ABSTRACT  This article surveys the body of investigation related to the location of headquarters and other elite corporate decision-making activities, a research field known as quaternary location studies. The discussion includes four main sections following an introduction. The first reviews the initial development of headquarters location research from the early twentieth century to 1980. The second section discusses contemporary developments and criticisms of the field that have diversified the field beyond its early focus on large-firm headquarters alone to examine the geography of all activities related to corporate decision-making. We posit that incorporation of rapidly-growing firms in quaternary research is a key element of this diversification. The third section examines the possibilities for further headquarters location research by making a connection between decision-making location and the literature of techno-economic paradigms. The article concludes by summarizing the current state of the field, and argues that a continued diversification of research interests and perspectives is vital to the advancement of quaternary location studies as an important contributor to improved corporate strategies and more effective public policy.
The Centrality of Corporations to Modern Society
Along with governments, corporations are primary agents of change in the global economy. The impacts of corporate activities at regional, national, and global levels are undeniable. A prime example of such multi-level impacts is Wal-Mart. With over 2 million employees and 2008 annual revenues of US$442 billion, the world’s largest retailer plays an important role in communities across the United States and around the world. While Wal-Mart is best-known for its pervasive retail presence in the U.S. and 13 other countries, activities such as the company’s more than 120 distribution centers and business relationships with over 56,000 global suppliers also represent important interactions with cities and regions worldwide (Graff 2006; Wal-Mart 2008). Clearly, Wal-Mart has a broad impact on the U.S. and global economies. Yet, Wal-Mart is only the largest current example of the impact of for-profit business in modern society. Diverse global corporations such as ExxonMobil, Toyota, Samsung, Deutsche Bank, American Airlines, and ThyssenKrupp each play substantial and influential roles in shaping regional economies worldwide, and providing society with the goods and services that make life as we know it possible today.

With such societal and economic importance has come academic interest in the study of all aspects of corporate activities. Business studies in the social sciences have extended through much of the past century (Berle and Means 1932; Drucker 1946; Chandler 1962; Pfeffer and Salancik 1978; Mizruchi 1996), addressing key themes including corporate governance, structure, strategy, and control. Geographers have an important part to play in this investigation, as corporate activities have complex spatial distributions (MacPherson and Pritchard 2003; Essletzbichler 2004; Tavares and Young 2006). Researchers in economic geography have an ongoing interest in defining business location patterns across all economic sectors, as well as identifying the complex set of interactions that shape the evolution of such spatial distributions (Dicken 2007). However, important elements of this evolving economic landscape still elude satisfactory explanation. This article argues that the corporate headquarters as the most elite of economic venues, encompassing activities including the setting of strategy and the making of high-level business decisions, deserves more attention from geographers than has been given.

This paper reviews the past advancements, current challenges, and potential applications linked to the investigation of the location of headquarters and related business decision-making activities, a field known as quaternary location studies. The article develops these themes through four sections, as follows. First, an introductory discussion explores the emergence of quaternary location studies as a distinctive area of research within economic geography. A second section extends the initial literature to its most recent research directions, discussing the importance of an increasing diversification of interests within the field. The third section of the article examines the possibilities available for the continued development of quaternary location theory by making a connection between quaternary location issues and the broad literature of techno-economic paradigms. A final section concludes the discussion with an analysis of past directions and future needs, arguing that a continued diversification of interests away from a
headquarters focus alone, and toward corporate decision-making considered broadly, is vital to the development of quaternary location studies as a field with applications in corporate and public policy settings alike.

However, before beginning this discussion, it is important to clarify the perspective offered in this paper. The research paradigm that has dominated through much of the development of the quaternary location field is that of positivism, with its oft-associated inclination toward the quantitative analysis of firms and places (Semple 1973, 1985; Wheeler and Mitchelson 1989; Mitchelson and Wheeler 1994). As the study of quaternary phenomena has developed, new insights from the broader study of economic geography have certainly had an impact on quaternary research; to this end, linkages to contemporary corporate culture and embeddedness debates that transcend a purely positivistic approach (Schoenberger 1997; Dicken 2007) enter into the discussion later in this paper. However, it would be fair to assert that positivism has continued to play a central role in contemporary quaternary research, and the review provided here reflects that bias. While we make no apology for a perspective that has provided a foundation for several of our own contributions to the quaternary location literature (Lyons 1994, 1995; Rice 1996, 2005; Rice and Lyons 2007; Rice and Pooler 2009), we also acknowledge the utility of further diversification and a thoughtful repositioning of explanation within the field, a theme to which we will also return. Quaternary location studies is a complex field that ought to transcend any one research approach as it further develops. With those introductory thoughts in mind, the paper begins with a discussion of headquarters location research’s earliest roots.

