

Venture Capital: Enabling Sustainable Development

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Introduction

As an industry, venture capital (VC) assumes the risk of investing in next generation technologies and services, most frequently at the early stages of development, for the potentially high returns created by successful new companies. In this role, venture capital helps shape new business models, enables new strategic directions, and propels new managerial talent, products and services into mainstream business.

To date, the movement to bring environmental and social sustainability into the forefront of business thinking has only made headway with larger, leading edge public companies. The VC industry, however, is uniquely positioned to stimulate sustainable development at the smaller, private company level. Indeed, environmental and social sustainability awareness may be most powerful when harnessed to the entrepreneurial spirit and ingenuity routinely financed by the VC industry.

Our Changing World

“Currently, we are in the midst of a paradigm shift with respect to how society views the environmental, social and economic implications of participating and surviving in the modern world. The shift is away from an industrial model in which environmental activity is viewed as a cost, resources are viewed as a free good, and social implications of industrial policy are an afterthought. Rather than being an add-on, the economic viability of a national economy or an organization is predicated on understanding and integrating environmental and social considerations into core decision-making processes.”¹

In a world where the richest 20 percent consume 86 percent of the world's production output, and where the ecological footprint requirements of the current North American industrial metabolism alone portend the requirement of five additional earths in the next century, there is a need for change.² Economic development must "meet the needs of the present without compromising the ability of future generations to meet their own needs."³ This principle is *Sustainable Development*.

“Sustainability suggests that organizations redefine their mission as solutions providers in the context of whole systems design rather than technology or product providers. With this typically comes bigger wins in the market, real (not vapid) ‘stickiness’, intense customer loyalty, and deeper partnerships between companies and customers. These partnerships literally drive new innovations, new

market opportunities, and higher value products and services with higher margins.”⁴ In other words, they represent precisely the type of opportunity the VC industry seeks.

Governments, like the Netherlands and Canada, and organizations like the World Business Council for Sustainable Development have taken up the “mantle” of sustainability. Many leading companies like Sony, Volvo and Patagonia have already demonstrated that *sustainable development enhances profitability and value*. There is a great opportunity for the VC industry to further this shift, particularly in addressing the economic and social dimensions of sustainable development in the businesses in which they invest.

Sustainable Development

“Understanding sustainability as a central strategic issue is one of the key aspects of the transformation to a post industrial age. Sustainable development will be a defining element of the future economy: integrating the three goals of economic development; environmental protection and restoration; and social equity and well-being.”⁵ These three pillars of sustainable development are often referred to as the *triple bottom-line*.

EKOS International provides a model of sustainability as the nexus of economic or manufactured capital, natural systems and human prosperity:

Sustainability: Nexus of Innovation and Value

Natural Systems:

Integrative and restorative interaction with natural ecosystem constraints and resources

Human Prosperity:

Optimal contribution to employees, customers, community global society

Manufactured (Economic) Capital:

World-class strategy and execution, excellent business design, product and service design, production capability, core competence development

As EKOS notes, “tremendous opportunities exist for those corporations to take the lead in transforming our pervasive industrial age model to align with natural system requirements in higher service of human development and prosperity.”⁶

Businesses that improve environmental and social performance are able to enhance profitability and value through “cost reductions from eco-efficiencies, waste reductions and process improvements; price premiums, especially for those first to market; enhanced brand equity and customer loyalty; lowered cost of capital due to reduced liability and risk; increased revenue from new products, markets and even new businesses; and enhanced asset management. Superior environmental and social performance has also been found to lead to intangible benefits: higher employee job satisfaction and commitment, increased innovation in creativity, and motivation from a sense of higher purpose.”⁷

As such, Sustainable Development represents a break from the classical view of economics.

Economic Background

Economics plays a central role in shaping the activities of the modern world - in shaping the criteria of what is termed “economic” or not. It defines a very narrow view of man and the environment. However, Economics should not be viewed as a “thing by itself but as a fragment of a greater whole, a branch of social philosophy.”⁸

It is necessary to think of our economic system as a “subsystem of the ecosystem” and a “humanistic enterprise system that recognizes the sovereignty of people not capital”. The economy must be embedded in society. In other words, “social decisions cannot be allowed to be dictated by the impersonal force of economic competition”⁹ and the economy cannot ignore man’s dependence on the natural world.

