



Seven Rules for Growth in the New Space Economy

“The new economy is the Internet Economy. The Internet Economy is reshaping the fortunes of business, countries and people, leveling the playing field for everyone, and driving the most significant economic shift since the Industrial Revolution.”

John Chambers, president and CEO of Cisco Systems, September 24, 1998

“We believe that the business opportunity in the Space Economy will outpace and eclipse the growth we saw in the early days of the Internet.”

Richard J. Phillips, president of Phillips & Company, April 10, 2008

On a calm, cool September day, John Chambers, CEO of Cisco Systems, one of the new rising stars in Silicon Valley, came to Washington, D.C., to define his vision for the Internet Economy. Chambers attended three events and outlined his vision in front of Senators and staff in the morning, a speech at the 1998 BusinessWeek CEO Summit, and to a special luncheon keynote sponsored by the Congressional Internet Caucus.

John’s vision was simple: two trends including the globalization of business and the networking of information technology would make the Internet a catalyst for transformation of our economy and create new growth opportunities. To succeed in the Internet Economy, companies needed to make the Internet a core component of their competitive strategy, be customer driven and make the Internet a part of their corporate culture.

The Internet would change everything.

And it did, but not because John Chambers made it so.

The Internet was already a force for change – the dotcom boom was well-established as IBM advanced its e-business vision and Microsoft and Netscape battled over the browser. Cisco didn’t invent the Internet. They simply had the courage to define a vision for its role and relevance in the world. And such vision enabled Cisco to capture an early market share lead among much larger rivals in the router business without any fundamental change to engineering or product focus. No, Cisco simply had the courage to define the value of the Internet in terms much

larger than themselves. By doing so, Cisco cemented its role as a leader with both financial analysts and customers and began a honeymoon period that most Silicon Valley pundits agree lasted at least 10 to 12 years.

During that time, Cisco became a billion-dollar success story and helped define the Internet in its own terms. The company gained market share, but, more importantly, the company created a sense of inevitability about its own role in the market.

Cisco understood that business growth was tied inextricably to trust, especially in nascent markets where faith was part of the technology adoption process. Betting your network on a small San Francisco upstart versus an established player like Lucent, Nortel or 3COM required a level of confidence and assurance. Choosing Cisco needed to be easy and safe.

In new markets, a leadership vacuum can develop as new entrants jockey for position and test market dynamics to establish market share and customer trust. Like the birth of the Internet Economy, the emerging new Space Economy promises to become a transformational force for economic growth and business opportunity. As the market matures and business models develop, the Space Economy will need leadership. The same rules that fueled the rise of the Internet Economy will govern the Space Economy – and the opportunities for long-term economic success may far exceed its predecessor.

For the companies that understand these tenets and adopt them as part of the business development strategy, the road to leadership and growth is both achievable and inevitable.

Rise of the Space Economy

In their annual report, the Space Foundation has tracks the size and scope of the Space Economy. This year, the \$300 billion Space Economy is estimated to be growing at more than 20 percent and could reach \$1 trillion worldwide by 2020.

The Space Economy is the sum total of all the goods and services that leverage Space as a strategic advantage. It includes exploratory launch vehicles and systems, but also includes services like advanced communications, security, tracking of people and assets and remote monitoring. Space tourism and commercial space transportation services are also growing as a percentage of economic activity. Ground-based support services such as space law and insurance services are also growing.

NASA's budget is growing at a slower pace than the overall Space Economy and now represents just 8 percent of all related economic activity.

The rise of the Space Economy is built on the same principles that helped fuel the growth of the Internet. Largely, a government-run project, ARPANET was subject to bureaucratic rules and centralized planning. A tool for research, the first Internet was largely seen as an educational platform for universities, governments and independent researchers. The commercialization of the Internet began when telecom carriers recognized that they could make money by selling access to IP infrastructure. This economic reality helped fuel the bandwidth revolution as every telecom company on the planet began laying pipe – across oceans, continents and terrain. The goal was cheaper access. Lower the cost of moving packets and the Internet could move anything.

Despite billions of dollars in infrastructure investment, the Internet was still only a transportation service for data. Not until the birth of the browser, did the Internet become a platform – a platform for applications and services that would accelerate the adoption of voice-over-IP, e-commerce and social networking. Google, eBay, Facebook and Amazon would not exist.

Enter the Space Economy.