2 The Emergence of Headquarters Location Research

The initial contribution to the modern study of quaternary location came in the seminal writings of Weber (1929). Although known primarily for its ground-breaking development of manufacturing location theory, Weber’s *Theory of the Location of Industry* laid the foundation for headquarters location studies by developing the concept of a “central organizing stratum”, defined as “all those who are engaged in the general organization and management of the exchange of goods, whether material or immaterial” (1929: 219). While Weber’s elaboration of this concept was embedded in the economic and technological realities of his day, the connection to contemporary research is clear. Weber foresaw the need for a distinct field of geographic investigation focused on the location of strategic management for the overall economy.

The development of this new field of geographic investigation took several decades to begin in earnest. Indeed, as of the mid-1960s, it was still possible to state that the geographic literature on corporate management was non-existent (Goodwin 1965). However, starting in the 1960s, geographers began to analyze corporate headquarters locations specifically. Goodwin (1965) provided the first accounting of the metropolitan distribution of U.S. management activity. His analysis defined the corporate supremacy of New York, but also asked an important question: which cities compare most closely with New York? Investigation of New York’s
premier ranking, and analysis of the factors that might allow other cities to eventually achieve some of the same success, remains a focus of U.S. quaternary location studies.

Following on Goodwin’s early work, a number of important studies began to appear that focused on headquarters location issues. Gottmann (1970) introduced the term “quaternary” to refer to elite, information-based activities involving the direction of production and distribution. Hymer (1972) further developed and updated Weber’s earlier corporate conceptualizations, interpreting the firm as being comprised of different levels of activity, with the highest of these levels consisting of top management connected geographically with the globe’s elite cities. Semple (1973) examined the development of this spatially distributed decision-making system and extended on Goodwin’s empirical work by assessing changing levels of geographic concentration of U.S. headquarters activity. Semple’s findings suggested that the long-term trend was toward a less concentrated distribution of corporate control among the major metropolitan areas of the country. Quante’s (1976) investigation substantiated Semple’s findings through an analysis specifically of New York City, documenting the extent of New York’s headquarters loss to its suburban fringe and beyond in the early 1970s. Stephens and Holly (1981) provided yet more conclusive evidence of an ongoing spatial shift in U.S. headquarters by clearly depicting the growing power of Sunbelt cities at the expense of the Northeast and Midwest.

Semple and Phipps (1982) extended on the cumulative development of the preceding decades with what might be considered as the final contribution to an initial era of quaternary location research. This capstone work proposed an ideal developmental sequence, beginning with a period of increasing geographic concentration of headquarters activity, a period of peak concentration focused on a nationally-dominant city, and a final era involving the growth of a dispersed, national system of major regional corporate centers. Their comparison of predicted trends with U.S. empirical data supported this conceptualization, lending credence to what became the key, early theoretical construct for the field (Wheeler and Mitchelson 1989). A group of other studies from the period (Westaway 1974; Holz 1977; Rees 1978; Borchert 1978; Taylor and Thrift 1980; Semple and Smith 1981) further expanded the study of corporate decision-making internationally. By the early 1980s, a headquarters location literature of some coherence was beginning to emerge, albeit in a largely North American context.

1 Contemporary usage of the term “quaternary”, beginning with Semple’s (1985) reference to the term, includes decision-making and direction for all sectors of the economy.

