

TOWARD AN ECOLOGY OF HUMAN DEVELOPMENT

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HOD 202

DEPTH + APPLIED

May 2008

1. INTRODUCTION

This paper begins with the premise that, as Einstein once put it, to solve today's big problems we will need to move beyond the thinking that generated those problems. This is not a case of 'better' or 'more' thinking, but *a different way* of thinking. 'Solving' global climate change, for instance, will require more than mere science and technology, and the 'problem-solving' instrumental capability it has equipped modern human beings with. As is the case for most of the big confronting problems we face as a human race today, we already possess much of the scientific and technical know-how needed to reverse, or at least retard, global climate change. What seems to be insufficiently abundant is *a species of thinking* that is capable of seeing beyond the paradoxes and contradictions which seem to impede the formulation and execution of solutions that are at once effective and practicable.

The question that I wish to pursue in this paper is "How might we create conditions within our human social systems that foster such a species of thinking?" Implicit in this formulation is the notion that 'transformative,' post-conventional thinking among leaders and policy-makers at the highest level calls for *requisite* capability at all levels of the social systems (e.g. organizations) through which policies are executed and across which policies are governed. That is, leadership and policymaking may be highly 'enlightened,' but unless significant patches of the social systems in which those policies are to be exercised are also 'enlightened,' little movement or transformation can happen.

I just now used the term 'requisite' capability, borrowing from Jaques (Jaques, 1998), to emphasize that different levels of organization—and the tasks and work called for at those levels—require different levels and kinds of developmental capability. At highest levels of leadership, where for instance policies may be envisioned, what is required will be quite different than that at lower levels. So, rather than focusing solely on top-leadership development—i.e. the capacity to use paradox and contradiction, to see whole systems in all their complexity, of being able to think dialectically, etc—we might focus on developing capability at *all levels* of an enterprise, such that the capacities of any individual is *requisite* to the level of demand and thinking required by the tasks and responsibilities that person is assigned (Jaques & Cason, 1994). So, for instance, a front-line manager may not require dialectical and paradoxical thinking needed by top leadership, in order to manage his or her work teams. However, he or she will need the capability to empower and manage those teams effectively, in ways that are supportive of, and congruent to, the imperatives, vision, and goals of senior leaders.

This is the developmental perspective investigated in this paper: to amplify developmental and requisite performance capacity through the design and management of workplace systems and structures. Such a perspective recognizes (1) that human beings are constituted by the systems and structures in which they are embedded; (2) that different people function in different ways, depending in great part on their

developmental ‘center of gravity’; (3) that organizations need people at a variety of developmental levels to accomplish its mission and goals; and (4) that one of the responsibilities of senior leaders and policymakers is the design of those systems and structures that can recognize, leverage, and, ultimately, to *expand* the developmental capacities of people who they are to lead and influence.

I regard such a perspective on human development as *ecological*, in that it seeks to address the developmental demands of an entire social system, and that it also understands individual human development within a systemic frame. Such a perspective recognizes that the complex problems of post-modern societies are, as Rogers (Rogers, 2007) argues, *organizational* in nature. That is, they require the alignment of organizational resources, and can no longer rely solely on individual heroism and ingenuity. In short, the complex problems we now face call for a focus on human development, not as an individual-focused phenomenon, but as a socially and culturally situated one. This paper asks us, therefore, to imagine the organizational setting as an *ecosystem* for human development and growth.

Toward this end, my focus in this paper will be on human development within the context of the software product development company. I choose this as my focus, first because it is the area in which I most often consult, and second because, in my view, such companies epitomize the post-modern, ‘post-bureaucratic’ company (Daft & Weick, 1984; Willmott, 2003), with its myriad business, technology, and speed-of-change challenges. Here’s the research question with which this paper is most concerned:

What is the manner of challenge facing 21st Century product development companies, and what kinds of thinking and sense-making capabilities must be exhibited at all levels to successfully meet those challenges? What approaches might be taken to facilitate growth and leadership that is requisite to the different management and performance levels in such an organizational environment?

The paper will have two parts. In the first part, I survey several perspectives on human development. First, I will formulate a notion of human *capability* that is distinct from mere *competence*. Whereas *competence* refers to the domain of know-how and skill, *capability* refers to what an individual is *able* to think and comprehend—that is, *how* an individual senses and constructs the world.

Having established this important distinction between capability and competence, I then set out to elucidate a small collection of theories which investigate ways in which human beings engage in meaning- and sense-making. I first present Kegan’s ‘constructive-developmental’ stage theory and Cook-Greuter’s ego development stage theory. Then, I turn to Basseches’, and to Martin’s (Martin, 2007) more recent work on, cognitive development. While constructive-developmental and ego development theories address what Laske and others have termed ‘social-emotional’ development (Laske, 2005)—or

how humans make *meaning* of their world—cognitive development refers to how human beings come to make *sense* of their world.

In part II of the paper, I discuss aspects of my work in helping software companies adopt agile process approaches to software development and delivery. To most such companies, such an approach constitutes a significant paradigm shift, requiring an entirely new set of thinking perspectives and practices. For this reason, I have come to regard the transition to agile work processes as a matter of human *capability* development rather than mere human *competence* and skill development. This perspective invites an *ecological* approach to human development, in that it regards the strategic and tactical performances of an organization as a context engendering human development.

Toward this end, I first establish a structural framework based on Wilber's integral four-quadrant model which brings together individual, objective, cultural, and social perspectives. Here we begin to comprehend the many structural features of a developmental ecology. I then reflect on the process aspects of change, more generally, with particular attention given to Lewin's *unfreezing-learning-refreezing* model of human system change. A developmental ecology would give attention to the various stresses introduced by developmental—or what Mezirow called *perspectival* transformation—and how those stresses might be mitigated within an organizational setting.

In the following sections of part II, I describe relevant aspects of agile software development and the various aspects of the process framework it describes. I then situate this framework within the context of a more comprehensive framework for human development. Here, I give special attention to the capacity of such a framework to facilitate developmental growth at various levels in the organization. Such a capacity recognizes the need for developmental capacity across the various levels and stages, as was described in part I of the paper, mapping those levels and stages to the requisite capability demands of an agile organization.

PART ONE: THE DEVELOPMENTAL CONTEXT

2. HUMAN CAPABILITY VERSUS COMPETENCE

A fundamental distinction in human development is the distinction between *development* and *learning*, between *capability* and *competence*. Learning occurs on a horizontal, *linear* axis while development occurs on a vertical, *discontinuous* axis (figure 1). Moreover, learning is a vehicle for increasing competence, while development concerns capability. In this paper, we are interested in *capability*, not *learning*. So, let's take a minute to elaborate the notion of *capability*.

Laske (2005) defines capability as “[a] person’s cognitive and social-emotional maturity level that acts as an ‘enabler’ of the person’s competence and ability to perform” (Laske, 2005:329). Jaques & Cason (1994) view capability solely in terms “work” or “problem-solving capability” (Jaques & Cason, 1994:20). This is more-or-less how I position the term in this paper. They also describe capability as the ability to “use discretion and judgment in making the decisions that will enable a person to solve problems in working towards a goal” (Jaques & Cason, 1994:20).

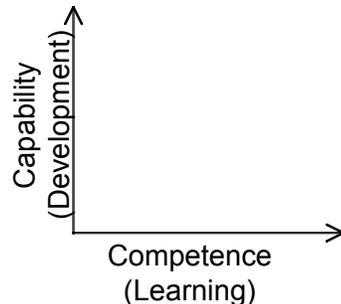


Figure 1: Two dimensions of human growth. Adopted from Laske (2006:23).

Jaques & Cason argue that capability is a function of three elements. First, there is the level of the complexity of cognitive processing. Then, there is the degree of interest in, or commitment to, the particular work in which one is engaged. Finally, there is the level of skill and competence for the work in which one is engaged (Jaques & Cason, 1994:20).

Jaques & Cason reason that among these three elements, only the first—complexity of cognitive processing—is generic across people, existing as part of who a person *is* regardless of the particular work they *do* or the skills they *have*.

But what do we mean by ‘complexity of cognitive processing’? Jaques and Cason distinguish four levels or patterns of cognitive processing—from declarative, to cumulative, to serial, to parallel. What differentiates these patterns from one another are differences in how a “line of thought” is pursued (Jaques & Cason, 1994:30). As Jaques & Cason observe, “[a]ny given person, when engrossed in a problem, would use one of these types of processing as the overarching or encompassing method of pursuing a point” (Jaques & Cason, 1994:30). The progression across the four patterns constitute an advancement in the ‘complexity’ of thinking, at the higher rungs of which we find people who are “able to handle masses of detail rapidly and in an orderly and useful way” (Jaques & Cason, 1994:34).

From a slightly different perspective, Basseches argues that adults at these more advanced stages of cognitive development tend to exhibit qualities of thinking that are ‘dialectical’ (Basseches, 1984). Dialectical thinking represents an alternative to two preponderant styles of thought: universalistic formal thinking and relativistic thinking (Basseches, 1984:9). Dialectical thinking is able to embrace more complex situations in that it is able to (a) include that which is left out in any given situation, and to (b) see the world as an ever-unfolding process which nevertheless (c) has formal and structural qualities that are persistent. Finally, (d) dialectical thinking tends to privilege relationships rather than things tends to see the world as ‘systems of systems’ (Basseches, 1984:74-77). In general, dialectical thinking constitutes, for Basseches, a developmental advance over formal operative and relativistic thinking in its capacity to embrace situations of higher degrees of complexity.

Mezirow (Mezirow, 1991) situates adult capability and its development within the context of an individual’s *meaning-making* system (Mezirow, 1991:xii). Mezirow describes such a meaning-making system in terms of how adults

make sense or meaning of their experiences, the nature of the structures that influence the way they construe experience, the dynamics involved in modifying meanings, and the way the structures of meaning themselves undergo changes when learners find them to be dysfunctional. (Mezirow, 1991:xii)

This cognitive apparatus for meaning construction acts as a kind of filter through which meaning is construed. The resulting meaning-making system alters our awareness of reality, moment to moment, in order to avoid anxiety, in the process creating for itself “a zone of blocked attention and self-deception” (Mezirow, 1991:5).

For Mezirow, *transformative learning* helps people to transcend the meaning-making system by which thinking and perception are otherwise governed; to overcome, that is, “limited, distorted, and arbitrarily selective modes of perception and cognition through

reflection on assumptions that formerly have been accepted uncritically” (Mezirow, 1991:5).

Having briefly considered the notion of human *capability*, I now want to investigate some theories pertaining to its unfolding and development. Stage-developmental theoretical frames provide one way of making such an investigation. In the following sections, I will examine several such theories.

3. THE CONSTRUCTIVE-DEVELOPMENTAL PERSPECTIVE

Before proceeding to a discussion of stage developmental theories, it is important to understand the constructive-developmental foundation on which many such theories are built. First, we will look at Piaget’s notion of *adaptation* as a way in which cognitive systems, very generally, interact with—in terms of making sense of it and of altering it. From here we consider Robert Kegan’s understanding of the ‘constructive-developmental’ framework.

3.1 Developmental Adaptation

Jean Piaget is a pivotal force in developmentalism. When Piaget came onto the scene, two epistemological traditions dominated Western metaphysics and psychology. These were *empiricism* and *rationalism*. According to the *empiricist* tradition, knowledge is gained solely through experience. Whatever form and structure the knowing subject might have has no bearing on the acquisition of knowledge. By contrast, the *rationalist* tradition sees knowledge as constituted solely by the forms and structures of the mind. Whatever it is we ‘experience’ is determined and defined by the forms given within the subjective mind.

Piaget forged a middle ground between the two. For Piaget, knowing is determined by the dialectical interplay between experience (the outer world) and thought (the inner world). On the one hand, experience is shaped by the particular cognitive structures of which the mind is constituted. However, at the same time, those cognitive structures have *plasticity*: they are shaped by the particular cognitive challenges posed by the external world. Learning is, as such, a process of cognitive *negotiation* by which a subject adapts itself to a relentlessly unfolding environment.

Adaptation is a foundational idea in Piaget’s perspective. Piaget described adaptation as the dialectical interplay of two component processes, *assimilation* and *accommodation*. We change something from the outside world into that which we can easily deal with by

assimilating it. By contrast, we change something in ourselves in order to *accommodate* the outside world.

