



## Steve Jobs: Nobel Laureate\*

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### Abstract

*The remarkable achievements of one of the world's greatest entrepreneurs offer profound insights into the fundamental nature of economy and essential missing links in prevailing economic theory. The career of Steve Jobs dramatically illustrates the central importance of human capital in modern economy and the almost incalculable contribution that a single individual can make to technological advancement, social innovation and wealth creation, while enhancing the lifestyle of hundreds of millions of people. Jobs demonstrated that the real basis of economic value is providing valuable products and services that fulfill human needs and aspirations, not unregulated markets and financial speculation. His apparent failures point to the dual nature of uncertainty that presides over all human activity – both the ever present threat of error and the untold opportunities hidden behind the veil. Widely regarded as a genius for inventing better products, his greatest commercial achievement has been in recognizing the central importance of services in modern society and fashioning integrated social service systems within which products act as an enabling technology.*

Eager to recognize Winston Churchill's outstanding service to humanity, the Nobel Committee could not bring itself to award the Peace Prize to a leader whose greatest achievement had been fighting and winning the Second World War. Instead they decided to award him the Nobel Prize in Literature for his "mastery of historical and biographical description as well as for brilliant oratory in defending exalted human values". A similar difficulty arises in conferring recognition on Steve Jobs for his remarkable contribution to our knowledge of Economics. Having dropped out of a liberal arts college six months into his freshman year and audited a course on calligraphy before setting off on a six-month trek to India in search of spiritual enlightenment, the idea of conferring on him the Nobel Prize in Economics sounds outlandish.

Indeed, it is very unlikely that Jobs ever read a textbook on economics, let alone intentionally contributed to the formulation of economic theory. Yet we can learn more from this barefoot entrepreneur – he literally went barefoot and bathed infrequently for years until his status as a corporate leader compelled him to don a more respectable garb – about the fundamentals of wealth creation, economic development, technological innovation, employment generation, entrepreneurship, creativity, management and accomplishment than from

\* Based on a presentation at the World Academy's session on 'Individuality and Human Capital' at the 14<sup>th</sup> International Conference on Sustainable Development & Eco-innovation, Krakow, Poland on Sept. 6, 2012.

a whole pile of social science textbooks. A review of earlier economic prize awards, including many for work on minor esoteric issues and two for contributions to the development of computer algorithms responsible for financial speculation, should be sufficient evidence of the need to refocus economics on issues directly related to wealth creation and human welfare.

Steve Jobs' contributions to economy are unquestionable and unprecedented. Starting out in his garage with his partner Steve Wozniak and an initial investment of \$5000 in 1976, within a decade Jobs grew Apple Computers into a \$2 billion company with 4000 employees. Relieved of all management authority by a board of experienced corporate leaders after the launch of the Macintosh computer in 1984, Jobs left Apple. When he returned to Apple 12 years later, the company's market share had fallen from a high of 16% to just 4% and was still declining. Apple's prospects were so precarious that billionaire entrepreneur Michael Dell publically advised Jobs to close the company. Over the next fifteen years, Jobs transformed Apple into the fastest growing, most profitable consumer electronics company in history. By the time of his death in 2011, Apple was a \$156 billion corporation with 72,000 employees and ranked as the most valuable company in the world with market capitalization in excess of \$500 billion – 100 million times greater than his initial startup capital – an unparalleled example of economic growth and wealth creation.

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His astonishing accomplishments defy explanation by traditional economic theory. Had he been a theorist, he most certainly would have rejected the Newtonian concept of the economy as a machine tending always toward equilibrium between supply and demand. Jobs did not strive to discover or conform to universal laws of economics. He understood that economics is not a natural science of scarcity founded on unconscious mechanisms but rather a conscious human science of unlimited creative potential based on human choice. He did not commodify products to meet available demand or attempt to set prices at the equilibrium point. He invented new products to create new types of demand that never existed before and frequently sold them for prices far higher than experts predicted the market would bear. First to market a keyboard, microprocessor, display and operating system as an integrated personal computer ready to use out of the box, Apple's early models became the best-selling compu-

ters in America until behemoth IBM entered the fray with their MS-Dos based PC. Refusing to be brushed aside by his giant nemesis, Jobs then launched the user-friendly Macintosh as the first commercially successful PC with a graphic user interface, mouse, scalable fonts and networking – which became and continues to be the global industry standard.

