unique operational environments they experience/modify will aid the development of our approach.

It will be demonstrated that such firms are rarely selected for or against uniformly by the presence of a common environment, as assumed in population ecology models (Hannan and Freeman, 1977). Neither should we expect these firms to possess superior resources and/or routines in comparison to other firms that have already failed, as might be expected if studied from the perspectives of the dynamic capabilities approach (Teece, Pisano and Shuen, 1997), resource-based view of the firm (Wernerfelt, 1984) and/or evolutionary economics (Nelson and Winter, 1982). These firms may not even conform to their industry's assumed requirements, as expected in institutional theory (DiMaggio and Powell, 1983). Firms, that may indeed seem unrestrained in shaping the nature of their operational environments, unlike the central assumptions of the resource dependence approach (Pfeffer and Salancik, 1978). Finally, firms that may also appear to be less efficient than other firms that have already failed, in contrast to the central assumptions of transaction cost theory (Williamson, 1985). If we are right,

that ordinary simple firms do defy the logic of so many well-developed theories of the firm, then perhaps our autecological theory of the firm and its environment has a place in investigating such common resilience.

We are suggesting that a great many firms are capable of matching the requirements of *their* operational environment, using their internal cognitive abilities to develop intuitive situational awareness (Endsley, 1995). Although we will spend a great deal of time in Chapter 3 explaining exactly what is an operational environment, for now we offer a simple definition. The operational environment of a firm is all environmental phenomena *observed* to have *operational relations* with any firm. The operational environment must always be first observed, rather than merely inferred. The operational environment is directed, timed, ordered and spaced by and across the lifeline of a given firm. This conceptualization of the environment is quite radical in comparison to existing definitions of environment in organizational studies, drawing heavily upon the original ideas of Mason and Langenheim (1957) and Spomer (1973). As the title of this book suggests, we argue that a firm cannot be defined in isolation to its operational environment, and vice versa.

We argue that previously too much attention has been directed to the big economic, social and technological events occurring in our economies, assuming uniform impact, whilst forgetting that such period effects (Aldrich, 1999) may not actually impact all firms equally. Herein lies the central story of this book, a fine-grained consideration of what actually happens on the corners of our streets for those firms that simply maintain their existence. There will be no grand theory produced that will lead to bankable predictive expectations. The aim of the book is to furnish the reader with an alternative ecological approach to explain the selective survival of all manner of firms we encounter daily as researchers, customers and resource providers.

THE UNFOTUNATE BIRTH OF HUMAN ECOLOGY

Imagine you were a stranger walking down a street of a small town in its infancy, a town nevertheless with much construction activity happening. Imagine that elsewhere you were already recognised as an experienced and innovative builder, and you offered your services to the people of this town, only to be rebutted for not complying with their specific and rather concrete building practices. Worse still, imagine that the specific building practices chosen by the people in this town ultimately became the standard for the next 100 years, immune to criticism and/or paradigm challenging improvements; despite you receiving endless acclaim elsewhere during your lifetime.

This unlikely scenario provides a neat analogy of the actual reality of how early thinking in sociology, specifically in the Chicago school of urban

ecology, set the tone of ecological thought in the social sciences from 1915 to present day. Given the direction this book will take, and the clear distinction to be developed vis-à-vis the underlying philosophical and methodological foundations of OE, it's worth travelling back 100 years in time to consider this history. Through looking at the positions of various contributors to the literature around this time, it will become obvious why a vacuum for autecological thinking in the social sciences has persisted for so long.

In 1917 a Scottish sociologist named Robert MacIver published his first major work, *Community: A Sociological Study*, building on previous ideas published in the prominent journal, *Sociological Review*. This major work was instantly acclaimed to be the most important sociology book of the decade (Ellwood, 1917). Conversely, it was also claimed by Park (1918: 544) that MacIver had demonstrated 'no particular familiarity with the sociological tradition' and that the terms used in his book were 'more or less improvised, consequently lacking in precision, and on the whole ... [the] ... volume is vague, thin, [in]plausible, and innocuous'. While not uncommon for any published work to draw competing opinions, one of these opinions matters in the context of this chapter.