The role of the Environment

The discipline of Economics has come to treat land and the environment as expendable. With the emphasis on capital, land is no longer considered an important factor of production.¹⁰

Logically, the economy must maintain a proper scale relative to our ecosystem. Our ecosystem itself cannot grow; we have but one Earth. Yet, we are conditioned to believe that there is no limit to the growth of the economy. “Consequently the economy (subsystem) becomes larger relative to the ecosystem and stresses the parent system to an even greater degree.”¹¹ Sustainable Development is growth that is compatible with our planet’s carrying capacity.

Unfortunately, “modern man does not experience himself as part of nature but as an outside force destined to dominate and conquer it.”¹² Sustainable development obviously demands a different view of the environment.

Man and his role at work

Economic theory builds on the propensity of individuals to optimize their own self-interests, “a propensity clearly operative in market transactions and in many other areas of life”.¹³ The pursuit of private gain is typically equated with rationality, implying that other modes of behavior are not rational - including actions directed to the public good.

The modern version of this self-contained individual is the view of the human being as consumer. An individual’s satisfaction (or utility) tends to be defined only by what items he consumes. As workers, human beings sell their labor to the highest bidder. “There is a close connection between the two roles, both of which involve the element of seeking one's own maximum gain.”¹⁴

Despite this unfortunate (but observable) characterization of economic man, it still remains an abstraction from social reality. “What is neglected is the effect of one person's welfare on that of others, through bonds of sympathy and human community, and the physical effects of one person’s production and consumption activities on others through bonds of bio-physical community.”¹⁵ As a society, we have to begin to embrace this wider reality.

Finally, there is need for a proper philosophy of work that provides “ordinary people with the means of doing profitable and intrinsically significant work,”¹⁶ that enables them to view themselves as “whole beings,” not mere consumers. Sustainable Development provides such a social and environmental context.

Sustainable Business

“There can be no prosperity for a company that does not consider the environment and society.”

Kunitake Ando, President and Chief Operating Officer, **SONY**

Sustainability leads to new business models, strategies, and alliances. Moreover, it changes the very purpose and value offerings of the organization.¹⁷

“As a metaphor for business, sustainability implies powerful new business models, alternative systems design, managerial responsibility for the entire life cycle of products and services, leveraging improvements across the value chain, understanding the ecology of networks, designing for cyclical, closed loop systems, zero waste, flexibility, adaptation, and diversity. In addition ...sustainability provides new understandings of customers and their needs; it sharpens our focus on what is really of value to customers. What matters is the optimization of the system that a company can bring together to satisfy customers' functional requirements (not the hardware or software that they use).

From such a view, sustainability stimulates a dramatic re-conceptualization of the management of total cost/value and restructuring of cost models – internal and societal.”¹⁸

This sustainability platform involves “designing whole systems of functionality – rather than stand alone products or technologies – that are simultaneously (1) aligned with natural system constraints (e.g., using no toxics, or virtually no energy, or no water, or no fossil fuel, or leveraging biological processes or using bio-based plastic) (2) focused on understanding and fulfilling the ecology of customer, employee, and community satisfaction, and (3) leveraging off a platform of lean, agile world class organizational systems.”¹⁹

Sustainability-driven business models can result in new products with a deeper understanding of the functionality requirements of customers. As an example, does a customer really desire an air-conditioning unit or does he simply desire more coolness? Similarly, in the case of food refrigeration, is the customer’s goal a refrigeration unit or it simply food freshness? Delivering “benefits not products” can help “create deep partnerships between customers and companies in pursuit of optimized overall system design”... and leasing such benefits “can take capital off the balance sheet.” This also “dampens the effects of downturns in business cycles through increased customer loyalty and retention...and incorporates critical externalities [like pollution and waste] into the economic business model in a place where they are most able to be controlled. This encourages a fuller optimization of the economic, social, and ecological impacts.”²⁰

Such innovations in design and technology will drive the next generation of business models, strategy and value creation.