## 1. Human Capitalist

The sheer magnitude of these achievements is sufficient to earn Jobs a place among the great entrepreneurs of the modern era, but hardly enough to substantiate his qualifications as a noteworthy economic theorist. It is rather the foundations of these accomplishments that reveal his profound contribution to our understanding of economy. His achievements contradict conventional wisdom in countless ways. His actions belied the traditional view that productivity is a function of natural resources, human labor, technology and capital. Unlike great financial capitalists of the early 20<sup>th</sup> century such as J.P. Morgan and Rockefeller, Jobs was pre-eminently a human capitalist. Although he accumulated more than \$10 billion in

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personal wealth during his lifetime, he never valued or sought money for its own sake or based his decisions on profit-maximization. He understood that human resourcefulness is the source of all innovation and discovery. It is the human mind alone that converts ordinary materials into productive resources. Technology itself is simply and solely a product of human invention. The resources he valued most and relied on throughout his life were creativity, intuition, adherence to high values and great personal dynamism.

Jobs’ single most striking personal endowment was intense, focused, overflowing human energy. Like other great entrepreneurs and high achievers in other fields, he exuded intense energy. He recruited bright, talented high energy people. He built a high energy company where people were motivated by a missionary zeal. Creative human energy rather than money or technology was the real fuel for his accomplishments. In whatever Jobs did, he focused and directed that energy with laser-like precision into a force to reckon with. Organization is the means for channeling human energy into productive work. But too often, the corporations of his time had become top heavy, bureaucratic and unresponsive to opportunity. Jobs helped fashion the prototype of a new kind of organization which gave unprecedented freedom for individual initiative and creativity. Apple was among the first to institute informal dress codes, flexible working hours and a flat organization where the best and brightest could rise quickly. The intensity of Apple and its young leader attracted top talent. It also attracted a younger generation of customers inspired by the individualistic values of the 1960s. To own an Apple product became a symbol of human supremacy over the machine.

Jobs’ view of the marketplace was as unconventional as his view of capital. As he believed in the unlimited capacity for enhancing the productivity of resources, he also believed in the unlimited capacity for market expansion. He perceived the market as an ascending hierarchy of human aspirations and expectations which are perpetually rising. He understood that

basic material needs may be limited, but human needs also encompass social and psychological dimensions which are inherently unlimited. He recognized the importance of a product's physical and technical specifications, but gave equal or greater value to its social and psychological attributes. He was a visionary and revolutionary at heart inspired to change the world for the better rather than merely satisfy its minimum needs. His mission was to convert impersonal machines that threatened to subordinate or replace human labor and dehumanize people into user friendly personal tools to empower the individual and liberate people from the specter of mechanization. His strategy was not to fill market needs but energize markets so that they continuously expand. He emphasized the subtle aura surrounding his products and took great efforts to "impute" value by the way products were packaged, presented and marketed. Apple's Superbowl ad of 1984 announcing the launch of the Macintosh was heralded as the greatest commercial of all time.

## **2. The Notion of Value and Values**

Jobs rejected the traditional view that economic value is measured by efficiency and cost of production. For him, real economic value was a function of the perceived value of the product to customers, most especially its use value and utilization value over time. Throughout his career he defined value strictly in human terms as value to the user. He made ease of use a differentiating characteristic of every product, from the desktop metaphor that first appeared on the Mac to the elegant interface of touch screen iPods, iPhones and iPads. He learned the value of simplicity from a study of Zen Buddhism and constantly strove to reduce the complexity of Apple products. He stripped away 90% of the features on the prototype iTunes music software and eliminated even the on-off switch on the iPod. More of an artist than a technologist, he gave equal importance to form and function and was never satisfied with a new product until its physical elegance was as striking as its technical capabilities.

