

We saw an opportunity to help startups *create value faster, and increase their chance of success*, when our research showed that there are *predictable and avoidable* reasons why so many new ventures fall short of their potential.

Who is this for?

Our *Venture Catalyst* service is for leaders of new and emerging high-tech ventures, who:

- want to build a sustainable, profitable business;
- care about increasing their chances of success; and
- see the value of getting across the finish line faster, and with less investment.

It's also for leaders of new ventures who understand what needs to be done, but need help getting it done.

What challenges does this service address?

Many new technology ventures fail, and many more fall short of their potential¹. Frequently, this happens as a result of repeating one of a set of common (avoidable) mistakes, made by many others in the past.

In other cases, the management team knows what needs to be done but lacks bandwidth, or perhaps the necessary skill sets, to get it done in a timely fashion.

Entrepreneurs repeat the mistakes of their predecessors

We believe that it is possible to substantially increase the chances of success of a new venture, if only the management team can absorb the lessons from history, and apply them to their own situation.

In studying a wide cross section of high tech startups, in fields such as medical devices, telecom/datacom, and various applications of nanotechnology and photonics, we have found that there are strong patterns that emerge of a set of mistakes that entrepreneurs make. It's as if entrepreneurs have no knowledge of the mistakes made by their predecessors, have not learned from history, and are doomed to make a similar set of errors to those who have gone before them. The truly frustrating thing is that many of these errors are avoidable, and often one can see them coming sufficiently far in advance that there is time to take corrective action.

For more details see the article *Ten Common Startup Errors*, available (free) on our website.

Choosing the right value-creation strategy is vital

We believe that there is an optimal value creation path for a given venture: a set of milestones that need to be accomplished, and an order in which they need to be attacked.

In many ways, a new venture is a race. It's a race to get across the finish line (building a successful company) before the reservoirs of time and money are depleted. Often this manifests itself as a race to accomplish the next set of value enhancement milestones, before needing to raise the next round of capital. Increasing value as rapidly and efficiently (in terms of time and money) as possible, translates directly to:

- better valuations;
- lower overall capital being required;
- getting across the finish line sooner; and
- a higher overall probability of success.

Diverging from the optimal path wastes time and money

All too often we see companies that have diverged from the optimal value creation path. This usually leads to longer time to market, lower financing valuations, and more difficulty attracting capital. In extreme cases it leads to death of the company, as it becomes impossible to attract the next injection of capital into a company that is not creating value.

For example, many new ventures *leave lots of value on the table at each financing*, because they neglect to accomplish certain key commercial milestones that add great value, and reduce risk, yet be can be accomplished relatively quickly and inexpensively.

Because we see these situations so often, we have created the accompanying article, entitled *Balanced Execution*, as a starting point for discussing the problem.

Over-emphasizing technical progress can destroy value

Perhaps the most common pathology we see among new ventures is an over emphasis on the technical aspects of the business, and an under emphasis on the commercial aspects of the business. This commonly leads to actual *value*

¹ In *High Tech Startup*, John L. Nesheim reports that "the chances are six in one million that an idea for a high-tech business eventually becomes a successful company that goes public". Clayton M. Christensen, in *The Innovator's Solution*, estimates that only about one in ten successful companies is able to maintain above market growth rates over a period of a decade or more.

destruction — when the team attacks value milestones in the wrong order, and then has to go back and redo things.

The classic example is developing a product without *first* understanding the *need* being addressed — and then having to start again when you realize that customers need something different. We frequently meet startup teams who have spent \$millions developing a product, only to find that it is too early to market or too late to market, or is somehow not quite what the customer needs.

Mostly we find this has happened because of an early lack of focus on achieving certain key commercial milestones.

Avoiding errors is easier with an experienced guide

Sometimes, entrepreneurs take a *suboptimal value creation path* because of lack of resources. Sometimes it is through lack of experience.

After all, most entrepreneurs are learning on the job, even if they are on their second or third startup! And it's a rare entrepreneur who has had the luxury of studying, as we have done, large numbers of emerging ventures in diverse fields — and synthesizing from that study specific guidelines for *maximizing value*, and *avoiding missteps* along the way.

Bandwidth, or the right skills, are often lacking

A common reason that commercial milestones are neglected, or attacked ineffectually, is that the *skill sets* which are needed to master the key early commercial milestones tend to differ substantially from those needed in the day-to-day operation of an emerging new venture.