Robert Park would be central to the development of the Chicago school and its research in urban ecology. He would publish the seminal *Introduction to the Science of Sociology*, and in doing so would ultimately centre his approach to human ecology on the processes of competition and collective action. His outright rejection of MacIver's early ideas of community would seem to have prevented their use in ecological research. As a consequence, MacIver's explicit focus on the importance of the interests of individuals as driving community evolution and his unique conception of the relations between man and his environment were (it would seem) not further developed in the domain of human ecology and then its successor, OE.

As a result, social ecologists ignored the early ideas of MacIver regarding environment, community and the importance of the individual. It is difficult not to think what might have become of human ecology (and therefore OE) if MacIver's ideas had gained at least some approval by those developing the field of human ecology 100 years ago. Nevertheless, his ideas are very central to the work being developed in this book. Several of his key ideas can be considered briefly here, and they will be themes that will be continually developed throughout the book.

The Ideas of MacIver

MacIver (1917: 361–362) believed 'we all inhabit a single world, but the world is somehow different for every species, nay for every living thing within it'. He added that the 'environment is infinitely complex, never quite

the same for any two living creatures; it is ever present, never to be entirely known or estimated; it is modified by the beings whom it modifies, in an endless and never wholly calculable reciprocity' (ibid: 364). Here the seeds of what would eventually be defined as the operational environment (Mason and Langenheim, 1957) were being cultivated. Explicit consideration being given to the individual nature of reciprocity between individual and the unique environment they both experience and shape. Such thinking was clearly very novel to many sociologists of the day.

With specific reference to the importance of the individual in shaping community evolution, MacIver (1917: 21) stated that 'to those that understand the true relation of "individual" and "social," it will appear no paradox that the fundamental social laws are thus individually determined'. Here the determination of individual humans is central to shaping community evolution at higher levels.

Part of the reason for the rejection of MacIver's ideas by early human ecologists was his strident rejection of sociology adopting scientific methods rather than social methods of inquiry. He famously stated that 'detail has therefore been ruthlessly abandoned for the sake of comprehensiveness' noting 'that the most essential features of the community are the most often misconstrued' (ibid: vii). For the autecologist, the concerns of MacIver remain as true today.

The Task at Hand

The most significant challenge we face writing this book will surely be providing clarity around our intended use of a range of novel concepts and theories. Likewise, our reinterpretation of a good many ecological concepts already in use in the organizational studies literature will also most likely challenge many readers. So we will commence this book with a challenge to you, the reader. We are attempting to provide you with an *alternative* ecological explanation of firm survival. This will require you, the reader, to suspend judgment as to what you may already assume constitutes an ecological explanation of firm survival. It is our intention to provide you with sufficient new information from which to accept the validity of the developed alternative explanation. Essentially, there is an unavoidable challenge of engaging with the extant organizational studies literature germane to this topic, so thoroughly reviewed by Aldrich (1999) and Baum (1996) and Baum and Shipilov (2006). They are the direct artefacts of a long running evolutionary play being played out on the stage of a scholarly ecological theatre. The new ideas developed in this book seek to enable you to add in new actors, previously ignored, and to reinterpret the meaning attributed to the events discussed previously in this play.

It is important that the contents of this book are not viewed as an attack on existing ecological and/or evolutionary approaches to the study of the firm. What is being offered is an *alternative* ecological approach to the study of the firm and its operational environment. There has always existed 'two internally homogeneous sets of ecological theories, or research approaches that stimulate the collection and interpretation of ecological data' (Hengeveld and Walter, 1999: 141). Given the minimal overlap in the two theories vis-à-vis their underlying premises and research priorities, 'they represent two separate and alternative paradigms' (sensu Kuhn, 1962). This book aims to introduce to the domain of organizational studies a pre-existing, alternative ecological approach that has not previously been applied to the study of firms. Our only hope is that you will persist in your consideration of the ideas contained here, as our attempt to describe this alternative approach should, in all fairness, only be judged after the entire book has been fully considered as a whole.

