The Value Balance

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Abstract—Companies, whether providing products or services, operate in an ecosystem that has multiple stakeholders—customers, investors, employees, their organization, and external partners, including suppliers and environmental advocates. For sustained success, all stakeholders, not just customers and shareholders (investors), must feel they receive fair value. We call this the Value Balance. When one or more of the stakeholders is not satisfied with the value they receive, the ecosystem of the product or service will break down. The importance of this dynamic balance is evident not only in product or service ecosystems today, but throughout modern industrial history, starting with the Industrial Revolution. The value balance has always been necessary for sustained and responsible technological innovation.

Key words: Customer value, industrial revolution, innovation, stakeholder value, value, value balance, value factor, value proposition

INTRODUCTION

New York Times article by David Gelles and David Yaffe-Bellany [1] on the results of a recent Business Roundtable meeting has created considerable interest in the business community. The participating chief executive officers agreed that a company's focus should be on providing value not only to investors—shareholder value—but to their employees, suppliers, and customers, while addressing pressing public concerns such as the environment and the other stakeholders in their ecosystem.

What may seem obvious to most of us apparently came as a surprise to these captains of industry. We will not attempt to explain why this is the case, beyond noting the trend in recent decades for corporate leaders to bow to—even collapse in the face of—demands by shareholders for ever greater profits and dividends, at the expense of almost all other stakeholders.

It was encouraging, therefore, to hear about an alternative consensus emerging at that Business Roundtable. Whether the report put out by the Business Roundtable was the beginning of a new trend, or just a

blip in an old trend, we hope this article will prove useful to company leaders who want to take a fresh approach to corporate responsibility and sustainability.

Stakeholder Theory: The State of the Art, by Freeman, et al., and reviewed by Bowie [2] states that the purpose of business is to create value for the various stakeholders of the business. This is the ethical thing to do. Yet most businesses today do not as a matter of course consider all their stakeholders in their actions. We aim to provide a new, broader perspective on this issue in the frame of what we call the value balance, with application primarily to research and development technology firms. But the same principles apply to businesses in general. Corporate leaders and founders of start-ups are all familiar with the value proposition. What we propose is not one value proposition, but the deployment of multiple value propositions. These value propositions can help chart a path to a more successful and sustainable and value-balanced technology business.

ECOSYSTEMS

We live in a world of ecosystems from the community and society we live in

to the natural environment around us, and to the organizations that influence the quality of our daily lives. These varied ecosystems are both self-contained and interrelated. As Aakhus and Bzdak [3] point out, there needs to be a shared value model between business and society in order for each to benefit from the other. Each ecosystem encompasses multiple stakeholders. In The Three Legged Stool [4], it is argued that in the business realm there are three primary stakeholders: customers, owners, and employees. Maintaining good relations with each primary stakeholder is critical to the health, ultimately the survival, of the business.

Too often one stakeholder will seek an advantage over other stakeholders, and dominance over its own as well as other ecosystems, including those of the natural world. There are calls for combining scientific data with public values to find the best way for societal and natural ecosystems to coexist and thrive [5]. Because of their inherent complexity, natural ecosystems constantly get out of balance, which results in different plant and animal species dominating at different times—this is a basic law of evolution [6].

Darwinian laws of natural selection, however, are not necessarily the best way to run the business world.

THE FIVE-LEGGED STOOL

A value balance exists in many realms, including in the political economy [7]. Thus, values play an important role in democratic governance, which depends vitally on the ability and willingness of people to be reasonable and cooperate with each other.

In a battle of one-upmanship, political and social ecosystems inevitably become unbalanced, just as those in nature. This imbalance results in some stakeholders gaining a significant advantage over others, allowing them to take disproportionate value from the ecosystem. This situation usually portends the death of the ecosystem in fairly short order, the timing dependent on the type of ecosystem.

Our focus here is on the ecology of innovation-driven corporations, where we draw upon extensive direct experience working in and with current corporations with significant R&D efforts. We argue that the most successful and enduring companies are careful to provide value to all their stakeholders, while those that do not enjoy a significantly shorter lifespan. As we will show later in this article, this conclusion is supported by historical evidence going as far back as the Industrial Revolution.

In the technology-intensive product and service domain, who are the stakeholders, and what is their ecosystem?

