Organizing for Sustainable Effectiveness: Taking Stock and Moving Forward

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Abstract

The large number of publications about sustainability and sustainable development that have been published during the past decade have dealt largely with the science of sustainability, the content of sustainability initiatives, and increasingly with the need to more closely link the economic, environmental and social purposes and operating logic of the firm. Recent literature stresses the inherent social nature of the challenges to aggressively moving to more sustainable ways of operating for the well-being of our planet, society, economy, organizations and humans. Despite rich case examples, guidance on how to organize to achieve the triple bottom line is limited. We take stock of the current state of knowledge, using an adaptive complex system perspective to articulate the challenges of organizing for sustainable effectiveness. Most of the global economy and the knowledge upon which it is predicated carries a logic of resource abundance even in the face of increasing competition for scarce resources, and a singular focus on economic outcomes. We argue that the development of new capabilities to address triple bottom line sustainability requires a change in that logic and requires new rules of interaction, new organizational and inter-organizational designs, and new ways of learning. The premise is that systems can build on their inherent capabilities to learn and to act collectively in order to adapt. We argue that by working together to collaboratively explore how to organize for sustainability, academics and practitioners can accelerate knowledge generation and progress. This manuscript provides the theoretical framing context for the chapters to come.

Key words: sustainability, sustainable practice, sustainable effectiveness, new capability development, complex adaptive system, designing for sustainable effectiveness, learning mechanisms & processes, collaborative research, knowledge generation.

Category: General Review

In the twenty-first century, organizing for sustainable effectiveness has become increasingly challenging and fraught with uncertainty. The requirements of the global economy and the escalating population are approaching the "carrying capacity" of the earth on which we live, while the global economy has seen rapidly developing economies in many nations, increased affluence, and aspirations, expectations, and means for material comfort. Near term and longer term impacts of global are widely believed to demand adaptive and mitigative measures to avoid or ameliorate ecological, social and economic disruption. Globalization has also been accompanied by a growing and highly visible division between the haves and have-nots within and between countries, along with increased potential for social unrest. Aging and stable or declining populations in developed nations and youthful, growing populations in poor nations portend certain but not fully understood tensions and discontinuities in the global economy that supports us all.

Burgeoning complexity related to global interconnectedness and rapid change yields organizational, societal, ecological and economic landscapes that are difficult to predict and navigate, and impossible to control. Individuals, organizations, families, communities, and governments deal with only one certainty: that the actions they take and the decisions they make today must prepare them for an uncertain future. Achieving sustainable effectiveness requires agility informed by frameworks of thought and action in which actors see themselves as contributing to, operating within, and dependent on the larger systems of which they are part, and take future scenarios into account while acting in the present. Sustainable effectiveness of each actor depends on the overall sustainability of complex eco-systems—of the natural environments, markets, and societies that define the contexts in which we function.

A large literature has been generated about sustainability, and many organizations, governments, communities, and citizens have focused on it. Yet, given how quickly the limits of the current models of the global economy are being approached, we must accelerate the rate at which we learn to operate differently. In this first volume of the Emerald Press series *Organizing for Sustainable Effectiveness*, our goal is to learn from some of the pioneers articulating these challenges and organizing to address them.

There is an urgent need to grow the knowledge bases to guide the transition. For this reason, each chapter in this volume is crafted to bring together the knowledge of practice and theory. The chapters are based on rich empirical data about particular cases in which organizations are, individually or collectively, working to build a more sustainable future. The authors of these chapters also bring theoretical knowledge to bear on these case examples. In so doing, they test the applicability of the formal knowledge base about management and organizations, while refining, modifying, and extending it to increase its usefulness in addressing the challenges of organizing for sustainable effectiveness. By combining knowledge from multiple stakeholders and multiple disciplines, it is the intention of the authors in this book to contribute to the broader learning discourse through which practical organizing solutions are designed and research-based guidance is provided.

In this introduction, we describe and frame the sustainability challenges being faced by humanity using a complex adaptive systems perspective (Miller & Page, 2007; Holland, 1995; 1998), and we draw from the literature to examine how the topic of sustainable effectiveness has been approached and what has been learned to date. We focus particularly on the issues of purpose and capabilities development. A capabilities development perspective leads us to

suggest that organization design and learning processes are critical to building a sustainable world.

Sustainability: The Challenges of Survival in a Complex System

A fundamental predicament for each of us as individuals and organizations trying to prosper in this new millennium is that the contexts around us are changing, in ways that are uncertain and at a speed that is both dizzyingly quick and frustratingly slow. We are, we believe, resourceful and competent, and ready and eager to adapt, *if* we know the new rules of the game, and to what we need to adapt. If we could just get environmental regulations defined, we could adjust our operations accordingly. If we know that consumers are willing to pay for "green" products, we can change out our technology and redesign our products. If we could reduce the uncertainty about our healthcare coverage, we could plan for our future. If we could get a commitment to preserve jobs at home, we could work hard, contribute to the organization we work for, save money, and prepare to be self-sufficient in the future. Yet, the reality is that our health, effectiveness, and perhaps even our survival depend on adapting to a relentless and continuous reconfiguration of the world we have known. In this section, we frame the challenges and use the key tenets of complex adaptive systems to understand how sustainable practices may be created. We argue that the transition to a sustainable global economy can be best accomplished by the advancing of practice and theory, and by the collaborative creation of knowledge.

The Macro Challenges to Sustainable Development

Sustainable development has been defined as meeting "the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission, 1983). In reality, the future is here. Our current ways of operating are not doing a very good job of meeting the needs of many in the current generation. Today, nine out of ten children under the age of 15 live in developing countries, and 70% of the world's population growth is in countries with average per capita income of under $3855, increasingly in urbanized areas with extreme poverty and social unrest (Goldstone, 2010). The parts of the world most vulnerable in the face of environmental change have the least resources for adaptation and mitigation, and experience the most severe social impacts (Martens & Ting Chang, 2010). Many of these nations are at the same time experiencing explosive economic development and wealth creation, yet struggling to put in place the infrastructure to address the social and environmental outcomes of that growth. In developed nations as well, governments and populations deal with the social and economic impacts of work and even industries moving around the world, communities and the individuals within them faced with unreliable economic bases, and the relentless pressures for lean and often virtual operations and competitiveness with the associated social costs resulting from increased work intensity and insecurity (Docherty, Forslin, & Shani 2002; Docherty, Kira, & Shani, 2008a).Even in developed nations, the disparity between the haves, with the resources to adapt, and the have-nots, who are most negatively impacted by the externalities, has grown immensely in the last decades (Hart, 2002; Brown, 2008).

Advances in global transportation and information technology have enabled global economic connectedness, knowledge exchange, and rapid economic development that have carried with them immeasurable benefits for a large segment of humanity. These forces have also made very apparent our dependence on and vulnerability in the face of macro-level factors

that create the context in which we live. Scientists have long pointed out that the natural eco-systems of earth are fundamentally threatened by the patterns of human activity associated with economic growth that disregards the costs of the impacts on the natural environment, treating these as externalities (Stead & Stead, 2009). Many management scholars and organizational leaders have now become concerned that current patterns of economic activity and the ways of life associated with them are unsustainable, and that the time has come, and indeed is short, to build new approaches that enhance rather than deplete the global ecological and social systems in which we exist. In 1997, during the height of unprecedented global economic growth and the building of unprecedented wealth and prosperity, Stuart Hart (1997), among others, pointed out over a decade ago that we face a pressing challenge to develop a sustainable global economy— one that the planet is capable of supporting.

The challenges we face are multi-faceted and intertwined. Successfully addressing them entails intentionally altering the patterns of interaction and activities in our complex system in which all of our activities have economic, societal and environmental impacts. This reality is captured by Elkington's (1997) notion of the "triple bottom line," a management and accounting framework entailing commitment to and measurement of outcomes in all three of these dimensions. The inevitable interplay between economy, environment and society occurs at all systems levels. The sustainability challenge must be confronted by the nation states that comprise the global whole; by corporations and industries within and across nations, NGO's and local governments and agencies, large and small, that operate within and across these nation states; and by the citizens, employees, consumers, factories, shops, networks, families, communities and regions whose behavior and activities comprise the reality we confront.