2 This North American orientation in the literature is clearly reflected in much of the remaining discussion in this review, although there is nothing inherent in the phenomenon of quaternary activity that ought to limit research in the field to the U.S. and Canada. We return to this theme in the conclusion to this article.
3 The Diversification and Contemporary Context for Quaternary Location Studies

3.1 THE BASIS FOR DIVERSIFICATION: 1980 AND ON

Following on its advances of the 1960s and 1970s, the development of the quaternary location literature picked up in pace around 1980. However, a simple increase in publication rate represents only one important change in the literature. Where the earliest studies in the field concentrated on headquarters specifically (Goodwin 1965; Semple 1973; Quante 1976), the new wave of corporate research emerging after 1980 broadened the focus by acknowledging the need to engage the constellation of decision-making activities that exist outside of the firm’s central headquarters. Pred’s (1977) analysis of corporate spatial structure began this process by advancing a spatially-nuanced perspective on corporate decision-making that treated contemporary headquarters location patterns as being embedded within the larger phenomenon of the growth of the modern, multilocational firm. Pred demonstrated that the complexity of the geographic structure of the contemporary firm extends the influence of the firm’s central management across ever-increasing geographic spaces. Pred’s work pointed to the need for geographic research that not only defined the location and distribution of headquarters activity, but also began the process of examining the nature of the interactions among headquarters, other internal elements of the firm (such as subsidiaries, divisions, and plants), and other external elements of the firm’s competitive environment (such as suppliers, sources of finance, and customers). Noyelle and Stanback’s (1984) landmark study of the economic transformation of American cities further solidified the conceptualization of these interactions by showing a close geographic and operational association between headquarters and the external producer services that assist and augment corporate decision-making. Complex organizational links involving headquarters are important elements in the development of contemporary city systems, and the acknowledgement of these elements could be viewed as a defining feature of a new era of quaternary location research.

The work of Semple (1985) encouraged the diversification of quaternary studies by surveying corporate decision-making research themes coming from across the literatures of geography, business, and sociology. Semple’s identification of the many research venues connected to corporate decision-making, including references to corporate structure, economic sectors, and corporate directors, provided a vision for a broad body of theory that could account for the changing location and distribution of the complex bundle of decision-making activities that characterize the modern firm. Given the varied approaches to corporate research that Semple’s inter-disciplinary orientation inspired (Wheeler and Mitchelson 1989; Mitchelson and Wheeler 1994; Lyons 1995; Rice and Lyons 2007; O’Hagan et al. 2008; Rice and Pooler 2009), Semple’s (1985) article ought to be acknowledged for its early insight into the conceptual breadth of the quaternary location phenomenon.

In addition to furthering the diversification of the field, Semple’s (1985) article should also be appreciated for a second contribution: the naming of the literature. Although Gottmann
(1970) had originated the “quaternary” term previously, no one had used the term as a field identifier until Semple. By identifying all geographic research related to corporate decision-making under the quaternary banner, Semple provided a simple but effective means of bringing together a diverse set of research topics in a manner that gives some coherence to the whole. Although it was not without flaws, Semple’s (1985) work deserves to be recognized as a pivotal contribution to the quaternary location field.

3.2 CONTEMPORARY CONTEXT AND CRITICISMS
Before proceeding with further discussion of the field, it is important to acknowledge that the development of quaternary location theory cannot be separated from its broader context within the evolving field of economic geography. It is true that the most prolific contributors to quaternary location research from the 1970s through the 1990s, Semple and Wheeler, viewed quaternary activities largely from a quantitative, positivist perspective inspired by the conventional location theories of Weber (1929) and Lösch (1954), among others. This played an important role in focusing the priorities of the field even as other branches of economic geography experienced increasing fragmentation (Bagchi-Sen and Lawton Smith 2006). However, this is not to say that quaternary location studies have existed in a vacuum. Even as quaternary location research has proceeded from a relatively unified perspective, developments in economic geography and business sociology have constructed conceptualizations of firms, networks, and cities that of necessity inform further quaternary location theory advancement.

For example, recent business research has done much to break apart the simplistic, “black box” view of the firm that characterized much of the conventional location literature before 1970. Within geography, Massey (1979, 1984) called for the replacement of Löschian conceptualizations of abstract, single-plant firms with models of the firm that reflect the complex histories, organizational structures, and competitive environments that characterize contemporary business. Yeung (2000) provides a useful summary of the many elements that economic geography research has identified as being crucial in defining the structures and environments of firms, including business networks, supplier commodity chains, production systems, and various forms of institutions such as trade organizations and chambers of commerce. Concurrently, business sociologists over the past three decades have developed complementary representations of firms as enmeshed in dense inter-organizational networks that link each individual business with elements of their external environment that are both critical to their survival and outside of their direct control (Pfeffer and Salancik 1978; Pfeffer 1987; Mizruchi 1996; Kono et al. 1998).