Returning to Apple in the late 1990s, he introduced a PC with an entirely new look called the iMac, which became the fastest selling model ever launched by Apple. He deferred the launch of the first iPhone because he realized he did not love the product, then altered the design to eliminate all corners so the phone would rest softly in the palm of his hand. Indeed, 'love' was the ultimate goal of every product he designed, knowing full well that where love was born, profits would follow. He combined all these values together in an endless quest for perfection that transcended and sometimes appeared to contradict good business sense. He insisted that even the insides of the computers and the layout of circuit boards which customers never saw should be beautifully designed as a statement of craftsmanship and pride.

## **3. Evolutionary Theory**

Jobs was an evolutionary economist, not a mechanist. He soundly rejected the static conception of business and economy. He understood that society is continuously evolving and that evolution generates an endless fount of new needs and aspirations spurring an endless process of invention and innovation and undergoing a continuous process of development. From the launch of the first Apple computer to the phenomenal success of the iPhone, Jobs demonstrated the ability to intuitively sense successive waves of opportunity before they

became apparent to others and to position his company to ride the rising tide, or to create the new wave of opportunity and then ride it as he did with the Macintosh, iPod and iPad.

At the peak of the company's early success, he realized that Apple could not sustain competitive advantage producing commodity computers, so he shifted all his attention from computing technology to the user experience. Returning to Apple in the late 1990s, he saw that the PC had become a commodity product and even the user friendly interface had become commonplace. So he looked beyond the computer to identify human needs that computers could satisfy. As a lover of music, he realized there was not a single portable music player on the market that delivered the quality of music, storage capacity and ease of use he longed for as a consumer. Soon after the successful launch of the iPod, Apple became the largest online music retailer in the world. Within a few years 45% of Apple's revenues were coming from music sales. In similar fashion, he foresaw that the growth of the smartphone market would eventually undermine sales of the iPod, so he pushed Apple into the cell phone business and within five years, Apple's profits on iPhone sales accounted for nearly three-quarters of the total net earnings by cell phone makers globally. Since its launch in 2007, Apple has sold more than 150 million iPhones.

#### 4. Transition to the Service Economy

The success of the iPod was made possible by a radical shift in the mission of Apple from a computer maker to a service provider. Jobs saw the opportunities generated by the transition that was taking place from the industrial economy of manufactured products to the emergence of the modern service economy. Long overlooked by traditional economists, this transition represented a change in perspective akin to the shift from a geocentric to a heliocentric universe. Apple's entry into the music business marked a more fundamental change in focus. Although it continued to base its operation on the sale of electronic products, the emphasis shifted from selling computers and iPods to providing an integrated delivery system to meet human needs. Apple bridged the gap between products and services. Products became the means to deliver enhanced services. The service economy consists mainly of complex integrated delivery systems such as those providing for education, medical care, communication, transportation, entertainment and financial services. In services the quality, capacity and throughput of the delivery system are more important than the technical specifications and capabilities of the product.

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Jobs conceived and developed a seamlessly integrated delivery system for digital music consisting of the iMac computing platform, the iPod portable player and the iTunes online store. In order to make the player as small and simple as possible, he shifted most functions to the computer, which served as the link to the iTunes store. At a time when Apple was an insignificant player in the American computer industry, Jobs succeeded in persuading

major music publishers to allow Apple to sell individual songs for 99 cents each, giving it a virtual monopoly over legal online music sales. Apple literally stole the market from Sony, which had the huge competitive advantage of being both a much larger consumer electronics company and a major music publisher. Bill Gates later expressed his utter astonishment at Jobs' accomplishment, acknowledged Microsoft's error, and was determined to recoup lost ground by launching his own system. Neither Sony nor Microsoft could successfully compete with the simple, elegant Apple interface and finally gave up trying. Their failure appears quite astonishing in view of their much larger technological and financial resources. Apple's success is explained by the fact that unlike its competitors, its strategy reflected a perfect balance between technological sophistication, engineering excellence, ease of use, quality of consumer experience and access to market. In 2012 Apple sold its 25 billionth song.