The forecast is stark, and is no doubt so alarming that it is dismissed by many: If the whole world were to consume natural resources and generate CO2 at the current European rate we would need 3 planets to support us—or 5 planets if we consumed and polluted at the level of U.S. (WWF, 2010). This projection is based on the rate of growth of the earth's population (estimated to reach 9.4 billion by 2050), and the increase in the numbers of the middle class with associated material expectations and means. The footprint can be roughly calculated using Ehrich & Ehrich's (1990) formula: Population X Affluence (measured by GDP) X Technological Efficiency. This dire forecast addresses only the resource limits element of the current trajectory of growth, with its obvious implications for competition, collaboration, and the limits to the growth of the global economy. Associated stressors come from the environmental and social impacts of such population and economic growth.

Environmental impacts include climate change and its potentially devastating impact on the economic and physical health and well-being of entire regions and populations, as well as the direct social and ecological impacts of waste, toxicity, and pollution. The biodiversity that is needed for resilient eco-systems is rapidly declining (United Nations Environment Programme, 2007). The pervasive reach but uneven impact of globalization have drawn attention to the associated issues of social justice. Developed nations have exported many of their uncomfortable externalities to emerging economies, including jobs that could not command a living wage in the developed world, and the pollution and toxicity associated with dirty industry. Yet the rapid ascendance of large developing economies such as China and India that will soon surpass developed nations in many measures of economic leadership are rapidly conferring greater power on these nations. Demographic patterns of rapid and often destabilizing population growth in poor nations increase the urgency of bringing these parts of the world into

the global economy (Hart, 1996; Goldstone, 2010; Prahalad, 2004). In voice and action, developing and poor nations are demanding a rebalancing of relationships and economic frameworks that may radically reconfigure the patterns of activity, growth, and prosperity in the global economy.

Modernity and global connectedness have yielded macro-level benefits and threats to the population's material, health and financial well-being. Modern transportation has given us easy access to markets and goods, including fresh foods from around the world, while at the same time resulting in the spewing of greenhouse gases into the atmosphere, and leading to the homogenization of goods and services that threatens cultural diversity. Medical technology has yielded significant advances in treating and preventing disease, and great leaps in life expectancy. Yet even in developed economies, the combination of a growing population, greater costs, and greater longevity have carried with them the associated threats of insufficient health care resources to address routine health care, let alone to deal with pandemics and global surge of chronic disease, much of which relates to affluence, urbanity, and modern lifestyles.

The global financial system, enabled by advanced information technology, mobility, and the opening of global markets, has provided great opportunities for economic growth, high standards of living, and wealth creation. Yet sophisticated modeling and simulation capabilities have contributed to the proliferation of innovative approaches to creating concentrated wealth based on poorly understood and fundamentally unsound tools and products. The 2008 recession, triggered by defaults on derivative papers, demonstrates that while these created immense wealth for some, they were also capable of seemingly instantaneously throwing the financial "order" into disarray through a complex causal chain that triggered a global recession, wreaking havoc on the financial well-being of citizens throughout the world. Even micro-lending, a financing

approach for which Muhammad Yunus received the 2006 Nobel Prize for Peace, that makes

small amounts of money available to individuals in poor communities to start up small

businesses and build local economies, has almost ground to a halt in some parts of India. Large

banks got into the action and started charging interest of up to 50%, and a social and political

outcry has resulted as people are increasingly defaulting on their loans and losing their livelihood

(Anonymous, 2010). These examples demonstrate the close connection between economic and

social dynamics, as financial practices and bubbles grow based on socially constructed

understandings and trust, and can collapse just as readily when those understandings and that

trust change.

How do we deal with this level of complexity and uncertainty? We tend to rely on what

we know and what has worked in the past, and to bring to these issues our cognitive biases and

tried and tested heuristics that allowed us to succeed in a simpler world (Hoffman, 2010). We

may assume that there will be technological fixes that will allow us to solve these problems and

continue with our way of life. We may believe that protectionism—or alternatively, truly open

and free trade—will enable us to thrive. We may believe that these problems are developing

slowly and unlikely to affect us. We may see them as someone else's problems, or at least

someone else's to solve, and believe that our responsibility is simply to be part of successful

enterprises that provide jobs and wealth to ourselves and others. In other words, we may believe

that we need to get better at what we already know how to do in order to be effective in a world

where the context is changing dramatically.

Yet a close examination of the elements of this transitional period shows how

fundamental and discontinuous it is, largely because we are facing a world characterized by

scarcity. A number of leaders of major global corporations have recognized this new reality, and

are actively leading their corporations to change the way they operate. For example, Jeff Immelt, chairman and chief executive officer of General Electric Corporation, believes that the next decades will be about technologies and economies to address issues of scarcity (Mirvis, Googins, & Kinnicutt, 2010).   Patrick Cescau, Group Chief Executive Officer of Unilever, believes that companies need to plan for a future "where resources are under threat and externalities need to be paid for" (2008, p. 14). And there are many others who are starkly defining the challenge and setting out to find a viable path forward. There is an urgent need to find solutions and models of growth that do not accelerate the looming crises in resources and associated environmental and social damage. We need to find new ways of functioning, new models for managing and organizing, and new ways for the various actors in the complex global economic system to interrelate that enable sustainable development.

The macro threats to our sustainability are overwhelming to most of us, and many of us would like to limit our responsibility and accountability for dealing with them, and especially our liability for our contribution to the problems. For decades we have seen these issues as governments' problems to solve. Yet a global pattern of rising public deficits and reduced public spending means that companies and individuals can no longer expect the polity to pay for their externalities. Some predict that governments will assume a new role in convening others to find solutions (Googins, Mirvis, & Rochlin, 2007) and will look to businesses and the non-profit sector to work together to achieve economic, environmental and societal objectives (Lacy, Cooper, Hayward, & Neuberger, 2010). Even the regulatory role of government is weakened, as fewer, larger firms operate across many borders, yielding a globally integrated economy while global society is politically divided and unable to deal with issues that are inherently global in scope (Sachs, 2008). No one sector and certainly no single organization can solve these problems

or create a sustainable future. So it is up to each of us, as agents operating in a complex global system, to individually and collectively find ways to operate and organize that contribute positively to a sustainable future.

Evolution of Sustainable Practice in a Complex System

The important problems facing mankind cannot be solved within the confines of single organizations or entities. Viewing today's complex, highly interdependent world and the more local eco-systems within it as complex adaptive systems provides conceptual leverage on the seemingly intractable problems embedded in current operating principles. It also disabuses us of the notion that top down and/or governmental control mechanisms can generate the kinds of changes in behavior, patterns of economic and societal activity, and socially and environmentally responsible goals and outcomes that are needed. Yet it offers the hope that actors in this complex space can find ways of interrelating to one another that will yield more sustainable outcomes and impacts.

Complex adaptive systems are composed of many interactive agents, each with its own strategy for adapting to the environment and pursuing its goals (Axelrod & Cohen, 1997). These agents are of multiple types and at multiple levels of aggregation---individuals, companies and other organizations, industries, factories, alliances, governmental entities, and so forth. They act independently and interdependently—collaboratively and competitively—to secure the resources they need to pursue their purposes. Their actions have intended and unintended impacts on the markets, societies, communities, and natural environments in which they operate and on which they depend for their own survival.

The properties of the larger system emerge as a result of the actions and interactions of the various agents who comprise the system. These emergent properties—which would include levels, patterns, and types of social or environmental health or degradation-- are not simple aggregations of the impact of individual agents. Nor are impacts of the actions of the agents within the complex system linear. Emergent properties reflect complex, dynamic interactions resulting in outcomes that cannot be fully planned or anticipated. For example, the intended and unintended impact of industry collaborations to create shared measures and standards for environmental or social sustainability may include a focus on incremental increases in outcomes that result in progress in targeted areas. But such collective action by an industry may also stifle true discontinuous innovation because the political processes of collaboration may yield conservative and easily accomplished outcomes that do not spur fundamental innovation. Effort to reduce toxins in the environment by encouraging organic farming by offering higher prices for products from organically farmed crops may inadvertently raise the costs of production in a manner that makes a region vulnerable if the price of organic crops declines because of increasing global supply.

Within earth's vast, complex system are communities-- sets of co-evolving populations of agents that are tied together by common orientations, dependence on common resources, and interdependence of flows of activities and outcomes. These communities may be geographically defined, or defined by a set of interrelated activities around the globe such as industries and supply chains. The various populations of agents who form a community require resources in order to prosper, and seek them out by inhabiting niches or parts of the eco-system where they believe they can gain access to them (Hannan & Freeman, 1977). Organizations move their activity to parts of the world that are rich in the resources they require—natural resources and

social resources such as skilled or cheap labor, raw materials, and markets. They may set up relationships with other entities who bring synergies and scale or access that give them an advantage with respect to achieving an ongoing flow of the resources they need for success. For example, western oil companies set up joint ventures with local government-owned oil companies in developing nations to ensure access to reserves. Retail coffee companies may set up preferred purchasing arrangements and invest in local rural communities to ensure a flow of fair trade coffee beans. In the process, the various members of the community may develop new capabilities, and they contribute to changing patterns of activities, network relationships, and outcomes in the overall eco-system.