Quaternary location researchers have responded to these developments, as already outlined, by beginning to explicitly incorporate a variety of intra- and inter-firm structural elements. Regional and subsidiary offices (Martz and Semple 1985; Wheeler 1988b; Meyer and Green 2003; Rice and Pooler 2009; Rice, forthcoming), high-level information flows (Wheeler and Mitchelson 1989; Code 1991; Mitchelson and Wheeler 1994; Walcott and Wheeler 2001), director and ownership linkages (Green and Semple 1981; Wheeler 1988a; O’Hagan et al. 2008;
Rice et al. 2008), and major stockholder and venture capital investment (Green 1993, 2004) all began to be integrated into quaternary studies beginning in the early 1980s. The process of dealing with the impacts of structural issues on quaternary location continues.

At the same time, some strands of relevant economic geography and business sociology research have yet to impact deeply within the quaternary location field. In the social realm, economic geographers have long recognized firm location to be the result of a decision-making process rooted in the preferences, perceptions, and social and cultural networks of decision-makers (Pred 1967; Stafford 1972; Schmenner 1982; Yeung 2001). Schoenberger’s (1997) seminal *The Cultural Crisis of the Firm* particularly emphasized the relationship between corporate culture and the firm’s decisions, including strategic decisions linked to locational choices (Lockheed’s reorientation from airframe manufacturing in Los Angeles to missile production in Sunnyvale being an important example). The concept of *embeddedness*, linked to personal relations, trust, and formal and informal deal-making, further emphasizes the importance of the social dimension as it impacts the activities of the firm (Granovetter 1985; Grabher 1997; Dicken 2007), although Peck (2005) argues that in developing the embeddedness concept geographers have struggled to distinguish between social influences and ‘pure’ economic activities. Quaternary location research has yet to develop a substantive link to these important realizations and debates centering on the firm and its behavior. For quaternary location theory to continue in its advancement, it must better incorporate these important developments from economic geographers working outside of the quaternary tradition.

Although external developments have driven much of the change ongoing in quaternary location research, some of the impetus for reform has come from inside the quaternary research community. One such important, internal debate has been a questioning of the fundamental nature of the initial headquarters location explanations advanced by quaternary research (Lyons 1994; Rice 2005). Lyons (1994) studied the development of the metropolitan distribution of headquarters activity in the United States, and suggested that Semple and Phipps’ (1982) evolutionary sequence may be in need of modification. Rather than a straightforward and sequential dispersal of headquarters from New York to a series of major regional centers, as postulated by Semple (1985), Lyons proposed that his findings might be better interpreted as the outcome of a competitive process involving multiple levels of the urban hierarchy. Although Lyons’ observations were consistent with the predictions of previous theory, incorporation of a competitive process explanation also allowed him to address the headquarters changes occurring in smaller centers that could not be explained with reference to the largest cities alone. Lyons recognized that alternate conceptualizations were needed to offer some hope of *prescriptive* guidance to firms seeking new headquarters locations; indeed, it is this kind of guidance that Semple’s largely *descriptive* stage model cannot supply. While Lyons’ (1994) theoretical development offers some benefit, and the weakness of a purely-sequential model is clear, more investigation needs to be completed before any alternate theory might be offered as a comprehensive explanation for the location of quaternary activity.
3.3 THE SPECIAL ROLE OF FAST-GROWING FIRMS

The preceding pages have introduced a number of specific research themes that embody the broadening of quaternary location investigation over the past two decades. However, one additional phenomenon that has been explicitly linked to quaternary location research deserves special attention. Fast-growing, “gazelle” firms\(^3\) provide the opportunity for insight into the mechanisms that work to change the location and distribution of quaternary activity (Wheeler 1990; Lyons 1995; Rice 2004, 2005; Rice and Lyons 2007, 2008). Quaternary location researchers have investigated these dynamic companies because they shift the focus away from the familiar ground of companies that are currently large and important (Wheeler 1990). While large companies have an obvious importance due to their sheer size and impact, businesses that are expanding rapidly also play key roles in the economy, but for a distinct set of reasons. In a quaternary location context, fast-growing firm studies begin to address the question of how a region might gain decision-making influence due to the success of new firms and industries generated within the region.

