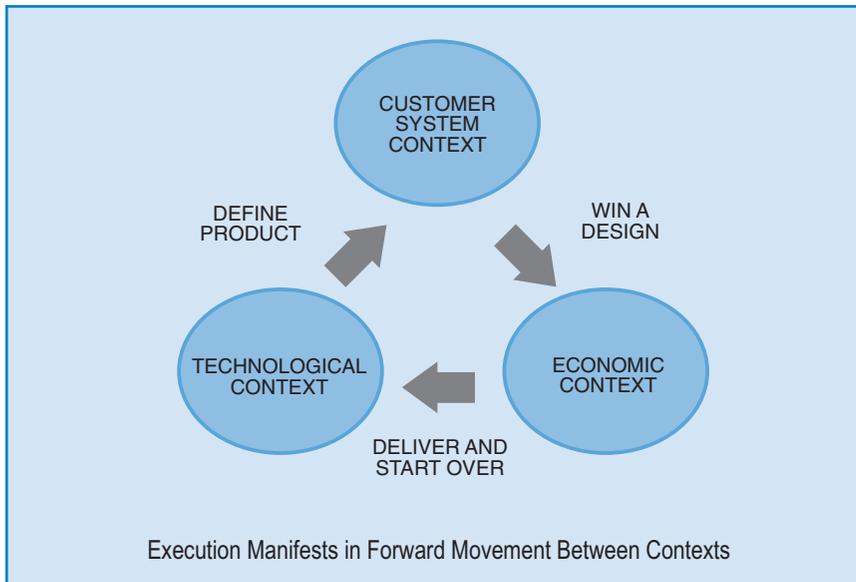


IT'S NOT ABOUT THE TECHNOLOGY

DEVELOPING THE CRAFT OF THINKING FOR
A HIGH TECHNOLOGY CORPORATION



RAJ KARAMCHEDU

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Developing the Craft of Thinking for a High Technology Corporation

BY RAJ KARAMCHEDU

IT'S NOT ABOUT THE TECHNOLOGY is about a phenomenon most dreaded by high-technology industry executives: *a failure at the execution leading to a missed market window*. Executives in the high-technology space agree that, without a doubt, a critical factor that drives the company to such a failure is the breakdown of *interaction* between marketing and engineering. Nevertheless, the near-universal friction between these two groups is considered nothing more than a "people management issue" and is often dealt by the mid-level management only as an afterthought. There is even a mythical belief that this friction is a necessary evil.

This book shatters that myth. It is predicated on the notion that the success of execution lies neither in the technology nor in the market strategy, although these are important. On the contrary, the craft of execution is shaped by *the context of an individual*, whether an engineer or a marketer. In a clear, easy-to-read language, this book illuminates the complex ways a context is, in turn, shaped by the worldviews of the marketers and engineers and forms the background for the execution. Next, a high technology company is recast as a confluence of three contexts: the *technological* context, the *customer* context and the *economic* context. Successful execution, then, is manifest in *a forward movement from one context to another*, propelling the company towards higher rates of growth.

This book tackles the big questions of how to develop the basic *craft of the thinking* that is required of us in high technology companies. Drawing from basic economic principles and practical experience from the high technology semiconductor business, it breaks new ground in our understanding of the complexities of high technology execution.

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MARKETING'S CHOICE AND ENGINEERING PLANNING

Our first step in disinterring the underlying reality of the day-to-day execution in a high technology company puts us directly at the center of the execution engine. This is where the worlds of a marketing manager and the engineering manager come in contact with each other.

Although this aspect is never discussed explicitly in this manner, there is an underlying fault-line that is ever present in a high technology company.

No one talks about it, although every one is subject to its influence. Not much is done to rein it in, although in almost every critical activity at the company there is its impression, shaping the contours of the decision process. It strikes at the heart of the day-to-day workings of the company, creating impasses among people,

springing up surprising twists and turns in their decision making capability.

This is the fault-line that runs through and divides the worldviews of a marketer on one hand and of the rest of the company on the other. It has to do with the concept of the cost. The subtleties around this largely ignored concept, as far as the term “cost” is deemed a no-brainer, are mostly unspoken and are almost never examined.

A MARKETER'S COST

For a marketer, the concept of a cost is *always* intertwined with the *choice* and *decision making*. In this sense, the concept of the cost in the mind of a marketer is the *opportunity cost*. This opportunity cost is distinctly characterized in the way that it is *not the same* as the traditional definition of the cost.

This is where the fault-line lies. This fault-line separates the conventional understanding of the cost as viewed by the engineering manager in all his calculations of the schedule, time, effort and the resource estimation, from the opportunity cost as viewed by the product marketer.