For 50 years, we have been building the infrastructure – the transportation services infrastructure that will one day support low-cost access to space. NASA built the original protocols and, now, through global competition and the entry of new launch services companies such as SpaceX and Orbital Sciences, we are witnessing the natural evolution of a new economy. First infrastructure and then applications. What those applications will be and how they will evolve is yet to be seen, but markets have a tendency to evolve deliberately.

Is the International Space Station the new “browser”? What business models will drive human space travel? How will satellite-based services evolve to support new space-based Internet services? Who is the “new” customer?

To be sustainable, the risk associated with capital investment must fall. And as both governments and private investors experiment with new launch vehicles and systems, the cost will inevitably come down and with it the economic and political risks. Space will always be a dangerous business. But the same market forces that drove air travel from government mail service to mass transportation will invariably drive the demand for space travel as both the economic and physical risks erode.

In the 1960s, IBM was asked what the worldwide market for computers might be. IBM’s answer: one. Today, nearly 100 percent of all Americans between 25 and 40 carry a small computer in the palm of their hand. IBM wasn’t foolish. The company’s assumptions were based on an existing paradigm.

Likewise, as the space paradigm shifts, so do our fundamental assumptions about space. Business models will evolve. Entrepreneurs will take risks and discover new value in space and space-based assets. The Space Economy is an inevitable force for change and growth.

There will be winners and there will be losers. As with the Internet Economy, those companies that embrace the new paradigm and abandon old assumptions will be successful. The history of the Internet Economy is built on the failure of many and the success of few. The Space Economy will be no different. But the reward may be even greater.

Understanding the principles and rules for growth will make all the difference.

Seven Rules for Success

Any attempt to create a blueprint for success is bound to be half wrong. There are many drivers for success in the entrepreneur’s guidebook and the No. 1 driver can be “dumb luck.” We sometimes call this principle, being at “the right place at the right time.”

But like Forrest Gump, we understand that not all success is based on the luck of the draw. Said Tom Hanks as Forrest Gump, “I don’t know if we each have a destiny, or if we’re all just floating around accidental-like on a breeze. But I think maybe it’s both. Maybe both are happening at the same time.”

We cannot control all market forces. But no entrepreneur is at the whim of the market – there are actions we can take to make success more likely.



There are seven simple rules that are founded on principles for success in the Internet Economy, and these same rules apply to the new Space Economy. Adopting these rules will not guarantee success. But they are necessary to build sustainable market share and early momentum.

Rule #1: Identify a customer other than NASA

No market is sustainable with one customer. Similarly, markets that are monopolistic cannot deliver the required efficiencies to sustain growth. If there are no customers, and the value proposition is irrelevant or misunderstood, a market cannot exist.

It is tempting to position NASA as the only entity large enough and focused enough on space as the sole target customer. The right long-term contract vehicle with NASA or a prime vendor can sustain a business for years. A grant under the Space Act Agreement can fuel R&D.

NASA is a critical partner. Fifty years of innovation and proven leadership in space exploration is impossible to replicate. And despite the termination of the Shuttle and Constellation, Congress remains committed to NASA's role as a leader in deep space exploration and support for LEO through the ISS and future "depots."

But NASA's role is changing. We are entering the infrastructure investment phase. The commercial spaceflight industry has stepped up with private dollars to fund and build the next-generation infrastructure that will serve as the foundation to the Space Economy. Whether you support private spaceflight or not, the paradigm is shifting and the private sector is seeking to capitalize on this shift.

For established leaders like Boeing and Lockheed, the shift is less about capital and more about how to structure future business growth. For start-ups, however, capital is critical.

Private equity firms, angel investors and venture capital firms understand that there is a fundamental question driving all decisions to invest. The question: Who is your customer? How a new CEO answers that question can be the difference between funding and bootstrapping.

Investors need to understand how many customers exist today and how many will exist in the future. A market does not have to be mature to be viable. Before Apple launched the first iPod, there were many MP3 players on the market vying for market dominance. The market for digital music did not go mainstream until many years of market conditioning. Demand grows over time. Markets are made.

But too often, entrepreneurs in the Space Economy bet their business model on NASA's Holy Grail. No investor in today's market will accept that premise.

Rule #1 is simple. Build a business model that solves a problem for more than one customer. Show recurring revenue over time. Build a clear path to growth that does not depend on any single customer or agency.