Organizations have been described as learning and changing through co-evolutionary relationships with their environment —through relationships that are interdependent, mutually causal, and iterative (Stead & Stead, 2009), such that changes in the macro environment emerge in mutual interaction with change in its component inhabitants. There is an ongoing need for adaptation. Drawing on institutional theory, Hoffman (1999) talks about organizational fields, in which organizations evolve in concert with the demands and institutional forces in their environments. Environmentalism has become increasingly deeply embedded in the chemical industry, for example, as companies have found increasingly sustainable ways to operate. Initiated by Du Pont, the industry has collaboratively participated in the Responsible Care initiative (Hart & Milstein, 1999) through which standards have been set and knowledge shared. The environment has responded with greater and greater demands for environmental responsibility, as stakeholders have become increasingly aware of the negative consequences of chemicals and have come to believe that these are not necessary or tolerable (Hoffman, 1999). Companies such as DuPont have established new ways to relate to their various stakeholders,

and in so doing have adopted strategies to meet financial, environmental and social expectations. Research and development is focusing on the use of bio-based feedstock rather than fossil fuels in creating new materials (Hoffman, 2010).

A key to understanding the emergence of system level properties is to discover the mechanisms that guide the interactions among the agents within it, and in its various sub-populations and niches (Holland, 1995; Monge & Contractor, 2003). "Rules" have developed in complex systems. They characterize the system's interactions as each agent pursues adaptation through experience, mimicry, and learning (Holland, 1995). "Move work to low-cost regions" is a rule that has characterized many industries in the global economy. "Seek to avoid paying the cost of and having liability for externalities" is another. Rules such as these have underpinned global capitalism, and have contributed to the operating characteristics and outcomes, both positive and negative, of the global economy.

The hope for developing a sustainable global economy is that new meta rules—such as "take actions that build long-term sustainability"-- could come to guide actions and interactions. Unlike natural eco-systems, the strategies of actors in socially fashioned systems are based on purposes, interpretation, and anticipation of possible futures (Leyesdorff, 2001). Agents in a social system are able to engage in intentional adaptive strategizing (Knight, 2002), borrowing of ideas (Campbell, 1960), repurposing, and learning that guide their adaptation to a changing environment and contribute to its evolution. This capability for intentional, purpose- related activity provides the possibility that new patterns of interaction can be purposefully established to alter the overall outcomes of the system and its actors. For example, Beghelli, a highly successful Italian lighting firm, has purposefully decided to stay operationally rooted in the Emilia Romagna region of Italy, and to develop the local knowledge and resources it needs

rather than moving operations to low cost locations (Del Bosco, 2010). Walmart is increasing its dependence on local food, to reduce the need to transport food around the earth and the associated greenhouse gas emissions. And there are many other organizations making decisions based on principles of sustainability.

The patterns of interaction that characterize today's global economy has evolved during a period of ecological munificence, when mankind could continue to seek and find new frontiers of economic and natural resource abundance. Ecological niches evolve and go through life cycles, characterized by changing patterns of interaction among their inhabitants and changes in the abundance of needed resources (Astley, 1985). New niches tend to be characterized by few actors pursuing many resources. But as the number of actors grows and the niche becomes over-populated for the resources it provides, competition increases and actors form various kinds of alliances and symbiotic relationships to ensure a resource stream. Communities emerge to coordinate the assemblage, pursuit, securing, and distribution of resources.

During the industrial and post-industrial eras, we have had an era of rapid growth of population and several centuries of exploration and global economic and societal expansion to access what seemed to be an endless supply of resources. If our population, our governments and our corporations step up to the challenge that we are moving toward a future where the demands for resources may surpass the carrying capacity of the earth, it can be hoped, and possibly predicted: 1) that organizations may come to believe that it is necessary to repurpose themselves to preserve resources in order to secure a sustainable future; and 2) that they will interrelate symbiotically and collaboratively with other agents in their environment to adapt to the changing environmental context and create a sustainable future.

Although top-down and hierarchical direction are insufficient to change a complex system, such systems can be highly responsive to seemingly small inputs that create amplifying effects (Axelrod & Cohen, 1997), and to discontinuous innovations that provide models or open up possibilities for action by many elements of the larger system. Requiring company transparency around measures of key indicators of environmental and social impact might be one such intervention that would have ripple effects throughout the system as companies have to worry not only about measuring and reporting, but also about improving in order to satisfy the many stakeholders that are now serving in watchdog roles. Capping carbon emissions and setting up a market for carbon credits stimulates far-reaching change efforts by companies to derive financial advantage. The bottom of the pyramid templates and examples described by Prahalad (2004) describe new approaches to doing business in emerging markets in a locally appropriate manner and lay out frameworks that have achieved broad dissemination and impact. This perspective has fundamentally altered some basic assumptions and strategies of global firms. Backwards innovation results from designing products for poor communities and introducing them back into developed nations, turning on end the assumption that innovation inevitably is a linear progression in the direction of increasing sophistication and functionality of product (Prahalad, 2004). By describing a different way to interact with poor communities and a different economic model for doing so, Prahalad and others have catalyzed the emergence of new rules of commercial interaction among the companies, governments, and populations in these communities.

It has been argued that complex activities are inevitably self-organizing (Fukuyama, 1999), and that they cannot be fully externally or hierarchically controlled. In fact, governments and hierarchies rely on the various agents in their domains to find solutions to the problems of

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complexity. Order arises from local interactions of actors even if those actors are not aware of how their actions contribute to the larger order (Holland, 1995; 1998). New rules of interaction emerge as organizations try out new behaviors, experience success, and incorporate the knowledge they gain and the new behaviors into their routines. The literature points to four conditions for self-organizing systems (Monge & Contractor, 2003, pp. 95-97). First, self-organization happens when a system is not in equilibrium and the agents in the system seek to adapt to change, a condition that currently characterizes our global economy. The other three conditions relate to knowledge and learning capability. Are the components of the system self-generative –i.e., can they self-create and renew? Does knowledge flow between components, and result in greater capability and the creation of new knowledge? And, is there a "requisite variety" of knowledge (Ashby, 64) to address the problems of interest? Achieving sustainability will only happen if we can accelerate self-organization toward that purpose. The last three conditions provide guidance as to the kinds of rules of interaction that must come to be prevalent in our industries and societies to establish an accelerated cycle of generation and adoption of sustainable practice.

Many organizations, governments, NGO's and other entities are engaged in learning about how best to operate and interrelate to contribute to a sustainable future. It is only through changes in how we behave that new rules of interaction will emerge to underpin a sustainable global economy and societies. Organizations and societies that are pioneering approaches to adapt to the new world of resource shortages are inventing and learning on behalf of the rest of us. We need to learn from their efforts and broadly disseminate knowledge to enable self-organization and to accelerate the transition to a sustainable future (Mohrman & Worley, 2010).

There will not be one best approach to achieve sustainability, but rather principles that guide behavior and lead to many models of sustainable effectiveness. Healthy systems require diversity. Different organizations face different sustainability challenges and opportunities to impact on the sustainability of their contexts. Manufacturing firms are substantially altering their carbon footprints by creating closed loop product life cycles in which only heat and biodegradable wastes are returned to the environment. Product innovation firms are inventing new green materials and products that vastly reduce the amount of energy required to build and operate infrastructural capabilities. Local firms, governments, NGO's and citizens may band together and create synergies that allow a region to become economically self-sufficient, green, and socially sustainable (Worley & Breyley Parker, this volume). Previously unconnected elements of a regional health care system may find synergies and integrate processes to yield higher quality healthcare delivery and improved outcomes, while reducing the resources consumed and the footprint generated.

The problems that must be solved emerge and change through time and differ for actors in different niches. Diverse models of operations and approaches to creating a sustainable future are required to create and maintain the requisite variety to match the diversity of agents, cultures, communities, and niches, and to fuel ongoing evolution of practice in the uncertain environments we face.