## 5. Characteristics of the Entrepreneur

Entrepreneurs are the heroes of contemporary society and as in ages past we tend to deify our heroes, endowing them with rare and superhuman attributes. Apart from his high level of personal motivation and intuitive insight, a careful examination reveals very little that was remarkably rare or unique about the personal capabilities Steve Jobs possessed. There was certainly nothing extraordinary about his birth or early childhood. He was born the illegitimate child of a Lebanese man and an American woman who put their child up for adoption at birth, because their parents would not permit their marriage. Steve grew up in a working class American family. His adopted

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father was a high school drop-out who developed into a skilled mechanic with a pride in craftsmanship. Steve was denied the benefits of education, money and social connections. Nor was he endowed with any obvious social abilities. The sense of having been rejected by his biological parents may account for Steve's apparent indifference to what others thought of him. He seemed free from the normal social conditioning that inhibits unconventional thought and action. He never hesitated to disagree with his peers, aggressively confront people in positions of authority, or dare to attempt what others thought impossible. As a youth he called up the president of Hewlett Packard to ask for free spare parts for an experimental product. He countermanded the advice of the Apple board and spent his own money funding the original Mac Superbowl ad. He challenged the CEO of Corning Glass to make an unbreakable surface for the first touch screen iPod, after being told that what he asked for was technically impossible, thereby successfully ushering in a whole new generation of touch screen consumer electronic products.

Many who conceded Steve's lack of technical expertise regard him instead as a marketing genius. Steve's flair for dramatic product launches and his success in attracting free media coverage are legendary. But he certainly was not known as a marketer in the traditional sense. He placed no faith in market research or consumer feedback. Of far greater significance was



his ability to perceive opportunity where others saw nothing at all. He had the remarkable capacity to sense what would please consumers.

Nor could Steve be described as a born entrepreneur in any real sense of the word. He lacked the native technical inventiveness of an Edison. He had terrible people skills, frequently humiliating, offending and deceiving employees, co-workers and business partners. At least in the early days, he understood very little about business or organization, apart from a shrewd capacity for negotiating, perhaps a genetic capacity inherited from his biological father. He failed dismally as an operations manager, which led to his dismissal by the Apple Board. He learned the importance of organization the hard way. Returning to Apple a decade later, he systematically applied the lessons of supply chain management so successfully employed by Dell.

When individual capacity fails to explain extraordinary accomplishment, we frequently resort to luck as the only other 'logical' explanation. It is true certainly that Steve had the good luck to be born in the right place at the right time. He grew up in the early 1970s in what later became known as Silicon Valley, at exactly the moment when the microprocessor was born. Raised as a mechanic's son, he was exposed to electronics as a child. As earlier generations of American youth repaired cars as a hobby, Steve was among the first generation who made assembling electronic gadgets a hobby. He and Wozniak were both hobbyists who only later realized their hobby had commercial potential. Granted that Steve was lucky to grow up where and when he did, that does not explain why he was able to exploit that opportunity so much more successfully than hundreds of thousands of other American youth raised under similar circumstances.

## **6. Signs of Genius**

Indeed, Steve's lack of specific expertise may have been his greatest endowment. For what he lacked in specialized knowledge and skill, he compensated for marvelously by a wider perspective that saw the big picture, recognized the importance of many different factors, and combined them all into a comprehensive approach.

Though he may have lacked specialized talent, Jobs did possess notable signs of genius. He said he learned the importance of intuition from wandering in India and learned to trust his sensitivities to lead him in the right direction. He had an intuitive capacity to relate to the whole which is more than the sum of its parts. Unlike most entrepreneur business leaders who tended to give inordinate importance to one or two essential components of business – technology, market, capital, people or organization – at the expense of the others, Steve eventually learned to appreciate the essential role played by all of them and to fashion a business with considerable strength and balance in each of them. Thus, by the end of his career, Apple was not only a leader in technology and marketing, but possessed nearly \$100 billion in accumulated cash reserves.