Innovation in Design

“Design is the critical lever. The key principle is designing “cradle to cradle” – integrating environmental and social impact criteria into product and process design to minimize the negative environmental and social impacts and optimize value contribution throughout the product life cycle.”²¹

This is accomplished through **Ten Design Elements for Sustainability:**

1. Design for long term customer (and societal) value
2. Design for zero waste, zero emissions, and zero cost
3. Design for renewable energy
4. Design for longevity, reuse, upgradability, re-manufacturing, disassembly, & recycling
5. Design for minimal transportation & dematerialized distribution
6. Design for mass customization and rapid reconfiguration of manufacturing process
7. Design for internalization of costs and “Total Cost Management”
8. Design for closed loop “technical system” materials flow
9. Design for “virtual” alliances and services
10. Design for human system optimization

Examples of such innovation in design abound in the technologies for renewable energy, resource and material substitution, energy, clean chemicals, and technologies that promote “dematerialization” (i.e. providing for material needs with an order of magnitude less material input). Design efforts are also supported by software to assess life cycle impacts.²²

Innovation in Technology

“Sustainability both requires and stimulates technology innovation... Technology is at the highest level the creation, embodiment, and application of intelligence. The ultimate goal of the greatest technologists is an “elegant” solution that maximizes embedded intelligence while minimizing material use and energy inputs... Conceiving of technology development in such abstract terms requires both ecological [and humanistic thinking]...and becomes the new mindset for business success.”²³

In industry we can interest ourselves in the evolution of “technology with a human face, so that people have a chance to enjoy themselves while they are working, instead of working solely for their pay packet and hoping, usually forlornly, for enjoyment solely during their leisure time.”²⁴

We can pursue new forms of collaboration, knowledge management and shared business intelligence. From a systems design perspective, we must recognize that people and processes will be distributed rather than centralized. Sustainability will also apply across the entire value chain. The goal is to optimize all business processes.

Innovation in technology also implies “designing and managing the entire life cycle of the product or service: marketing and customer needs analysis, planning, design, raw materials extraction, component production, production and assembly, packaging, distribution, sales, service, upgrades, re-manufacturing, and recycling. Each of these can be designed to ensure a continuous flow of functionality, with the lowest levels of material and energy intensity, no waste,” and with a human face.²⁵

Technology enables the integration of sustainability into all aspects of business. “As we get closer and closer to this ideal, everyone's satisfaction increases, and the possibility for legitimate long-term planetary sustainability becomes real.”²⁶

A New Role for Venture Capital

Although sustainability issues, particularly those surrounding our environment, have begun to be confronted by leading businesses, “very few have started the more difficult task of fully addressing the social dimension of their businesses.”²⁷ As primary investors in, and advisors of, emerging businesses, the venture capital industry can play a key role in advancing these issues into mainstream consideration.

Apart from fostering new business models and innovation in design and technology, the venture industry can address the following social issues:

- ❖ Ownership and Control
- ❖ Management and Organization
- ❖ Governance
- ❖ Cultural Development
- ❖ Financial Innovation

Ownership and Control

While we have begun to address some issues of ownership through employee stock option plans, “employee ownership without participation in making decisions has not been shown to make a great difference in employee attitudes or productivity. Worker ownership in combination with participation in the making of decisions should become the basic form of business in the future.”²⁸

The typical Corporation is not a genuine democracy, in which government is by the governed, but a shareholder's democracy. The only way to have a truly democratic firm is to provide employees and management with more say in corporate decisions. This requires an employee vote, rather than just shareholder authority. Within the organization, there is also a need for “conscious and systematic development of communications and consultation to allow all members of the organization some degree of genuine participation in management.”²⁹

With respect to profits, it is perhaps “exploitive [to] appropriate profits in excess of a fair return on capital” without sharing excess profits with all members of the organization.³⁰ As a response, the VC industry could begin to restructure its investments such that portfolio company management and a broader range of employees benefit more equitably from profit sharing. A more socially conscious form of ownership may also be affected by regularly devoting a part of the firm’s profits to public or charitable purposes.