A HISTORY OF FIRMS AND ECOLOGICAL THOUGHT

Explanations of progression and organization in society have long been of importance to sociologists. They have enrolled many ecological and evolutionary ideas and concepts since Herbert Spencer (1864) coined the phrase 'survival of the fittest'. The longevity of this particular phrase has greatly influenced conceptions of evolution and ecological relations in the social domain; with the assumed presence of competitive relationships consistently thought to shape the organization of society (Park, 1936). However, as Carr (1965: 29) stated, 'the function of the historian is neither to love the past nor to emancipate himself from the past, but to master and understand it as the key to the understanding of the present'. That is our intention in recording this selective history of ecological thought, to enable you the reader to better appreciate the emergence, development and suppression of key ideas that have shaped the theoretical and empirical world we share today.

For example, we acknowledge the role afforded to competition in many ecological approaches, but seek to explain why this is so, not whether it should be so. Human ecology, the forerunner to OE, emerged from a veritable intellectual potpourri formed by philosophers, sociologists, naturalists, biologists, botanists, economists, zoologists, anthropologists and geographers, to name but a few. It is from such eclectic beginnings that the ecological investigation of man and his or her institutions was founded. Critically, this period of time was not free from translation errors and such errors, we claim, have disproportionately shaped the development of human

ecology and subsequent OE theory and empirical practice. Therefore, we aim to draw attention to specific events and publications that have influenced the thoughts and opinions of scholars in this field of enquiry for nearly 100 years. Events and thoughts that left the possibility of an autecological theory of the firm and its environment in their wake.

So, with direct reference to developing an autecological theory of the firm and its environment, we will focus upon three issues. First, those significant events that have altered the trajectory of socioeconomic ecological thought away from autecology. Second, the trajectory of socioeconomic ecological thought from the early twentieth century to today. Finally, the implications of this path-dependent thinking upon our quest to develop an alternative autecological approach.

Getting Blown Off Course

Ecology is typically assumed to be ‘the study of the relation of organisms or groups of organisms to their environment, or the science of the interrelations between living organisms and their environment’ (Odum, 1959: 4). Such definitions are common and assume two things. First, the ecologist is on firm ground in seeking to understand the relationship between any given entity and the environment it interacts with. Second, the ecologist is also right to concern themselves with the nature of relations between entities of the same or different form. However, a commitment to the first issue should not be at the expense of factoring in consideration of the second, and vice versa. Herein lies a big problem, which can be philosophically described as committing an epistemic fallacy, or to conflate what we *think is*, with what actually *is*, or confusing epistemology for ontology (Carolan, 2005; Bhaskar, 1975).

We identify specific events within human ecology and also now OE, which suggests an epistemic fallacy is being committed. We argue that the knowledge developed in these domains has not been sufficiently tested, with preference given to seeing knowledge as progressively developed rather than something forever open to critique and challenge. As we noted at the beginning of the chapter, ‘people are trapped in history and history is trapped in them’ (Baldwin, 1964: 154). Despite the many disciplines related to early human ecology, it was primarily sociologists who produced the major works in human ecology (see, Park and Burgess, 1921; McKenzie, 1924; Park, Burgess and McKenzie, 1925). From this starting point a lasting imprint from the founders has survived to this day. An imprint largely based upon overriding concern for community relations and competition as the chief organizing agent (Park, 1936).

Much of our concern relates to the interpretation of important ecological concepts central to how an ecologist would typically be expected to investigate interactions between entities and their environments. Whilst there have always been differences in the usage of many ecological terms given that ecologists act at different levels of analysis and/or ecological scale (Reiners and Lockwood, 2010), the current usage of the term commensalism in organizational studies is totally at odds with *all* other ecological domains of enquiry. At present within the organizational studies literature, commensalism is a descriptor for a *range of competitive relations* (see Aldrich, 1999).

