Running head: Evolutionary Neuroscience and Motivation

Evolutionary Neuroscience and Motivation in Organizations

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Abstract

This chapter introduces evolutionary neuroscience and its organizational applications, especially as its use for motivation analysis in macro-level disciplines such as strategic management. Macro-level organizational disciplines have mostly lacked a theory of motivation beyond self-interest assumptions, which fail to explain many important macro-level organizational phenomena. Evolutionary neuroscience provides an empirically grounded, parsimonious perspective on the human brain and brain evolution that helps clarify the profound complexities of motivation. Evolutionary neuroscience's theory of the physiological causes of self- and other-interested motivation can support better macro-level motivation analysis and unify disparate, potentially conflicting motivation theories. Examples are offered of how neuroscience-based motivation theory can support more comprehensive strategic management analysis of competences and competitive advantage.

Evolutionary Neuroscience and Motivation in Organizations

Strategic leadership of an organization can involve profound motivational challenges. However, motivation theory has played little role in macro-level organizational disciplines such as strategic management, corporate governance, organizational change and organization theory. Strategic management theory, for example, acknowledges that a wide range of values motivates different strategic leaders (Finkelstein, Hambrick & Cannella, 2009). However, it relies heavily on the simple assumption that people pursue their own wealth and includes little or no motivational theory for comprehensive analysis of how people with different values in an organization come to work together.

A review of cases in strategic management texts suggests that this focus on simple wealth maximization creates an impoverished analysis. Motivations other than wealth maximization play important roles in many of the longer cases. See, for example, the cases in Grant (2013b), especially those on Starbucks, Wal-Mart, Harley-Davidson, AirAsia, The New York Times, the Italian energy company Eni, American Apparel, and Outback Steakhouse. The cases show, for instance, that Starbucks suffered sharp declines in profit margins after founding CEO Howard Schultz left daily operations. When the Board brought him back, he blamed neglect of values and led a dramatic recovery focused on renewing Starbucks' "humanity." Similarly, a mysterious "family" bond between Harley-Davidson employees and customers drove Harley in its years of success. AirAsia behavior is motivated by a friendly operating culture that reflects the personality of founder Tony Fernandes as the "culture of SouthWest Airlines and Virgin airlines … reflect the personalities of founders Herb Kelliher and Richard Branson."

In each case, seemingly non-economic motives drive key elements of strategy and the creation of competences. In each case, they seem to operate alongside the economic motives of standard theory.

In this chapter, we show that scholars and practitioners can understand such complexes of organizational motivation by first understanding the human brain and the role of motivation in brain evolution. We argue that evolutionary neuroscience can improve our analysis of a wide range of issues. Using strategic management as an example, we show how evolutionary neuroscience can improve analysis of the emergence of competences and competitive advantage. We more briefly discuss how evolutionary neuroscience motivation analysis may contribute to study of corporate governance and organizational change.

The chapter is organized into five sections. First, we provide a brief consideration of organizational literature on motivation, highlighting its limitations for understanding macro-level challenges. Second, we provide a discussion of motivation-related neuroscience, especially research using an evolutionary framework. Third, we put forth implications of this research for better understanding macro-level organizational phenomena and specific strategic management issues. Fourth, we provide a short discussion that considers the usefulness of arguments beyond strategic management and compare our arguments to others that entail multiple motivations. Finally, we summarize key points and limitations.

Macro-level Analysis and Motivation Theory

Standard motivation theories are diverse, and many are related to each other only loosely. Kanfer, Chen, and Prichard (2008, p. 8) begin a summary by showing how goal

choice and goal striving "occupy center stage in our closet of motivation theories." Their phrase "closet of motivation theories" is indicative of the diversity in that no single motivation paradigm exists. Instead, "Motivation theories are like shoes … A few pairs seem to work well for most occasions, but no one pair works for all situations" (Kanfer et al., 2008, pp. 7-8).

Unfortunately, while motivation theory has had many successes at the micro level (Kanfer, 1990), no theory seems to have cobbled a "pair of shoes" that can advance the complex needs of macro-level scholars and managers. Strategic management texts that lack substantial discussion of motivation (Grant, 2013b; Hill, Jones & Schilling, 2013; Rothaermel, 2014) are indicative of this lack of strong macro-level motivation analysis. Some motivation models relevant to macro topics have been proposed. Lawrence and Nohria (2002) focused on the drives to acquire, defend, bond, and comprehend. But such models have not achieved wide acceptance.