Such rapid firm growth differs in scale and character from the metropolitan headquarters advancements generated by large-firm relocations (as in Boeing’s 2001 move from Seattle to Chicago, ironically driven in part by airline connections) and mergers and acquisitions (as in the 2004 merger of Chicago-based Bank One with New York-based J.P. Morgan Chase). It should be noted that fast business growth is not perfectly analogous with new firm generation, as established firms of great size can also experience explosive growth. However, rapid expansion in a large-firm context represents the exception, rather than the rule. The fastest-growing firms are, in general, young and relatively small (Bechetti and Trovato 2002; Rice 2005). Thus, examination of gazelle firms represents an opportunity to investigate a distinct and vital counterpart to the quaternary location literature’s initial emphasis on large and established firms.

So, what has geographic research into gazelle firms uncovered? Contributions to the gazelle literature in economic geography have focused on the evolving metropolitan distribution of the headquarters of these firms, creating a direct link to quaternary location studies. Wheeler (1990) established that gazelle firms have a geography that is distinct from the distribution of large, established firms in the U.S., characterized most notably by a bias toward Sunbelt and suburban locations. Lyons (1995) supplemented Wheeler’s findings with a detailed analysis of the complexity inherent in the spatial distribution of these businesses. For example, although Wheeler (1990) showed that the U.S. South and West have led in rapid firm growth, Lyons (1995) demonstrated that certain western and Sunbelt cities were particular focal points of

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\(^3\) The term “gazelle” has been the most commonly-used name for fast-growing firms as a group (Birch 1981; Stam 2005), although Canadian-based research has also used the term “next wave” (Rice 2004, 2005; Rice and Lyons 2007) and yet others use the terms “10 percenter” (Storey 1994) or “high-growth firm” (Moreno and Casillas 2007). The present article uses the “gazelle” term, given its use in the large U.S.-based body of research.
increasing gazelle firm activity, and that gazelle firms might be seen as important catalysts for economic change and renewal. More recently, Rice (2004, 2005) and Rice and Lyons (2007) have supplemented this U.S.-based analysis with parallel findings for Canada, showing similar trends toward a spreading and suburbanization of Canadian gazelle activity.

In a quaternary location context, these findings provide some indication that gazelle firms may be working to shift the geography of headquarters activity over time with new firm and industry creation, growth and maturation. These findings indicate that further research is needed to address the relationship between the economic change driven by fast-growing firms and the continued development of the geography of corporate decision-making. This fits well with the current research needs of the quaternary location field, since as indicated earlier, one element necessary in the development of an improved and more useful body of quaternary location theory is an improved means of understanding the change ongoing in headquarters city systems. The following section addresses the phenomenon of headquarters change directly by developing an explicit linkage between quaternary location and the literature of economic waves.

4 Quaternary Location Shifts and Evolving Techno-Economic Paradigms

For quaternary location theory to continue to advance, it is important that researchers in the field not only continue to identify new and creative venues for empirical research, but that they also seek out and evaluate a broad spectrum of organizational and developmental concepts from across the business and economic geography literatures. While the number of potential concepts that might be incorporated into quaternary location theory is large, the following illustrates how quaternary location studies can be enriched through a cross-pollination of ideas with related disciplines.

One way of conceptualizing a linkage between the study of rapidly-growing firms and quaternary location theory is to make use of the development literature combining economic long waves and evolving techno-economic paradigms (Dosi 1982; Freeman 1991; Cantwell and Santangelo 2000; Park 2003; Geels 2006; Hayter 2008). From the perspective of the techno-economic paradigm literature, 50-year Kondratiev cycles can be explained with reference to a pervasive set of globally-influential innovations. The concept of a “techno-economic paradigm” (Freeman and Perez 1988) refers to a period in which a set of technologies, production methods, and economic structures drive the global economy, with each techno-economic paradigm (TEP) replacing and being replaced by others in Kondratiev’s generalized 50-year sequence. In this way, the core technologies of the 1770-1830 TEP (water power, sail-powered shipping, and textile mechanization) were replaced by a new set of improved technologies for the 1830-1880 TEP (steam power and iron production, applied to trains and ships), which in turn were replaced by yet other sets of technologies in a series of succeeding TEPs (Geels 2006). The TEP literature provides a powerful explanatory context for the evolution of the overall global economy, as well as for the rise and fall of major world industries, firms, and regional economies. However, from a quaternary location perspective, TEPs also provide a useful theoretical context that can be used
to connect global economic evolution to the location, distribution, and development of individual firms and (of special interest to quaternary location research) their associated venues of corporate control.