Companies and other organizations are key actors shaping the changes in the environmental and social contexts that we all inhabit. Through innovation, strategies, business and operating models, and through the way they organize and the relationships they set up with other stakeholders, companies profoundly impact the contexts in which they operate, and in turn are constrained and enabled by those contexts. We need to generate and share knowledge about

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innovations, new business models, new patterns of interaction among the various components of

the eco-system, new organizational forms, new forms of governance, incentives, and regulatory

elements that will constitute sustainable systems and accelerate the transitions that are required.

Evolution of Theory for a Sustainable Economy

Our theories of organizing coevolve with the societies, economies, and ecologies that are

the focus of our knowledge creation activities. The social sciences examine human artifacts—the

political and economic systems, organizations, communities, and societies that humanity has

created as people have pursued survival and other purposes. The variety and forms of these

artifacts and their operating characteristics have changed through time, as new problems have

been solved in order to accomplish changing purposes. Theories have evolved to keep pace with

this change, although practice has tended to precede advances in theory (Pfeffer, 2007; Mohrman

& Lawler, 2011). This lagging role of academic research and theory development has meant that

academic research focuses on the past and has not been useful to practitioners charged with

creating the future.

Changes in organizing models are emerging as organizations become aware of the limits

of current approaches, and their threats to a sustainable future. Academic research can help

accelerate the transition only if academics collaborate with practitioners to understand these new

approaches, and more importantly, to provide a knowledge base to guide them rather than simply

understand them after the fact (Mohrman & Lawler, 2011; Mohrman & Mohrman, 2011).

To meet this challenge, academic frameworks must be tested against the new reality and

altered as needed to provide more powerful understandings of current dynamics shaping our

world. The social sciences developed during the height of the industrial era that entailed scientific and organizational breakthroughs to harness seemingly unlimited resources. Economists have studied and modeled the dynamics of economies where each individual and organization pursued its own interests, as the infrastructure for a global economy emerged that enables commerce and the movement of wealth around the world. Management and organizational scholars have studied organizational forms that developed over time to increase efficiency, growth, reach, and exploitative capacity of that economy and to address human needs and purposes. Political scientists have studied the role of the nation state in the regulation of economic activity and the distribution of its benefit, the changing bases of power and legitimacy, and the breakdowns that have occurred within and between populations and governments as various actors position themselves for benefit. Sociologists have studied groups and social interactions, and the relationship between those with and without power as societies have unfolded. The perspectives of each of these disciplines is potentially useful but each may need to adjust its assumptions rapidly to fit with the changing realities faced by the individuals, organizations, societies, economies and polities that it studies.

Early work on sustainability issues has focused largely on the "green" arena, and has been the purview of the hard sciences and engineering. Knowledge of the physical and natural ecological limits of growth has motivated significant attention to understand, prognosticate, and generate technologies for mitigation of and adaptation to the negative impacts of man's behavior on the natural environment.   There are many initiatives, regulations, plans, and projects to increase sustainability, coming from businesses, governments, NGO's and communities. These include recycling programs, energy efficiency and other carbon reduction schemes, the adoption of alternative energy sources, water preservation and toxicity remediation, resource

replenishment and conservation, zero waste and closed cycle product and service provision that return only heat and bio-degradable waste to the environment. These approaches in many cases have achieved measurable impacts on environmental indicators. Yet we still face the challenge of scaling them up for global impact amidst a burgeoning population and global economy. It is indisputable that science and technological advances are needed, but we also face the challenge of building new organizing approaches that incorporate attention to the environmental and social impacts of human activity into the operating values and logic of organization and communities. The transition challenge is fundamentally a social one—of repurposing and behavioral change (Hoffman, 2010), and of implementing scientific and technological advances in practice (Ting Chang, Martens, & Amelung, 2010).

Theories are needed to understand and help deal with the changes in practice required to be sustainable in a global economy of scarcity, uncertainty, and constraint. Current economic theories have not taken into account the cost of natural resources or of other externalities. Current concepts of liability and accountability do not fit with the complex system interdependencies and the non-linear cause and effect that cuts across political boundaries (Ting Chang, Martens, & Amelung, 2010). Fewer and bigger firms whose activities (and associated externalities) cut across political boundaries have decreased the ability of nation states to regulate negative external costs and have undermined the conditions for efficient market allocation. Political divisions between nation states lead to contention over the rules of global commerce and the distribution of benefit that make it difficult to make progress on truly global issues and call out for new conceptualizations of system governance and emergence. Micro-economically based decision frameworks are overwhelmed by the uncertainty of inputs, changing expectations of stakeholders regarding outputs, and geo-political, macro-economic, and

technological forces that are not controllable. Geographically dispersed organizations find their effectiveness threatened by a myriad of diverse local forces and their opportunities dependent on finding many different context-specific ways of operating while at the same time trying to derive the benefits of scale and scope. Issues of centralization and decentralization of decision making now have geo-political and socio-economic ramifications and implications for the survival of the eco-system

To contribute knowledge useful in crafting a sustainable future, the purposes of research and theory must change. Positivistic social sciences grew up to understand and explain the unfolding of institutions, economic systems, and individual and collective behavior—not to influence it. In taking an arms-length view and examining collective patterns, we explain the past, but do not predict or enable future effectiveness. As the urgency increases to find solutions to the problems humanity faces, the purposes of theory based investigation are being questioned. For management and organizational research, for example, Sumantra Ghoshal (2005) advocated a fundamental change in purpose when he stated that researchers in business schools should be creating knowledge that makes the world a better place. He pointed out that values are inherent in all theory and research, and he decried not only prevailing, supposedly "objective" methodologies but also the prevailing economics-centric theoretical base underpinning much organizational research. In his view, the emphasis on short term shareholder value and the basic assumptions that economic self-interest should drive organizational activities result in minimal attention being paid to other human values. These would include the values of preserving sustainable natural environments and building sustainable societies.

The world we all live in is being shaped by the way organizations decide to operate and interact with other entities in their chosen niches. Modern history has been characterized by a

continual emergence of new organizational forms. Methodologies that assume stability are not appropriate (Starkey, Hatcheul, & Tempest; 2009); theory must be applied and generated to enable and learn from new ways of organizing to achieve human purpose. Knowledge relevant to sustainable effectiveness will come from focusing on the outliers—those organizations that are ahead of others in finding organizing approaches that address the opportunities and challenges inherent in achieving a sustainable way of operating. Synthetic, design-oriented approaches rather than analytic approaches are required to yield knowledge that contributes to solutions relevant to the problems organizations face (Simon; 1969; Avenier, 2010; Mohrman, Mohrman, & Tenkasi, 1997; Van Aken, 2005; Romme, 2003). Organizations must be examined in relationship to the contexts in which they are situated, and approached through interdisciplinary and multi-method methodologies that can capture the complexity of the phenomena, the approaches being taken, and the multiple purposes of the various actors (Mohrman & Lawler, 2011).

Organizing for Sustainable Effectiveness: Values and Purpose

As mentioned above, the ability of humans to plan and to act collectively to design artifacts and create contexts in which they can survive and achieve purposes differentiates social systems from natural systems. Humans can change behavior and thus alter the attributes of and the rules in play in their systems. Humanity has gone through different eras in which the natural environment was first respected as the embodiment of gods, and more recently viewed as the source of resources to be exploited to support the worldly purposes of people. Attitudes toward and the treatment of natural resources have co-evolved with the development of technology that has enabled the exploitation of natural resources and cultures reflecting this perspective. Most recently, advances in information, communication, and computational technology have enabled

global reach and integration—with economic growth based on access to and exploitation of both natural and human resources around the globe.

If indeed we are approaching the limits of an economy and global societies based on unbridled exploitation of natural and human resources, we can expect that new conceptualizations of nature and new patterns of economic and social behavior will emerge to adapt to this new reality. Patterns of behavior in a complex system depend on the level of resource munificence, and changes in the latter lead to new patterns of interaction, both collaborative and competitive (Astley, 1985). New rules emerge that are based on and shape these changing collaborative and competitive patterns.

The weight of responsibility for the viability of our systems is on humans, and the characteristics of the emerging system will depend on our ingenuity and the choices we make. Our choices derive from our purposes. The study of sustainable organizing must start by examining purpose. Organizations that are leading the way toward establishing a sustainable way of operating are repurposing themselves (Googins, Mirvis, & Rochlin, 2007). Purpose expands beyond the narrow focus on exploiting resources to make quarterly profit for shareholders to include a broader scope of outcomes and stakeholders and a future-oriented time horizon. Expanded purposes incorporate systemic outcomes and are appropriate in a world in which environmental, social and economic dynamics, costs, and benefits cannot be disentangled. They rest on the understanding that a sustainable company and organization requires resources, healthy environments, and healthy communities in which to operate now and in the future, and that stewardship of a corporation requires stewardship of the earth and its societies.