Piaget's famous example of a baby and a rattle brilliantly demonstrates the principle of cognitive adaptation. A 4-month old infant is presented with a rattle for the first time. In grasping the rattle, there are a number of movements and behaviors which the baby must employ in her encounter with it; that is, the baby must *accommodate* him or herself to the rattle (Ginsburg & Opper, 1979). Meanwhile, the baby *assimilates* the rattle to her own behaviors and movements when it exerts pre-existing grabbing and sucking behavioral schema in her encounter with it—behaviors which previously may have been employed in the infant's encounter with a finger or a nipple (Basseches, 1984). The infant organizes two competing structures—one which triggers sucking and the other which triggers grasping—into a more complex “grasp-then-suck schema” (Basseches, 1984:38).

For Piaget, and his intellectual descendents, the infant's adaptation to the rattle epitomizes the dialectical process which constitutes human constructive-development. Assimilation and accommodation are necessarily complementary processes by which a cognitive entity establishes different levels of *equilibrium* with its environment. Through assimilation, a subject shapes the world into recognizable entities and situations. Meanwhile, through accommodation, the unfolding world shapes and modifies the cognitive structures by which a subject comes to understand the world (Basseches, 1984:37). The two together characterizes the cognitive process that defines human learning and development.

3.2 Kegan's 'Constructive-Developmentalism'

It is this 'constructive-developmental' perspective that informs what Robert Kegan terms “meaning-making.” Kegan (R. Kegan, 1982) describes his model as both *constructivist* and *developmental*. It's constructivist in that it sees human beings as beings who *construct* meaning—that what it is to be human is, fundamentally, to *make meaning*. William Perry sums it up by saying that “what it is a human being does is organize; and what a human organism organizes is meaning” (Kegan, 1982:11). To be human, therefore is to participate in the *construction* of our own experience (Kegan, 1982:11). And yet such meaning construction is not a matter of 'reflection', taken 'after the fact.' Rather, how we construct meaning defines and conditions moment-by-moment experience itself. Experience itself *occurs* for people (precisely 'in the moment') according to the patterns and systems which constitute a particular meaning-making stance.

Kegan's model is *developmental* in that it sees living systems as always evolving “through qualitatively different eras according to regular principles of stability and change” (Kegan, 1982:13). Phenomena are always in motion, never static. That motion

is ‘developmental,’ in that it has direction, from something toward something else. Basseches notes that “[t]his direction is usually associated with increasing inclusiveness, differentiation, and integration” (Basseches, 2005:50). According to Erickson (Erickson, 2007), human development implies that both meaning-making and the systems that underlie it become increasingly complex (Erickson, 2007:63). As such, development is not so much a matter of increasing *what* we know, but of reorganizing *how* we know (Erickson, 2007:64).

Kegan’s ‘constructive-developmental’ model, then, describes developmental stages, and their progress, while at the same time acknowledging each particular stage as system for constructing meaning.

Having discussed at some length the basic premise of the constructive-developmental perspective, we can now begin to explore in greater depth social-emotional and cognitive developmental frames, both of which build on the constructive-developmental perspective. First, I will examine the social-emotional and ego developmental stage theories of Kegan and Cook-Greuter. Then, I will explore the cognitive developmental perspective, giving special emphasis to Basseches’ (and others’) notion of *dialectical thinking*.

3.3 Kegan’s Stages of Social-Emotional Development

Throughout much of his writing on human development, Robert Kegan characterizes the developmental process as a process by which one makes *object* of that which one was previously *subject* to. That is, in passing from one developmental stage to the next, one is able to differentiate—as *distinct* from oneself—what previously could not be so differentiated. For a newborn infant, for instance, *everything* is subject—there is no ‘other’ because everything is “me.” At some point, however, the infant begins to differentiate some aspects of its experience as “not me”: others, most importantly the infant’s care-giver, become *other* to me. This is a revolutionary moment in the infant’s development, for it marks the first time in his or her life that *relationship* actually becomes possible.

This infantile ‘awakening’ emblemizes Kegan’s developmental model: passage from one developmental stage, in which that which was *undifferentiated*—submerged in pure subject and, as such, *unavailable*—becomes differentiated and, hence, *available*. In this sense, each stage is delineated by what Kegan calls a “subject-object” balance, on which Erickson (Erickson, 2007) comments that

“[T]he subject, or self, is embedded in its immediate surround. This self-system constructs and organizes the meaning of the individual’s experiences in the world.

Through a gradual evolution, that which is subject, or self, becomes object (Kegan, 1994). The object, the former self-system, may now be reflected on and organized by the newly emerged self or subject. In each evolution of subject-object balances, an increasingly integrated self, distinct from the cultural surround, emerges” (Erickson, 2007:64).

In the following I give a brief account of three of Kegan’s five developmental stages—stages 3, 4 and 5. Throughout this discussion I will refer to Kegan (R. Kegan, 1982; R. Kegan, 1994) and Laske (Laske, 2005), whose work builds on the theories of Kegan. Note that the following descriptions are gross characterizations in order to aid the overall conversation. In reality, no individual “IS their stage”; rather, a stage description provides a collection of ‘hypotheses’ on the basis of which one might come to understand the structural, meaning-making constitution of another (Laske, 2005:74).

Stage 3 (Interpersonal or Socialized Self)

At this stage, one identifies themselves almost entirely in terms of their relations with others; their sense of self is subordinated almost entirely to those relations, and the construction of meaning is determined by the expectations and values of others. People at this stage tend to surrender themselves to the authority given by their relationships, or perhaps more accurately, the particular *membership* those relationships entail. Sometimes expression of such membership takes the form of particular social norms or standards that define a social group or community (Laske, 2005:130). Membership in a church may be one obvious example. Professional memberships (e.g. “I’m a programmer” or “I’m a life coach”) may be others. People at this stage are often “shadowed by the psychology of one or more imagined others who guarantee [their] self coherence” (Laske, 2005:133). They take on the internalized other—e.g. boss, teacher, parent or mentor—as themselves.

For those constructing meaning from this perspective, internalized others often stand in for their actual counterpart. It is therefore common to attribute feelings and thought processes to others internally without a felt need to check in with the actual person. For instance, a subordinate may decide to just go ahead with a particular task since he knows that his boss “really likes me to do that because then he doesn’t feel as if he’s depriving me of authority, or as if he really should be making the decision” (Laske, 2005: 132). The reason a Stage 3 person can do this is because for him, the internalized boss *is* the boss.

At this stage, though one is able to observe and appreciate the individuality of others, they are identified, or *embedded*, in the social relationships and organizations in which they live and work. They are not yet able to differentiate themselves from those organizations. Effectively, they *are* those organizations. This makes it almost impossible

for people at this stage to be effective ‘change agents’ because to change the organization of which they are a member would require their giving up their own identity. It would also, perhaps more importantly, entail a capacity to see the organization as distinct from oneself—that is, one would need to make that organization *object*—which is something those centered in Stage 3 cannot do.

Stage 4 (Institutional or Self-Authorizing Self)

As people move toward this stage, they move out of their identification with, and subordination to, memberships and interrelationships, and in doing so finally achieve an identity (Kegan, 1982:100). As Kegan puts it, “[i]n moving from ‘I am my relationships’ to ‘I have relationships,’ there is now somebody who is doing this having” (Kegan, 1982:100). People at this stage are less reliant on their need for being acknowledged and accepted within a community of which they are a member (Laske, 2005:61). The self they construct is now autonomous and self-regulating—They are now able to “go it alone” (Laske, 2005:61).

Interestingly, while on the face of it one could say that, in its autonomy and self-regulation, the Stage 4 self loses its connection with other people. However, as Kegan points out, it is in its very differentiation from other people—in its having freed itself from its *embeddedness* in its relationship to others—that the Institutional self is able to actually find them. In differentiating itself from others, it becomes possible for the institutional self to come into authentic relationship (integration) with them.

At this stage, one is able to effectively facilitate organizational change, since there is no longer identification of self with the organization. Nevertheless, just as those at Stage 3 are identified with the *external* institution of which they are a member, those at Stage 4 are identified with the *internal* ‘institution’—that is, the value system—that constitutes who they see (and now *pride*) themselves to be (Laske, 2005:65). Kegan refers to this stage as “inevitably ideological”, acknowledging its rigid adherence to an institution that constitutes the self’s image of itself. Though a person at this stage is now truly capable of instigating change in an organization, more likely than not, the change they instigate will be more like themselves. When centered heavily at this stage, the change agent will attempt to bring the external organization into his or her own equilibrium (Laske, 2005:65). As Laske observes, at stage four, people are identified with their own frame of reference; as such, it is difficult, if not impossible, for them to value the frames of others that are just as developed, or perhaps *more developed*, than their own (Laske, 2005:65). This form of institutional *entrapment* limits the extent to which a person solidly centered at stage 4 can learn to learn (does this suggest that stage 4 external consultants make poor organizational change agents?).

Stage 5 (Interindividual or Self-transforming Self)

In moving toward Stage 5, one is able to “take as object” one’s own internal institution (Kegan, 1982:103). It is a kind of rooting the self in the principles that give rise to the values and perspectives with which the self, at Stage 4, would have previously identified. Those internal institutions with which one is identified at Stage 4—commitments, work roles, performance, career—become things one “has” rather than things one “is” (Kegan, 1982:105). As Kegan notes, “[t]he functioning of the [internal institution] is no longer an end in itself”: rather, one is “interested in the way it serves the aims of the new self” (Kegan, 1982:105). At Stage 5, people are aware of the limitations of their own perspectives: “[t]hey know that no matter what they do it will be limited” (Laske 68). The self-transforming self values its potential for

the recognition of multiple selves, for the capacity to see conflict as an overidentification with a single system, for the sense of our relationships and connections as prior to and constitutive of the individual self, for an identification with the transformative process of our being rather than the formative products of our becoming. (Kegan, 1994:351 quoted in Erickson, 2007:65).

This stage means giving up one’s “splendid isolation” from the influence of others (Laske, 2005: 67). One relies on feedback from others, viewing that feedback—from those, that is, who are at least as developed and preferably more so than themselves—as a foundation of their own self-discovery. There is now a willingness to openly expose one’s limitations to others. Those others effectively become “midwives” to one’s development (Laske, 2005:67).

A person at Stage 5, Laske notes, “is best positioned where visionary risk taking and development of others, their organization, and the broader social context are called for” (Laske, 2005:68). That’s because she or he has transcended identification with their institutional self. They have moved beyond the slogan “Be the change you wish to see in the world” to the slogan “find the change that the world needs” (Beck & Cowan, 1996). Nevertheless, they often can suffer from the perception of others that they are ‘weak,’ since they are not interested in control (Laske, 2005:75). Moreover, it can be very difficult to convey their ideas and visions to others. For this reason they may be seen as distant or aloof (Laske, 2005:75).

3.4 Cook-Greuter’s Stages of Ego Development

In this section of the paper, I briefly introduce Cook-Greuter’s Ego Development stages (Cook-Greuter, 2005). Recently, a couple of important theorists, who work principally in the organizational world, have built developmental stage theories off of Cook-Greuter’s

work (Joiner & Josephs, 2007; Torbert, 2004). In the following description I will intermingle these highly interrelated theoretical perspectives.

Cook-Greuter’s ego development theory (EDT) distinguishes three interrelated dimensions. The *Behavioral* dimension studies what adults see as the purpose of their lives, what needs they are acting on, and the particular goals and ends toward which they are moving (Cook-Greuter, 2005:3). The *Affective* dimension concerns feelings and emotions. The *Cognitive* dimension focuses on how an adult thinks about the world and about themselves (Cook-Greuter, 2005:3). Each of these dimensions map, respectively to Doing, Being, and Thinking, and all dimensions interact freely among each other.

In the following, I briefly capture the developmental stages defined by Cook-Greuter’s theory. As was the case in our discussion of Kegan, I include only those of Cook-Greuter’s stages that are relevant to the context of organizational management. The following table groups each stage under Conventional and Post-Conventional developmental phases.