For example, the emergence of internal combustion engine technology and the automobile industry, each associated with the 1930-1980 TEP, propelled the rise of Detroit to global headquarters prominence. Although Detroit had a vibrant machinery and transportation business community before the development of the automotive sector (Woodford 2001; Poremba 2003), in the pre-automobile era it had little in terms of globally-important corporate headquarters. Detroit is a good example of an urban region that made a crucial transition: from a collection of many small firms with complementary machine- and materials-technology expertise, through a period of rapid change, eventually evolving into a regional business community dominated by a small number of world-class corporations with enormous automotive production capabilities and influence (Klepper 2002). Rapid business expansion was indisputably an important hallmark of this transition. While it must be acknowledged that the region’s pre-existing business, institutional and social milieu played a key role in the materialization of its regional automotive manufacturing capability (Granovetter 1985; Pihkala et al. 2007), the key point here is that the growth of a global automotive headquarters complex in Detroit is important in its own right. The fundamental research question that emerges here is whether it is possible for the ongoing, technology-driven evolution of the economy to be accompanied by the creation of other nationally- or globally-important headquarters complexes in other urban regions, even ones with minor headquarters roles currently (as with Detroit circa 1890).

Thus, development of the quaternary location literature via a TEP-informed analysis of fast-growing firms offers the possibility of identifying proto-headquarters clusters in the years, or even decades, before their industry’s emergence as a component of a TEP. In the automotive sector cited above, Ford’s 1903 founding and General Motors’ origin in 1908 preceded by decades the fourth (1930-1980) TEP to which the automotive industry was so central (Freeman and Perez 1988). More recently in the high-technology manufacturing sector, the electronics giant Hewlett-Packard was founded in 1947, decades before the beginning of the fifth TEP (1980 onwards) based on information and communications technologies. Further research and theoretical development is needed to advance these ideas, but we believe the utility arising from the process of combining new firm developmental ideas with quaternary location applications is clear. For quaternary location theory to advance to the point of practical use by business and government alike, more basic research and cross-disciplinary insights are necessary.

5 A Field in Transition: Current Insights and Future Research Needs
The literature of quaternary location has resulted in many practical insights into the location and distribution of corporate decision-making activity. Based on the body of research completed to date, it is clear that we have a solid understanding of overall North American headquarters
distributions and trends (Holloway and Wheeler 1991; Semple 1996; Shilton and Stanley 1999; Klier 2001; Gong and Wheeler 2007). However, beyond these basic facts, headquarters research has also resulted in a wealth of detailed insights into the fundamental factors that influence decision-making location, including the impact of airline connections (Irwin and Kasarda 1991; Bel and Fageda 2008), the availability of business services (Noyelle and Stanback 1984; Henderson and Ono 2008), the ability to access the firm’s own facilities (Duranton and Puga 2005; Henderson and Ono 2008), the geography of stock ownership and investment (Green 1993, 2004), the impact of incentives on relocations (Klier and Testa 2001; Garcia-Mila and McGuire 2002), headquarters location differences among firm types (Wheeler 1990; Lyons 1995; Rice and Pooler 2009), and other considerations related to headquarters relocations (Semple et al. 1985; Eisenberg and Friedland 1990; DeYoung and Klier 2004; Gregory et al. 2005). The quaternary location field already provides important answers.

Yet, despite the list of results enumerated above, quaternary location is a field with much unrealized potential. Among the most important of shortcomings is the field’s high degree of geographic focus. Dominated by the many contributions of Wheeler (focused on the United States) and Semple (first in the United States, and later in Canada), quaternary research as of the early 21st century has an overwhelmingly North American orientation. However, nothing in the fundamental concept of headquarters location is specific to North America. As highlighted earlier in this article, a few important publications did focus on non-North American venues early in the modern development of the field (Westaway 1974; Holz 1977; Taylor and Thrift 1980), but recent contributions are few. The important question now is: how can this global gap be addressed?