Rule #2: Adopt an application strategy

One immutable truth Silicon Valley leaders learned during the IT revolution of the '80s and '90s is that hardware prices fall and software retains long-term value. From computers to HDTVs, from digital music players to network equipment, hardware prices inevitably fall over time.

Innovation creates efficiency and competition for more innovation, and greater features lead to lower costs and ultimately better price points for consumers. What is very good for consumers is not so good for manufacturers.

Hardware manufacturers too often find themselves back at the drawing board, reinventing themselves in order to introduce a new entrant with better profit margins.

This cycle is necessary. Innovation ensures that hardware infrastructure will always decline in price as early adopters drive down the price for the mass market and laggards deliver the final blow to profitability.

Expect the same from the Space Economy. As competition and budget pressures fuel innovation in propulsion and launch systems, the cost of space transportation will fall. The promise of low-cost-access to space will be driven by the natural laws of economics and productivity. But this same innovation will drive down the marginal return.

Granted, there is still a lot of money to be made in hardware for the foreseeable future. And it will likely be 40 years or more before we have the same collapse in space transportation prices. But downward pressure on prices is inevitable.

Investors understand this. Venture capital is often looking for business models that scale – where margins increase in value over time (or at least erode more slowly) and where value is created without an increase in marginal costs. Software typically can scale. Once the code is developed, the code can be manufactured for a fraction of the original development cost, but the value to the consumer holds true.

The growth of the Space Economy will eventually come from applications – developed in software, delivered through services. Space is not merely a destination, but a platform for next-generation applications and services. Companies that understand this rule will adopt an applications and services strategy to leverage the decline in the cost of space access and deliver new services to consumers on Earth *and* in Space.

Rule #3: Create an ecosystem

In nature, ecosystems are natural environments consisting of an intricate web of interdependent relationships. These symbiotic relationships are necessary if the ecosystem itself is to survive. These partners depend on each other for success and growth. They are inextricably linked in the same cause.

In business, ecosystems are powerful forces. Companies that can put themselves at the center of an ecosystem and create interdependencies in a market are those companies that can set the agenda and define market direction. Companies that invest in building ecosystems create sustainability built around a system of economics that ensures the survival of the company. If the company dies, the ecosystem dies.

Such a powerful construct can lead other companies to spend their marketing dollars to support the company at the center of the ecosystem, ensuring that the ecosystem survives.

When Sun introduced Java, the company understood that a community could evolve to ensure dominance on the Web. Creating an application developer community helped Java win in the market.

More recently, Google's Android application market has surpassed Apple's iPhone store as the largest collection of smart phone applications on the planet. By investing in an ecosystem-building strategy, Google created a defensible market leadership position that is supported by thousands of independent developers and companies.

In the Space Economy, many companies compartmentalize their role in the overall system. They recognize that the mission must involve collaboration and integration. But interoperability shouldn't stop at the engineering level.

Business models that create interoperability in the customer value chain ensure that there will always be demand for the company's technology and services. In short, adopt a business model that establishes a community of individuals and companies committed to the cause while benefiting financially from your existence, and you will be assured a leadership position over the long-term.

Rule #4: Evangelize a vision greater than your company

Visit any technology website and you will likely find a page espousing the company's vision. Too often, this vision has nothing to do with the future of the market and everything to do with the company's myopic view of itself. Often, a vision will focus on the mission of the company in general terms related to "customer satisfaction," "on-time delivery," and a commitment to being "on budget."

A corporate mission is important. It helps frame the role the company for employees, and it can help communicate a set of values that govern a company's management team. However, a mission is not a vision.

Visions challenge. Visions inspire change. They seek to break down assumptions and introduce a new world view.

Visions are bigger than any one company. They require time and commitment from many and they can take years to fulfill – if ever.

The history of space was built on our vision of the universe and our role in it as humankind. Most would expect that companies in the Space Economy would naturally embrace a vision greater than themselves. However, many start-ups and some established leaders narrowly focus on what it means to deliver on a contract. They forget that vision plays a vital role in defining the direction a company is headed in terms of leadership and growth.

Investors are looking for companies that have the courage to define an agenda. Companies in the Space Economy must think beyond the level of engineering and ask themselves a few simple questions. Why are we building what we are building? What is our cause? If we are successful, how will the world change? What ought to be?

Rule #5: Reject Not-Invented-Here (NIH)

Historically, the Space Economy has been mission-centric, with the public and private sector partnership driving collaboration and integration of components to solve problems of propulsion, life support, safety and navigation.