Conventional (Knowledge)	Conformist
	Self-conscious (‘Expert’)
	Conscientious (‘Achiever’)
Post-Conventional (Wisdom)	Individualistic
	Autonomous (‘Strategist’)

The **Conventional** phase is concerned with *knowledge*. It is able to see pieces of the puzzle. It looks for and finds patterns, rules and laws. It seeks to predict, to measure and to explain. It plans for the future and accounts for the past. In general it seeks to do and know more (Cook-Greuter, 2005:4). Using the term ‘action-logic’ to describe the meaning-making system in which a person operates, Torbert (Torbert, 2004) observes, that “conventional action-logics take social categories, norms, and power-structures for granted as constituting the very nature of stable reality” (Torbert, 2004:92-93). Conventional actors simply take the world ‘as it is’ without questioning the foundational premises, mental models, and belief systems which constitutes the way the world unfolds for them.

The **Post-Conventional** phase is concerned with *wisdom*. It seeks to understand *more deeply*. It is able to recognize assumptions that underlie a given argument, and it is able to see whole systems in all of their dynamism. It is committed to stripping away illusions and seeks what in Buddhism we might call an ‘empty mind’ (Cook-Greuter, 2005: 4).

Now I briefly describe each of Cook-Greuter’s stages of ego development.

Conformist

At this stage self-identity is defined—much like Kegan’s Stage 3(*socialized*) Self-- in relation to a group or an organization, and the values, beliefs, tastes, and preferences which that group or organization institutionalizes. Loyalty and allegiance to that group is strictly adhered to. Emphasis is always on the positive and “rocking the boat is carefully avoided. Individuals at this level are primarily interested in the concrete and the visible—they are essentially *empiricists*. Status, appearance, success, reputation and prestige are valued above anything else and there is a very strong sense of “should” and “ought” (Cook-Greuter, 2005:13-15).

Self-Conscious (‘Expert’)

Here an individual is able to move past his identification with others and group, and is able to assert his or her individuality. At this stage, one is concerned to be able to ‘stand out from the crowd, and to be better than others. The ‘Expert’ is a perfectionist and is deeply committed to fulfilling responsibilities. They drive themselves hard sometimes, and often don’t know when to stop since they don’t know when good is good enough. They have little power for discrimination: all ideas are equally valuable. The ‘Yes, but’ syndrome is predominant with people at this stage and are ever on the lookout for the most rational explanation. Self-Conscious ego is effective at finding new solutions and are highly innovative forces in any organization (Cook-Greuter, 2005: 15-17).

Conscientious (‘Achiever’)

Cook-Greuter observes that “the Conscientious stage is the target stage for Western Culture” (Cook-Greuter, 2005:17). It is expected that universities and colleges produce adults with the developmental capacity of this stage. Conscientious adults are able to associate with people who have strong ideals and aspirations, as long as they don’t veer to far from their own. At this stage, one is committed to bettering the world, but only in terms of what they see as good. They are very concerned with whether they live up to their own standards and can be severely self-critical. As such, it is no surprise that guilt is a dominant emotion. There is little interest here in self-development: they have pretty much fixed ideas as to how things are. They have strong convictions, and are very serious, idealistic, and enthusiastic. However, they are also intensely rational, believing that in the end rational thinking will win the day. However, unlike their ‘Expert’ colleagues, the Conscientious adult gets along well with others and in fact deeply

appreciates them “for who they are” (though, at this stage, “who they are” is largely fixed and static) (Cook-Greuter, 2005:17-21).

Individualist (‘Pluralist’)

Those found at the Individualist stage strive for personal accomplishments that are unique and distinct from those associated with socially approved roles. They tend to be inwardly focused in pursuit of their own particular interests and questions. They are able to tolerate paradox and are focused on “being and feeling” over being in “action.”

Individualists are also fascinated with the immediate present, having a need to understand how things unfold. They are more interested in the process than they are in the outcomes and results those processes are to produce, including the processes of theirs, and others,’ internal unfolding.

Individualists celebrate the unique gifts of others and appreciate their differences in ways that Achievers can’t do. Sometimes this can be extreme, taking the form of the post-modernist position of extreme certainty that there is no absolute certainty from which to judge. Individualists often fail to notice the contradiction of such positions and are, in fact, often troubled by the contradictions that constitute themselves. They are confused by the way they seem themselves as defined by multiple personalities and disparate voices, and are anxious about integrating those internal parts.

As Cook-Greuter observes, individualists “are often admired by others, especially by other postconventional persons, for their unconcerned, energetic self-expression, their spontaneity, and their ability to live a life according to their own unique style free from restrictive conventions” (Cook-Greuter, 2005:24). However, in action-oriented environments they can sometimes be viewed as woefully abstract or dismissed as hopeless dreamers (Cook-Greuter, 2005:24).

Autonomous (‘Strategist’)

The Strategist has moved beyond the Individualist’s anxiety over their perceived heterogeneity of Self: they are now able to own and integrate those disparate parts of themselves. In fact, distressing emotions, more generally, are more easily tolerated. The Strategist is less attached to her self-image and her values and has less need to defend herself. This allows the one to be more tolerant and spontaneous.

At the Autonomous stage, other people are seen as vital to one’s growth. As they see it, it is only through dynamic and intimate exchange with others that deep self-knowledge and

wisdom can be gained. And yet, while valuing others in this way, the Strategist also need privacy and time for self-reflection.

The strongest motivation for the Autonomous person is to help others grow and develop. For people at this stage, life is an “open-ended journey.” They are highly creative, employing dreams, fantasy and imagination much more freely than they did at earlier stages.

In reviewing these stages, one can observe some degree of affinity for Kegan’s constructive-developmental stages. The correlations are made explicit in the following table:

Kegan	Cook-Greuter	Comments
Stage 3 (Socialized Self)	Conscientious (‘Achiever’)	In both models, internalized other plays a powerful role in the establishment of Self.
Stage 4 (Self-Authorizing Self)	Individualistic	In both models, Self is strongly differentiated from external institutions; there is a greater focus on the institution of Self and a need for an ‘intact’ internal institution
Stage 5 (Self-transforming Self)	Autonomous (‘Strategist’)	Here, one is able to comfortably tolerate the diversity of the interior experience. Others are seen as ‘midwives’ in their own development.

4. THE COGNITIVE PERSPECTIVE

Thus far, we have focused on the social-emotional dimension of human development. Now I want to bring attention to the *cognitive* dimension. In the social-emotional dimension explored by Kegan and Cook-Greuter we consider the ways in which people construct *meaning* of their world (and themselves). In the cognitive dimension we look at how people make *sense* of their world—that is, *how* people *think*. Though I am looking at the two dimensions separately in this paper, Laske (Laske, 2005) points out that the two really arise together developmentally.¹ As such, the earlier comments on constructive-developmentalism, accommodation and assimilation are still apt background material for the following discussion.

¹ Laske notes, for instance, that according to his research, there seems to be a strong correlation between social-emotional developmental stage level and degree of dialectical thinking (Laske, 2005; Laske, 2007).

In the following pages, I begin discussing the basic principle of what is variously referred to as dialectical thinking, integrative thinking, or ‘opposable mind.’ Then I burrow down into Basseches’ model of dialectical thinking, in which he characterizes dialectical thinking as a capacity to consider events and situations in terms of their process of unfolding (change), the structures and forms they manifest, and the interrelations by which they are constituted (primacy of relationship).

4.1 The ‘Oposable’ Mind

Martin (Martin, 2007) observes that there is a correlation between how business leaders think and their level of success. Successful business leaders use what he calls ‘integrative’ thinking. Integrative thinking is characterized by an ability to synthesize apparently apposite entities, ideas, or concepts. Just as human technical capability is said to emanate from the human’s opposable thumb, so too, Martin argues, does advanced thinking emanate from human’s capacity for dialectical thinking. Martin coins the term *opposable mind* to describe this kind of thinking.

Business leaders who exercise integrative thinking are able to synthesize ideas that are apparently unrelated or in mutual conflict, and from that synthesis come up with something completely new. Martin provides numerous examples of business leaders exhibiting integrative thinking. One such leader is Isadore Sharp, who founded Four Seasons Hotel and Resorts. Sharp’s first two hotels—one a small roadside motel outside of town and the other a large convention hotel in the heart of town—represented two distinct and apparently irreconcilable models that were then dominant in the hotel business. However, rather than settle for one model or the other, Sharp “used his *opposable mind* to create a new model” (Martin, 2007:11, emphasis added). Through a number of innovations, Sharp and his team created a new model of hotel—one that combined the intimacy of the small roadside motel with the amenities found only in large convention hotels.

Among the qualities of thinking that characterize integrative thinking are:

- More features of any given problem are considered salient to that problem. That is, rather than limiting the ‘scope’ of the problem, integrative thinkers enlarge it.
- Causality is seen as multidirectional and nonlinear, rather than unidirectional and linear.
- In solving a problem or executing an idea, the whole of a given system is kept in view while working on the parts. Individual parts are always kept in view of the greater whole.

- Fewer unpleasant tradeoffs are made since, all along the process, the thinking “embraced complexity, multidirectional causal relationships, and holistic, rather than segmented, thinking” (Martin, 2007:47).

Integrative thinking acknowledges the importance and significance of the thinker’s *stance*. Martin defines stance as how you see the world and how you see yourself (Martin, 2007:93)—not very dissimilar to what Kegan and Cook-Greuter described with the term ‘meaning-making’ or what some developmentalists refer to with the term ‘center of gravity.’ According to Martin, the integrative thinker’s stance has six features. Three concern the world around us and three concern our role in the world (Martin, 2007:111).

Stance About the World

1. Existing models do not represent reality; they are our constructions.
2. Opposing models are to be leveraged, not feared.
3. Existing models are not perfect; better models exist that are not yet seen.

Stance About Myself

4. I am capable of finding a better model.
5. I can wade into and get through the necessary complexity.
6. I give myself the time to create a better model. (Adapted from Martin, 2007:115-16)

Martin’s notion of the ‘opposable mind’ evocatively conveys many of the principles of dialectical and systemic thinking. Now we turn for a more in-depth investigation via the research of Michael Basseches.

4.2 Basseches’ Dialectical Thinking Model

Universalistic versus Relativistic versus *Dialectical* Thinking

One way to introduce Basseches’ notion of dialectical thinking is to contrast it with two other forms of thinking that have dominated both the sciences (including the human sciences) and everyday ‘common sense’ (Basseches, 1984:9). These are what *universalistic formal thinking* and *relativistic thinking*. Universalistic formal thinking sees the world as constituted by fixed truths and a single universal order. This world can be defined in an abstract way, disembodied from human perspective, feeling or thought. The task of the sciences is to discover and describe this ordered world (10).

By contrast, relativistic thinking defines a world in which there is no universal order to things whatsoever (Basseches, 1984:10). Different cultures are assumed to order things differently. It is the job of the sciences (and of philosophy) “to appreciate, to describe,

and even to create as wide a range of different orderings as may exist and be interesting and useful” (10). The universalist claims are viewed by relativists as imposing an ethnocentric order—one that is founded on power—on other cultures.

Basseches offers a third alternative to these two opposed perspectives, which is *dialectical* thinking. Dialectical thinking sees the world as constantly and ever-unfolding and that the process of creating order is a process that seeks to discover “what is left out of existing ways of ordering the universe, and then to create new orderings which embrace and include what was previously excluded” (Basseches, 1984:11). More will be said about the qualities and aspects of Basseches’ notion of dialectical thinking in a moment.

Lockean, Kantian, Hegelian Thinking Systems

While Basseches describes three types of logical thinking, culminating in *dialectical* thinking, Laske (Laske, 2007) describes three different kinds of “inquiring systems”, named after three predominant philosophical traditions: Lockean, Kantian, and Hegelian (Laske, 2007:10). These different systems of thinking have different ways of treating complex problems, and have different degrees of success in dealing with well- versus ill-structured problems. While most mathematical problems, and some real-world problems, are *well-structured*, most problems in real life are *ill-structured*. Ill-structured problems are characterized by elements and interrelations that are either unknown or do not permit firm answers focused on simple verifiable variables (Laske, 2007:10).

The first of the inquiring systems, *Lockean*, is the simplest. In this manner of inquiry, a problem is constructed as an inductive, empirical representation from which “a set of elementary, empirical judgments (sense data) are retained and a network of increasingly more general ‘facts’ is deduced” (Wood, 1984:120 quoted in Laske, 2007:10). As Laske observes, “many of the deductive, inferential tasks of paper-and-pencil tests of critical thinking are examples of tasks requiring a Lockean inquiring system” (Laske, 2007:10).