Based on our product development experience, we find that there are five key stakeholders. First is the customer or end-user—the person or group that actually uses the product or service to perform a function that they need. Next, there is the organization that produces the product or provides the servicenamely the company or unit of a company and its managers and directors. Then, there are the employees of the company or unit of the company who perform the tasks necessary to build the product or perform the service. These are the people in the trenches. There are also the *investors* in the company, who finance it through, for example, the purchase of stock. Finally, environmental stakeholders, the fifth element of the ecosystem, include the natural environment and various external dimensions affecting company operations. External factors include government regulations,

materials and other suppliers; and importantly the impacts of the company's operation on the natural environment.

CUSTOMER VALUE AND "VALUE FACTOR ANALYSIS"

For innovation in companies, value arises when novel, sometimes disruptive, product designs alter user experiences and generate new uses. With disruptive technological change, almost by definition, the social impacts become even more intense and critical. The best value is created when product designs take into account cultural impact as well as technical performance [8].

In our analysis, we define value simply as benefits, real and perceived, per cost—crudely put, bang for the buck. Determining whether each ecosystem stakeholder is receiving acceptable value requires developing a "value proposition" for each.

Many definitions of value propositions exist. We believe "N A B C" [9], is one of the most compelling: N is for (customer or societal) Need: You must describe and quantify the important stakeholder need. A is for your Approach: How are you satisfying that need in a way that is better than any alternative? B is for Benefits per cost—bang for the buck again—i.e., value. C is for the competition: who else or what other ways can the stakeholder's need be satisfied and how well do they do it?

We now take a deeper look at the "N A B C" value proposition, first from the standpoint of customer value.

Defining customer value has been a subject of much interest. Carlson,
Polizzotto, and Gaudette [10]
describe how value propositions are fundamental for determining customer value creation in particular.

As mentioned, value is benefits divided by cost. We further break

down benefits to include quality (objective) and convenience (subjective) components; there are several of each, depending on the particular customer and product concept.

Not all value components are equally important to all end-users. To sort this out, we put a weighting factor on how important—on a scale of 1 to 5—each of the quality, convenience, and cost components is to a particular customer. We term this process Value Factor Analysis (VFA). We can use this analysis to compare our approach with the competition in terms of how well the customer needs are satisfied, again using a 1 to 5 scale. A resulting spreadsheet analysis yields the value factor for the customer, indicating which approach, yours or the competitions,' provides the best value to them.1

A way to visualize the value factor is to draw a Venn diagram of three overlapping circles, with one circle representing the customer's needs, one representing the competition's capabilities, and one for the firm's capabilities. The company's goal is to be able to satisfy the customer where the competition cannot, or to do it better [10]. This is the white space and where you will provide the most value to the customer.

In the terms of our analysis, "quality" is an objective measure, that is, you can measure its characteristics, and assign a number to it rather easily. "Convenience" is typically a subjective measure and depends in large part on emotion. Cost also has several components beyond the initial purchase price, including the costs of maintaining and updating the product.

¹The Value Factor Analysis, VFA, for customer value is described in more detail in the appendix of Carlson and Wilmot's book [9]. Using the Value Factor Analysis for all stakeholders, we can determine when each has a positive value, thus resulting in a Value Balance.

A company making a product can increase customer value in several ways. It can improve the quality—sometimes doing so "disruptively"—and/or the convenience—such as ease of use. Alternatively, the cost to the customer can be lowered. It's important to note that creating customer value can often depend on differentiating a company's products from alternatives, rather than on calculating pure benefits and cost relationships [11]. Differentiation can involve functional, social, experimental, and emotional aspects of the offering.

The end-user's view of a product is always in relation to the alternatives—the competition. To complicate matters further, different end-user segments have different needs. Obviously, people estimate their needs—what is important to them—differently. This difference is evident in choices people make from buying cars and where they live to their elected official choices. Endusers consider several factors in product choice, including how well the product satisfies what they need to do-functionality or quality; how easy the product is to obtain and useconvenience; and how much it costs to purchase and maintain.

This customer-use value formula applies not only to specific product perceptions, but also to how these products affect the end-user's general quality of life, which is sometimes hard to define. We can expand this basic formula beyond the individual customer to groups and broader society. At this higher level, we suggest that the most successful companies are those whose products offer the most positive societal effects, rather than just profits. In the end, no matter who is defined as the customer or the end-user, they determine the value, not the supplier of the product or service. This is the key element in the ten guiding principles for creating customer value through innovation [12].