Jobs also possessed the genius' ability to unify disparate and apparently unconnected things. He ushered in the whole new desktop publishing industry by his insistence on scalable fonts and WYSIWYG (what you see is what you get) on the Macintosh. Like many geniuses,

he had the capacity to see profundity in simplicity. He had an insatiable urge to simplify design and function and to focus business strategy on a very small set of priorities. On his return to Apple, he trimmed the company's product line from a dozen product lines to just four. He also had the capacity to perceive deeper levels of causality which others failed to see. Thus, he recognized that branding Apple as the antithesis of Big Brother IBM would win the enduring loyalty of a younger generation.

Geniuses also have the capacity to perceive universal truths of life and human nature. Jobs realized that widespread anxiety regarding domination by the machine – a recurrent theme of Hollywood movies such as 2001, Terminator and Matrix – could be overcome by making machines as simple and friendly as possible, so what once appeared as a threat could become an indispensable companion.

## 7. Integration

Society is a complex web of interconnections. The increasing linkage and integration of previously isolated or loosely connected people, activities and functions are the very essence of the process of social development. The enormous power of language, roads, cities, markets, money and the Internet resides in their capacity to foster interconnections and integration. Foremost among Jobs' special endowments was his demonstrated capacity as a great integrator. Throughout his career, he intuitively recognized the value of integration. He began by integrating technical components. The original Apple computer was the first to integrate keyboard, monitor and circuit board into a single product. With the Mac he shifted to marrying technology and design and integrating them with customer perceptions and user experience. Apple's success as a music retailer resulted from the masterful integration of computers, music players, and an online music store integrated with the music publishing industry.

The success of the iPhone illustrates importance of viewing integration in an evolutionary perspective in which yesterday's strength becomes tomorrow's weakness, and yesterday's success, tomorrow's failure. From the launch of the first Apple computer up to the launch of the iPhone, Jobs had maintained a near fanatical faith in value of control. While Wozniak wanted to make their first computer open and accessible for expansion by users, Jobs insisted on a closed system in order to maintain perfect control over the user interface and experience. He applied the same logic by refusing to license the Macintosh operating system to other computer makers and resisted for years the opening of the iTunes platform to Windows computers. Then suddenly with the launch of the App Store he dropped the control strategy and adopted the very opposite principle, enabling any developer to create an app to expand the functioning of the iPhone. The introduction of third party Apps and the App Store transformed the smartphone into a customizable multi-purpose personal device capable of performing thousands of different functions. Currently, more than 800,000 apps are available, many of them available to the public free-of-charge, and more than 40 billion apps have been downloaded by users worldwide.

The iPhone perfected the integration of every conceivable function that could be conveniently performed on a small portable device – phone, email, browser, camera, music and



movie player, e-book, game platform, GPS, maps and personal assistant. The iPad conquered the unoccupied territory between the cell phone and the notebook computer, giving new life to the newspaper and magazine publishing industry and spurring development of electronic textbooks and online education. In spite of predictions the product would bomb, in 2010, the first year of its launch, Apple sold 7.5 million iPads. In 2012 it sold 57 million. In this sense, Apple has successfully integrated its products and delivery systems to meet a wider range of personal needs and preferences of more human beings than any other company in history. The products it has pioneered have become iconic symbols of our age.

## **8. The Enigma of Uncertainty**

Uncertainty is the fundamental condition of existence. No matter how much knowledge and experience we acquire, we lack the vision to infallibly see even the very next moment in life's movement. The entire insurance industry has evolved as a commercial sector designed to offset the impact of uncertainty. The aspiration for certainty is an essential component of humanity's quest for security.