Often what is needed to attack the initial commercial value milestones is a combination of:

- relatively sophisticated industry analysis;
- a deep understanding of the competitive landscape; and
- the ability to go out and objectively research things like “What does the customer need exactly?”, without being unduly influenced by the internal view of things.

There are usually also complex strategic questions to be answered, such as “At which layer of the industry food-chain will profits be most attractive, and my competitive advantage be greatest?”

The management team of an emerging venture often needs these skills only intermittently (although when they are needed, they are *really* needed). So CEOs rarely choose to add full time team members specifically to attack these problems. And when they do, it is hard to find suitably

expert candidates, because resolving the big exciting challenges is not a long term, full time job.

Sometimes the CEO himself/herself has the skills to attack these commercial milestones. However in that case, bandwidth constraints usually prevent the problems getting the degree of attention they deserve.

Objectives

To help managers of emerging, high-tech ventures:

- *decide how to create value as fast as possible;*
- *get on that optimal value creation path;*
- *avoid the classic startup errors we see all too often; &*
- *attack the key, value-creating, commercial milestones that are often neglected.*

Benefits

We provide independent, objective, experienced feedback on:

- whether or not your business is tracking along the path of maximal value creation;
- whether or not you seem to be headed for one of the common pitfalls into which so many startups fall; and
- whether there are important, value-creating milestones that are getting insufficient attention.

Armed with this information, you can fine tune the business so it tracks along the optimal value creation path.

Then we embark together on a process of attacking key, value-creating milestones that you want to hit, but which your team lacks expertise, or bandwidth, to get done in a timely manner. You get intensive, roll-up-the-sleeves-type help actually executing whatever is needed to complete the milestones. And you get access to the set of skills that are appropriate for the task, on an as-needed basis.

The type of skills we can bring to bear on these projects include:

- a CEO-level approach to value creation & the big picture;
- strategic thinking skills;
- industry analyst expertise;
- the ability to understand what future products a novel technology might enable;
- expertise in going out and interacting with potential customers to learn what they will need in the future, and which products might meet those needs; and
- experience in the art of using IP to create sustainable competitive advantage.

How does it work?

Working closely with the management team of an emerging venture, these engagements are hands-on, intensive projects, typically lasting for a period of 3-6 months, focused on accomplishing specific business objectives. These objectives vary significantly from company to company, but typically relate to how to *create value faster*, and to completing specific, *value-creating milestones*.

Our approach involves an unusual blend of analysis, strategic advice, and hands-on execution. We often get deeply involved in activities like:

- refining the business model;
- analyzing the market and industry;
- figuring out the details of the unmet need;
- tweaking the product definition, so the product will be a superior solution; and
- refining the IP strategy, and source of long term competitive advantage.

Depending on the skills of your team, and their available bandwidth, the engagement can range from relatively hands off, where we do most of the leg work, to much more collaborative, where our role is to complement in-house expertise.

Founder's letter

“During the more than 20 years I have been involved in high technology — first in academia, then as a manager and entrepreneur creating new growth businesses, and most recently as an advisor to such ventures — I have realized that there is a group of critical steps that commonly get inadequate attention during the process of building a new venture. *These are the steps of:*

- aligning your technology with a real customer need;
- crafting a detailed product definition that will meet the customer need better than alternative approaches;
- creating a sustainable competitive advantage; and
- then executing in parallel product development and market development activities that result in growing revenues and profits.

In particular, one of the following ingredients often turns out to be missing.

- 1) There must be a clearly defined, current or future customer need; it must be truly met by the company's new product; and the need must become sufficiently

common and sufficiently compelling that the product will sell in substantial volume at prices that generate profits.

- 2) The product must be able to meet the need better, or more cost effectively, than other solutions.
- 3) There must be a source of sustainable competitive advantage in product design, distribution channel, or some other aspect of the business model — or early success can turn to failure as large, well funded competitors enter the market.
- 4) It must be feasible for the company to develop the product (with the correct specifications) with the money available and in a reasonable timeframe.