Now, with this understanding of the value proposition and value factor analysis, how do we arrive at the value balance? The balance is among the five stakeholders in the company product or service ecosystem. Obviously, each of the five stakeholders cannot receive the same absolute value, because each stakeholder has different needs and different definitions of value. Having calculated customer value, what are the comparable value definitions for the other stakeholders? They, too, are based on benefits divided by costs, with the benefits having both objective and subjective measures.

Thus, we define company value as profit times goodwill divided by operating costs. Employee value is purchasing power times job satisfaction divided by health and well-being costs. Investor value is return times opportunities lost divided by investment costs. Public value is economic growth times societal impact divided by resource costs. In short, a value factor analysis exists for each of the other four stakeholders, who all have to feel good about the benefits they receive versus the costs of their efforts and compared to other alternatives they might have. When any of the five stakeholders is dissatisfied with the value they receive, the ecosystem breaks down, eventually resulting in failure for all stakeholders. Let us now take a closer look at these other stakeholders.

VALUE FOR ALL STAKEHOLDERS

Value balance applies both to companies producing products and those providing services. Service companies today, including social media companies—Facebook, for example—must continuously provide value to all stakeholders for their sustainability. In some instances, because the barrier to entry is not as great for service providers as for product producers, the service providers have an even greater need

to continuously improve their value to the five stakeholders.

Theoretically, infinite customer value could be created by reducing the cost to the customer to zero; simply giving the product away. If this happens the company will go out of business, because no value comes to the company. There must be a balance between the value created for the customer and the value generated for the benefit of the company.

Employees are an important third element of the value ecosystem. For instance, we could operate a "sweat shop" where we would take advantage of and even abuse employees in order to make products at the lowest possible cost-maximizing end-user benefits and company profits. It is true that some people tolerate poor working conditions because they live from check to check and are unable to find another job. But, they will be seeking alternate employment, will quickly leave when the opportunity offers itself. If they remain at the company, they are not motivated to perform quality work.

Similarly, if investors can establish higher value alternatives, they will leave the current system. If the organization itself does not receive sufficient value, it will eventually go away, as so many Fortune 500 do every year. A public company has shareholders and investors. Investors must receive value for their investment. or they will cease investing in the company. Company operations are not possible without adequate investment. The investors are the fourth element of value; their value requires balancing, along with customer, company, and employee value.

The external or environmental considerations, the fifth group of stakeholders broadly construed, are also important value seekers. They also require positive value, or at least neutral value. The natural environment loses value when production or

product and service usage is harmful. Other external stakeholders include suppliers, value-added resellers, and distributors—supply chain partners. If suppliers have unreasonable pressures to reduce their prices, they can either go out of business or simply stop supplying the company. If resellers and distributors cannot make a reasonable profit, they too will move on to other opportunities.

For companies focused on innovation, failure to consider all five stakeholders poses a special risk to future successes. There are several reasons for this. Companies tend to rely on the success of new product introductions to create new customer value to outpace competitors. If they stop creating customer value, revenues and profits will fall, creating less value for investors. This may result in employee layoffs to cut costs. If R&D investments do not create customer value, the investments become wasted opportunities.

How does a company know it is providing sufficient value to each of the stakeholders? Very simply, they need to constantly monitor the health of their value propositions. Failure to do so poses the risk of missing an essential need of one or more of them, increasingly the odds for the eventual collapse of the ecosystem.

CUSTOMER VALUE: THE FIRST AMONG EQUALS

The value balance involves five stakeholders, but satisfying the customer should be a priority, for very practical reasons. The customer is an important bellwether: If customers are unhappy, there is a problem in the ecosystem. Conversely, we see that when a company prioritizes value to its customers, the other four stakeholders typically benefit with acceptable value propositions.

If a company's products are selling robustly and profitably—customer

demand and satisfaction are high—the company will grow, employees will receive bonuses, the investors will receive competitive rates of return, and the company will have sufficient resources to address external elements, from the environment to suppliers. It is as they say: a rising tide lifts all boats.

Evidence for these results is based not only on our experiences; studies have shown a positive association between customer satisfaction and shareholder value [13].