Many organizations have long had philanthropy programs, and have contributed financial and human resources to various causes in the communities in which they operate. In the past, such philanthropic activity has largely been tangential to the strategy, operations, and purposes of the organization. Many organizations have not leveraged financial or knowledge resources to build sustainable capabilities of individuals and communities, but have simply given hand-outs that may in fact have perpetuated the dependency of recipients. Philanthropy has been used to establish a positive reputation in the community as a socially responsible company, and to convey legitimacy and secure a "license" to operate.

Leaders and members in many organizations have come to appreciate that their activities positively and negatively impact well-being and sustainability in the broader environment and have ramifications for the current generation and for the kind of world in which their children and grandchildren will live. At the very least, some are realizing that the current patterns of global activity are accompanied by problems that they have a stake in and a responsibility to help solve. Often under the designation of Corporate Social Responsibility (CSR), attention to these broader purposes is starting to be seen not as philanthropy, but rather as core to the purpose of the firm and intertwined with its strategy and sustainable effectiveness (Arnold, 2010). To make a difference, this shift in purpose must be accompanied by an attendant shift in the values that shape behavior.

Value has been used in two ways in the sustainability literature. One use relates to the mission of the firm and the value that it intends to deliver to its various stakeholders (e.g., Louche, Idowu, & Filho, 2010a). A second use of value refers to the values-- cultural norms and beliefs-- that guide behaviors (e.g., Mirvis, Googins, & Kinnicutt, 2010). This second use also relates to the ethical foundations of the firm. The two conceptualizations of value are in fact

integral in shaping practice (Lazlo, 2008). We discuss these two aspects of value next, starting with the value the firm intends to deliver to stakeholders, and then discussing several values that are enabling the shift to sustainable functioning.

Value to stakeholders. Working to achieve sustainable effectiveness involves an expansion of the stakeholder set to which an organization intends to contribute value. Value comes to be defined as contribution to the sustainable well-being of societal stakeholders—all those who are impacted by the activities of the organization--including but not limited to the traditional focus on shareholders (e.g., Maas & Boons, 2010). Accepting responsibility to deliver stakeholder value indicates a shift from seeing activity designed to contribute to the environment or to society as a cost, to seeing it as part of the value that the firm yields (Figge & Hahn, 2005). For example, rather than seeing pollution mitigation as a cost of doing business, it is seen as value contributed that creates healthy communities in which to operate. This is a stark departure from the traditional concern that applying shareholder resources to societal issues represents a moral hazard.

The "sweet spot" for the organization is when delivering societal and environmental value aligns with the financial imperatives of the firm to deliver value to owners, such as in instances when customers are demanding and willing to pay more for fair trade products or products that are completely recyclable. The development of innovative products, such as small and efficient generators with a much broader market potential in emerging markets aligns customer interests in lower cost and lower polluting infrastructure with the company's interests in building growth markets for its products. Such a convergence also is present when adopting sustainable practices, such as lower energy consumption, results in lower costs. Adding a time element to the measurement of value results in greater potential convergence between investing

in social and environmental outcomes and sustainable economic returns for the firm. For

example, the investment by firms operating in developing nations in mitigation techniques that

result in healthy water supplies for communities helps assure viable communities and markets in

which to operate into the future, healthy employees and families, and good reputation that

diminishes the likelihood of a sudden political backlash against the company. Similarly, firms

that are focusing on creating work systems that promote the health and development of

employees and provide them a platform for contributing to the well-being of their families and

communities are simultaneously developing their own performance capabilities and delivering

social value well beyond gainful employment.

The organization may articulate a mission that includes the delivery of value to

shareholders, employees, society and the environment. Products, services, and operations may

be examined to ensure that they enhance rather than deplete well-being. Unilever's Vitality

Mission is an example: "To add vitality to life by meeting everyday needs for nutrition, hygiene

and personal care brands that help people feel good, look good, and get more out of life" (Mirvis,

Googins, & Kinnicutt, 2010, p. 318). This mission implies an umbrella commitment to operate in

a manner that contributes positively to the health and well-being of consumers throughout the

life cycle of products.   At Unilever and many other companies, philanthropy has also been

reshaped to be synergistic with the mission of the organization, by aligning it with the

organization's strategy and by getting employees engaged in mission-related community service,

leveraging the human and social capital of the organization and its knowledge assets to optimize

the value delivered in all three domains. IBM's emphasis on "innovation that matters" has led to

a socio-commercial strategy that uses its commercial, environmental and social capabilities to

build a "smart world" in key areas like education, community development and infrastructure

planning (Mirvis et al., 2010, p. 319). Community service activities allow IBM'ers to apply their expertise in these areas to help solve real world problems such as improving the communication and coordination capabilities of aid workers and governments in disaster settings.

Valuing collaboration. Repurposing the organization to simultaneously address economic, social and environmental outcomes leads to the blurring of many boundaries, both internal and external, as organizations adopt the orientation that "we're in this together" and can have greater impact collectively than we can individually on the sustainability of the world in which we operate. Collaboration is enabled by the emergence of new rules of transparency, knowledge sharing, and mutual problem-solving. Building a closed loop supply chain, for example, requires cross functional integration within and across organizations. Solving complex problems such as fostering human rights along a supply chain requires shifting connections among the elements of the eco-system, including new forms of collaboration with an expanded set of stakeholders. One company alone, no matter how much investment it is willing to make, cannot build a reliable global supply chain for organic, fair-trade cotton without partnering with many "on the ground" agencies, NGO's , community groups, educators, and farmer representatives (Worley, Feyerherm, & Knudsen, 2010). New ways of organizing reflect the new reality that it is no longer possible to draw a boundary around the operations of the corporation and say "for this we are solely responsible to our shareholders."

The value placed on organizational control and optimization by functions within an organization or by a single organization operating to maximize its return underpins much economic and administrative dogma and practice. It does not fit a world where organizations are subject to many forces that they cannot fully anticipate and definitely cannot fully control. Collective action, mutual adjustment, and multiple interventions are required. As one example,

social unrest in developing nations may threaten the stability of the very growth markets that corporations have been entering and expanding. Any one company can work to build socially responsible operations in such markets, but avoiding social unrest is not simply the aggregate of the social responsibility policies of many companies. Corporations contributing to the sustainability of emerging markets are moving from a compliance to a development orientation. They are partnering with each other and collaborating with NGO's and local governments and community leaders in order to secure the knowledge, experience, and legitimacy to bring behavior into alignment with formal policies in their plants, and to start to impact local norms, capabilities, and prevailing attitudes toward workers. The Gap's collaboration with their vendors, SAI and other NGO's, local governments, and other clothing manufacturers using the same vendor plants is a case in point (Worley, Feyerherm, & Knudsen, 2010). This collaborative approach is aimed at developing local capabilities and influencing norms and regulations to sustain human rights in the plants, and to contribute to viable and secure communities, stable governments, and social justice. The Gap has also learned that collaboration along the supply chain also requires new ways of collaborating and integrating work across the various functions within the company.

Valuing the health of the whole system. The change in values from the emphasis on unilateral control to system-wide sustainability is perhaps most exemplified when responsibility to non-traditional stakeholders becomes formalized in new forms of governance. These recognize the insufficiency of our current delineations of companies with their hierarchical control and nations with their powers to centrally impact commerce, health and safety, and social development within a country. New network forms of governance have been emerging, including industry specific and multi-sectoral collaboratives and global compacts. The rule of

interaction that guides them is to collaborate to foster system-wide health and sustainability, and their legitimacy stems from agreement among the members (see Worley & Breyley-Parker, this volume).