Further, “one cannot expect high morale and co-operation from workers who know that the first adjustment to a business slowdown will be to lay them off-and without any golden parachutes”.³¹ In theory, risk and uncertainty should be taken by the business owners, not by non-owner employees. This may require the venture capital industry to treat employees, founders and executives in a more humanistic manner.

The immediate benefit to a VC firm for embracing such ownership and control remedies would be more stable portfolio company teams - that are better incented to execute business plans, thereby potentially enhancing and accelerating returns on investment. The long-term benefit is an improved ability to attract and re-employ superior portfolio teams.

Company Response

Companies committed to integrating sustainability into their businesses tend to display the following features:

- ❖ a strategic perspective on how sustainability relates to the company, its value chains, markets, products and operations
- ❖ management systems to monitor and manage environmental and social issues and integrate them into core business decisions
- ❖ stakeholder dialogue
- ❖ product development that integrates triple bottom-line thinking and accounts for impact throughout the lifecycle
- ❖ innovative supply chain management where the environmental and social performance of the companies suppliers is important to the companies overall performance
- ❖ a toolbox that includes lifecycle assessment, design for the environment and lifecycle costing methodologies
- ❖ tailored communications to customers, financial markets and internally.

What differentiates sustainability companies is their moving beyond compliance to proactive integration; beyond environmental management toward sustainability; beyond process to product; beyond end of pipe controls to design innovations; beyond eco-efficiencies towards creation of value.

Mapping the Journey, EKOS International

Management and Organization

The application of knowledge to work is what Peter Drucker termed “professional management,” and it is the change in the dynamics of knowledge he called the “management revolution.” “Because the modern organization is an organization of knowledge specialists, it has to be an organization of equals. No one knowledge ranks higher than the other.”³² This demands a non-hierarchical management structure, a goal venture-backed companies are more flexible to achieve.

Most human work is carried out in teams. Drucker identified three types of teams. The first is the baseball team, in which the players play on but not as a team. This is this model on which modern mass production was organized - where tasks are repetitive and the rules of work are well known. The second type of team is the symphony orchestra in which the members work as a team under the close direction of a conductor or manager. Finally, there is the doubles tennis team. These players have a preferred rather than a fixed position; they cover for one another and they adjust themselves to the strengths and

weaknesses of each other. A well-calibrated team of this kind is the strongest team, but this team requires an enormous self-discipline.³³

Traditionally, most work in large American companies was organized on the baseball team model. However, information technology based business requires companies to re-engineer themselves, particularly in the form of small, doubles-like teams. Leadership may “shift with the specific assignment and is independent of the rank of each member.”³⁴ Again, venture-backed companies are more capable of adopting this style of team approach than are larger, established companies.

The modern organization must also be organized for constant change. As Joseph Schumpeter stated in his “creative destruction” thesis, a company “must be organized for systematic abandonment of the established, the customary, the familiar, or the comfortable; whether products, services, processes, human and social relationships, skills, or organizations themselves”.³⁵ “Every organization of today has to build into its very structure the management of change, the ability to create the new, and continuing improvement. Every organization will need to develop new applications from its own successes and to learn how to innovate”.³⁶ It must be decentralized and its culture has to transcend change. Venture capitalists are well positioned to promote personal development and management incentives that embrace change.

Further, organizations will tend to concentrate primarily on their mission--their core task. The rest they will outsource. As a result, organizations will have to be mindful of their values and be conscious in their choice of partners to further sustainability across the extended enterprise. VC firms typically encourage and even orchestrate strategic outsourcing initiatives and therefore can influence the choice of such providers.