To be sure, the idea of the opportunity cost is nothing new to the business community. Sales personnel, marketing executives and the venture capital community routinely use this term. It can be found in any basic economics and management textbook. Nevertheless this subtle difference in the interpretation of the word “cost” rarely gets the attention it deserves.

Considering how deeply this difference divides the worldviews of the marketers and engineers, and influences their ability to arrive at a consensus at crucial decision points, it is worthwhile to examine this phenomenon at length.

THE OPPORTUNITY COST

Let us elaborate what opportunity cost means by means of an illustration.

We are all familiar with the normal day-to-day usage of the term *cost*. When we buy a desktop computer at an electronics store, we pay the price of the computer at the checkout counter, and walk out with the box. When someone asks how much it cost us, we mention the dollar amount we paid at the checkout counter. Simple and straightforward as that. It is the outlay, or how much we have expended, what we paid, after we decided to buy that particular desktop computer item we liked on the shelf.

The *opportunity cost*, on the other hand, is slightly tricky.

At the store sure enough there were other items on the shelves that for a moment sparked our interest. For example, there is that brand new IBM laptop, or the new PDA with a built-in camera and an MP3 player or the new tablet PC with a cool handwriting feature.

When we first looked at these items on the shelves we were perhaps tempted, though briefly. But eventually we made up our mind to settle with the desktop computer and decided that's that. The opportunity cost here is the perceived *benefit* we would have enjoyed had we bought that PDA or that laptop or that tablet PC but which we have *chosen to forego*.

Let us reiterate once again that the opportunity cost is *not* the cost, as cost is understood in conventional terms: it is not the cost of that laptop, or that PDA or that tablet PC that we walked away from. Instead it is the *benefit* that we would have enjoyed had we bought any of these items instead of the desktop computer. In other words, we decided to skip the opportunity to buy one of these items, and therefore walked away from the perceived benefits of all these items.

If an observer were to watch our behavior and were to know exactly what was going on in our heads while we made these decisions, to this observer we would appear as if to buy the desktop computer we paid the price through the benefits of all these other things. It costed us all these benefits when we bought the desktop computer. This is the opportunity cost.

A key aspect to underscore is, all these benefits that we have chosen to forego are only the *perceived* benefits because as such we have not bought any of these items to personally experience these

benefits. In making the choice, that decision to buy the desktop computer, in our minds we sort of projected forward, judged in our minds, and made an assessment that to us the value of the desktop computer means more than either an MP3-player equipped PDA or the newest IBM laptop.

THE FAULT-LINE

Now let us see how this understanding of the opportunity cost can aid us in deciphering what makes a marketing manager and an engineering manager think differently.

Let us call the space represented by the variety of electronic gadgets on the shelves at the electronic store as an *opportunity space*.

A marketer's worldview starts with this opportunity space.

Imagine that at a certain point of time in the near future there are four products on the shelf: products A, B, C are made by your competitors and product X is made by your company.

So a potential customer who is in the market to buy a product such as the one your company makes, has four choices he could turn to: A, B, C or X. Obviously you want the customer to buy your product X.

A marketer looks at this opportunity space from a unique vantage point. From this view, the marketer is like the detached observer that we referred to above, with a keen eye on the decision making mode the customer is about to enter into. The marketing manager at your company observes the customer in the decision making mode and looks at how he can compete with his product X in the following manner:

This customer would buy X only if he is fully convinced that the perceived benefits of buying either A, B or C are *considerably less* than the benefits he gets if he buys product X. Your marketing guy knows that the customer, thinking along these lines, is on the verge of making a decision.

At the same time, the marketing manager also knows that the customer is nevertheless faced with the dilemma of not knowing exactly if the perceived benefits of A, B, and C are less enough to

forego them. Or, to put it conversely, if the value of X outweighs the perceived benefits of either A, B or C.

As it should be expected in situations such as these, now emerges a competitor. For example company A, which makes the product A, decides to tip the scales by providing an additional feature.

When the product strategy in-charge at company A announces the release date of the new product A with this feature included, it has the effect of modulating the opportunity space as viewed by the customer and the whole playing field changes. This is what we call changing market condition.

The customer now sees that his opportunity cost has just increased if he goes with X vis-à-vis product A so he starts to gravitate *away* from the product X. This change of direction in the customer's mind is certainly not good for your marketing manager. The least your marketing manager could do now is first to tip the scales *back* into balance by matching product X with the same feature to reduce the opportunity cost for the customer. Or employ some other strategy that eventually results in tipping the scales back in favor of product X by reducing the opportunity cost for the customer.

In this fashion the marketers are constantly trying to influence the customer by altering the opportunity cost landscape in a manner that forces the customer to align favorably to the product X.