These forms of self-organization are relatively new to corporations, and carry with them levels of risk and transparency that have not been common and in fact fly in the face of many of the operating values of traditional corporations such as secrecy, control, and proprietary ownership of assets. Companies are coming together in voluntary collectives such as signing on to the Universal Declaration of Human Rights, and becoming signatories to the Global Compact, and to the Millennium Development goals that emphasize and formalize business's role in promoting human rights, and agree to transparent reporting. Nations are meeting to generate and try to agree to global standards to halt global warming. Companies such as Xerox, DuPont, and Bosch are sharing sustainability related technical knowledge through the establishment of eco-patent commons through which they forfeit intellectual property rights to provide public access to environmentally friendly technologies. Companies are working with NGO's and others who speak for the health of the earth and its oceans and atmospheres, such as WWF and the Nature Conservancy, to create transparent and collaborative approaches to advance environmental interests while maintaining the ability to achieve business goals. For example, Coca-Cola Company and World Wildlife Fund have spearheaded the formation of a multi-sector, multi-stakeholder alliance to address water insecurity around the world. In some cases companies are catalyzing the establishment of NGO's and/or industry consortia to create an industry wide, multi-stakeholder capacity, with clear agreed-upon standards. Unilever's collaboration with WWF in establishing the Maritime Stewardship Council to provide third party leadership and industry collaboration to establish sustainable seafood chains is one example (Googins et al.,

2007, p. 54). In the same vein, Nike has joined with other shoe and apparel makers in groups

such as Fair labor Association and Ethical Trading Initiative to ensure broad based buy-in to and

compliance with labor and trading codes (Epstein, 2008).

Valuing involvement. Behavior change to achieve sustainability is required at all

system levels and among the varied agents in a system. For example, Product Design for the

Environment (DFE) is only possible if consumers are willing to buy products designed in this

manner and carry out their part in the recycling, disassembly and reuse cycle. Nike, Gap, and

many others are finding ways to involve customers in environmental campaigns and in so doing

raising awareness and influencing how citizens think about the environment. Social impact is a

socially constructed phenomenon. Companies such as Du Pont that set up community input

meetings or such as IBM that sets up electronic "jams" for customers to give input find that

taking the perspectives of those who are impacted by the company's decisions into account

enhances the company's ability to contribute social value and achieve economic outcomes.

A company's individual employees daily make decisions that impact the environment, in

their jobs, their volunteer work, and in their personal lives. Innovative ideas often come from the

periphery of an organization and from work units deep within an organization that are

confronting the day to day challenges of sustainable functioning and seeing the opportunities to

improve work processes and product design for the environment and for safety (Schroeder &

Robinson, 2010). Self-organization at all levels in an organization influences the economic and

social outcomes of work, as individuals and teams are able to develop and use capabilities to do

work better and deliver more value (Kira & van Eijnatten, 2008). Sustainable effectiveness

demands a high involvement, high performance workplace (Russo, 2010; Schroeder & Robinson,

2010) in which employees are treated as stakeholders of the corporation and engaged in socially responsible jobs (Googins et al., 2007).

Valuing diversity. As we have seen, some common patterns are starting evolve to govern complex system interactions in response to the challenges of achieving a sustainable future. Purposes are expanding, and new forms of collaboration and governance are emerging. These patterns are emerging from the self-organizing processes of various agents individually and collectively, and are embodied in quite different artifacts and processes designed to fit the particular configuration of different eco-systems. Indeed, ensuring diversity is necessary for a sustainable future. Just as bio-diversity is the foundation for the health and adaptation of natural eco-systems (Stead & Stead, 2009), cultural and social system diversity underpin social system resilience. It is only through trying out and embedding many approaches that any organization, community, region or the global system as a whole can recalibrate and refashion its activities to achieve positive cycles of renewal.

The elements of any natural eco-system depend on each other to preserve the strength of the system. Certainly no single organization or consortium of organizations can address all the interacting elements that are currently cycling toward non-sustainability in our manmade systems. For example, carbon caps and trading systems may support deceleration of the growth of emissions in developed nations, but a different approach based on discontinuous technological innovation may be required to prevent disastrous increase in carbon emissions that is resulting from the immense growth in population and   emerging markets. Both these approaches and many more will be required if the earth is to achieve the 2 degrees Celsius limit on global warming that most scientists feel is required to prevent calamitous impact, and that has been agreed to in principle by many nations at the 2010 United Nations sponsored meetings on

climate change negotiations in Cancun. Protecting and stimulating diversity is a key rule that must govern our transition to a sustainable future.

The intertwined issues of sustainability transcend many different regions, nations, cultures, ethnicities, and even species. Given the unpredictability and non-linearity of cause and impact in a complex system, organizations cannot expect to find a sustainable solution with every initiative and direction they take. The interdependencies in today's world are such that we must consider the health of the earth as a whole, while working to build resilient local communities and niches and preserving and growing the diversity that will enable ongoing evolution.

Ethical underpinnings. Instrumental and pragmatic arguments are necessary but insufficient catalysts for the transition to a sustainable future that entails a fundamental shift in the purposes and the values that have guided behavior in the past. Much of the literature on sustainability stresses the need to align sustainability and corporate responsibility initiatives and strategies with business strategy (e.g., Googins et al., 2008; Epstein, 2008; Galbreath & Benjamin, 2010), and to focus on opportunities to reduce cost or to create growth through the development of innovative products and services that sell into a burgeoning market created by the need to be environmentally sustainable (Hockerts & Morsing, 2007). These approaches in effect reduce the tension between the elements of the triple bottom line by aligning the environmental and social with the economic purposes of the firm. Yet they also may lead to incrementalism in the changes that are made (Louche, Idowu, & Filho, 2010b), and may give the impression that it is possible to pick and choose when to act in a sustainably effective manner and to do it within a business-as-usual framework.

The transition to sustainable functioning can and perhaps must be predicated on an ethical foundation to guide the transition that is independent of instrumental motivations. Acceptance of the responsibility to be stewards of the earth to ensure not only our own health and well-being but that of others on this earth and of our descendants is fundamentally based on values. Many organizations touted as leading the way to a more sustainable future have built on their historically core values relating to community, humanity, and ecology. A recommitment to these values in the context of today's reality provides both the touchstone and the north star during this period of transition—and enables the alignment of far-flung and diverse activity. This is true in large corporations with global reach and significant scale and impact, such as Unilever, UPS, Levi-Strauss, and Nokia (Googins et al., 2007), and in small entrepreneurial mission driven organizations that are growing and prospering by building and being part of niches that strive to operate with sustainable principles (Russo, 2010). Core values underpin the leadership role these companies are playing in addressing the increasingly obvious unsustainable patterns that currently characterize the global economy. They trigger a set of instrumental and pragmatic decisions about how to fulfill the obligation to posterity. There will inevitably be many decisions where delivering environmental and social value adds cost without off-setting benefits. Core values enable people in the firm to resolve tough trade-offs by "doing the right thing"—and to make more nuanced decisions about how to increase their commitment in the full triple bottom line.

The values shift described above is clearly not a phenomenon for corporations alone. Economic systems are anchored in the moral and normative fabric of society (Habermas, 1971). Future-oriented stewardship will only become pervasive if the various agents in the complex system place a value on sustainability. These include corporations, individual citizens,

households, communities, churches, governments, NGO's and broad social networks that exist independently of any formal entities and that may be fueled by the ready communication capabilities in today's world. The reality is that for many elements of society at large, becoming sustainable poses a distinct challenge to prevailing values-in-use, even when the espoused values are in alignment with that goal. The values that have driven the consumption culture and the rapidly growing global economy have co-evolved with cultural patterns of behavior and with the evolution of industries, communities, governments and societies.

Many of the proposed solutions to the dislocations and disruptions that have accompanied globalization rely on increasing consumption and growth in order to feed the engine of prosperity and to expand the beneficiaries of the capitalist economy. Governments face being voted or forced out of power if they are perceived as not doing what is necessary to meet their citizens' expectations of continued or increased affluence. They stimulate spending and consumption in order to put people to work and to get the tax dollars to provide infrastructure, social services, and security for their populations, Simultaneously they struggle to avoid large government deficits and struggle to get the political will to establish, fund, and uphold sustainable policies. In global economic meetings nations prod each other to stimulate consumption to keep the global economic engine going and to avoid deep and prolonged recession or worse, with its attendant social suffering. In an entirely different set of meetings nations negotiate to try to get agreement to take global action with respect to the environment. Meanwhile, the global population grows daily. The challenge is to find ways to extend the benefits of global economic activity more broadly while not overtaxing the earth to a point of no return. This will occur not through government decisions, but through the decisions on the ground, made by all the different elements of the system.

In recent history we have looked to governments to be the stewards of the future and to deliver prosperity today without putting too much strain on the businesses that fund government and provide growth and income to the population. Through policy and regulation, governments are in a unique position to intervene into the eco-system to promote sustainable behaviors; however, complex systems cannot be controlled centrally. And, governments, like corporations, are often paralyzed by a values based dissention about spending today's resources to invest in tomorrow's healthy world. Businesses are the key engines of economic activity and prosperity, and must be the key agents in the self-organizing processes that will result in a sustainable global economic system. The earth relies upon them to take a leadership role in this transformation, and to do it quickly.