Problems that are moderately ill-structured cannot be handled in such a linear manner: they require, at minimum, a *Kantian* inquiry system. Kantian systems are multimodal in that they embrace a number of different perspectives in dealing with any given issue. As an example, we might think of the problem of alcoholism as simultaneously a medical, interpersonal, and societal problem the solution of which requires the synthesis of many different perspectives (Laske, 2007:11). Organizational and management problems are often of this character, in that they cannot “be understood and dealt with using a single perspective or conceptualization” (Laske, 2007:11).

However, there are situations in life and at work whose different perspectives are not merely different, but which reflect fundamentally *antithetical* theories or

conceptualizations built upon conflicting assumptions and presuppositions. In such cases, a *Hegelian* (or *dialectical*) inquiring system is needed. The antithetical representations constituted by a given problem often employ the same data to support different points of view. Many complex social problems have this character and their solutions are complicated by the often highly conflicting ideological systems that gravitate differently to the same data, for instance the struggles in the middle east, the war on terrorism, how to create just and equitable economic systems, and global climate change (Laske, 2007:11).

Laske argues that Lockean and Kantian systems are “developmentally ‘earlier’” (Laske, 2007:11), noting that many problems in life and work are not only insolvable, but they cannot even be *posed* by the developmentally earlier Lockean and Kantian systems. Such problems, essentially, require later-stage thinking, that is *Hegelian* or *dialectical* inquiry systems since such systems alone are capable of observing, for instance, that *A* needs *not-A* in order for it to exist.

‘Hegelian,’ or *Dialectical* Thinking

Let’s take a few moments to appreciate how dialectical thinking might look. A principle characteristic of dialectical thinking is its capacity to synthesize otherwise *antithetical* theories or perspectives. Basseches defines dialectic as “developmental transformation (i.e. developmental movement through forms) which occurs via constitutive and interactive relationships” (Basseches, 1984:22). Let’s take a moment and parse this definition. First, Basseches talks about “movement *through* forms” as distinct from “movement *within* forms” (22). Basseches’ own example of a road illustrates the difference between these two:

The road has a certain form to it, and the form of that road regulates the movement of the vehicles which travel between those cities. Thus, we may take this movement of the vehicles as movement *within* forms. On the other hand, the emergence of trouble spots in terms of accidents or traffic jams, and the process of building a new and better road with a different form to replace or supplement the old road can be seen as a movement *through* forms (Basseches, 1984:22-23, emphasis added).

This movement *through* form constitutes what Basseches understands as *dialectical*—hence *transformational*—since it “relies upon and presupposes both the notion of movement and the notion of form and focuses on a particular relationship between them” (Basseches, 1984:23).

In Basseches formulation, dialectical thinking three perspectival outlooks: *change*, *wholeness*, and *internal relations*.

Change. Commonsense notions of existence tend to see the world as mostly static and unchanging. Change is viewed as transitory—a temporary condition until things ‘settle down’ into a normal equilibrium. Dialectical worldviews, by contrast, assume change to be the fundamental condition of existence. However, dialectical worldviews favor a special kind of change, a notion of change as *becoming*, “in which old forms give way to new emergent forms” (Basseches, 1984:21). As such, within a dialectical worldview, static, fundamental elements of existence are really merely *forms* of existence rather than elements. Moreover, “what might otherwise be viewed as interactions of fundamental elements are instead viewed as fundamental processes of change through which these forms of existence emerge” (Basseches, 1984:21).

Wholeness. Commonsense notions of existence tend to see things in the world as fundamentally independent, separate, and individual. Dialectical worldviews, by contrast, see the wholes of which entities are a part as primary, over and above the individual entities themselves. There are two aspects to this view. First, since existence is defined as in a state of constant flux, we can’t really point to a coherent entity as something fixed and immutable. All we can point to are the transitory *forms* by which those entities are constituted. Given, then, that we are conceptualizing individual entities as *forms* rather than as elements, we are bringing greater emphasis to the “coherence, organization, and wholeness implicit in the notion of form as against the sense of separateness implicit in the notion of element” (Basseches, 1984:21). This is one aspect of the dialectical view of wholeness. The other aspect has to do with the fact that, since these forms are temporary, the wholes of which they are parts is further emphasized. From a dialectical perspective, it is the whole that makes the parts what they are.

Internal Relations. Commonsense notions of existence tend to see the world composed of independent ‘monads.’ The relations into which those monads enter are viewed as secondary, as external, to their essential quality. Dialectical worldviews, by contrast, emphasize the relations among parts over and above the parts themselves. The relations among the parts *constitute* those parts: they make the parts what they are (Basseches, 1984:22). As such, relations are not *external* to the nature of entities—they are *internal* to them.

Regarding the interconnections between the notions of change, wholeness and internal relations, Basseches writes

In response to changes in internal relations, new forms of organization emerge, and the nature of the organized parts is changed by the formation of the new wholes. Thus, the emphasis on change, wholeness, and internal relations are interconnected in dialectical ontologies. (Basseches, 1984:22)

4.3 Laske's 'Epistemic Positions'

Otto Laske (Laske, 2007) elaborates the work of Basseches and introduces the notion of *epistemic positions*. Epistemic position constitutes a link between socio-emotional stage (as defined by Kegan) and level of cognitive development (as defined by Basseches). As Laske puts it, "socio-emotional stage...*influences* how the nature of truth is conceived of by an individual, because it enables a particular epistemic position" (Laske, 2007:28).

Laske posits seven epistemic positions, linked to Kegan's socio-emotional stages as follows (adapted from (Laske, 2007:29)):

Socio-Emotional Stage	Relationship of Self (S) to Other (O)	Approximate Epistemic Position
1	S is merged with O	1
2	S and O are opposites, with O subordinate to S (and an instrument for S)	2
3	S internalizes O, becoming defined by O	3-4
4	S experiences itself as a system related to O which is a different, 'other' system	5-6
5	S knows to be incomplete without O, and is dialectically linked to O with which it shares common ground	6-7

Here are brief descriptions of each epistemic position, taken from (Laske, 2007).

Epistemic Position 1. Consider the following example of an interview (Laske, 2007:30):

Interviewer: On what do you base that point of view [that news reporting is an objective reporting of the facts]?

Interviewee: Mostly, I hear it and I believe it because I figure if it's on the news, it's got to be true or they wouldn't put it on.

Here, the interviewee regards knowledge as absolute and concrete, not abstract or hypothetical. Accordingly, knowledge is obtainable purely by direct observation (much like, incidentally, the position taken by Humesian philosophy). Laske associates this

position with the vaguely authoritarian perspective we typically find with young people who are moving out of Kegan's stage 2 toward stage 3 (Laske, 2007:31).

Epistemic Position 2. At this stage, an individual is no longer ready to simply take another person's word for what's true and real. At Epistemic position 2, what's real is what one sees, regardless of what others may say (Laske, 2007:33), and "truth remains a concrete instance or a right answer" (Laske, 2007:34).

Epistemic Position 3. This position emerges when people begin to feel that knowledge and truth are a certain thing, but that it is not always directly available (Laske, 2007:34). Nevertheless, at this position, what we don't know is only a matter of knowledge that is *temporarily* unavailable, not *permanently* so. In these areas of uncertain knowledge, opinion holds sway, and there can be considerable differences in opinion. At the same time, logical tools begin to dominate thinking, over perception and belief (Laske, 2007:35).

Epistemic Position 4. This is the beginning of the use of abstractions in thinking, or Piaget's beginning formal operations (Laske, 2007:36). Nevertheless, the character of these abstractions tend to be idiosyncratic to the individual knower (Laske, 2007:37). At this position, contradictions are, for the first time, permitted. However, to the degree that these are irresolvable, they are regarded as *false*. This epistemic position maps to *Kantian* inquiring system described above.

Epistemic Position 5. At this position, a thinker has begun to lose the sense that knowledge and truth are absolutely certain, and that concrete reality may not reveal the whole of any given truth. Meanwhile, the thinker has developed the capacity to compare and contrast multiple abstractions (Laske, 2007:39-40) while, at the same time, being able to "differentiate and integrate the elements surrounding an event with the interpretation of that event" (King & Kitchner, 1994:63 as quoted in Laske, 2007:39-40). The limitation of this position is in the fact that, while they are able to think through multiple factors of a given problem, the thinker would have a hard time seeing the totality of which they are a part, or the central issue they have in common (Laske, 2007:40).

Epistemic Position 6. At this stage, a thinker is able to think about reality in terms of "systems of transformation" (Laske, 2007:44), which comes about through the coordination of thought patterns simultaneously deriving from the three dialectical thinking perspectives described above: change, wholeness, and internal relations. There is the recognition that knowledge and truth are *constructed* and, as such, thinking also requires action (Laske, 2007:44).

Epistemic Position 7. At this stage, individuals engage in what Laske terms "fully dialectical thinking" (Laske, 2007:50). Knowledge generation is an interactive process of critical inquiry done through others (and, in this sense, a reflection of socio-emotional

development between stage 4 and moving toward 5). Paradox is considered par for the course, and seen to be the source of genuinely useful thinking. There is a paradoxical multiplicity and interplay of contexts, interrelations, and processes (Laske, 2007:50).

4.4 Three Kinds of Thinking: An Example

It might be worth looking at three examples in order to demonstrate a progression of thinking from more or less Lockean to Hegelian thinking. The following examples and their discussion derives from Laske (Laske, 2007). I provide these without comment.

Manager A (Lockean):

“When we bought Acme’s service business, it was clear that if we didn’t build efficiency into the combined network, we’d fail. Efficiency means reduced overall costs, more revenue from our customer base, and less work overlap [between the two operations, OL]. Now we can price our products more competitively, knowing we can continue to build our revenue stream through service contracts. And providing that service will keep us close to our customers for equipment lifecycle planning and utilization analyses, if we can keep our eyes focused on managing costs and delivering quality, the results will be there.” (Laske, 2007:45).

Manager B (Kantian):

“When we bought Acme’s service business, it was clear that one of the immediate advantages would be in building a more efficient network. By integrating product and service sales, we become a more complete operation, and customers will see us in a new light. However, we also become more vulnerable to a lack of integration until we can define that new business model, and manage re-training and re-directing our sales force. Even then, perhaps customers may feel we’re not as focused on our huge new service operation as was Acme. And Engineering is committed to reducing maintenance and Manufacturing to driving up quality; that may mean we’ll have to branch out to include servicing competitors’ products to justify the new service infrastructure and manage the overhead. Would customers see that as a dilution of our commitment to our own products? We’re juggling many more things than before, and risk over-extending ourselves. How we balance customer perceptions, cost efficiencies, and product development will be a challenge, but we can succeed if we plan carefully and give it our best shot.” (Laske, 2007:47).

Manager C (Hegelian):

“Once we decided to buy Acme’s service business, we knew that there were a lot of ramifications to consider that could only incompletely be foreseen right away. We would constantly have to reevaluate these in light of new evidence so that our conclusions would be up to date. We knew that in many ways we had considerably complicated not only our in-house way of working, but also the market environment in which we would

have to function. While on the one hand, we were clearly striving to become a more complete operation, we had previously been on safer ground since our business model had been thoroughly tested and validated, and we had a reasonably clear view of who our customers were and what they expected of us.

But once we integrated Acme's service business, we had to rethink almost everything we had learned to take more or less for granted. There were questions of attunement of our workers to the company's new mission, but also of customers to the broader agenda we now came to be identified with. We were also introducing new goals for our internal business process, and put in jeopardy the balance of the parts of our operation which had already been quite complex when focusing on product sales alone.

So, there now was a multiplicity of contexts to consider that were only partly known to us initially. Essentially, the effect of this was that we became much more sensitive to relationships, not only between parts of our operation, but to relationships between product and services, work force and customers, business process and financial process, not to speak of systemic interactions that tested the limits of stability and harmony of our operations. We now had to coordinate a larger number of subsystems, and these subsystems tended to transform in a way that was not initially foreseen or even foreseeable. As a result, we felt we would lose out if we did not succeed in developing multiple perspectives on almost every aspect of our organization" (Laske, 2007:48-9).