Similarly, some economists have noted limitations in self-interest models (Arrow, 1972; Sen, 2000) and tentative steps toward a more complete motivation paradigm in economics have been taken. Behavioral economics has examined the biology of trust (Zak, 2011) and introduced dual-motive theory as a more complete analysis of motivation (Cory, 2006; Levine, 2006).

Thus, neither economics nor other social sciences offer a theory of motivation suitably developed for macro-level organizational analysis. Meanwhile, motivations other than wealth maximization garner increasing attention in the corporate world (Ghoshal, 2005; Paine, 2002). Since no extant approach has yet been adequate for comprehending

such motivations, the usefulness of understanding the human brain and the processes by which our brains came into existence warrants careful consideration.

Evolutionary Neuroscience and Macro Analysis

Evolutionary neuroscience provides a comprehensive, empirically supported, parsimonious perspective on the brain and its development that can clarify complexities of motivation for macro-level analysis and make it easier to think about strategically important processes that standard models obscure. Humans evolved from other primates in a kinship group-level process (Dunbar & Schultz, 2007; Haidt, 2012; Smaldino, 2014), so evolutionary analysis is a group-level study from the beginning. Beyond parsimony, evolutionary neuroscience offers a much fuller motivation model than economic-man approaches. Moreover, the neuroscience it embodies is a compelling basis for integrating other seemingly competing motivation theories.

Much evolutionary neuroscience is based on the work of MacLean (1990). (See Wilson, 2008, for an up-to-date review.) MacLean's anatomical-behavioral studies in lizards, monkeys and other animals suggested the human brain contained three evolutionary layers. These layers played distinct roles in the evolution of motivation. MacLean referred to the earliest layer as the *reptilian brain*, elements in or near the human brain stem. These have changed remarkably little since early amniotes, the earliest creatures whose eggs could survive on land. The brain capacities of early amniotes in our ancestral line (stem reptiles) typically did not support caring for offspring. Therefore, they were overwhelmingly motivated by self-interest. In reproduction, they simply laid fertilized eggs and then left them to fate (Crespi & Semeniuk, 2004).

Caring for the young arose with the second evolutionary brain layer, which MacLean called the *old mammalian brain*, i.e., the mammalian limbic region. A protolimbic region existed in early reptiles (MacLean, 1990; Bruce & Neary, 1995). However, to support parental care, a well-developed limbic region emerged that produced empathy (Carter, 2014; Carter, Harris & Porges, 2009). In today's mammals, it supports parenting motivations, emotions, and social bonding.

MacLean called the third and outermost layer the *new mammalian brain*. This is the cerebral cortex (neocortex) that enables many complex, often learned and planned behaviors. Mammals without well-developed cerebral cortices show empathy mainly to mates and offspring. Those with sophisticated, 'new mammalian brains' (including humans, monkeys, elephants, and whales) care for distant relatives and other social group members. In such mammals, much processing that supports both self-interest and caring occurs in the neocortex.

Since MacLean developed his thesis, considerable data on neural pathways have been gathered. The data have required alterations in MacLean theories. Panksepp (1998/2005) provides a unified current view of affective processes. While MacLean originally thought the evolutionary layers had substantial independence, he later appreciated greater integration. Thus we should not speak of three "brains." Also, scholars criticized reference to a "reptilian" brain because modern reptiles emerged millions of years after the mammalian line diverged from the reptilian. To avoid inaccurate implication, we use the terms "early amniote complex" instead of "reptilian brain," "paleomammalian complex" instead of "old mammalian brain," and "neomammalian complex" instead of "new mammalian brain."

However, recent evolutionary, comparative anatomical, and micro-level neurological analyses show that the brain has three major assemblages that promote different types of operations (and thus motivated behavior) in a manner consistent with MacLean. MacLean illustrated his argument with a diagram similar to Figure 1 (MacLean, 1990). We have replaced MacLean's terms with our more contemporary phrases. The figure is not a literal diagram of the brain. Panksepp (1998/2005: 42) refers to MacLean's figure as a "conceptual cartoon." But this serious cartoon clearly depicts the layers, elements, corresponding behavioral repertoires, and thus, drivers of motivation.

Insert Figure 1 about here

Some neuroscientists make little use of evolutionary layers in their models. (See, for example, Kolb and Whishaw, 2014). Their models are often helpful, especially for less complex processes such as how food intake regulates desire to eat and for many neurological disorders. However, Kolb and Whishaw and other such scholars rarely analyze motivations underlying complex social behaviors that drive organizations.