Governance

Corporations are currently managed exclusively to maximize shareholder value. Unfortunately, this attitude has made possible “the decade of greed and the bubble economy which predicted its collapse in a series of financial scandals.” It forces the corporation to be managed for the short term. True productivity only “comes at the end of a long gestation period. It thus requires the most difficult of all management achievements: balancing the long-term with the short-term”. Furthermore, managing a business “exclusively for the shareholders alienates the very people on whose motivation and dedication modern business depends: its workers.”³⁷

Examining the role of the corporate Board in the context of sustainable development demands that it be responsible to all stakeholders – employees, management, shareholders and community – and that it be socially, as well as economically, conscious. Sustainability also suggests lifting one’s horizon beyond the short-term to long-term value creation.

Cultural Development

“Responsibility must be the principle which informs and organizes modern society... organizations have to take social responsibility, to take care of society itself, and...to be responsible from within. It requires that everyone take responsibility for their organization’s objectives, contribution, and indeed for its behavior as well.”³⁸

Maslow, in his hierarchy of needs, reasoned that human beings aspire to self-actualization - “what a man can be, he must be”. He noted that “highly evolved individuals assimilate their work into their identity of self.”³⁹ Given that assumption, he articulated the conditions for enlightened management policy and the empowerment of individuals.

Enlightened Management

Assume:

- everyone prefers to be a prime mover rather than a passive helper, a tool, a cork tossed about on the waves
- all human beings prefer meaningful work to meaningless work
- a fairly well developed person would rather create than destroy
- everyone has a preference for being a whole person and not a part, not a thing or implement, or tool, or “hand”
- there is an active trend toward self actualization
- everyone can enjoy good teamwork, friendship, good group spirit, good group harmony, good belongingness, and group love
- there is no dominance-subordination hierarchy in the jungle sense
- everyone prefers to feel important, needed, useful, successful, proud, respected, rather than unimportant, interchangeable, anonymous, wasted, unused, expandable, disrespected
- everyone is to be trusted
- everyone is to be informed as completely as possible of as many facts and truths as possible

Maslow on Management

Like Plato’s spokesman, the Wise Socrates, who held “the sole function of knowledge is self-knowledge: the intellectual, moral, and spiritual growth of the person,”⁴⁰ the VC industry must emphasize and facilitate cultural development and the empowerment of employees as responsible whole beings. We must place people at the center.

Financial Innovation

In general, new venture funds must pave the way for sustainability by focusing on innovative technology areas and business models that contribute to environmental, social and economic well-being.

In making investments into companies, it is important to tailor investor terms to aligning social and economic interests between all parties. This may require a re-examination of such terms as anti – dilution protection, liquidation preferences, common vs. preferred stock options for employees, and control remedies in the event of default.

Even the very practice of assessing investments, and in turn funds, on the basis of internal rates of return must be questioned. In a wonderful exposition of the myopia of rate of return maximization, Daly and Cobb posed the question – “When is it economically rational to kill the goose that lays the golden eggs? Present value maximization says to kill it under certain circumstances, namely ...if the interest income stream is higher to kill the goose and sell it than the golden egg income stream from selling the eggs in perpetuity, then kill the goose.”⁴¹ The myopia of short-term return maximization does not contribute to long-term thinking.

Performance measurement must also reward a broader set of goals than just financial measures. Integrating environmental and social considerations into financing decision-making processes is a necessary part in the paradigm shift in business thinking.

Conclusion

“Sustainable business technology is the next business frontier. It promises both immediate, direct rewards to customers, producers, and shareholders, and a reduction of the negative impacts on health and environment. More excitingly, it is a vibrant source of longer-term innovation and breakthrough results.”⁴²

Traditional economics acknowledges the existence of only “one realm of capital: financial capital. This ignores the role of social and natural capital. There is a growing awareness of the need for social capital in a healthy society.”⁴³ “What is at stake is not economics but culture; not standard of living but the quality of life.”⁴⁴

The VC industry plays an increasing role in the welfare of the nation (and of the world). No one group exerts more influence on emerging business and emerging technology than the VC industry. By addressing the more difficult social and economic dimensions of sustainability, our industry can be an active participant in the next wave of sustainable development.