Conversely, when a company's products fail to provide adequate customer value, revenues fall, employees are laid off, lowering morale for those remaining, dividends get reduced, hurting investors, and shortcuts are taken that might result in shortchanging external considerations. In short, creating compelling value for your customers is not only a good thing to do for the customer's sake, it is a basic necessity for company survival.

HISTORICAL PERSPECTIVES

We can learn a lot from history about the "value of the value balance." In fact, from a historical perspective, the concept of a value balance is not really new. For a long time, successful business leaders and entrepreneurs have tacitly applied this balancing concept, without identifying it as such. This is because we live in a complex world of dynamic and continual change. Balancing of interests—give and take—is the only possible way to achieve wholeness in and come to terms with complexity.

To be sure, the "*law*" of balance is regularly violated, to the peril of technological enterprises and ultimately society. Looking back 150 years, this was the hard lesson of the Industrial Revolution in the 19th and early 20th centuries, when technological firms contributed to

huge economic advances in the US and Europe, but also when unbridled industrial development and societal imbalances degraded factory labor, the cities they lived and worked in, and the natural environment. Yet, alternative approaches also emerged in that period pointing toward a more promising future.

With the following historical examples, we move from the level of individual companies to networks of relationships among companies and their local areas—to ecosystems. Today, we live in an age of high-tech corridors and regions of innovation. Silicon Valley is the iconic example, but the roots reach farther geographically and in time.

1) Hartford, Connecticut (1875–1910)

Hartford, Connecticut, during the second half of the 19th century was

the cradle of the American Industrial Revolution and a center of innovation long before the rise of Silicon Valley. Hartford embodied many ingredients of a successful "hot spot" [14]. Innovators such as Albert A. Pope, Samuel Colt, Hiram Maxim, and Eli Whitney, Jr.—son of the famous inventor of the cotton gin-in Hartford-area businesses pioneered mass production and precision manufacturing by interchangeable parts. Products included machine tools, sewing machines, typewriters, bicycles, cars, and guns. See Figure 1 which provides a look into Pope's bicycle manufacturing facility worker conditions during this period.

The city of Hartford had all the hallmarks of a paternalistic company town in the best sense, comprising diverse companies and industries. For the benefit of their employees,

both Pope and Colt built on-site worker housing, recreational parks, and various cultural amenities, such as libraries and sporting fields. Colt even organized an "armory band" for his gun makers. All of these initiatives raised worker morale. In terms of the five-legged stool of the value balance, investors and company leadership were happy, their products were in great demand, and workers and their families were cared for, both physically and culturally.

Sadly, the magic of Hartford did not last. It, along with many cities of the Industrial Revolution, eventually fell victim to industrial decline and became part of the rust belt. Still, for a long period, its industrial economy and ecology flourished, due to a balance of multiple interests and values, as crucial in the 21st century as it was at the turn of the 20th.

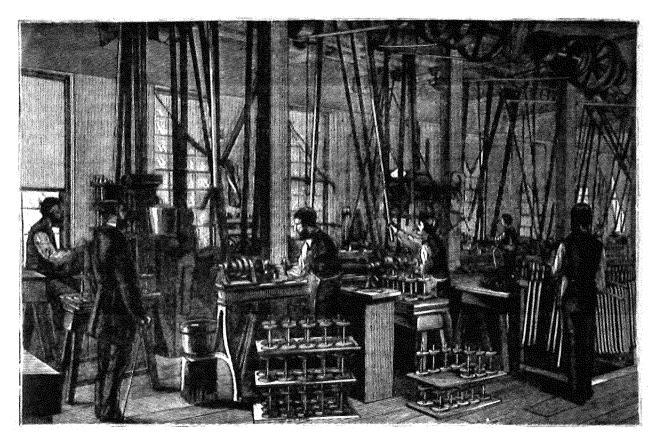


Figure 1. Illustration of bicycle making at Pope Manufacturing Company, Hartford, Connecticut, in 1881. At the time, bicycle manufacturing was at the cutting-edge—the equivalent of today's high-tech. The Pope Company was noted for valuing its employees. Source: *Frank Leslie's Popular Monthly*.

2) Olivetti Company, Ivrea, Italy (1930s–1990s)

A European counterpart to Hartford for enlightened industrial management was the Olivetti company in the small town of Ivrea, Italy. Its business machines—typewriters, calculators, and, early on, computers—were in great demand, noted for their functionality and beautiful modern design. They were celebrated in modern art and design museums around the world.