MacLean has critics who argue that complicated, integrated processes in the brain show his analysis is invalid (Thomas, 2012). However, these authors have not so far offered an alternative way of analyzing complex social behaviors. While evolutionary neuroscience of complex processes is less precise than lower-level analyses of simpler processes like hunger, MacLean's core analysis remains well supported (Cory, 2002a). Psychiatrists (Stevens & Price, 2000) and psychologists (Goleman, 1995) studying

subjects of relevant to macro organizational issues find the MacLean approach extremely helpful. For a review of micro-level analyses supporting MacLean's approach, see Morgane, Galler and Mokler (2005). For a current limbic system model drawing on recent functional imaging data see Catani, Dell'Acqua and Thiebaut de Schotten (2013).

Evolutionary Neuroscience's Analysis of Motivation

Such analysis leads to the conclusion that motivational elements in our brains come predominantly from one of two evolutionary sources. Motivation driven by concerns already present in the early amniotic complex can be summarized as "self-interest" or *Ego* - written with a capital "*E*" to denote that this is the sum of motivations derived from self-preservation circuits, and not precisely "ego" in ordinary usages. Motivation driven by special contributions of the paleomammalian complex can be summarized as "other-interest" or "*Empathy*," again capitalized to indicate the sum of motivations derived from mammalian circuitry. Note, however, that empathy in the ordinary sense of the term – the ability to understand and share the feelings of another – was central to the emergence of the paleomammalian complex, and therefore, such empathy is fundamental to human motivation just as is self-interest (Cory, 2002a, 2002b; see also Decety & Ickes, 2009, especially Carter et al., 2009). Thus, based on evolutionary neuroscience, two global motives, self-interest and other-interest, both tend to drive behavior.

Limbic resonance. The empathy that mammals feel for each other frequently causes emotional states of one to affect others. Lewis, Armini and Lannon (2000) call this "limbic resonance." Through this mechanism, motivational processes operating in one individual can be transferred to others.

The original resonance was between early mammalian mothers and their children. People achieve similar rapport with pets such as dogs. Resonance is less obvious among human adults. But in adults as well as children, the limbic system is what Lewis et al. call an "open loop." "Imitation and mimicry are pervasive, automatic, and facilitate empathy," notes Iacoboni (2009, p. 653). As considered later in chapter 10, such processes are also known as neurological mirroring.

Because of the open-loop arrangement, an individual does not direct all of his or her functions. Others transmit "regulatory information that can alter hormone levels, cardiovascular function, sleep rhythms, immune function, and more," conclude Lewis et al. (2000, p. 85). Consequently, whole groups including large work units can regulate each other. Through this process, group members' motivation changes together, potentially producing coordination on projects. See Boyatzis et al (2012) for empirical study of how resonance works.

Understanding lower-level motivations. Based on the above discussion, motivation can be analyzed in a way that unites disparate motivation theories for a more complete macro model. To illustrate, we will examine the four motivational processes that Lawrence and Nohria (2002, p. 5) proposed as drives "central to the nature of all humans." We summarize standard understandings of how these processes work, and how they relate to the two global motives and the three evolutionary layers. This summary can provide a sense of how evolutionary neuroscience motivation theory can integrate other views.

Lawrence and Nohria's (2002) four drives include: to *acquire* and (2) to *defend* (both motivations related mainly to self-interest), as well as (3) to *bond* (related mainly to

other-interest and drawing particularly on the paleomammalian complex), and (4) to *comprehend* (related to both self-interest and other-interest and especially influenced by the higher cognitive functioning of the neomammalian complex). These drives do not encompass all motivation. Comprehensive summary would have to discuss other key domains such as sexuality, for instance. However, they represent a notable effort to understand motivation in organizations.

In primates, motivation to acquire involves all three brain complexes. Central to the control of motivation is the hypothalamus and nearby regions at the base of the cerebral hemispheres. These regions drive acquisition via interactions with both the endocrine system (hormone glands) and the autonomic nervous system, which is derived from early vertebrates that subconsciously controls many bodily functions. Motivation to acquire also involves areas of the paleomammalian complex that arouse feeding and lust behaviors (MacLean, 1990; Panksepp, 1998/2005), as well as neomammalian areas of the frontal lobes that form strategies by which goals are fulfilled (Pribram, 1973).

The drives that Lawrence and Nohria (2002) call "defend" and "bond" better illustrate the motivational roles of the early amniotic and neomammalian complexes (Eisler & Levine, 2002; Levine, 2008). The drive to defend is tied to the so-called *fight-or-flight repertoire* (Cannon, 1929), while the drive to bond is part of a repertoire that more recently has been dubbed *tend-and-befriend* (Taylor et al., 2000).