5. SUMMARY OF PART I

In this first part of the paper, we have examined a number of developmental perspectives. In Part II, I want to investigate how these perspectives might find relevance in an organizational setting. Here I describe an approach to process improvement in a software product development company that seeks to situate such improvement more broadly as a context for human capability development. Here I wish to take an *ecological* approach to human development, in which the organization (in this case, a software product development company) is viewed as an *ecosystem* for the development of requisite leadership at multiple layers, that spans multiple stages and levels of socio-emotional and cognitive development.

PART TWO: DEVELOPMENTAL ECOLOGY

Having gotten a sense of what stage developmental thinking is like, from a constructive-developmental and cognitive perspective, we now want to more clearly characterize the challenge to leadership in organizations and what kind of leadership is called for, at various levels in the company.

Toward this end, I will seek to explicate an *ecological* perspective of leadership development based in part on my work as a process improvement and agile development consultant and coach. A central feature of this model is a developmental framework based on the stage-developmental theories discussed thus far in this paper. I'm calling it an 'ecological' perspective since it attempts to address the whole organization, and the various stages and developmental challenges constituted by the various activities, concerns, and management *striae* of the organization. The context of this model is that of the software product development company.

6. CONCEPTUAL PRELIMINARIES

Before proceeding, I want to first call our attention to a couple of conceptual matters necessary for the subsequent discussion. First, we want to recognize that human development doesn't happen in a vacuum: it is conditioned by the physical environmental and social systems in which one exists. Therefore, an *ecological* model of human development must consider the environmental dimension. Secondly, human development is a process of *transformative change* and, for this reason can be stressful for individuals. As such, any effort to induce a 'transformative learning' environment must take a number of things into consideration.

Let's briefly consider each of these matters in turn.

6.1 The 'Environmental' Context of Development

As Collins (Collins, 1994) notes, Durkheim called attention to the "physical" social patterns by which human behavior is defined and constrained—"by structure, Durkheim means the actual, physical pattern of who is in the presence of whom, for how long, and with how much space between them" (Collins, 1994:187). Those patterns determine habituated roles into which people fall, the action people take, the activities by which actions and decisions are coordinated, etc.

In resonance with Durkheim, Beck & Cowan (Beck & Cohan, 1996) note that an important aspect of human development are the social and cultural systems which constitute an individual's environment. They observe that the presence of any given developmental system (e.g. 'individualistic-achiever' or 'Orange') presupposes environmental (physical and social) conditions capable of supporting it. Extreme poverty and hunger, for instance, is not likely to readily support the presence of an 'Orange', or 'individualistic-achiever,' system.

Wilber's Four Quadrant model (Wilber, 2000) explicitly recognizes the various environmental contexts in which individual development occurs.

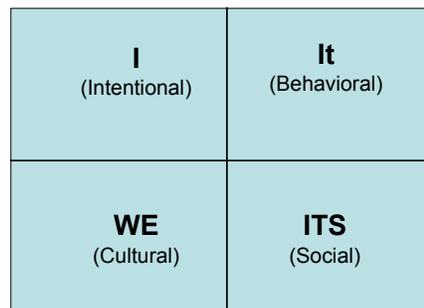


Figure 2: Wilber's Four Quadrants Model (adapted from Wilber, 2000:62)

The upper left quadrant "includes the entire spectrum of consciousness as it appears in any individual, from bodily sensations to mental ideas to soul and spirit" (Wilber, 2000:62-63). It constitutes first-person, "I", experience. The upper right quadrant defines the "objective correlates" of the interior states of consciousness defined in the upper left quadrant. It refers to things like eukaryotes, neurons, limbic systems, and neocortexes, constituting third-person, "it", accounts of the individual organism.

The lower quadrants recognize that individuals never exist in a vacuum—"every being is a being-in-the-world" (Wilber, 2000:63). The lower left quadrant defines this collective existence from the inside: it is the cultural world defined by values, meanings, worldviews and ethics as these are shared within a given group of individuals. This quadrant is the "we" quadrant in which "I-and-thou" arise together. Finally, the lower right quadrant recognizes that cultural *we* has physical and material structures holding it together. These are the *social* systems which include "material institutions, geopolitical formations, and the forces of production (ranging from foraging to horticultural to agrarian to industrial to informational)" (Wilber, 2000:63). This quadrant constitutes third-person accounts, or "its" language.

Wilber's four-quadrants model acknowledges Clare W. Graves formulation of human development as 'bio-psycho-social' development, recognizing the social (Wilber's 'WE' and 'ITS'), biological (Wilber's 'IT'), and psychological (Wilber's 'I') basis for human

development (Beck & Cowan, 1996). As such, it defines an *ecological*—or *integral*, to use Wilber’s term—model of human development.

Such a model can be relevant within the context of human development in an organizational setting. Later on, I will discuss a product development process improvement framework which can be understood as a vehicle for individual as well as organizational development. But first, we want to briefly consider some of the challenges associated with ‘transformative learning’ and some ways we might address some of those challenges.

6.2 Human Development as ‘Transformative’ Learning

As mentioned earlier in this paper, Mezirow (Mezirow, 1991) acknowledges that adult human learning has a ‘transformative’ dimension. Mezirow understands transformative learning as “critical self-reflection, which results in the reformulation of a meaning perspective to allow a more inclusive, discriminating, and integrative understanding of one’s experience” (Mezirow, 1990:xvi quoted in Roberts (Roberts, 2006)). As Roberts observes, transformative learning “begins with a disorienting dilemma which leads to critical reflection and then to a perspective transformation which the individual acts upon” (Roberts, 2006:100).

However, though disorienting dilemmas may indeed lead to transformative learning, they can also have adverse effects on people, leading, potentially, to negative impacts on performance (Roberts, 2006:100). As such, “adult educators [e.g. coaches, etc – MH] need to be wary in their efforts to foster and facilitate transformative learning” (Roberts, 2006:100).

Schein’s Model of Transformative Change

Something similar to this is hinted at by Schein (Schein, 1999). One of the principle challenges in organizational change of an already well-established cultural system (such as a mature company) is that it “involves having to *unlearn* beliefs, attitudes, values and assumptions as well as learning new ones” (Schein, 1999:115). Reflecting Lewin’s change model, Schein describes three stages (and several substages) of transformative change:

Stage One -- Unfreezing: creating the motivation to change

- Disconfirmation
- Creation of survival anxiety or guilt
- Creation of psychological safety to overcome learning anxiety

Stage Two – Learning new concepts and new meanings for old concepts

- Imitation of and identification with role models
- Scanning for solutions and trial-and-error learning

Stage Three – Internalizing new concepts and meanings

- Incorporation into self-concept and identity
- Incorporation into ongoing relationships

Some comments regarding this model are in order. First, Schein notes that some sense of crisis or threat must be present in a mature human system (e.g. a company) for their to be sufficient impetus for the kind of unlearning necessary for change. This is where ‘disconfirmation’ comes in. These often have the form of a company crisis, such as sudden market loss, downturn in stock prices, or merger or acquisition with another company. Another source for disconfirmation may be a new, charismatic senior leader.

A second comment concerns the notions of survival anxiety and ‘learning anxiety.’ Survival anxiety refers to the fears and concerns engendered by the disconfirming data: for instance, a sudden loss of market dominance can motivate people to recognize the need to change. Learning anxiety refers to the fears and guilt associated with unlearning, and the temporary loss of competence this entails. Schein makes two important observations regarding survival anxiety and learning anxiety. First, survival anxiety must be greater than learning anxiety (Schein, 1999:124). Second, to effectively establish this balance means *reducing* learning anxiety rather than *increasing* survival anxiety (Schein, 1999:124). This logic leads us to Schein’s key insight regarding transformative change: “learning anxiety must be reduced by increasing the learner’s sense of *psychological safety*” (Schein, 1999:124, emphasis in the original).

Schein offers a number of conditions for bringing about this kind of psychological safety. They are as follows (adopted from Schein, 1999:124-26):

- *A compelling positive vision.* In order for people to be willing to learn (and unlearn) transformatively, they must believe in a compelling vision, and they must believe in senior management’s commitment to that vision.
- *Formal training.* If they are to learn new ways of thinking (and unlearn old ways), formal training that is relevant to the kinds of change being called for must be provided.
- *Involvement of the learner.* If formal training is to be effective, learners must have the sense that they have a say in managing their “informal method of learning” (125).
- *Informal training of relevant ‘family’ groups and teams.* Informal training and education must be provided for whole groups that are involved with activities under transformation.

- *Allow 'practice fields,' and provide coaching and feedback.* People must be given the time, resources, coaching and feedback if they are to learn something fundamentally new. 'Practice fields' refer to the forming of work environments in which mistakes can be made (with consequent learning) without disrupting the organization.
- *Positive role models.* People have to see what the new behaviors, manners, and thinking look like in another if they are to envision adopting them for themselves.
- *Support Groups.* People need to be able to share problems and learning with other like colleagues; they must be able to opening voice their frustrations and difficulties with others who are experiencing similar frustrations and difficulties.
- *Consistent systems and structures.* Reward and disciplinary systems must be congruent with the new way of working and thinking.

A Critique of the Schein/Lewin Model of Change

Weick & Quinn (Weick & Quinn, 1999) articulate several problems with this model of change. Weick & Quinn differentiate 'episodic' from 'dynamic' change. Episodic change refers to large change initiatives in which an end-state is envisioned and a strategy for getting there is defined and executed. By contrast, dynamic change presumes that change is a natural condition of a system—that systems are ever-evolving, ongoing, cumulative, and emergent (Weick & Quinn, 1999:375).

In presupposing an 'episodic change' model, the Lewin model of change makes the following assumptions:

- *Linear assumption:* movement from one state to another occurs in 'forward time'.
- *Progressive assumption:* change involves movement from a "lesser" state to a "better" state.
- *Goal assumption:* change involves movement toward a specified (and specifiable) goal state
- *Disequilibrium assumption:* change and movement requires disequilibrium.
- *Separateness assumption:* change in a system can be 'planned' and 'managed' by people outside of the system under change.

According to Weick & Quinn, these assumption are erroneous, particularly in today's 'post-bureaucratic' business organization environment. Weick & Quinn argue that change is *not* a linear process that can be deterministically planned and executed. Rather, change constitutes a spiral movement through *contemplation, action, relapse*, and finally *maintenance* (Weick & Quinn, 1999:372).

In the following pages, I describe a 'lightweight' organizational methodology for software development that takes many of these observations into consideration. The

methodology described falls under an umbrella of similar methodologies and processes collectively referred to as ‘agility’, or more colloquially, ‘agile.’ Here I will present some of my own thoughts, observations, and conjectures as an educator, consultant and coach who helps companies adopt agile approaches to managing complex projects and building environments for the development of new kinds of teams and new kinds of leaders.

7. AGILITY FRAMEWORK AS CONTEXT FOR DEVELOPMENT

This section describes a model based on my experience as an ‘agility’ trainer, coach, and consultant. The term ‘Agility’ refers to many things in the business world. However, its most common use is in the software world, and it is this context of agility I will be referring to in these pages. At a high level of abstraction, one can describe agility as a collection of processes and methodologies designed to increase a company’s capacity to respond effectively to change—change in the market, business, and technology environments in which a given company sees itself situated. In the standard literature, and common practice of agility consultants, however, the focus of these processes and methodologies is at the level of project delivery and software development. In the framework I propose here, I wish to expand beyond (though still including) this project focus. My goal, as such, is to understand agility in the broader context of human capability development. That is, I view the development of organizational agility as tantamount to the development of certain kinds of human capabilities that are ‘requisite’ (to use Jaque’s term) across various management levels within the organization seeking increased agility.

From this perspective, transitioning to more agile approaches constitutes an *ecological* approach to human development, in which organizational processes and structures, along with team and group coaching, form an ‘environment’ in which transformative learning can occur—learning that occurs, nevertheless, differently for different organizational populations, based on their developmental ‘center of gravity.’ In the following discussion, I first describe the problem of software product delivery as it is currently practiced. Then I will describe the principles of agility. Finally, I will describe a model of organizational agility that addresses a variety of developmental strata.