Organizing for Sustainable Effectiveness: Building Capabilities

Over time organizations are generating a variety of responses to adapt to the challenges humanity faces. Optimistically, the simultaneous introduction of many innovative approaches will fuel adaptive cycles that result in the rise of new patterns of behavior, more self-renewing organizational forms, and more robust eco-systems. Will this happen fast enough and in a manner that preserves the potential, diversity, prosperity, and cultural richness of mankind? One of the premises of this book series on "organizing for sustainability" is that we can build on our inherent capacities to learn and to act collectively. We can detect and disseminate successful approaches, discover and articulate the "rules" that can underpin sustainable eco-systems, design new approaches, and in this way accelerate the transition to a sustainable future.

Even if we describe and give examples of the high level operating rules of an ideal world in which the various actors in the eco-system work collaboratively to develop a sustainable

system, the required transition is immense. Acknowledging the risk inherent in business as usual, and accepting the responsibility to contribute to the long term health of the societies and natural environments in which we operate represent fundamental shifts. Even then, many new capabilities will have to be developed by the various actors in the system in order for a new meta rule to guide the interactions in the system: "Operate in a sustainably effective manner."

Among the dynamic capacities organizations will need to develop are: 1) managing ecologically and socially efficient supply chains; 2) advancing science and technology and developing and disseminating innovations that radically decrease the negative impact of our global economy on the natural environment; 3) continuous improvement and learning to increase economic, environmental and societal outcomes; and 4) collaboration in order to do the first three.

The prevailing short-term logic has evolved through time. It is reflected in organizations routines and organizational frameworks, communication channels, and problem-solving approaches (Henderson & Clark, 1990), and in their patterns of interaction with the various elements of the environment. The development of new capabilities to address triple bottom line outcomes will require the implementation of new rules of interaction and new organizational and inter-organizational designs to support a new logic.

The organizational design challenge. Conceptualizing the transition to sustainable functioning as a design challenge provides change leverage complementary to the mission and values perspective. Organizational design involves the purposeful configuration of the organization's structures and processes to accomplish its purposes and strategies. Redesign to accomplish new purposes occurs intentionally over time and requires continuity and shared focus

to allow capabilities to grow and become embedded in the way the firm operates and performs (Dosi, Nelson, & Winter, 2000). Such change is not a series of bolted on one-shot initiatives led by temporary task teams whose work is separate from the business units of the organization. Social and environmental responsibility must be integrated into business decision making of organizations to support the growth, innovation, cost reduction, and differentiation required for economic viability (Epstein, 2008; Maas & Boons, 2010).

We can conceptualize the design challenge using the organization design framework articulated by Jay Galbraith (1994) that specifies that an organization can best achieve its strategy if the various designable elements of an organization fit with it and with each other. Among the organizational design elements that have to be addressed to achieve sustainable effectiveness are the specification and design of the *work processes* that are core to enact the strategy to deliver triple bottom line value. Closed loop manufacturing processes and product design for the environment are two examples. Core *structural units and dynamic lateral structures and processes* must be designed to carry out these effectively, to link to other stakeholders in the eco-system, and to enable focus on local diversity and global concerns. Structures and processes are designed to enable integration across functions to enable life-cycle product and service sustainability. Because of systemic interdependencies co-exist with local performance, effective use of a wide variety of empowered cross-functional and cross-organizational councils, dynamic networks, partnerships, and focused project teams .

Robust *management processes* enable these structural and work process elements to accomplish sustainability purposes. These include processes for establishing strategies and aligning goals, direction, and accountabilities throughout the organization. Robust future-oriented environmental scanning processes are integral to the establishment of sustainability

strategies (Stead & Stead, 2009; Epstein, 2008). Shell's scenario planning that examines the trajectories of various market forces, community interests, and national cultural and political trends is one example. Nokia's "World Map" is another. Organizations will have to find ways to analyze highly intertwined institutional settings in order to plan effectively (e.g., Oikonomou, 2010).

Organizations accustomed to using financial accounting metrics as the touchstone for alignment and performance management processes struggle with establishing and getting agreement to *substantive metrics for measuring environmental and social impact*. A number of measures being broadly used across organizations, such as ISO 14000 and GRI measure processes rather than performance and impact (Epstein, 2008). Some progress has been made in measuring environmental impact and relating it to the firm's economic outcomes through the application of various activity based accounting approaches, life cycle costing, and full cost approaches. Little progress has been made in establishing standards for measurement that capture social value. Unilever's Overall Business Impact Assessment (OBIA) is one example tying together impact in all three domains of the triple bottom line (Taylor & Postelwaite, 1996, cited by Maas & Boons, 2010).

New decision making routines are necessary to ensure that the key principles of sustainable effectiveness are followed. These include data-based decision frameworks that are sensitive to the expanded set of purposes, and clarification of decision rights and involvement processes. These are essential to the management of uncertainty and risk, adherence to the values of collaboration, involvement, and diversity, and to the acceleration of change (see for example a decision framework provided by Epstein, 2008). Multi-directional communication and reporting

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processes and transparency norms underpin the establishment of trust and legitimacy required to support effective collaboration and involvement, and the sharing and leveraging of knowledge.

The design of *reward systems* and of *people processes* for sustainable effectiveness are particularly challenging organizing features because people are the carriers of purpose and values, and they determine how sustainably an organization operates through their day-to-day actions and decisions. Entrepreneurial mission driven organizations attract and select employees with values and purposes consistent with corporate social responsibility (Russo, 2010). Consistency and authenticity with respect to these values is part of the organization's social contract with them, and failure to deliver on them will undermine the founding values of the company. Organizations transitioning to become sustainably effective are faced with the challenge of establishing and developing new employee understandings of purpose and mission. In these, the people practices of the organization are an indicator to employees of the credibility of this undertaking.

Employees increasingly expect socially responsible jobs and work, including opportunities to grow and develop and to contribute to the environment and further social justice. The fairness of the distribution of opportunities to learn, develop and contribute, and of outcomes within the firm are indicators of the same social justice issues as the firm's impact on the external distribution of benefit societally and globally. The social sustainability within the firm, including its approaches to ameliorate negative consequences of the intensity of work in many sectors of today's global economy, is an important element of the firm's overall contribution of social value (Docherty et al., 2002; Docherty et al., 2008b). Internal people practices consistent with the values of collaboration, involvement and diversity provide a foundation for the broader application of these values that are core to sustainable effectiveness in the complex eco-system.

We know from earlier movements to establish high involvement/high performance systems based on the broad distribution of resources, responsibility and benefits, that such transitions rely heavily on people throughout the organization learning a new way to operate and on the organization using a participative process to put in place the design features to support it (Mohrman & Cummings, 1989; Pasmore, 1988). Strong leaders can create a context with clear strategies, mission and values, but putting in place the work systems to make these a reality can only occur through widespread self-organization (Mohrman, 1998) and learning.

The learning challenge. There are many examples where significant progress is being made. Yet even in the most advanced companies, progress is partial and targeted, and, in a sense, we are all struggling to get beyond the low-hanging fruit and deal with the magnitude of the change that is required. The scale-up issues are formidable. Organizations and collectives of organizations have to become learning systems, as the changes will come from within through self-organizing processes. Rapid dissemination of knowledge is of paramount importance, as actors in a complex system adapt not only through experience based learning and innovation, but also by mimicry. Even the implementation of new technologies entails significant learning in the context where they are being implemented.

Existing models of learning and change that rely on linear progressions of unfreezing, changing and refreezing do not fit the realities of today's global economy. The increasing economic pressures being experienced by organizations around the world while facing the challenges of the triple bottom line suggest that learning must be continuous and fundamental. It must take place at all levels in the organization: the individual, collective, and organizational levels, and indeed, beyond that—among organizations in networks, coalitions, and systems (Pawlowsky, 2001). At the individual level, it may involve acquiring new knowledge and skills,

but definitely involves thinking through one's assumptions, attitudes, beliefs, and values. In this context, Schön (1983) sees learning as a process of reviewing theories-in-use in the light of unexpected events and unexpected discrepancies in the details of a problem situation. Docherty, Kira, & Shani (2008b) maintain that it is especially useful in the context of sustainable development to regard learning as a social event, as changes implied in sustainable development require joint action by many actors. Double-loop or second-order learning questions the assumptions behind how things are or how they are done (Argyris & Schön, 1978). Such learning is particularly relevant—even imperative—for a shift towards sustainable effectiveness, which requires important shifts in values. Learning for sustainability requires thinking about why certain decisions are being taken and about alternatives.