Alternatively, in every other domain of the ecological literature (since its original conception in 1869) it is clear that the term commensalism has been used to account for *one discrete type of relation* in which one entity benefits and the other remains unharmed (see van Beneden, 1869; 1876). That is, it is not used as a descriptor for any form of competitive relation. This difference in usage can be traced back to the original works of van Beneden being misunderstood by first Warming (1909), and then by Fuller and Conrad (1932) who mistranslated the seminal work of Braun-Blanquet (1928). Subsequently, this translated work was used exclusively by Hawley who concluded that ‘the most elementary and yet salient expression of commensalism in nature is competition’ (1950: 39). Since then, Hawley’s work has remained highly influential to many organizational scholars with reference to the issue of competition (see Hannan and Freeman, 1977; Pfeffer and Salancik, 1978; Astley, 1985; Carroll, 1985; Barnett and Carroll, 1987; Barnett and Amburgey, 1990; Baum and Singh, 1994; Aldrich, 1999; Greve, 2002; Rao, 2002). Sadly, within the domain of organizational studies the assumption that commensalism is a form of competitive relation continues unchallenged.

At the heart of observing, understanding and explaining commensalistic relations in an organizational setting is the need to understand the nature of coactions present across time and space. Coaction theory proposed by Haskell (1949: 46) provides the means to reconnect organizational studies to the original meaning of commensalism and all other forms of coaction. Haskell asserted that the major properties of any society vary with coaction, noting that weak and strong ‘classes can only have nine, and only nine, qualitatively different [coaction] relations toward each other’ (that is, +/+, +/0, +/-, 0/+ (commensalism), 0/0, 0/-, -/+, -/0 and -/-), where + denotes a positive gain, - a negative loss, and 0 a neutral outcome. In the natural sciences, Haskell’s classification scheme and its adaptation by Burkholder (1952) have stood the test of time as the accepted way of accounting for population coactions (see Odum, 1971).

Aldrich (1999) adopts Hawley's (1950) symbiotic and commensalistic axes to frame his eight possible relations between organizational populations, with commensalism accounting for the following coactions; 1) -/- full competition; 2) -/0 partial competition; 3) +/- predatory competition; 4) 0/0 neutrality; 5) +/0 partial mutualism; and 6) +/+ full mutualism. When commensalism is taken to account for all other coactions other than those that are symbiotic (see Rao, 2002), then the opportunity to understand and investigate how firms, populations and communities originate and grow is decreased due to an inability to correctly account for relations that are predatorial, parasitic, mutualistic, or based on commensalism.

Locking in a Fixed Course

Putting aside our obvious concern that OE is out of sync with every other form of non-sociological ecological inquiry, another concern looms large. The process of elevating competition over all other types of ecological interactions produces an over-reliance upon law-like generalizations that are founded upon poor ecological logic. For example, in developing *his* resource partitioning theory, Carroll (1984: 71) acknowledges OE as an intellectual descendant of Hawley's (1950; 1968) human ecology. Not surprisingly, Carroll (1985: 1278) relates his notion of resource portioning to Hawley's description of competitive social process claiming they both 'predict a shift from competitive to symbiotic relations between organizational forms'. Carroll's model is widely interpreted (Baum and Amburgey, 2002: 312) as predicting 'that increasing market concentration increases the failure rate of generalists and lowers the failure rate of specialists'. Evidence presented in Chapter 5 differs, with a combination of firm features and environmental factors rather than ecological laws used to explain the distribution of so called specialists and generalists.

A review of ecology literature related to the term resource partitioning again reveals an apparent disconnect between its usage in the natural and social sciences. The term resource partitioning was originally coined by Schoener (1968) and further articulated in his later works, most notably in his 1974 classic paper titled *Resource Partitioning in Ecological Communities*. Whilst the idea of resource partitioning 'is intuitively understood, it is not necessarily straightforward to decide what does and does not qualify as a case of resource partitioning ... at one extreme, ... [resource] ... partitioning may be defined as any difference in the resource utilization among species' (Tokeshi, 1999: 162). It is commonly defined as 'the differential use by organisms of resources' (Begon, Harper and Townsend, 1996: 967). Further, Pianka (1969) produced a major work that identified three specific areas of

focus when considering the process of resource partitioning, they being habitat, food and time.