Fight-or-flight involves principally early amniotic and paleomammalian elements. The early amniotic complex plays a particularly notable role. Essentially the same elements involved in reptilian fight-or-flight are involved in humans. We can thus consider fight-or-flight a primitive mechanism. In fight-or-flight, these elements trigger

coordinated biochemical changes – "hyperarousal" – preparing for fight or withdrawal (Koob, 1999; Nestler, Alreja, & Aghajanian, 1999). However, fight-or-flight also illustrates integration of brain layers because in humans and other highly social species, it includes paleomammalian and neomammalian as well as early amniotic elements.

The "bond" drive – mammalian caring or *tend-and-befriend* – is, on the other hand, central to cooperation. Well-developed elements of the paleomammalian complex play key roles. Caring brain activity is more complex and less well understood than self-interested activity. However, recent studies, including work on mammals with relatively simple social lives, provide important insight. Two biochemically related hormones, *oxytocin* and *vasopressin*, contribute to many empathy and caring processes (Donaldson & Young, 2008; Insel, 1992). In humans, Kosfeld, Heinrichs, Zak, Fischbacher and Fehr (2005) found that administering oxytocin through the nose to men playing an investment game increased trust in their partners. The drive to bond can be highly beneficial to organizations see Bromiley and Cummings, 1995).

How the brain chooses "defend" or "bond." Our brains frequently must decide whether to follow fight-or-flight versus tend-and-befriend. This is important in organizations because of how other-interest supports cooperation.

Ordinarily the brain executive system, elements that make major decisions and coordinate conscious behavior (concentrated in the neomammalian frontal lobes), decides which behavior patterns to activate (Pribram, 1973; Stuss & Knight, 2002). This represents a process that may entail conscious decision-making. One frontal lobe region, the *orbitofrontal cortex* (OFC), can turn many major behavioral programs on and off. The OFC is the main link between paleomammalian and neomammalian complexes, and

it can make choices with some deliberation. In a famous case, also described in chapter 4 of this book, the OFC was damaged in the 19th Century patient Phineas Gage. A railroad tamping iron went through his skull, damaging the OFC, and he lost ability to plan behaviors changing from a sober to a radically impulsive personality, even as his cognitive abilities remained intact (Damasio, 1994).

Many effects of brain damage are exaggerations of what can happen in normal individuals under stress. Stress can inhibit OFC activity in organization members, for instance, making them lose ability to plan and care, similar to the case of Phineas Gage. Elements in the more primitive paleomammalian complex react more quickly than does the OFC. The former evolved circuits are shorter and more "hard-wired." Thus, they can trigger fight-or-flight in the face of danger well before the neomammalian complex can act. The amygdala, just above the hypothalamus, can launch biochemical changes similar to those that prepare primitive vertebrates for fighting or fleeing danger.

Organizational culture can affect the extent to which bond or defend drives operate. Experience can strengthen or weaken connections to the OFC from other parts of the cortex (Öngür & Price, 2000). Thus, similar interpersonal contexts evoke tend-and-befriend behavior in some people, while evoking fight-or-flight in others. Chronic childhood abuse often causes aggressive reaction to minor slights (Perry, Pollard, Blakley, Baker, & Vigilante, 1995). Such plasticity is greatest in children, yet throughout life, it exists to a lesser degree (Rakic, 2002). Thus supportive environments in organizations can increase reliance on tend-and-befriend.

A comprehension drive. A drive to comprehend is evident in all primates as they are innately curious. For example, when presented with mechanical puzzles, monkeys

spend hours trying to solve them, even without food reinforcement. Panksepp (1998/2005) relates the motivation to comprehend to the emotional/motivational system that drives acquiring. However, the brain rewards curiosity differently from more basic appetitive drives such as the pursuit of food or money.

Biederman and Vessel (2006) found that both complex scenes, as well as scenes in which the perceiver tries to understand the totality of events, activate association areas of the visual cortex in the neomammalian complex. Repetition of the well-understood scenes activates the areas less. As the visual cortex is an area rich with opiate receptors, Biederman and Vessel conjecture that pursuit of novel stimuli is reinforced by opiates.