7.1 ‘Predict-and-Plan’ Software Delivery Processes

The standard software development process was—and in most places still is—based upon a *predict-and-plan* paradigm: it presumes that we can predict what a desirable future will be, and, given that prediction, that we can plan how to bring about that desired future. This manifests in a sequential software delivery process that is defined by the following steps, taken in sequence:

- First, requirements are defined in great detail.
- Then, a design for the software ‘solution’ that is a match to those requirements.
- This is followed by the programming or ‘coding’ stage, during which the software is written.
- Following the coding stage comes testing and verification.
- Finally, after testing is complete, the software is deployed and delivered.

This sequence can take anywhere from six months to two years, depending on the size and complexity of the project. Diagram 3 depicts this sequential flow.

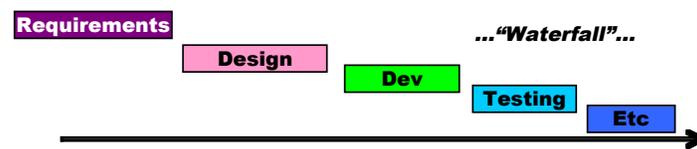


Figure 3: “Waterfall” Sequential Process for Software Development

This process flow is known as the ‘waterfall’ process, since movement from one phase to the next is like a waterfall: it is very difficult to reverse the direction, and each phase must be followed only after the immediately preceding phase has been completed.

The problem with this approach is manifold. First, stakeholders cannot see concretely what the product really does and how it really works until near the very end. Upon final delivery of the final product, it is not at all uncommon for there to be huge gaps of congruency between what stakeholders thought they were getting and what they actually get. The situation is compounded by the fact that while all this work is going on, market and business imperatives continue to evolve and change. So even in the unlikely event that the product actually delivered is what stakeholders really want, business and market changes are likely to render that delivered product all but obsolete.

Another problem with this approach, arising from the first, is that since the product development cycle is so long, stakeholders feel obliged to get everything they can possibly think of into that release. As a consequence of this behavior, the famous 20/80 rule kicks in: 20 percent of the delivered product yields 80 percent of business value. The other 80 percent product developed ends up being mostly wasted (and costly) effort.

Still another problem with this approach is that it is founded on the organizational ‘siloeing’ of individuals and functional teams. Individuals are grouped according to the structural role they play in the staged process. Hence, designers are separated from programmers and engineers, who in turn are separated from testers, and so on. This results in tremendous breakdowns in coordination and communication. Individuals have

only a superficial understanding of the product in its totality. Moreover, they remain in the dark as to the overall process by which that product is defined, developed, and delivered.

The social effect of all of this is legendary, captured all too accurately in Dilbert cartoons and in movies like *Office Space*. Not only are people's work lives diminished, but so too, ultimately, is the effectiveness of the companies they work in. Effective performance in knowledge-intensive institutions like software companies requires that performers are able to see the greater whole in which they participate—something which heavily sequenced and siloed processes cannot easily facilitate.

7.2 'Sense-and-Respond' Software Delivery

New approaches to software product development have arisen in the last 15 years. It is founded in part on lean thinking and in part on a desire among software developers for a more engaging and human-centered approach to software development. A number of 'agile' processes have emerged. Here, I will discuss briefly their foundational principles.

Of principle concern with Agility is the capacity to 'sense-and-respond' to change, rather than attempt to predict-and-plan it away. The fundamental premise here is that change is inevitable, and so we want to be able to develop individual and institutional capacity to not merely try to 'tolerate' change—which still regards change as an *exceptional event*, for which 'change management' processes are designed to mitigate—but in fact to be able to actually *embrace* change. The *sense-and-respond* approach observes the following principles:

- *Empiricism*. In order to sense-and-respond, we have to first have the capacity to 'sense,' and this requires visibility and transparency at all levels of the organization, whether its communication, collaboration, or whether it's seeing working product rather than abstract documentation.
- *Emergence*: Rather than trying to fixate on a hard and fast end goal, whose contours and requirements are likely to change rapidly, we want instead to allow products and the processes and artifacts that support them, *emerge*. Emergence, of course requires a discipline of transparency and visibility. That is, it requires an organizational setting of relatively high levels of *empiricism*.
- *Prioritization*. One of the biggest problems in product development organizations is the attempt to try to 'do everything.' The result is that development teams end up working nights and weekends for products that end up either failing to deliver, or failing in the market. Prioritization forces stakeholders to decide what, if delivered sooner than later, could bring about the greatest business value.
- *Timeboxing*: Rather than having very long delivery cycles (six to twenty four months), we want to have short—two to four-week—delivery cycles. This provides

very rapid feedback, making it possible for stakeholders to frequently see what is being built, and to adjust their decisions as to product direction etc. accordingly. At the same time, it allows for heartbeat progression of change-stabilize cycles that permit stability even in the midst of high degrees of change and flux.

There are a number of *practices* that support these principles for achieving sense-and-respond agility. Among the most significant of these are:

- *Iterative and incremental delivery of product chunks.* Rather than big-bang delivery at the end of a long waterfall sequence of activities, we seek to release small chunks very frequently. Each such chunk, however, must constitute a full slice of the deliverable: that is, each end-of-iteration deliverable must include a little bit of everything needed to deliver the whole. We often use the term ‘cake-slice’ delivery to describe this, in which each iteration delivers a full slice of the cake, and not just a single layer. As such, the process is *iterative* in that it delivers and short time-boxed intervals. The process is *incremental*, in that each iteration gets you closer and closer to the final deliverable. Such a delivery mechanism provides tight feedback for product managers and other stakeholders, and thus allows for a more *emergent* approach to product delivery.
- *Crossfunctional teams seated together.* Teams constitute everyone need to deliver single cake slices at the end of each iteration—programmers, testers, documenters, etc. They are seated together in a large comfortable room in order to facilitate more effective direct communication, interaction, and relationship. Ultimately, the focus of an agile process is to empower the team to become highly performing.
- *Self-organizing teams.* Teams are given relative autonomy and freedom in how they do their work. They are coached and empowered to take ownership of their work, and to be highly knowledgeable of the product they are building, and the broader business imperatives it expresses. In the best of situations, teams select their own members, and make all decisions regarding their teams and how those teams work.
- *Intensive involvement of business stakeholders.* Every team has a team member who leads the team, in terms of making business decisions in real-time, and teaching the team—again in real-time—what the product is. This reduces the need for large requirements documents—and the manifold early decisions they induce—making it possible for product management and other stakeholders to take a more adaptive, emergent attitude toward the product being developed.
- *Continuous improvement.* Emphasis is on continuously looking for the constraints and behaviors that impede the team’s, and the company’s, capacity to excel, and removing or otherwise remediating those constraints and impediments. Among specific practices are team retrospectives, in which a team assembles at the end of each iteration to discover concrete ways in which they might improve as a team.

In the following section, we want to begin to investigate the developmental dimension of Agility by articulating a broader, *integral* view of Agility. Such a perspective makes possible to elaborate an *ecology* of Agile capability development.

8. STAGE-DEVELOPMENTAL PERSPECTIVE OF AGILE ORGANIZATION

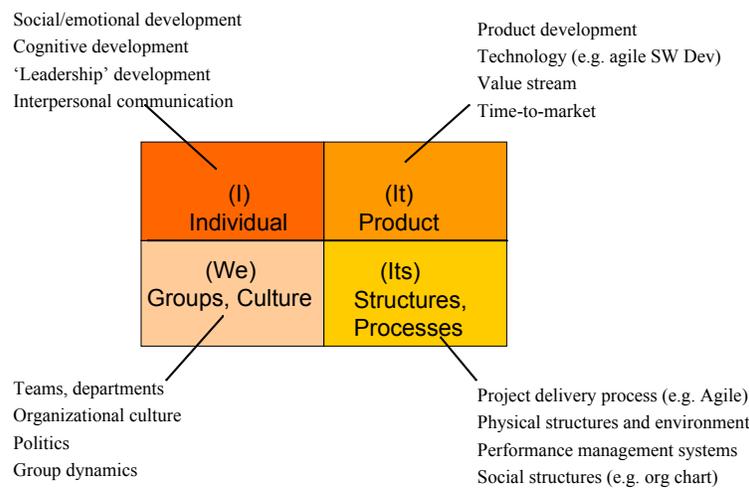
Having described briefly some of the principles and practices of software agility, I now want to expand the discussion and talk about agility more broadly. Again, the standard Agile methodologies and process frameworks focus primarily at the project, or team, level. By contrast, Joiner & Josephs (2007) focus their discussion of ‘Agility’ at the management and senior management level.

Joiner & Josephs (Joiner & Josephs, 2007) address organizations that are struggling to adapt to an increasingly turbulent world economy characterized by accelerating rates of change and by growing complexity and interdependence among organizations, among entire industries, and across and among societies (Joseph & Joiner, 2007:5). As Joiner & Josephs note, “the most successful companies will be those that create strong, timely alliances and partner effectively with customers, suppliers, and other stakeholders” (Joseph & Joiner, 2007:5). Their central argument is that there is an increasing ‘agility gap’—referring to the ability of managers to create organizations that are able to respond to change and to embrace complexity in a turbulent world—and that a major reason for this gap “is the need for more agile leaders, *not just in the executive suite but at all organizational levels*” (Joiner & Josephs, 2007:6, emphasis added). While most CEOs acknowledge the importance of developing leaders, and while most CEOs also acknowledge the importance of organization ‘agility’ as a leading organizational competency, Joiner & Josephs assert that “very little attention has been given to understanding and developing the specific capacities and skills needed for agile leadership” (Joiner & Josephs, 2007:6).

In the following sub-sections, I articulate a multi-perspective, multi-level view of Agile practice that spans both standard agile methodologies and Joiner & Joseph’s leadership focus. In so doing, my goal, ultimately, is to set the stage for integrating aspects of the developmental perspective introduced in Part I of this paper within the ecological framework I’m attempting to describe here.

8.1 Four-Quadrants View of an Agile Product Development Organization

First, let’s revisit Wilber’s All-Quadrant model as it might apply to a software product development organization. Figure 4 depicts a possible all-quadrants view of product development. Each quadrant defines a number of activities and aspects of organization from the perspective of the four quadrant views. In the upper left (“I”) quadrant, we’d talk about social-emotional and cognitive development—the principle focus of this paper. However, within an organizational setting—as seen from an *ecological* view of human development—we would begin to think of activities, structures, and *milieu* as constitutive aspects of an individual’s developmental landscape. So, for instance, an organization’s approach to product development and technology (the upper right, or “it”, quadrant) might in some ways engender day-to-day activities which effect the developmental perspective of individuals (though, presumably, somewhat differently for different individuals). Similarly, an organization’s project delivery process (e.g. “waterfall” vs. “agile”) and performance management systems—both existing in the lower right, or “Its”, quadrant—might engender social structures which shape individuals to some



degree or another.

Figure 4: An All-Quadrants View of a Software Product Development Organization

8.2 Management Levels

Having described one possible view of software product development from a Wilberian all-quadrants view, I now propose a holistic perspective of what an agile transition might look like for an organization. There are a number of caveats which be offered before I proceed, but these will have to await a more fully developed version of this idea. I should note, moreover, that much of the following discussion, though informed by experience and practice, has little or no support in terms of research and is of a highly speculative nature. Having said all of that, I shall proceed.

Figure 5 depicts three levels of engagement involved in an organizational transition toward Agile organization: team, middle-management, and senior-management. At each level, organizational players contribute to the delivery of product, and to overall

organizational improvement, in different, though highly coordinated ways (the fat arrows). At the same time, each level provides information feedback to other levels.