In recent years, companies like SpaceX have adopted a different approach. By enabling real-time collaboration under "one-roof" and by controlling most of the supply chain, SpaceX was able to achieve economies of scale and a level of quality that led to a successful Falcon 9 and Dragon capsule launch in 2010 and 2011. SpaceX has chosen a closed ecosystem. Like Apple, SpaceX has adopted a model that relies less on partners and more on a culture of innovation.

A strategy based on self-reliance is not new. With access to capital and a clear business model, companies can build short-term leadership positions without seeking innovation from outside the company. And many companies are committed to this strategy for the long-term.

Such companies tend to reject any technology, process or innovation *not-invented-here*.

Not-invented-here is inherently dangerous in the long-term. Retaining a competitive advantage is difficult as markets change. And investors are wary of companies that tend to rely on internal processes to solve all business and technology problems.

Recognizing that innovation can occur externally to the company, and having the courage to partner or acquire such innovation rather than build it from scratch is a critical strategy for long-term growth. Investors recognize that organic growth is expensive. Sometimes the fastest path to profitability is having the courage to seek partnerships in order to build a competitive advantage.

Rule #6: Build brand integrity, not brand visibility

A brand is much more than imagery. A brand includes language, personality and the experience customers share when working with the company. Most companies believe that brand *equity* is an important measure a value. The more visible and recognizable a company is, the more relevant the company is in the market.

Pouring dollars into advertising and marketing can raise the visibility of a company. However, brand visibility does not translate directly into market success.

In the Space Economy, the decision to adopt a company's technology solution can carry with it great risk to the mission. A failure of one component could lead to the failure of the mission, resulting in potential costs to property and life. A company's visible position in the market does not necessarily create trust.

Market share leaders in the space economy will be those companies that establish trust early and continue to deliver on the promises that matter most to the customer. Brand *integrity* will dominate the decision-making process, not visibility.

Rule #7: Create a culture committed to profitability

Great technology is not enough to sustain a business. A company that depends on public subsidies to sustain R&D over the long-term cannot win.

The Space Economy will be built on core business principles. Those that produce a product, service, technology or application at a lower cost than others in the market will be better positioned to win market share. Those that create a business model that enables the company to make a profit, will not only win the support of investors, they will win the trust of customers.

Profitability is not just a financial metric. It is a critical component of the corporate culture.

Instill in your employees a commitment to profitability early. Share the numbers and encourage innovation that lowers overall costs. Create a profit-sharing plan that encourages all employees to value profit. Build a business model that enables the company to create sustainable growth.

Our Next Step in Space

In 1958, the United States Congress, led by then-Congressman Lyndon B. Johnson created NASA. Less than a decade later, President Johnson would remark, “There is no room in this country for any but a fully cooperative, urgently motivated all-out effort toward space leadership. No one person, no one company, no one government agency, has a monopoly on the competence, the missions, or the requirements for the space program.”

Johnson recognized that success in space required leadership, and that leadership would come from many, not one. He understood that leadership in space was an American imperative.

American leadership in the world depends on many factors and it is not defined by any one mission. Political leadership. Technology leadership. Economic leadership. All are driven by our commitment to a cause and our willingness to invest, and build and dream.

The winners in the Space Economy will be those who embrace the tenets of innovation, vision, competition and profitability.

But the American dream was never about guarantees. Rather our next step in space will be led by many, not one – those willing to challenge assumptions, take the necessary risks, and build new ideas for this market and the next.

About Richard J. Phillips

For more than 20 years, Phillips has worked with our nation’s leading companies and political leaders to help build leadership positions for companies, products, issues and ideas.



Phillips is president of Phillips & Company, a management consulting firm that helps leading companies achieve sustainable revenue growth through strategic communications and business development campaigns. With a focus on space technology, homeland security, mobile computing, telecommunications and green technology, Phillips & Company helps organizations own the issues driving their respective markets through public relations, integrated marketing, business development, brand positioning and public affairs. Phillips is currently Executive Director of the Next Step in Space Coalition and founder of the Space Economy Leadership Summit series.

Phillips moved to Austin in 1996 and is a proud Texas business owner with deep roots in national service. Phillips earned a Bachelor’s degree in Economics with Distinction from Boston University and a Masters in Public Policy from Georgetown University.