Uncertainty haunts our every step. Even Jobs' famed intuition was not infallible – at least not in the way he expected. After leaving Apple, he failed dismally at NeXT computer. Free from interference by a corporate board, he set out to build from scratch the world's best personal computer. He invested \$7 million of his own money to create a world class engineering design and manufacturing facility capable of producing tens of thousands of the world's most advanced personal computers every month, but he never succeeded in selling more than 400 a month. It was not that market or technology conditions changed suddenly. It was simply that for all his insight into their potential, the advanced computer he brought to market proved too expensive to attract significant customers. The company lost millions and its computers never became a commercial success. But there is a flip side to uncertainty, for it is also the source of unexpected opportunities. In 1998 Apple agreed to purchase NeXT for \$400 million in order to acquire rights to the NeXT operating system. Jobs' foray into advanced computing was fully vindicated and through the acquisition, Jobs returned to the Apple board.

Ironically, the greatest opportunities seem to emerge from ventures into domains which we understand the least. Jobs' next endeavor also appeared destined for failure. He invested about \$50 million in Pixar, which he acquired from movie producer George Lucas. By purchasing Pixar, Jobs hoped to shift his emphasis from computers to the application of computer technology for specific purposes. Pixar made specialized computers and software for animated special effects. He soon realized the high price of the system severely limited its market, so he was forced to drastically cut staff and production. In this case, inconceivable opportunity seems to emerge almost literally out of nothing, like the sudden appearance of energy out of the zero-point energy field, which is fundamentally related to Heisenberg's uncertainty principle. It turned out that Pixar included a tiny animation department making short films intended to demonstrate the power of its animation products. The department was not even considered a profit-center. At a time when he was cutting back on expenses everywhere, Jobs invested \$300,000 of his own money to fund development of a short animated

video about talking toys. That video became the first computer generated video to win an Academy Award. As a result Disney contracted with Pixar to produce a full length animated motion picture based on the same theme. Disney was hoping to generate \$50 million in box office revenues. Instead Toy Story brought in \$380 million in box office receipts, the first of 11 straight Hollywood blockbuster films produced by Pixar. Jobs' intuition and willingness to risk converted a failed computer company into the top animation company in the world. Ten years later Disney bought Pixar for \$7.4 billion. Creative uncertainty generated greater commercial opportunity than anything Jobs had known up to that time.

Risk and opportunity are two sides of the same coin known as uncertainty. The greatest business risk Jobs ever took was probably his decision to launch a chain of Apple retail stores in the face of serious opposition from members of the Apple board with extensive experience in retailing who cited the failure of other electronics producers and argued persuasively that the venture was bound to fail. Still, Jobs persisted and worked for months to perfect a new concept in retailing. When the first Apple Store opened in New York in 2001 it attracted record crowds and proved an instant success. As new stores opened, average foot traffic averaged 20 times higher than industry norms. By 2011 Apple operated 326 stores around the world averaging \$34 million in revenues for a total of \$10 billion.

## 9. Role of the Individual in the Social Sciences

Of all the insights and principles of economic development that can derive from a study of Jobs' accomplishments, a few stand out as of central importance to the future of social science. The quest of social sciences to replicate the formulation of impersonal universal laws and the mathematical precision of the physical sciences have introduced four fundamental distortions that prevent the emergence of a true science of society. First is the implicit assumption that there are universal and immutable laws applicable to the social sciences akin to the laws of natural science. The theoretical conclusions that can be drawn from Steve Jobs' achievements certainly lack the mathematical elegance and statistical precision which macroeconomics strives for in its effort to emulate physical science as well as the simplicity and symmetry of microeconomic formulations based on assumptions rarely, if ever, found in the real world. Instead, they support the view that the laws governing the society are constantly evolving with the evolution of human consciousness.

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Second is the postulate that social behavior, like physical phenomenon, can be explained by mechanical principles that ignore the central significance of conscious awareness and human choice. Jobs' work provides incontestable evidence of the central role of human aspirations, perceptions, beliefs, values, attitudes and choice in economic development. The future of Pixar could never have been predicted by examining its financial statements or market research reports in 1988. It resided in the imagination of a Pixar employee named

John Lassiter who conceived of a short film called *Tin Toy* and in the faith of the entrepreneur who risked his money on a long shot because he believed in the value in Lassiter's creative inspiration.