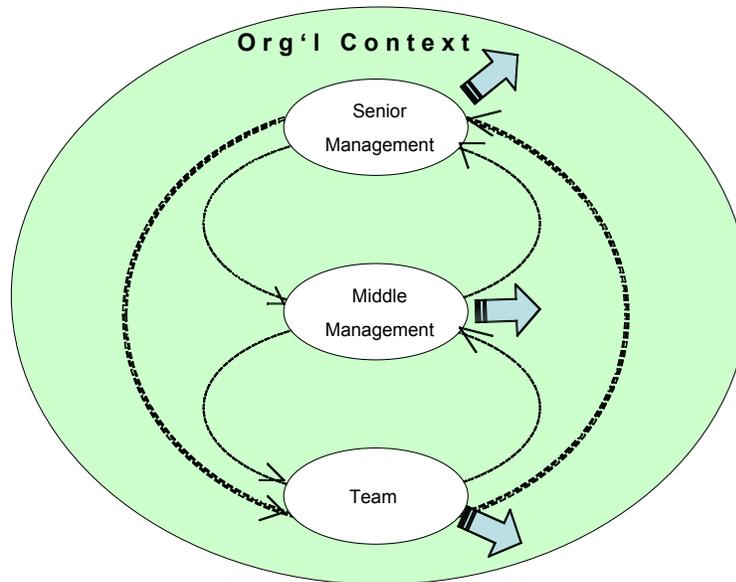


Figure 5: A Picture of Agile Organization

At the Team level, information is provided back to Middle- and Senior-Management regarding how the teams are doing and, perhaps more importantly, the obstacles to productivity they run into. Middle- and Senior-Management will filter and respond differently to this information. Middle-management attempts to discover patterns in those obstacles and, through processes like action learning (cite) and action research (cite), discover their sources, and either eliminate them or ‘escalate’ them up to Senior-management.

Meanwhile, Senior management articulates high-level vision and goals to Middle-management (cite Change book), and coaches and otherwise mentors middle-managers in being able to empower their departments and teams in discovering ways to align with and fulfill that vision and those goals. They also facilitate periodic meetings with whole teams and departments in order to engage with people at those levels in conversation and dialog whose purpose is to deepen shared perspectives on goals and directions, as well as performance and challenges.

As such, each level calls for different levels of social-emotional and cognitive development. This latter point will be elaborated in the following sections, in which I the roles of Agile players for each level—Teams, Middle-management, and Senior-

management. Meanwhile, I will describe some of the developmental opportunities and challenges we might find at each level.

8.3 The Team Level

At the ‘Team’ level, projects are executed and delivered. The focus here is on:

- Iterative and incremental time-boxed project delivery: project increments of potentially deliverable product chunks are completed every 2-4 weeks.
- Excellence of software development processes which enhance a team’s capacity to respond to change; to deliver working software fast; to realize a high level of maintainability and changeability of the code base.
- Developing highly collaborative and cross-functional teams. Teams work as a single, though multifaceted, entity, working together toward a single goal for each iteration.
- Developing highly performing teams. Teams are empowered to self-organize. The team lead is more like a ‘coach’ than a manager, helping the team to continue to improve their delivery process and to work effectively as a team.
- Teams work closely with product management and other project and product stakeholders to guarantee alignment, flexibility, and speed of delivery.

With respect to the all-quadrants model of figure 4, teams focus predominantly in the upper quadrants, and most particularly within the upper-right quadrant. In fact, one could say that the principles and practices of agility help teams *excel* within this quadrant.

Now we want to develop a perspective of agile teams from the point of view of Kegan, Cook-Greuter (and, by extension, Joiner & Joseph), and Basseches.

The Developmental Perspective on Teams: Kegan

From Kegan’s socio-emotional perspective, we are to ask what is it that high performance software teams are able to do? Certainly, we would expect effective team members to be beyond Stage 2 (‘Imperial’ Self), at which stage individuals have a hard time seeing other people as anything other than tools for their own individual ends. Such individuals will likely not function well as members of high performing teams. So, we would hypothesize that good team members would likely be functioning at Stage 3, or perhaps slightly beyond. At this point, it might be helpful to note that Lahey et al. (Lahey, Souvaine, Kegan, Goodman, & Felix, 1988) and Laske (Laske, 2005) describe finer grade stages within any given developmental stage. So for instance, between stage 3 and 4, there are intervening stages as follows (adapted from Laske, 2005:106):

- 3 – ‘center of gravity’ is at Stage 3, as described earlier in this paper

- 3(4) – a residual hanging on to Stage 3, with espousal of stage 4 without ever actually being there
- 3/4 – a state of conflict, with the lower stage winning out, especially in times of stress
- 4/3 – a state of conflict, with the high stage winning out more and more
- 4(3) – nearing stage 4; though there is still considerable espousal of being at stage 4, the individual is indeed nearing it

It may be desirable for team members to be in a variety of intermediary stages (though I don't know, since I have not seen any research one way or the other on this). However, it may be safe to say that if team member center of gravity is predominantly at the lower end of the above range—for instance mostly at stages 3 or 3(4), many of the limitations of stage 3, as described above, could serve to prevent the team from engaging in some of the risk-taking which seems to characterize high performing teams (though, again, I would need to do some research to understand this more clearly).

The Developmental Perspective on Teams: Cook-Greuter

From the perspective of Cook-Greuter's Ego development model, we might expect to find agile team members to fall somewhere around *Conformist*, *Self-Conscious* ('*Expert*'), and even *Conscientious* ('*Achiever*') levels. That is they would to some degree identify themselves in terms of the values and preferences of the group. However, with the center of gravity for the majority of team members lodged at the *Conformist* stage, we would likely see avoidance of conflict, a desire to carefully avoid "rocking the boat," an overly strong adherence to social convention, and so on—all behaviors that would be troublesome for teams which we would want to see become more 'self-organizing', and to see take ownership of their work. We would therefore expect to see the center of gravity of most team members to include elements of the *Self-Conscious* ('*Expert*') level, at which level we would find people who are committed to producing results, are less identified with the status quo of the team, and are capable of originating ideas without extensive prompting.

You might also want to see some team members functioning at the *Conscientious* ('*Achiever*') stage. These individuals are more apt to have strong ideals and vision, or at least they are capable of aligning with those others who have strong ideals and vision (that is, as long as those ideas and vision don't clash too severely with their own!). Such team members can help the team align themselves with the vision and direction of product manager, who, in an Agile environment, guide team members toward the *what* of the given product, rather than spoon-feeding them work breakdown structures which deal with the *how* of product development.

The Cognitive Developmental Perspective of Basseches and Laske

Most team members will likely be viewing problems from what Laske called a *Lockean* or a *Kantian* perspective. As mentioned before, from the *Lockean* perspective, problems are well-structured, and are constructed as inductive, empirical representations of sense data from which general ‘facts’ are deduced. However, many software development problems are not so well-structured. Thus, they often require what Laske called a *Kantian* inquiry system. Such systems are multimodal: they are able to embrace a number of different perspectives.

The Developmental Intervention Context

As the previous discussion suggests, one objective of agility, at the team level, is to strengthen team members’ capacity to collaborate, to solve well- and ill-structured problems, to align with product vision and goals, and to reflect on, and continuously improve, their working process. Effective coaching interventions will likely help the team gain deep and actionable facility with those agile principles and practices relevant to the activities of teams. In addition, such coaching interventions will take the form of facilitating team retrospectives and other similar meetings designed to help the team reflect and improve upon their working process. Finally, effective coaching at this level will occur in the form of enforcing some of the structural and environmental practices of agility, as for instance helping product management establish a compelling vision for the product. Moreover, middle and senior management will work in other ways to make certain that minimally favorable conditions are present for the team to perform at their best. When these conditions come together, many of the factors identified by Schein for the establishment of psychological safety will be present. This in turn increases the odds that team members will overcome the many psychological hurdles in the process of learning and change.

Leonard (Leonard, 1998) referred this type of intervention, in which dialogical coaching was strongly supported by the establishment of the right kinds of social, cultural, and physical parameters, as *environment design*.

8.4 Middle-Management Level

Middle managers face particular challenges in any kind of organizational change initiative (Luscher & Lewis, 2008). Among the things that middle managers are asked to take on in an Agile transition initiative, are:

- To be relied upon to span boundaries between senior management and teams (Luscher & Lewis, 2008: 222). This means helping teams discover ways to align

their processes and performances with the often paradoxical goal statements of senior management. This, in turn, means resolving some of the paradoxes and ambiguities of senior management in ways that can result actionable knowing for themselves and the teams they manage.

- To provide coaching and styles of principle-based leadership that is appropriate for Agile teams and team members. This includes developmental mentoring and support of individual team members.
- To filter, make sense of, and eventually resolve (or escalate) challenges and impediments which teams encounter in order to help teams continuously improve. This often involves forms of ‘translation’ which endeavor to uncover patterns of organizational functionality (or *dys*functionality) which might be at the root of the obstacles impeding team progress. Among these may be the teams themselves.
- To maintain an environment of continuous learning and development for teams and team members, including any requisite training or team coaching.
- To make sure there is congruence between what teams are asked to do and what they are both competent *and capable* to perform, and working with teams to resolve the competency and capability gaps that may arise. Help the organization bring consistency to the structures, and processes by which work is done, and people are evaluated, etc.

With respect to the all-quadrants view of figure 4, middle-level managers work primarily in the lower quadrants, which deal with teams, project delivery process, organizational structures and processes, and departmental politics.

Among other things, middle managers are the ones who are relied upon the most to help team members reduce the learning anxiety associated with change, by creating structures and systems that increase their sense of psychological safety. And yet, they themselves are challenged by many of the same kinds of learning anxieties as those team members they are coaching. I shall next consider these challenges within a developmental and cognitive context.

The Developmental Perspective on Middle-Management: Kegan

From Kegan’s perspective, we might ask what it is that middle-managers within an organization transitioning to an Agile way of working are able to do? First, they must have the capacity to think for themselves, as it were, unencumbered by strong identity with the team or departmental *milieu* which they manage, or of which they are a part. They must have the capacity to see others, not as subjective internal constructions, but as distinct, objective others. This is particularly important in a manager’s role as ‘coach.’

Given these very general considerations, we might surmise that an effective middle-manager will likely fall within the range (using Lahey et al.'s numbers) of 4/3 and 4/5 (adopted from Laske, 2005:106 and Laske, 2005:140-142):

- 4/3 – a state of conflict, with the high stage winning out more and more
- 4(3) – nearing stage 4; though there is still considerable espousal of being at stage 4, the individual is indeed nearing it
- 4 – fully self-authoring decision-maker who is fully embedded (“subject to”) ones own value and meaning-making system
- 4(5) – Begins to question scope and infallibility of own value system
- 4/5 – Conflicted over relinquishing control and taking risk of critical exposure of one’s own view
- 5/4 – Conflicted, but increasingly succeeding in ‘deconstructing’ self

The Developmental Perspective on Middle Managers: Cook-Greuter

From Cook-Greuter’s perspective on ego development, we might want to find middle managers falling somewhere around Conscientious (‘Achiever’) and Individualist (‘Pluralist’) levels. Manager’s who are at the Self-Conscious (‘Expert’) level, will find the requirements of Agile management—with its emphasis on self-organizing teams, on emergence, and on transparency—to be overly demanding. And yet, this is often what I find when I work with firms that are attempting to make the transition to Agility, particularly in the early stages, and it can be highly counterproductive to the effort.

Managers who are at *Conscientious* (‘*Achiever*’) level can be very effective, particularly in the early stages of an agile transition, when most people are still in the early learning phase, at which point adherence to somewhat hardened points of view regarding organizational ideals and aspirations—characteristics of the Conscientious stage—can be beneficial. As I said earlier, when one resides at the Conscientious stage one is committed to bettering the world, but only in terms of what *they* see as right. People at this level have high standards, the living up to which can be personally challenging. As such, at some points during a transition to Agility, managers whose center of gravity resides in the Conscientious stage may be challenged, again, in embracing and effectively embodying many of the principles of Agility, especially *emergence*, *transparency*, and *self-organization*.

Some middle managers may be making the move toward *Individualist* (‘*Pluralist*’). However, at such a stage, middle-managers can sometimes appear as aloof, or as distracted to the team members who may rely on them to some extent to resolve some of the paradoxes and contradictions presented to them by the transition. That’s because, in celebrating the unique gifts and differences of others, Individualists can often veer very far indeed into extreme postmodernist positions, reveling in the paradox and uncertainties

without really appreciating the potential havoc and chaos they may bring to people's experiences (Cook-Greuter, 2005:24).