Neuroscience of Motivation in Organizations

Existing applications of evolutionary neuroscience in organization studies are few, but nevertheless, sufficient to suggest its power. As discussed above, management behaviors can affect the extent to which the drives to defend or bond act within organizations. For example, Goleman, Boyatzis and McKee (2002/2013) analyzed the role of the paleomammalian complex in leadership and leader-follower relations. Drawing on Lewis et al. (2000), they showed that "resonant" leaders can engage followers' neomammalian complexes to create shared positive emotions associated with the leaders' visions. This motivates followers to be more motivated, while simultaneously cooperating with each other. We now more specifically describe the role of evolutionary neuroscience in motivation.

Applications of Evolutionary Neuroscience in Motivation Analysis

The findings described above suggest that evolutionary neuroscience has real potential for helping us to better understand motivation at the macro level in

organizations. Perspectives from evolutionary neuroscience concerning motivation provide a simple, empirically supported theory at a high level, developed from a collective-level perspective. Furthermore, given its connection to the rest of neuroscience, it is an appropriate basis for unifying analyses that include various motivational processes.

Evolutionary neuroscience suggests that our motivation comes from two phylogenetic sources that can be summarized as "self-interest" and "other-interest." This section will show how such an approach to motivation analysis can aid in development of comprehensive solutions to perplexing organizational issues, with strategic management as an example.

Strategic Management's Questions and Other-Interest Motivation

Strategic management texts present the question of why some companies perform better than others as the most central issue in the discipline (Grant, 2013b; Hill et al, 2013; Rothaermel, 2014). Sustained competitive advantage, or superior profitability over a period of years, is often cited as the key goal. As discussed above, the discipline regularly assumes that wealth maximization is the dominant motivation in organizations, despite evidence that such a characterization provides an incomplete picture.

An evolutionary neuroscience analysis of motivation allows more realistic discussions of strategic processes and a better understanding of the causes of competitive advantage than conventional approaches alone. In general, the self-interest motivational assumption supports a mostly rationalist approach to the pursuit of competitive advantage: decide what strengths to build and what weaknesses to overcome, identify threats and opportunities, develop strategies for building strengths and overcoming

threats, and so forth. Established theory notes that sustained competitive advantage is largely a matter of creating competences, or complex sets of abilities that enable a firm to do very valuable things (Prahalad & Hamel, 1990).

However, the creation of competences seems only partially a matter of rational calculation and economic motives. It often appears to call for shared passion in the organization and empathy for customers, that is, matters of other-interest. While theorists may recognize that leaders' passions are important (Finkelstein et al., 2009), they have not been able to do integrated analysis of other-interested activity together with self-interested and purposefully wealth-maximization-oriented activity.

Consider cases published in what is among the most comprehensive strategic management textbooks (Grant, 2013b). The first seven corporate cases describe Starbucks, Wal-Mart, Harley-Davidson, AirAsia, Eastman Kodak, Raisio Group, and the New York Times. The Kodak and Raisio cases are not germane here as they deal with special situations, that is, bankruptcy of Kodak and international product introduction by Raisio.

Core elements of the strategic approaches of the other five firms are displayed in Table 1. The table shows that in each case non-economic motivation has played significant roles in executive behavior and in the workings of the firm. These motivations are limbic-related other-interest motivations.

Insert Table 1 about here

In at least three of the cases, Starbucks, Harley-Davidson, and AirAsia, data indicate other-interested motivations have been core to creation of competences and competitive advantage (Grant, 2013a, 2013c, 2013e). For example, Grant notes that Starbucks founder Howard Schultz' mission was to "inspire and nurture the human spirit." Schultz elaborated: "I wanted to build the kind of company my father never had the chance to work for, where you would be valued and respected wherever you came from, whatever the color of your skin" (Grant, 2013e, pp. 447 and 448).

Evidence that this was not just a slogan emerged after 2000, when Schultz stepped down as CEO. His successor apparently maintained Starbucks excellent conventional processes for managing human resources and the coffee value chain. But margins and same-store sales declined sharply. The Board asked Schultz to return as CEO in 2008. Schultz later said that in his absence, a strategy that focused on growth, thus abandoning the pursuit of growth as a "tactic" to fulfill Starbucks values, had become "carcinogenic" (Grant, 2013e, p. 451).To turn the company around, Schultz' first priority was cutting costs. But beyond that, it was necessary to reaffirm Starbucks values and business principles to revitalize the "Starbucks Experience" and reconnect with customers. The reinvigoration of Starbucks social commitment played a central role.