Third is the notion that a science of society, like a science of nature, can be impartial and value free and that the role of scientists is merely detached observation of natural phenomena. Although we may consider Nature as motiveless and value free in its actions, the same can never be said of human social behavior. Human conduct is purposeful and value based and that must apply to the study of society as well. Social science must be value based and carried out with the conscious intention of promoting human welfare, not merely understanding the way society presently works.

Fourth is the premise that individual behavior can be aggregated to draw generally valid conclusions – as physicists aggregate data regarding subatomic particles, molecules, and the movement of galaxies – when in fact statistical aggregation merely conceals but does not obliterate the significance of conscious individual variation. A study of Steve Jobs' accomplishments fully justifies a reorientation of social science to take into account the complex uniqueness and the incalculable power of the individual to change the destiny of the collective. Human history is replete with instances in which the actions of outstanding individuals – explorers, inventors, discoverers, pioneers, social reformers, military and political leaders, original thinkers, creative artists, saints – have literally changed the world. The magnitude of Jobs' achievements are remarkable, but in no sense unique. Edison, Ford, Churchill, Gorbachev, Berners-Lee and countless others have demonstrated the same power of formed individuality. There can be no valid science of economy or society that studies only the action of social organizations and social systems, overlooking the unique contributions of the individual.

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The single member and the collective, human capital and social capital, constitute the infinitesimal microcosm and the infinitely complex macrocosm of society. Neither exists without the other. Neither is adequate in itself to explain the other. The individual is the link and the bridge between the micro and the macro. By the term ‘individual’, I refer to those members of society who do not merely conform to the prevailing beliefs, attitudes and ways of life propagated or imposed by the collective. An individual is one capable of original thinking that transcends and rejects conventional wisdom, one with the courage to reject conformity to prevailing attitudes and values, one with the fortitude to attempt actions which others fear to initiate or believe are impossible. Every significant advance in the development of society, civilization and culture – from the invention of fire to the development of the

World Wide Web – begins with the initiative of an individual to set out on a new course of thought or action, often in the face of intense opposition and even persecution for deviant behavior. As today we remember Socrates, rather than those who compelled him to take hemlock as the penalty for deviant thought, and as we celebrate the memory of Copernicus for rejecting the geocentric doctrine of the Church, so we must recognize and honor the living truths exemplified by Steve Jobs' accomplishment. The bright future of social science lies in the synthesis, integration and harmonious reconciliation of these two spheres of social existence.

## 10. Conclusions

It is ironic that the principles by which Steve Jobs created so much wealth designing and selling computers should be so resistant to analysis by econometric computer modeling. But this deficiency – if it is a deficiency – is more than compensated by the fact that a study of Jobs' work brings into sharp relief fundamental premises of real world economics that are normally obscured or abolished by abstract theory and mathematical models.

This analysis certainly does not purport to provide a full picture of the science of economy, let alone society, but rather to highlight some of the most blatant deficiencies in current conception. Steve was a pragmatist, not a theorist. His concern was the operation of the private sector economy, not management of the economy as a whole. Study of his actions provides little insight into the catalytic role of money in society, the essential contribution of financial markets to the real economy, the insidious impact of speculation, the necessity of government regulation to maintain open markets, the rightful function of central banks and deficit spending, the responsibility of government for promoting full employment, equitable distribution, the welfare of all citizens and protecting the rights of future generations by a judicious and sustainable use of ecological resources. But it does provide essential insights into the vital core of economic theory.

What then is the essence of Jobs' theory of economy? Economy is a human science concerned with the study of how conscious human beings and social groups apply and direct their energy, knowledge, skills and organizational capabilities to generate wealth, promote human welfare and enhance the well-being of all. In the early days of its development, economics was concerned with the problem of scarcity, earning it the title of the dismal science. Today there is no longer any necessity for scarcity. Society possesses all the necessary knowledge, technology, organizational capabilities and financial resources to eradicate poverty and economic insecurity in a flash. Today there is urgent need for a theoretical formulation that ensures to all economic security, welfare and an equitable share in the earth's and humanity's collective resources. A study of Steve Jobs' contribution to economy confirms our collective capacity to achieve these goals now.

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