Despite prior reference to specific ecological literature (see Hutchinson, 1957) that is heralded as providing 'a precise language for the description of resource partitioning' (Schoener, 1974: 27), Carroll appears to claim resource partitioning as his concept. This despite the fact that the concept of resource partitioning (see Schoener, 1968, 1974; Pianka, 1969) had substantially been developed, and at least 58 papers directly related to the coexistence of specialists and generalists (see Wilson and Yoshimura, 1994) already published prior to 1985.

The assumption that competition must drive the resource partitioning process is inconsistent with its development in the natural sciences where other forms of coaction are taken into account. The above discussion suggests a different trajectory of thinking that has accompanied the development of the concept in the OE literature than in the broader ecological literature. Historically, there has clearly been a lack of on-going ties between both literature bases, with many of the many of the most seminal ideas in ecology (Watt, 1947; Schoener, 1974; Connell, 1980; Wiens, 1989; Levin, 1992) absent from OE research. Such a disconnection would appear to have resulted in an over-reliance upon very strict interpretations of what is, for example, competition. Hannan and Carroll (1992: 30) in acknowledging the difficulty of observing competition within populations, argue that increasing a focus on intra-specific competition simplifies the problem 'because one can safely assume that members of the same population have very nearly the same fundamental niche'. Similar approaches that focus upon vital rates, influenced it would seem by past works from Clements and Shelford (1939), Park (1954) and Odum (1959), reconcile the determination of competition with the outcome of interactions. This contrasts with Milne's (1961: 60) definition that 'competition is the endeavour of two (or more) ... [entities] ... to gain the same particular thing, or to gain the measure each wants from the supply of a thing when that supply is not sufficient for both (or all)'.

What we observe is a complete lack of focus on the type of coaction, on the type of resource usage, the time of consumption, the specific location, and the mechanism of interaction missing in the OE literature. In Chapter 5 we present compelling evidence that Hannan and Carroll's (1992) central assumption regarding homogeneous populations is most unlikely to ever be *directly* observed.

There are also many well-established ecological theories, like Brown and Wilson's (1956) theory of character displacement yet to be applied to the study of firms. This theory would seem to perfectly explain how firms adopt or reject particular forms of organization to avoid competition. Especially

when it is recognized that this approach is used in the field of ecology to further develop the idea of resource partitioning. Further, another concept common within the broader ecological literature, but rarely considered in the organizational studies literature is facilitation (Rathcke, 1983). Enrolling this concept offers us the opportunity to rethink apparent competition as potentially something else required to support survival of many diverse types of firms.

In summary, the initial and current thinking in OE has followed a very similar trajectory to that proposed by Hawley and his predecessors. Homogeneous environments exert selection pressure upon populations of firms, with many unable to survive due to a lack of fitness. Worse still, the ability of individual firms to change so as to achieve better fitness is not viewed positively due to structural inertia and/or environmental change occurring too quickly. The assumed opaqueness of the environment is believed to prevent firms from being able to comprehend what aspects of the environment are indeed changing.

Such assumptions have been carried forward by generations of OE researchers, along with the accompanying philosophical, theoretical and methodological assumptions that underpin this thinking. These are choices made by others, and do not reflect the choices made here in our attempt to develop a theory of the firm and its environment. To do so we must develop an alternative ecological approach, an approach with diametrically opposing philosophical, theoretical and methodological assumptions.

To this end, we will leave the last word to Hawley (1988: xvi), who, with reference to Fombrun's (1988) suggestion to consider firms as ecologically capable of adaptation through shaping their environments, said that 'this calls for a rethinking of the strategy of organization ecology. The proposal is unquestionably constructive. Perhaps, however, it is looking further down the road than organizational ecology should travel at this time'. Given the accompanying philosophical, theoretical and methodological assumptions explicit in OE, we agree with Hawley. It would be a tortured journey for all. That is why an alternative ecological approach is required to free individual firms from limiting ecological assumptions made about them. More importantly though, we need an ecological approach to the firm based in the first instance on narrow observations rather than broad inferences. The remainder of this introductory chapter provides a brief overview to the structure and focus of the remaining chapters.