Schultz led the reconsideration of Starbucks purpose and principles, creation of a new mission statement, and a stronger commitment to social responsibility. He held the annual leadership meeting in New Orleans, where 10,000 Starbucks people worked on post-Hurricane Katrina restoration. "Most of all, Schultz traveled Starbucks geographically, far-reaching organization to meet with employees ('partners') to reinforce Starbucks values, and to reignite their drive and enthusiasm…. Schultz

recounted inspiring tales that exemplified the 'humanity of Starbucks'" (Grant, 2013e, p. 451).

Grant (2013b, p. 35) recognized in Chapter 2 that each entrepreneur is inspired by a "personal and unique" goal and there is a "vast variety of organizational purposes". But lacking a theory that allowed these to be discussed, he stated two pages later that to simplify, he assumes, "the primary goal of the strategy is to maximize the value of the enterprise through seeking to maximize profits" (p. 37). His thinking is in line with a strategic view of responsible leadership, or what Pless, Maak, and Waldman (2012) referred to as an opportunity seeker orientation. Such an orientation may seem reasonable. However, in the case, Schultz says, "When you look at growth as a strategy, it becomes somewhat seductive…. But growth should not be – and is not – a strategy; it's a tactic" (2013e, p. 451). Schultz announced a "blueprint for profitable growth" that the core was "staying true to our values and our guiding principles with a deep sense of humanity" (2013e, p. 453).

Thus, more in line with what Pless et al. 2012) would refer to as an integrator approach to responsible leadership, Schultz seemed to be saying that making profits the primary goal would not work. Evolutionary neuroscience suggests that this is in many cases true. Focusing overwhelmingly on profit would neglect core other-interest motivation, part of employees' "humanity." It should not be surprising that when Schultz' successor adopted Grant's assumptions, the organization under-performed. Thus, paradoxically, Starbucks could not achieve its vast profits if it focused primarily on profits. An other-interested motive can resonate through the limbic systems of the people in the organization in a way that the stated desire to maximize profits cannot.

Similar arguments could be made based on the Harley-Davidson and AirAsia cases. The other two cases in Table 1, Wal-Mart and the New York Times, do not allow judgment on how competitive advantage was originally created. The continual discussion by the founders' descendants of non-economic values, however, suggests that they believed other-interest motivations at least should have been central. Moreover, other sources suggest other-interest motivation played important roles (see Wood and Bjelland, 2015, for Wal-Mart and Salisbury, 1980, for The New York Times).

Thus evidence suggests other-interested motivations drive much behavior in these firms and play large roles in successes. It seems that more valid strategic analysis may be possible if the dual nature of motives originating in the brain is understood, and the roles of both each can be addressed. Such an analysis can probably never include all strategically important, other-interested processes, since other-interest is extremely complex (Donaldson & Young, 2008). However, by drawing on concepts from other areas of organization studies, it may be possible for strategic analyses to address strategically important other-interested motivation without too much of a significant increase in complexity.

An Approach to Including Other-Interest Motivation in Strategic Management

In line with the integrator orientation (Pless et al., 2012) mentioned above, the leadership literature has considered "socialized" vision – a leader's vision derived from firmly-held values or moral justifications that serve the collective (McClelland, 1975; House & Howell, 1992; Waldman et al. 1999). We argue below that socialized vision can be understood not only at the level of the leader, but also at the level of the organization, and that it can represent strategically important working of other-interest. A

neuroscience-informed analysis of socialized vision (or the lack of it) can be part of more comprehensive and better strategic analysis.

Socialized vision as a core way other-interest operates. As also considered in chapter 10 of this book, socialized vision can change people's directions and increase motivation and cohesion. Significant progress has been made in understanding the neuroscience of socialized vision-driven leadership (Waldman et al., 2011).

In existing literature, socialized vision is tightly linked to charismatic leadership. But to gain the full benefit of what we know of neuroscience, socialized vision can be seen as a characteristic of organizations as well as leaders. At the organizational level, moreover, it may not necessarily be linked to a specific style of leadership. Collins (2001) provides evidence that leaders such as Darwin Smith of Kimberly-Clark created socialized vision without behavior that would be recognized as charismatic. At Harley-Davidson, the socialized vision of creating a peculiarly American "family" of riders may have emerged organically, rather than from the vision of a formal leader. Thus, the key test of socialized vision at the organizational level may be the extent to which the vision inspires limbic resonance widely among followers, rather than whether it results from a particular way of leading on the part of a single individual. In sum, socialized vision can be seen as a driver of the creation of competences and competitive advantage over and above its role in implementing a rationally developed strategy. It can complement rational calculation and contribute to building competences.