The Developmental Intervention Context

Helping middle managers begin to move beyond the fixedness of their embeddedness in their own value system, and the rigidity of thinking that maintains that embeddedness may be one developmental intervention goals. One of the ways which this can be achieved is through dialog and reflective practices such as action science or action research (Argyris, Putnam, & McLain Smith, 1985; Luscher & Lewis, 2008). Some of the capabilities associated with Model II learning, for instance—such as testing assumptions and inferences, sharing all relevant information, and the joint design of ways to test assumptions, etc.—can be developed through specific dialog and inquiry practices (Mink, Esterhuysen, Mink, & Owen, 1993; Schwarz, Davidson, Carlson, & McKinney, 2005). Mentoring and coaching by senior management, particularly in a (management) team context, can also be helpful in developing critical reflective capabilities.

A critical part of developmental intervention is helping people to situate themselves *where they are* developmentally (Laske, 2005). Before moving on developmentally, people must have solid grounding where they are at now. This is reflected in one aspect Laske's assessment methodology—the “risk-clarity-potential (RCP)” —in which a client's center of gravity may span three sub-levels—e.g. 4(3), 4, 4(5)—with different weights given to each sub-level. For instance, an assessment may reveal an RCP measure as follows:

4(5) [3 : 7 : 4]

This means that the client has a developmental spread of 4, 4(5), and 4/5:

- 4 – fully self-authoring decision-maker who is fully embedded (“subject to”) ones own value and meaning-making system
- 4(5) – Begins to question scope and infallibility of own value system
- 4/5 – Conflicted over relinquishing control and taking risk of critical exposure of one's own view

Within this spread, the client is solidly grounded at 4(5)—indicated by the ‘7’—with relatively low risk for regression back to 4—indicated by the ‘3’—and a relatively high potential for 4/5—indicated by the ‘4’. The stage characteristic of this RCP measure indicates a manager who is increasingly conflicted between maintaining ideological dominance and control and relinquishing that dominance in favor of critical reflection

and exposure of the fundamental principles and values which define one's essential point of view. Such a manager is beginning to call into question many of the ideologies and value systems he or she has held so dear, and beginning to be able to embrace other, potentially conflicting points of view. This is likely not an easy time for this manager (this hypothetical analysis adapted from Laske 2005).

By helping such a manager see clearly his or her own developmental positionality—particularly for one with this particular RCP—a coaching intervention can help the manager begin the tender process of movement toward a new center of gravity.

8.5 Senior-Management Level

Rooke and Torbert (Rooke & Torbert, 1999) found that the success of any kind of organization change depends to a great degree on the level of personal development of senior leadership (Rooke & Torbert, 1999:1). They discovered, moreover, that organizations whose CEOs were assessed to have achieved high levels of personal development were more likely have successfully navigated significant organizational transformation processes. What might some of these capabilities look like?

- Seeing and working with the interrelations, processes and structures between and among various systems, whether micro, meso, or macro;
- Being able to dialectically synthesize apparently apposite ideas and situations;
- Being able to use paradox and contradiction as a source for creative thinking;
- Being able see other human beings as distinct, complex systems in themselves, each with their own particular developmental constitution and potential;
- Being able to create and design environments for the development of others; and,
- Being able to tolerate messiness and complexity in the process of facilitating the emergence of an organic order.

These are general capabilities we might expect to find among successful senior managers leading significant organizational change. In addition, we might find the following more particular capabilities in leading transitions toward sense-and-respond organizational capacity:

- Maintaining a coherent vision that, nevertheless, admits an ever-changing world and ever-evolving strategy
- Being able to create environments that inspire confidence in risk-taking and experimentation. This requires not only the modeling of a certain kind of attitude, but also the building of systems that have some degree of fault-tolerance built in so that people experience safety in exercising some degree of risk-taking activity.
- The capacity to embrace complexity and ambiguity without becoming disoriented or rattled. To actually see in ambiguity and paradox the source for true creativity and

innovation. To be able to help others learn to function effectively in such an environment of paradox and ambiguity.

- Recognizing that the world is largely socially constructed and, as such, building the capacity—through collaboration and partnership with other leaders (including those outside one’s organization)—to generate interpretive frames that enable and empower others toward thinking and action that is congruent with the philosophical perspective and business aims of the organization.
- Being able to maintain a high degree of focus, in terms of strategy and goals, while at the same time, being able to rapidly adapt and adjust to what is going on around one;

With respect to the 4-quadrants model, senior managers must be able to function equally well in all four quadrants, but at high levels for each one.

The Developmental Perspective on Senior Management: Kegan

Citing (Heifetz & Sinder, 1988), Kegan (R. Kegan, 1994) observes that an effective leader evinces two leadership abilities. The first is the ability generate and communicate a coherent vision and purpose, an ability that requires skill in conception and in communication. The second is an ability to enroll people in identifying with and taking ownership of that vision and purpose, which requires superior interpersonal skills (Kegan, 1994:321-22). This is a rather common approach: the leader crafts a vision and then presents it to her or his followers and enrolls them into accepting it as their own. Such an approach reflects a Stage 4 perspective, in which an individual’s identification with their own *internal institution* is still very strong.

However, I would posit that building a highly capable *sense-and-respond* culture requires a different, a more collaborative and inclusive approach. Heifetz & Sinder propose a more inclusive leadership in which vision and mission creation is accomplished collectively and collaboratively, in which the crafting is itself the objective of creating a vision and mission. Such leadership practice acknowledges that the leader does not have “the answer” nor a plan—that the creation of these are things she or he can guide and facilitate within a collaborative and collective activity, but can’t unilaterally create. Such a leader is minding the *context* in which plans and strategies are devised, rather than their inevitable *content*. The leader, as was mentioned above, is aware of the limitations of their own perspectives and wishes to expose those perspectives to scrutiny. As such, this leader turns toward the collective and collaborative creation of the vision and mission not from a *laissez fair*, or even necessarily for the sake of *inclusiveness*. Rather, their interest is in generating an open and critical *inquiry*, something akin to an exercising of Argyris’ *model II theory-in-use* (Argyris, 1990).

This kind of senior leadership capacity would be critical in developing middle managers to develop their own capacity for sense-and-respond organization, by providing an

educational and coaching environment that is developmental in nature (as opposed to going out and taking a workshop on “leadership”).

This kind of leader reflects stage 5 meaning-making capacities (or what Kegan (1994) calls a “5th order” or postmodern meaning-making capacity). This leader has made her own internal meaning-making and value system *object*; that is, she is able to interact with it as *content*, rather than behaving and acting within it as a *context*. Such a leader has, as Laske phrases, been able to give up her “splendid isolation” from the influence of others, viewing the feedback she obtains as critical to her own development as a person and as a leader.

The Developmental Perspective on Senior Management: Cook-Greuter

From the point of view of Cook-Greuter’s developmental framework, we might expect to find effective senior managers operating from the *Autonomous* perspective. At this stage, a leader is comfortable with the perception of the heterogeneity of Self. As such, the leader can be comfortable with uncertainty and predictability that leading in a sense-and-respond organization is apt to entail. From this perspective, a leader recognizes that each person comes from a particular meaning-making perspective, and has some capacity to assess individuals’ specific frames, and to interact with them appropriately, especially as a mentor and coach. At this stage, leaders find it relatively easy to conceptualize visionary and even paradoxical perspectives, and to communicate them in ways that are evocative and yet still instructive for others.

The Cognitive Developmental Perspective of Basseches

Effective senior managers will clearly have the capacity for *Hegelian*, or *dialectical*, thinking, or, to use Martin’s terminology, *integrative thinking* (Martin, 2007). It might be helpful to recall what Martin called the six features of an integrative thinker’s stance:

Stance About the World

1. Existing models do not represent reality; they are our constructions.
2. Opposing models are to be leveraged, not feared.
3. Existing models are not perfect; better models exist that are not yet seen.

Stance About Myself

4. I am capable of finding a better model.
5. I can wade into and get through the necessary complexity.
I give myself the time to create a better model. (Adapted from Martin, 2007:115-16)

Note that these qualities are to be found in effective sense-and-respond middle managers, to some degree, as well. However, there may not be a lot of self-awareness around this. With senior managers, by contrast, we would expect to find considerably more self-awareness and even developed practices around these qualities. That is, senior managers will want to be able to not just “walk the talk” but to also “talk the talk.”

9. BY WAY OF SUMMARY AND CONCLUSIONS

In this paper, I have described a variety of developmental theories from Kegan, to Cook-Greuter to Basseches to Laske. I have also posited an *ecological* framework for thinking about human development within the context of an organizational transition toward ‘sense-and-respond’ capability.

There are a number of issues left unaddressed and projects left incomplete. One such issue concerns the congruency of the developmental stage of a given management and the particular organizational context in which that management occurs. Are there situations when the presence of more advanced stage development (e.g. Kegan’s stage 5) can actually hinder an organization’s growth and development of an organization and its people? For instance, a person who operates from a Stage 5 system or from an *Autonomous* (*‘Strategist’*) frame could be a disaster as a middle manager. As Clare W. Graves notes, particular organizational situations call for particular management styles and approaches (Graves, 1971).

Another unresolved issue concerns a matter which Rooke (Rooke, 2001) brings up, which is that people at any given stage are either successful or not, *at that stage*. For instance, someone at the Expert stage may fret endlessly over details and still be inconsistent and error-prone. Similarly, an Achiever may be highly committed to delegating others to deliver results, only to frequently fail to make sound decisions (Rooke, 2001:5). This indicates possible strategies for coaching, which is able to distinguish the need for ‘developmental’ coaching from other forms of coaching.

Yet another unresolved issue, also raised by Rooke, concerns the lack of a psychological perspective in this discussion. For instance, as Rooke notes, “[t]here is a world of difference between a manager at the Achiever stage who is, for example, free from feelings of inferiority and one who is deeply troubled by feeling unequal to peers and friends” (Rooke, 2001:5).

Finally, I have not even touched on the question of organizational ‘readiness’ for agile or sense-and-respond transitions. It often happens that a manager at Company A will learn that Company B (perhaps a competitor) has successfully “gone agile” and, in an effort to remain competitive, decides that her company had better follow suit. This can lead to turmoil and disaster. As Cameron & Quinn (Cameron & Quinn, 1999) observe, different companies have different cultural *tonality*, and what seems easy for one company is much more challenging for another, regardless of how seemingly similar they may be (Schein, 1999).

In addition to the obvious issues I have not addressed, there are directions for possible future research projects that I might briefly comment on. One such potential project has to do with developmental intervention strategies, which alone constitutes an entire body

of work. Otto Laske has been doing important work in this area, and a full consideration of that work is certainly warranted (it is really only slightly touched on in this current study). Another incomplete project is the possible mapping of levels to quadrants, in Wilber's model. Wilber provides generic mappings, but there may be other mappings that are specific, say, to product development companies, which could be helpful in guiding various kinds of organizational interventions.

Still another potential project, perhaps more theoretical, has to do with the *location* of ego or self. Psychology is commonly understood as locating ego and self in the mind, or in the brain. Olafson (Olafson, 1995) argues that, at least from a philosophical perspective, this makes no sense. In addition, sociocultural perspectives on psychology (Goldhaber, 2000; Vygotsky, 1978) show us that whatever it is we might call 'mind' occurs in a social context—that it is, as it were, a socially distributed phenomenon. This is an area of research that is of special interest to me, particularly as it relates to the constitution of organizational settings, and their (inter-)relation with human development, and as it relates, ultimately, to Heidegger's notion of human being and *Dasein* (Heidegger, 1962).

One final project has to do with world leadership in world that is undergoing cataclysmic change. I believe that bringing greater cognizance of developmental stage theories to management and policy-making, as for instance Torbert et al. have done in the corporate world, can contribute to the urgent advancement of human capability in the face of so many era-defining problems currently before us as human beings. As former U.S. Vice-President Al Gore announced, at the 2008 TED (Technology, Entertainment, and Design) conference regarding sustainable living in the 21st Century,

“What's needed really is a higher level of consciousness—and it's hard to create, but it's coming. As the Africans say: if you want to go quickly, go alone; if you want to go far, go together. We have to go far, quickly” (Wilber, 2007).

To go quickly *and* to go together exhibits precisely the kind of thinking—comfortable with contradiction and paradox—which is likely needed if we are not merely to solve the world's problems, but to *transform* the system(s) that generated them. I believe that it's possible to bring tools and (social) technology that are informed by developmental thinking (along with others, such as integral thinking, aesthetic, and systems thinking) into educational environments to aid in bringing leaders, and hence nations, to a higher level of consciousness.

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