System (and individual) transformation can be triggered by a variety of events that occur in the "contextual mess" of the system (Ackoff, 1981). Environmental forces or events may trigger realizations, insights or goals that precipitate alternative thinking, actions, and new behaviors. Isabella (1992) argues further that these forces and events challenge managers to manage into the future as well as in the present. The system's leaders must address the day-to-day operational changes in response to triggering events, while at the same time considering the events and their impact as possible new windows of opportunities for future growth and development.

Due to their magnitude and potential system impact, triggering events set in motion a series of mental shifts as individuals try to understand and redefine the situation. They challenge current thinking, practices and routines, and evoke conscious thought on the part of the system's members about possible new ways of organizing. They often stir up feelings and emotions that affect how people relate to each other and lead to openness to changes that might be

implemented. At the most basic level, triggering events create a dynamic that brings organizational members' mindsets into the arena of transformation.

The changes required to achieve a sustainable way of functioning fit into a category described by Ackerman (1986) as transformational because the new state is usually unknown until it begins to take shape, and most of the thinking, practices and processes are yet to emerge (Jick, 1992). CEOs that have led their companies through transformation towards a more sustainable system have claimed that such transformational change requires to a certain degree a 'leap of faith' (i.e., Cox, 2008).

A system developing a radical re-conceptualization to become a sustainable organization will change its vision and mission, and its design. It will have to attend to two kinds of learning processes: the learning that must take place during the transformation process and the learning that must then take place in the 'transformed' organization (Useem & Kochan, 1991). The capacity to learn (and at times to learn fast) is crucial in system's transformation (Argyris & Schön, 1978; Boud, Cressey, & Docherty, 2006, Edmondson, 2008). Developing the appropriate learning mechanisms and processes is key to successful transformation (Schein, 1993; Mitki, Shani, & Stjernberg, 2008). There is a need not only to design the new organization, but also make design choices about the nature of the learning mechanisms and processes (Shani & Docherty, 2008).

Learning mechanisms are structures and processes that are devoted to the facilitation of understanding and action (Lipshitz, Popper, & Oz, 1996; Popper & Lipshitz, 1998). During the transformation process, experimentation with alternative ways of organizing to promote sustainability are developed and tested. For instance, meeting practices and collaborative spaces

may be developed to allow stakeholders to seek solutions for sustainability (e.g., Bradbury-Huang, 2010). While emergent, the capability to learn can be designed and managed rather than left to evolve through the normal activities of the system. Cognitive, structural and procedural mechanisms can enable learning (Shani & Docherty, 2003). Cognitive mechanisms provide language, concepts, symbols, models, theories and values of thinking, reasoning, and understanding; structural mechanisms provide organizational, technical and physical infrastructures such as communication channels, databanks and databases, learning specific structures and; procedural mechanisms concern the rules, routines, methods, and tools that have been institutionalized in the organization to promote and support learning. Many systems are likely to develop a tapestry of learning mechanisms that fit well within the system culture and context as they proceed through the transformation process – towards sustainable effectiveness. Skaraborg's regional health care coalition is one example of a tapestry of learning mechanisms that was develop and and implemented that resulted in the development and implementation of a sustainability strategy for higher quality of healthcare delivery (Lifvergren, Docherty, & Shani, this volume).

The intentional design of learning mechanisms increases the likelihood that core learning processes such as experiential learning and the development of tacit knowledge, the building of communities of practice, and the fostering of creativity will occur. Learning mechanisms can be purposefully put in place to increase the likelihood that members throughout the organization will contribute to the emergence of new, more sustainable approaches to doing work and making decisions.

Organization of the Volume

This volume focuses on rich case examples where organizations and networks of organizations have set out to become more sustainable. It examines how they have developed new capabilities to attend to the triple focus on economy, environment, and society. We can learn from these empirical examples of the kind of practical approaches that are effective in becoming more sustainable. The intent is that we can go even further, and develop generalizable theory-based principles that can contribute to the design of sustainable organizations and accelerate the transformation process that is required. Each chapter is anchored in a solid theoretical point of departure that illuminates our understanding of the case, as well as explores the power of that theory in guiding responses to the challenges and solutions to the challenges we face. We start with cases that are centered on the activities of a focal organization and proceed to initiatives that are inherently multi-organizational and multi-stakeholder in nature.

Chapter 2, by Philip Mirvis, examines Unilever's ten year transformation to build corporate responsibility and sustainable operations into its entire value stream. Referencing complex adaptive systems, Mirvis uses the case example to address the theoretical and practical questions about the role of top-down versus communal leadership, the importance of mission versus vision, and the relevance of emotive and psycho-spiritual versus more programmatic interventions.

In Chapter 3, Christopher Worley and Ann Feyerherm examine the Gap Corporation's journey to become more sustainable. It began with the development of collaborative approaches to improve human rights in its global supply chain. This experience triggered a broader reevaluation of how Gap does business that has led to an examination of internal processes and

structures. Worley and Feyerherm explore the case through the lens of institutionalization theory.

In Chapter 4, Susan Mohrman examines the sustainability journey of UPS with particular focus on its commitment to knowledge generation and dissemination to the communities in which it operates. The corporation's sustainability activities build on founding values that stress the interconnected fate of the corporation and the communities it serves. While having a strong commitment to its own sustainability, the UPS approach equally emphasizes its inevitable link to the sustainability of its context. The case explores the case through the lens of knowledge management theory.

In Chapter 5, Svante Lifvergren, Peter Docherty, and Abraham (Rami) Shani highlight the establishment of a development coalition between the three main types of healthcare providers in the Swedish healthcare value chain. The purpose is to achieve greater integration of their activities to provide higher quality of healthcare, greater personnel satisfaction and a better use of the system's social, economic and material resources in the West Skaraborg Healthcare System. Building on participation theories that have been particularly influential in shaping expectations and approaches in Sweden, it closely examines the approaches used to create a system capable of regenerating from within.

In Chapter 6, Ann Feyerherm and Sally Breyley Parker illustrate how the Cleveland Municipal Housing Authority built on their learnings from a public private energy partnership between Siemens and the Cleveland Municipal Housing Authority to build collaboration as a core methodology to increase the sustainability of the public housing system. The authors focus

particularly on new leadership approaches that emerged to involve a broad variety of stakeholders in working toward social, economic and ecological sustainability.

In Chapter 7, Jan Green Rebstock and Hilary Bradbury-Huang describe a complex, ongoing, multi-year, multi-sectoral initiative that has fundamentally changed the capabilities of the Port of Los Angeles to address what had previously been treated as environmental and social externalities from the Port's operation. The authors depict the complex force-field stemming from the sheer number and diversity of stakeholders whose activities intersect at the port. They use systems theory and learning theory to analyze the approaches that were taken to respond to a governmental mandate for change in social and ecological outcomes. The initiative involved the collaborative generation of knowledge and tools, and the creation of agreement without hierarchical authority about issues that have led to significant improvement at the Port and in its surrounding communities.

In Chapter 8, Christopher Worley and Sally Breyley Parker describe the unfolding of the Cuyahoga River Valley Organization - A coordinating organization set up by the Cuyahoga County Planning Commission in Northeast Ohio to address the sustainability of a region defined by the river that runs through it. Because of the myriad of agencies, governments, NGO's, and companies that comprise this region, CRVO is by necessity a voluntary organization. Its challenge has been to bring together scores of organizations both public and private to achieve synergy and maximum impact from what has started out as a myriad of uncoordinated efforts to revitalize and introduce sustainability to a deteriorating region of the United States. The authors apply transorganizational development theory to understand how CRVO has unfolded and point out what we can learn from this example about this form of organization.

In the final chapter, Rami Shani and Sue Mohrman draw learning from the collection of cases, particularly with respect to the challenges of capability development for sustainable effectiveness. We also chart an agenda for future research about Organizing for Sustainable Effectiveness, and offer a challenge to academics and practitioners alike to collaborate in the acceleration of progress in this area.

This volume, like the volumes to come, ensures that academic work captures and provides value to the real work of creating a sustainable world. This real work occurs in practice, as members of organizations and society come together to craft new approaches. The work that appears in this volume confirms that there is no shortage of ideas, activities, and energy around the importance of sustainability.   Progress is being made company-by-company, situation-by-situation, as early adopters use their ingenuity and resources to find ways to make a difference. It is also clear that even the early adopters have a long way to go, and that we all have to learn together.

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