A More Comprehensive Approach to Strategic Analysis. On a preliminary basis, the above discusssion suggests more valid, strategic management analysis can be created if we address two complementary sets of drivers:

1. pursuit of self-interest, as described in conventional strategic management theory and as seen in early amniote evolution; and
2. pursuit of socialized visions that appeal to organization members' paleomammalian complex-driven, other-interest.

Table 2 summarizes strategic analysis based on these two sets of drivers. On the one hand, analysis based on conventional strategic management theory examines profit opportunities and their pursuit (Jensen & Meckling, 1976). Success is measured by sales, profits and market value and, for individuals, by income.

Insert Table 2 about here

Socialized vision analysis sees conventional strategic processes as important, but insufficient and even unlikely, to produce adequate profitability by themselves. Evolutionary neuroscience suggests it is probably unusual for competitive advantage to be achieved based on the processes of conventional theory alone. Socialized vision analysis asks whether the organization has reason to exist that appeals to other-interested brain elements. If it does, goals can resonate. If they do, traditional measures of success become socialized vision metrics. They indicate resources available for the vision and the extent to which the organization is reaching people to deliver the vision. However, other indicators are also needed. They may be 'softer' (and thus readily neglected), but indications like the sense of mission that Starbucks employees feel are important.

Discussion

We have shown that the study of organizations at macro levels lack a well-developed theory of motivation. We have introduced evolutionary neuroscience as relevant to, and necessary for, more valid organizational analysis. We have provided evidence that at least one macro discipline, strategic management, can leverage the motivation theories of evolutionary neuroscience to better understand core issues.

Next is a brief discussion of how other macro-level disciplines can benefit from evolutionary neuroscience motivation analysis. We follow that discussion with an examination of how these arguments are distinguished from those of others who advocate that businesses pursue both self-interested and other-interested goals.

Evolutionary Neuroscience and Other Macro-Level Concepts

In keeping with Kanfer's dictum that different situations require different motivation theories, we need to be cautious about the usefulness of evolutionary neuroscience in domains that we have not examined closely. However, to provide some sense of utility, we briefly consider two domains: (1) corporate governance, and (2) organizational change.

Corporate governance. The study of corporate governance suffers from polarization between those who build self-interest-based theories (Schleifer & Vishny, 1997) and those who argue the apparently rigorous pursuit of such approaches causes long-term problems. Corporate governance scholars discuss motivation more explicitly than strategic management scholars. Proponents of self-interest-based theories argue that any mixing of motivations will lead to inefficiency (Jensen, 2002). Proponents of stakeholder-oriented theories argue that elaboration of societal needs demands that

businesses behave like "responsible human beings … within a moral framework" (Paine, 2002, p. 107).

The debate becomes confused because proponents of single focus on profit recognize that "enlightened value maximization" (Jensen, 2002, p. 235) may require that the corporation act in ways that appear generous. Proponents of the stakeholder school argue that moral behavior ultimately must, somehow, lead to higher profits (Margolis & Walsh, 2003; Paine, 2000). The debate may benefit from evolutionary neuroscience. The two sides have no clearcut way to consider what happens, or what should happen, in firms. Evolutionary neuroscience can potentially clarify the kind of motivational processes that actually are likely to maximize profitability.

Organizational change. Motivation is central to organizational change. One reason a crisis is so often seen as essential for change (Lewin, 1951) is that threats in a crisis motivate people to consider change.

Yet much organizational change literature contains remarkably little explicit discussion of motivation (e.g., Burke, 2008; Weick & Quinn, 1999). Some change literature discusses motivation, but lacks a theory of how motivation operates in the context of change (Beer & Nohria, 2000). Evolutionary neuroscience may make a substantive contribution. By separating motivations into self-interest and other-interest categories, it may be more possible to discuss motivation during organizational change processes.

Conclusions

We are not the first authors to argue that organizations need to pursue motives other than self-interest, or that doing so can promote profitability (Fairfax, 2004; Lin, Yang & Yiou, 2009; Margolis & Walsh, 2003; Paine, 2000). However, evolutionary neuroscience defines additional, and more basic neurological mechanisms, as compared to other approaches. That is,evolutionary neuroscience provides a way of thinking carefully about why we might expect an organization that systematically addresses other-interest to outperform a purely economically focused organization.