While lip service is generally paid to these aspects of forming a new business, there remain many startups, and advanced development groups in large organizations, that execute them poorly. As a result, all too often a growth initiative reaches the point where millions of dollars have been spent and a product or prototype has been developed, only to discover that the number of customers willing to buy the product, as created and priced, is insufficient for the initiative to reach its financial objectives. This is wasteful of capital and of an entrepreneur's time and energy, and in many cases represents the end of the venture.

I have come to believe that many of these disappointing and wasteful outcomes could have been avoided, and that the techniques for avoiding them can be systematized, and applied in a variety of situations. I founded *TangibleFuture, Inc.* in part to take on these tasks, and to be a resource for entrepreneurs and intrapreneurs building new businesses. Our goal is to increase the likelihood of success for the growth initiatives of the companies with which we work.”

Richard G. Caro, Founder & CEO, TangibleFuture, Inc.

To take the next step

On our website you can see examples of articles, and videos of talks, that show in greater detail how we approach problems: www.tangiblefuture.com/informationbank.html

These live recordings are particularly relevant:

Common Errors Startups Make:

http://www.tangiblefuture.com/library/ValueCreation_PartB/player.html

Our approach to Value Creation:

http://www.tangiblefuture.com/library/ValueCreation_PartC/player.html

Contact our CEO, Richard Caro, to discuss your company, or to ask questions about how we work.

It is a rare startup that picks the right path, and then executes flawlessly. Of course sometimes external events mean the path needs to change. But all too often, key value milestones are attacked in the wrong order, or neglected all together. Because this seems so prevalent, we have created the graphics below — snapshots in time of the development of a new venture — to help illustrate this discussion.

On the two axes are specific value creating milestones: both *technical*, and *commercial*. The amount of value created is represented by the size of the colored rectangles joining the completed milestones.

The example of figure 1(a), in which progress has been made primarily along the technical axis, is one which we see all too commonly. Just think how many startups and advanced development groups have technical development teams of tens of engineers, but at best a single individual tasked with making progress along the commercial axis.

There are two problems with this unbalanced approach. First, as seen in figure 1(b), the venture's value is far greater after it has accomplished the commercial value-creating milestones *as well as* the technical milestones.

So the company shown in figure 1(a) has an opportunity to create a substantial amount of value by attacking and completing the value-creating milestones on the *commercial axis* — morphing as a result into the company of figure 1(b). This can usually be done relatively quickly (compared to making technical progress), and with a very attractive Return on Investment.

It seems a shame to leave that extra value on the table when it comes time for the next financing.

The overemphasis on technical milestones of figure 1(a) also leads to a second, more significant source of *value destruction*. Because of the way the technical and commercial milestones interrelate, when the company of figure 1(a) gets around to attacking the milestones on the commercial axis, it will often find that some of its prior technical work has been misdirected.

For example, often the product needs to change if it is really to meet the customers' needs better than potential competitors. Or things that were neglected early on, such as

thinking about how to create sustainable long term competitive advantage, dictate time consuming and expensive course corrections.

We recommend an iterative approach to value creation — a little progress along the technical axis, a little progress along the commercial axis, then more along the technical axis, then more along the commercial axis, and so on. We describe this as *Balanced Execution*.

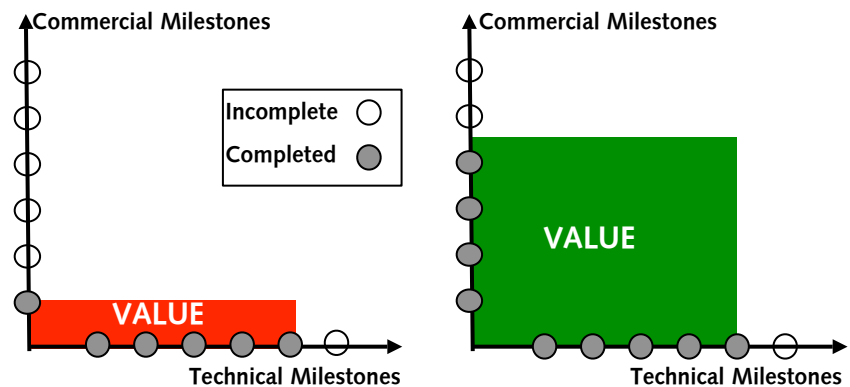


Figure 1a: Neglecting commercial progress

Figure 1b: Balanced progress

This approach to value creation ensures that, at any point in time, the company has come close to maximizing the value of what it has created with the time and capital invested thus far. It also helps avoid misdirected effort, and the need to go back and redo work. This is particularly important, because at best this waste of time and effort means investors need to invest more capital and entrepreneurs need to invest more time. At worst, it can lead to death of the venture if more capital is not forthcoming.