Footnotes:

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- ¹ Lorinda R. Rowledge, Russell S. Barton and Kevin S. Brady, Mapping the Journey, Greenleaf Publishing, 1990, p 21
- ² Ibid., p 25-6
- ³ World Commission on Environment and Development, Brundtland Report 1987
- ⁴ Cynthia L. Figge, Lorinda R. Rowledge, Russell S. Barton, EKOS International, SNS Newsletter, "The Next Innovation Challenge: Sustainable Business Models and Technologies", Technology Alliance Partners, Decemeber 5, 2001, p 6
- ⁵ Lorinda R. Rowledge, Russell S. Barton and Kevin S. Brady, Op.Cit., p 28
- ⁶ Ibid., p 29
- ⁷ Ibid., p 26-7
- ⁸ E.F Schumacher, Small is Beautiful, Harper & Row, p 43 (Taken from the work of John Stuart Mill 1806-73)
- ⁹ Mark A. Lutz, Economics for the Common Good, Routledge, p 141
- ¹⁰ Herman E. Daly & John B. Cobb Jr., For the Common Good, Beacon Press, 1994, p 111
- ¹¹ Ibid., p 143
- ¹² E.F Schumacher, Op.Cit., p 14
- ¹³ Herman E. Daly & John B. Cobb Jr., Op.cit., p 5
- ¹⁴ Ibid., p 165
- ¹⁵ Ibid., p 37
- ¹⁶ E.F Schumacher, Op.Cit., p 36 (Quoted from Aldous Huxley)
- ¹⁷ Cynthia L. Figge, Lorinda R. Rowledge, Russell S. Barton, EKOS International, Op.cit., p 7
- ¹⁸ Ibid., p 6
- ¹⁹ Ibid., p 5-6
- ²⁰ Ibid., p 6
- ²¹ Ibid., p 9
- ²² Ibid., p 9
- ²³ Ibid., p 6
- ²⁴ E.F Schumacher, Op.Cit., p 22
- ²⁵ Cynthia L. Figge, Lorinda R. Rowledge, Russell S. Barton, EKOS International, Op.cit., p 11
- ²⁶ Ibid., p 11
- ²⁷ Lorinda R. Rowledge, Russell S. Barton and Kevin S. Brady, Op.Cit., p 36
- ²⁸ Herman E. Daly & John B. Cobb Jr., Op.cit., p 302
- ²⁹ E.F Schumacher, Op.Cit., p 282
- ³⁰ Ibid., p 282
- ³¹ Herman E. Daly & John B. Cobb Jr., Op.cit., p 300
- ³² Peter F. Drucker, Post Capitalist Society, HarperCollins, 1993 p 56
- ³³ Ibid., p 86-9
- ³⁴ Ibid., p 93
- ³⁵ Ibid., p 57
- ³⁶ Ibid., p 59-60
- ³⁷ Ibid., p 80
- ³⁸ Ibid., p 97
- ³⁹ Abraham H. Maslow, Maslow on Management, John Wiley & Sons, 1998, p 1
- ⁴⁰ Peter F. Drucker, Op.cit., p 26
- ⁴¹ Herman E. Daly & John B. Cobb Jr., Op.cit., p 156
- ⁴² Cynthia L. Figge, Lorinda R. Rowledge, Russell S. Barton, EKOS International, Op.cit., p 12
- ⁴³ Bernard Lietaer, The Future of Money, Century, 2001 p 277
- ⁴⁴ E.F Schumacher, Op.Cit., p 278

About Appian Ventures

Appian is a Denver-based early-stage technology venture capital fund focusing on Applied Connectivity – technologies that enable timely, efficient and useful access to enterprise information across a network of connected users – within a sustainable business model. In an increasingly decentralized and distributed environment, these technologies represent the fastest growing segments of the IT/Communications industry. Appian empowers entrepreneurs to build sustainable and successful technology companies. Our mission is to connect their vision and innovation with our early-stage investment expertise, industry experience and commitment to create long-term sustainable value to the benefit of all our communities.

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