CHAPTER SUMMARIES

Chapter 1. An Alternative Ecological Theory of the Firm and its Environment

There are many theories of the firm, and all serve a purpose. Alvarez (2003: 260) argues that at present most theories of the firm are diverse in nature and ‘developed to address a particular set of characteristics and behaviours of interest’ to different fields of study. In addition, her concerns extend to the type of firm to which such theories typically relate, i.e. the traditional asset-intensive firm. This chapter seeks to sow the seeds of a new theory of the firm that is applicable to all firms, large or small, physical or virtual, private or public and/or knowledge or asset intensive. This chapter seeks to position the proposed autecological theory of the firm and its environment relative to existing theories of the firm. In doing so, this chapter highlights the potential unique contribution this new theory can make through the adoption of a new set of ecological assumptions regarding the interaction between individual firms and their direct environments.

Chapter 2. What is a Firm?

Firms that survive do so by continually adapting to their surroundings in unique ways. They operate in environs that most certainly differ from their neighbours in ways that are mostly confidential, even secret. Such differences may be small or large, but they are ever-present, and this inevitably leads to observable differences in the firms we see across the world, but one may have to look closely enough. This chapter is about firms and the unique relations they maintain with their operational environments to ensure their survival. It will be argued that neither routines nor firms can be seen as isolated from their own external environments; they constantly interpenetrate each other. In defining the firm as a *non-autonomous entity, located in an operational environment, that is socially constructed, goal-directed, boundary maintaining and maintained through sustenance activities*, we redraw the traditional relationship between firm and environment. We achieve this by considering the nature of organization in firms that is dependent upon a range of sustenance activities, these being organized regularly and enduring activities aimed at supporting firm survival (see Gibbs and Martin, 1959). Our aim is understand the adaptive mechanisms of the firm relative to the environmental factors it maintains operational relations with.

Chapter 3. What is an Environment?

A fundamental premise of the autecology approach is an assumption that individual firms operate in and are adapted to environments particular to their operations. We start this chapter by defining the firm's operational environment as *all observable environmental phenomena that are operationally related, directed, timed, ordered and spaced by and across the lifeline of a particular firm*. This definition draws upon the specific works of Mason and Langenheim (1957), Spomer (1973) and Rose (1997). We will draw upon many other ideas to explain our conception of an environment, remaining true to the assumptions that underpin an autecological approach. We do not start with the presumption that firms based in an industry experience a common environment. We therefore do not believe it is possible to consider the selection of individual firms from the perspective of an assumed homogenous selection mechanism that sorts firms based on individual differences. The actual structuring process within firms, a human driven response to perceptions of the environment, is entirely different in a socioeconomic context than it is in nature. Therefore, we see firms as related to environments operationally in unique and historical ways. As a result, we do not need to enrol the process of natural selection to explain evolutionary outcomes within industry contexts. Instead, we confine ourselves to ecological scales consistent with the firms we investigate and rely upon heuristic generalizations to guide our investigations of firm–environment interaction, as is the focus in ecology/autecology (Walter, 2013).

Chapter 4. Modification and Matching

This chapter offers the reader access to several existing theoretical frameworks that provide a new lens to view firm–environment interactions. It has long been recognized (McKenzie, 1924) that firms interact in ecologically distinct and important ways. Relative to plants and animals, firms have a greater array of mobility options and also possess greater capacity to deliberately seek to acquire, control and/or modify resources from within their local environment. However, such interaction is too often not visible once firm-level data has been aggregated to the level of assumed populations and communities. Building on the past work of Luksha (2008) and Jones (2009), this chapter explains the process of environmental modification, demonstrating the value that this ecological framework holds for understanding the feature–factor relationship between firms and their environments. This issue is at the very heart of an autecological approach to the firm and its environment. Therefore, this chapter places great emphasis upon ensuring the reader can comprehend from an ecological perspective