Much of the company's success was due to the inspired leadership of its idealistic president, Adriano Olivetti, who developed a "communitarian," deeply democratic vision of industry and of Ivrea, his home town [15]. Putting workers and customers first, his communitarian philosophy was the epitome of the value-balance concept we discuss. The town of Ivrea provided workers with company housing, day care, and educational facilities for the children of Olivetti workers, ample green parks and sport facilities for recreation, and, equally important, cultural centers for employee self-development.

Adriano believed in a balance between technology and art to nourish the spirit. One of the little-known achievements of the Olivetti company was the invention in 1962-64 of its Programma 101 computer, beautifully designed by Mario Bellini and considered the world's first personal computer [16]. Inspired by Adriano Olivetti's democratic philosophy, the pioneering engineers who developed the machine aimed to make a computer the average person, and not just technical elites, could use.

3) Silicon Valley (1970s to present)

We continue the theme of personal computers. Silicon Valley provides another example of how a region can nurture large scale innovation and a regional culture conducive to valuebalance.

This region developed to become and remain the hub for personal computing [17]. Why was the region such fertile ground for this to happen? Major factors include:

- An environment stimulated by a university's (Stanford) technical leadership – faculty and students who became the employees;
- A pull by government needs the customer – for high-tech solutions:
- Leaders who let smart people work with minimal supervision;
- A culture totally opposite to the "stuffy" suit-wearing east coast culture:
- Local investors willing to fund the new ideas and teams; and
- An environment that provided the complementary skills and supply chains required by new ventures.

The result of this now iconic regional ecosystem was the founding of great innovation companies—Apple, HP, Xerox PARC, Intel, Fairchild, and Litton. Some have come and gone—truly innovative companies tend to have about 20 year life spans—but the region has continuously renewed itself as the world's leading center of innovation.

CONCLUSION

We have described a typical ecosystem of companies who want to innovate as having at least five stakeholders. Each stakeholder has to receive value in order for a product or service to be sustainable. Not only does each stakeholder have to feel that it is receiving sufficient value, but the ecosystem must have all five stakeholders present for a new invention to become an innovation. If one of the stakeholders is missing, the invention will fail to become an innovation, that is, go to full implementation.

If there are no investors to provide early-stage funding, the invention will never get off the ground. Similarly, if there are no employees to produce the product or service, the effort will fail. If external and environmental support is absent, the invention will fail to become a true innovation. This situation is one of the primary reasons most new ventures fail. Someone has a terrific new idea and worries only about one or two of the stakeholders in the ecosystem, rather than all the five necessary for success. To be successful, a company needs talented people, solid leadership, financial support, a growing market, and a supportive environment, from regulations to supply chains.

Returning to the initial issue in this article, the perceptions of an impending financial crisis motivated CEOs at the Business Roundtable to consider a change of course. Rather than routinely discussing strategies for promoting shareholder value, they admonished corporate leaders everywhere to open their eyes to what they were doing or not doing for other stakeholders, especially employees and customers.

We have made this argument to a number of different audiences. Many have been public and private organizations generating technological products or services. In general, we found owners and managers highly receptive and appreciative. When project teams in organizations we worked with applied value factor analysis for customer value to new products they hoped to launch, they were almost always surprised at the results. They spotted deficiencies in their offering or, in some cases, even decided against proceeding with their product. Maybe the product didn't provide what the customer actually needed, for example, or could not stand up to the competition.

Many times, company project teams had a difficult time with VFA. Often this difficulty arose due to lack of necessary data. Missing data may have included what was important to

the customer or what the competitors were able to do. In these situations, VFA reveals that the necessary upfront analysis before project commencement did not occur. Often, the project teams underestimate the competition and have unrealistic notions of what they can actually deliver.

Project teams should view VFA as a "living document" that must be continuously updated as more information about the customer, competition, and their capabilities is

gained. In addition, VFA should be completed for each of the other stakeholders to ensure that the proposed new product or service will result in their getting greater value from their effort versus alternatives they might know about.

The results of the VFAs should be used to update the value propositions for each stakeholder; only when the results remain compelling should the development or sale of a company's product continue.

We have shown that determining the value of an organization's product need not be just a subjective exercise, but one that can be applied with some rigor to locate problem areas—all to a good end. Perfection is not the goal, but rather a realistic assessment of what an organization offers its key stakeholders with an eye to the public good.

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