The voluminous literature concerning world cities (Friedmann 1986; Knox and Taylor 1995; Sassen 1991, 2000; Amen et al. 2006) provides a conceptual framework for the developing, global urban hierarchy that forms an obvious link to the international expansion of the quaternary location literature. However, incorporation of world city concepts is only a starting-point. More contemporary research needs to focus on the location and development of quaternary activities throughout economically-influential world regions such as East Asia and Western Europe. World cities represent crucial focal points in these systems, but the development of entire corporate decision-making systems distributed throughout major world regions would be a more appropriate depiction of the complete range of interests bundled into the quaternary location field.

From this world regional perspective, Bergesen and Sonnett’s (2001) analysis of headquarters locations for the 500 largest corporations in the world, Zhao et al.’s (2004) research on a national financial center for China, and Baaĳ et al.’s (2004) and Bel and Fageda’s (2008) European headquarters studies are welcome international additions, but more global research is necessary to build the quaternary location literature into a coherent body of theory and empirical evidence with true relevance worldwide. Just as the North American city has a geographic form unlike cities in other world regions (Brunn et al. 2008), we cannot assume that established
locational and organizational norms relating to North America’s firms might transfer well to businesses in other world regions. For example, Godfrey and Zhou (1999) demonstrated that firm sizes in Singapore and Hong Kong are relatively small in comparison with Japan, Korea, and the U.S., meaning that the large-firm quaternary research focus dominant in North America would lead to misleading international comparisons involving other regions. Such differences matter. A truly global quaternary research agenda with sensitivity to regional variation is in order.

Yet, not all of the important questions reside outside North America. Even considering the intensely-studied headquarters of the largest North American businesses, some key questions remain. Will these dominant businesses always remain headquartered in the same metropolitan locations? When Fortune 500 firms like AT&T, Boeing, and Bank of America relocate from one metropolitan area to another, a revolutionary event occurs that contrasts with the well-established evolutionary patterns that have been much explored in the quaternary location literature as developed to date. What firm- or industry-based factors relate to such sudden shifts, and how might economic geography better account for these events? Although large-firm location shifts occur infrequently, when they do occur they have an important impact on the regional economies involved. Given the broad interest in major corporate headquarters among governments and businesses, which often translates into large incentives to Fortune 500 firms willing to shift their headquarters location from one city to another (Klier and Testa 2001; Testa et al. 2005; Jean 2009), economic geography can provide a service to society by better specifying the impacts and issues related to the shifting geographies of large-company headquarters.

Of course, much research also remains to be done outside of large firms. Beyers’ (2002) survey of research opportunities relating to the New Economy complements our earlier discussion of fast-growing firms by making the important point that headquarters research is needed beyond today’s largest firms. Beyers cites the headquarters of rapidly-growing companies and information technology firms as emerging examples of corporate decision-making power that need to be further investigated from a geographic perspective. He makes the point that the current era is seeing much change in the technology and practice of business, and with this evolution the geography of decision-making may also be changing. Given the difference in the geography of New Economy activity relative to the geography of established firms like ING, General Electric, Toyota, and Citigroup, an opportunity exists for at least two general kinds of investigations.

1. Transitions from New Economy to large-firm status: under what conditions do firms like Microsoft, Google, and Amazon evolve and emerge from being new and highly innovative players, to become established members of national and world economies? Which cities are better than others in taking small but fast-growing businesses and seeing them succeed in becoming established economic contributors, and why?

2. Headquarters geographies and economic evolution: linked to our TEP discussion, what impact is the large-scale evolution of the economy having on the location and
distribution of the overall headquarters community? As New Economy firms transition into establishment firms, to what degree are they creating new geographies of corporate power worldwide?

These are only a few of the many interesting questions that remain for quaternary location research to address in the decades ahead.

This article has attempted to establish that research from across economic geography and related social sciences has much potential to contribute to an enriched quaternary location literature. We argue that quaternary location theory is a crucial component in building improved understandings of broader urban and regional economies. The corporate headquarters itself is an important, but under-appreciated, component of the economy in the literature of geography. If headquarters shifts and impacts are worthy of front-page coverage in our major metropolitan daily newspapers (Gavin 2005; Case 2007; Smith 2008), why shouldn’t they receive a similar level of attention in geographic research? Given the recognition that governments, business communities, and the news media provide to headquarters relocations, it is time for geographers to construct a body of quaternary location theory that meets the need for headquarters insight present in society.

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