Technical value milestones are things such as:

Complete proof of principle experiments; Develop first prototype; Test in realistic situations; and Scale up for manufacture.

Commercial value milestones involve questions such as:

- Which of several possible products enabled by my technology will be the best starting point for a sustainable long term business?
- What are my competitors developing now to hit the market in x years when my product is ready?
- What is my sustainable competitive advantage?
- What are the unmet customer needs I am addressing?
- Why will my technology enable a product that meets those needs better than competing solutions?
- For which layer of the food chain should I develop my products?
- What type of acquisitions will be most valuable to the industry giants 5 years from now?

Our Teams

The TangibleFuture® business model involves working with a network of specialized, independent industry experts, as well as with industry analyst firms where appropriate. We assemble our teams from this network on a project-by-project basis. This approach allows us to assemble an optimal team for each project.

What sets us apart?

Our effectiveness derives from an uncommon blend of skills, experience and knowledge:

- senior management experience in high technology businesses: *we know what it's like to be in our client's shoes, and what it takes to succeed;*
- a track record of successful consulting engagements with clients ranging from startups to large multinational companies: *we know how to provide effective help;*
- expertise in both technology and market analysis: *we know how to find out what customers will need several years in the future, and understand what a technology could be capable of by then;* and
- deep industry expertise and a global perspective: *we know already a great deal about the industries in which we specialize, and the activities of their key participants in North America, Europe and Asia.*

Industry expertise

Our overall focus is on high technology growth businesses. Recent engagements have been in fields such as *life sciences, communications, cleantech, homeland security, and applications of photonics & small-tech.*

We have an ongoing research activity investigating markets we believe will be promising loci of future innovation. This helps us to offer deep industry insight, and enables us to be productive immediately when we work in those markets. We specialize in markets/industries in which things are changing rapidly, or new disruptive technologies are emerging and creating turmoil. Our recent engagements, above, are examples.

Because many companies view the world through the lens of a specific *technology*, we have a watching brief on specific technological fields as well as on specific markets. We spend time thinking about the full range of possible

product categories, in all industries, that might be impacted by those technologies. Examples include a variety of *cleantech* technologies; *nanotechnology & MEMS*; *photonics*; and the *convergence of silicon, micromachining and biotech* as a platform for healthcare devices.

Biography: Richard G. Caro



Since 2004, Dr. Richard G. Caro has been CEO and founder of **TangibleFuture, Inc.**, where he helps managers and entrepreneurs create and grow businesses based on innovative science and technology.

Prior to founding TangibleFuture, Inc., Richard was Managing Director at **RHK**, a provider of advisory services to the communications industry, where he led consulting engagements with multinational businesses such as **Intel**, and **Carl Zeiss**; research institutions such as **Battelle**, and **Sarnoff Corporation**; and a variety of as-yet-unknown, emerging startup companies.

From 1986 to 1999 Richard held operational roles in high tech companies in Silicon Valley and Boston. He was CEO (founder) of **Vital Insite**, a venture-backed, medical device start-up, developing noninvasive monitoring products; Engineering Program Manager at **Coherent**, one of the world's largest laser manufacturers; and CTO (employee #5) of **Summit Technology**, a pioneer in the laser refractive surgery (**LASIK**) business. Before entering industry, he was a member of the research staff at **Stanford University**.

Richard has been responsible for the development of a number of successful products, and has 23 issued patents. In addition to his work with TangibleFuture, Inc., he is an occasional angel investor, and has a keen interest in the education of science and technology entrepreneurs — speaking regularly, around the world, on topics relating to *turning science into profitable businesses.*

Born and raised in Australia, Richard received a B.Sc. (Hons.) degree from **Melbourne University**, Australia (1977), and a D.Phil. in experimental physics from **Oxford University** (1982) — where he was a **Rhodes Scholar**. In 1982 he was awarded an **IBM** post-doctoral fellowship to work at **Stanford University**, and migrated to the USA where he has lived ever since.