how to account for the nature of environmental interaction occurring between any given firm and its local environment. It will be argued that firms both make and are made as a consequence of interaction with their environment. Importantly, the ideas contained in this chapter differ fundamentally from other ecological explanations of firm adaptation in that individual firms are not required to be assigned membership within a population prior to their adaptive abilities being explained. The focus remains upon the individual firm and its local environment, and a curiosity for contemplating the degree to which firms desire to *tinker* with factors in their local environment (Sahlins and Service, 1960).

Chapter 5. A Model of *Transferred Demand*

In the earlier chapters consideration has been given to explaining the nature of an autecological theory of the firm and its environment. This chapter demonstrates how such a theoretical approach can be used in the field to develop new knowledge on how firms achieve above-average survival. The empirical context is predominantly local restaurant industries in Australia and England, although data from other industry and country contexts will also be presented and discussed. The aim is to illustrate the primary importance of understanding the industry-specific properties of individual firms and the nature of their local environment interactions. It will be demonstrated that individual firms exhibit specific actions that have a profound influence ecologically. Even within an industry, observable specific evolution can be seen to have produced several different types of firms through independent adaptive change (Walter and Hengeveld, 2014). A key feature of this chapter is the presentation of research methods used to conduct research such research.

Chapter 6. Methodological Issues

If the preceding claims that an autecological approach is significantly different are true, then it stands to reason that there will be specific method requirements associated with this approach. It has been said that *nature loves to hide* (Morton, 2013) and Møller and Jennions (2002) highlight six factors that will prevent organizational ecologists from being able to envisage, capture and explain all the variation in their studies. First, the contexts we choose to study are not perfect; there are lags between events and selection and between selection pressures and responses that precede eventual selection (for or against). Second, there is inherent randomness in the contexts we study; no two towns, cities or regions are the same. Third, there are so many possible responses that firms can attempt in response to

perceived environmental change, yet typically only a few are focused upon. This leaves space for confounding variables to create sufficient noise to blur the assumed relationship between other variables. Fourth, many firms' actions vary considerably across time and space and are therefore difficult to measure. Fifth, it is difficult to capture the evolutionary past of all firms being studied. Thus, the capacity of each firm to respond differently is difficult to explain. Last, the actions of one firm can alter (negatively or positively) the outcomes of other firms and their environments, a difficult dynamic to observe. Therefore, this chapter will consider the types of approaches and explanations best suited to conducting autecological research. Of primary consideration, reinforcing the specific philosophical and methodological assumptions upon which autecology has historically developed.

Chapter 7. Opportunities and Future Directions

Given the embryonic nature of autecology in organizational studies, and the fact that its future development depends upon broader intellectual curiosity about the approach, this chapter serves as an invitation to other scholars. In contrast to Aldrich (1999) whose invitation chapter sought to 'create a little distance between ... [his] ... efforts to be balanced in the preceding chapters and ... [his] ... desire to be more provocative' in his final chapter, we attempt to do the reverse. In seeking to claim a distinctive intellectual space for an alternative ecological theory of the firm and its environment, we have already been sufficiently provocative. Therefore, this chapter serves as a bridge to reach out to scholars sympathetic with ecological and evolutionary theories. We aim to highlight a range of issues that have remained problematic to organizational theory researchers and offer suggestions as to how an autecological approach may offer new avenues to solve such issues.

Glossary

One of the challenges of introducing an alternative ecological approach is that some concepts, ideas or processes used are either used differently, used in a different context, or new to organizational studies researchers. A comprehensive glossary of all concepts, ideas and processes used throughout the book will be provided. Emphasis will be placed on: 1) providing an accurate ecological definition; 2) references related to the original and current development of the concepts, ideas or processes; and 3) where necessary, an example of how the concept, idea or process is useful to the field of organizational studies.