This chapter summarizes an evolutionary neuroscience perspective of motivation and begins to outline how this perspective can be a basis for better understanding motivation in organizations, especially in macro domains where established theory has not provided a firm basis for analysis. Key points that are covered in this chapter include:

- The *three evolved brain layers* in humans support *two global motives*, *self-interest* and *other-interest*.
- Self-interest is the product of early amniote (and earlier) evolution and is inherently conflictual.
- Other-interest is the product of mammalian evolution and is inherently social as individuals and groups exchange emotion and motivation.
- Evolutionary neuroscience is an appropriate paradigm within which to integrate lower-level motivation theories and analyze motivation in macro-level, organizational studies.
- Cases in strategic management texts contain evidence of powerful other-interest motivation driving success. Presently, the tools of the strategic management discipline do not effectively engage this important aspect, but

motivation analysis informed by evolutionary neuroscience can yield a more comprehensive means to understand both self- and other-interest motivations.

- Similar opportunities are likely to exist in other macro-level domains.

A final word of caution is in order. Specifically, the application to organizations of motivation analysis informed by evolutionary neuroscience is at an early stage of development. Research, especially cross-disciplinary assessment, is needed in all macro-level disciplines to better understand how motivation actually works. Nonetheless, evolutionary neuroscience offers substantial opportunities to improve our understanding of motivation in organizations, especially at the macro level.

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Table 1
Strategic Management Cases and Motivations

	Distinctive competence	Conventional strategic methods	Problems from conventional methods	Evidence of non-economic motivation	Results
Starbucks (Grant, 2013e)	A "third place" where people can engage shared experience.	Carefully manages chain of activities that transforms high quality coffee beans into the best espresso.	Founder Schultz removed self from operations in 2000. New CEO continued basic methods, but performance fell.	Mission: "To inspire…the human spirit." Schultz promoted "humanity" (p. 451) of Starbucks people to achieve turnaround when he returned as CEO.	Profits revived after Schultz returned and strengthened commitment to social responsibility.
Wal-Mart (Grant, 2013f)	Lowest-cost major retailer; has "ability to combine huge size with remarkable speed and responsiveness" (p. 504).	Highly efficient distribution, infotech systems; "ferocious cost cutting" pressure on suppliers (p. 512).	Growth results in dilution of close relationships that supported both efficiency and shared values.	Small-town values supported building the system. "A constant theme of the chairman" is "continuity of its small-town values" (p. 503).	Sales, profits are strong. However, ethical issues including major bribery scandal cause widespread unhappiness at stockholders' meeting.
Harley-Davidson (Grant, 2013c)	Heavyweight motorcycles appealing to mature men.	Operational systems learned from Japan. Marketing includes conventional and unique Harley ways.	Harley has difficulty making competitive products outside its heavyweight niche.	Central thrust of strategy is reinforcing relationship with customers that makes an owners' group meeting a "family reunion" (p. 525).	Appeal of membership in the "family" is declining as baby boomers age, so sales may not recover to past peaks.
AirAsia (Grant, 2013a)	Very low-cost air service in Southeast Asia.	Systems copied from Ryanair, Southwest Airlines, EasyJet.	None reported in the case.	Friendly corporate culture and style reflect personality of founder Tony Fernandes as the "culture … of Southwest Airlines and Virgin airlines … reflect the personalities of founders Herb Kelleher and Richard Branson" (p. 561).	Rapid growth, reasonable profits in difficult times.
New York Times (Grant, 2013d)	Leading quality newspaper and news web site.	Cost cutting. Careful development and marketing of web site.	Though web products grow, they attract less advertising and are less profitable than declining print products.	Family ownership articulates non-economic goals "ensuring that … a century from now, The New York Times will still be the leader," (p. 620), and continues to invest in news despite poor profitability.	After sharp declines in the mid 2000s, modest sales and profits achieved.

Table 2
Two Types of Analyses for More Comprehensive Strategic Management Thinking

	Key elements	Motivational drivers	Mechanism of promoting competencies	Tests of success
Conventional strategic analysis	Analysis of profit opportunities and ways that they can be tapped	Self-interest motives as traditionally analyzed in economics	Individuals see economic opportunities and negotiate relationships that will allow them to pursue them for mutual benefit.	Measurements of sales, profits, and market value
Socialized vision analysis	Analysis of whether organization members have reason for pursuing success that appeals to caring elements of brain.	Shared other-interest motives of organization members	Organizational members share goals that resonate among them, and they have a willingness to make sacrifices to achieve the goals.	Conventional measurements of sales, profits, and market value. In addition, estimates of how well the vision is being achieved.

Figure 1. Conceptual Diagram of the Evolutionary Layers of the Brain