It does not matter if the opportunity space available to customer has three products such as A, B and C or just the product A in addition to your product X. Armed with his subjective judgment on the opportunity cost, the customer is *always* engaged in the assessment of X in the entire opportunity space, to make a decision.

In other words, the marketer of your product is forced to operate in a realm of opportunity cost which is *always* intertwined with the *choice* and *decision making* on the part of the customer.

Unlike the electronics store example cited above where the consumer is often prone to making impulse and sometimes irrational buying decisions, the high technology marketing is much more methodical but equally brutal.

An OEM company, who is typically the customer for the chip vendor, has ample time, sometimes up to a year, to evaluate the chip samples. The beta engagement phase is rather elaborate. The levels of scrutiny the chip product is put through are substantially more and extremely thorough. Add to this an incessant tendency on the part of the OEM customer to dress down your chip product's value so that he can extract lower price.

This is the inescapable nature of the high technology markets, a vast ecosystem made up of sophisticated, thinking, and decision making human beings. They are constantly evaluating what their opportunity costs would be if they select your product. Their decisions can potentially factor you out of the market quite simply and quickly without loyalty, sympathy or emotion but driven largely only by an intangible and highly subjective criterion called the opportunity cost.

THE FAULT-LINE MANIFESTED

Compare the marketer's worldview of the opportunity cost with the engineering manager's view of the cost and we see immediately how the picture changes. For this, we turn to the product development costs we alluded to in the earlier chapter.

A product development project takes on the signs of life usually after a torrent of initial assessment of the markets and products.

This is followed by a preliminary definition of the products that enable the company to enter this market. Project milestones are laid out. A preliminary estimation is made on how long it takes to build the product, how many people it takes, their salaries, the upfront investment for computers, the software tools, usage of the laboratory equipment etc. All of this is rolled into a budget.

The engineering manager's objectives are defined in terms of delivering the product with an agreed set of minimum features, within a given time schedule and under a given budget. All these are the costs that appear in the financial statements of the project. They all can be measured, verified, and tracked for the purposes of budget control.

Recall the scenario illustrated at the beginning of the book where the marketing manager and engineering manager are engaged in a heated discussion on the matter of a certain feature inclusion into the product.

When the engineering manager encounters a request such as this, several factors come into play and motivate him into taking the kind of position he takes.

First of all, the development costs have already been *budgeted*. Extreme care is taken so that all these costs are measurable and trackable. There is a natural controlling purpose that is attached to these development costs and this kicks in immediately. As the request for a feature modification (or a feature change) comes in, the engineering manager instinctively assumes a cost-control mode, tries to *minimize the cost* of the ensuing disruption to the project brought on by this request.

On the other hand, the marketing manager has his eyes cast wide on the opportunity space. He is fixated on managing *down* the perceived benefits from the competitive products. The marketing manager is not looking at the costs of the engineering manager but instead looking at *minimizing the opportunity cost for his customer*. And in this effort to minimize the opportunity cost for the customer there is a tendency to increase the "value" of the company's product (product X in the above illustration.) This feature addition request is meant to achieve that value increase.

This is how the fault-line manifests.

THE COST ASYMMETRY

When we look back at the two colliding worldviews of the engineering and marketing managers, something fundamental stands out and characterizes this fault-line.

It is the role accorded to the subjective individual.

In the world of a marketer, defined by the notion of the opportunity cost, an individual is an integral part of the cost and choice making phenomenon. On the contrary, in the budgetary cost analysis of the engineering planning, there is no room for such a subjective element.

Moreover, if we look closer into this fault-line dynamic, we see that there are a few other aspects of the turmoil between engineering and marketing managers.

First, while the engineering manager's costs are organized, are verifiable and trackable, the marketing manager is faced with a hard-to-quantify measure of the opportunity cost. This is because the opportunity cost is the perceived benefit of the competitor's product in customer's eyes and it is just that, the *perceived* benefit.

As a result, the opportunity cost is a highly subjective entity, sometimes fraught with an arbitrary and an irrational decision making process on the part of the customer.

Second, in executive staff meetings where big decisions are made based on the information available at that time, it is the engineering manager's budgetary cost that is used. The opportunity cost is never even discussed. This is primarily because it is not quantifiable in dollar terms.

As a result of such complete absence of opportunity cost in the decision making, a sort of an *asymmetry* is built into the job responsibilities of the product manager and engineering manager roles. When the senior executive management of the chip company experiences these two worldviews colliding, as witnessed by the CEO in the first scenario illustrated at the beginning of the book, it is mainly as a consequence of this asymmetry.

FAULT-LINE REVISITED

The fault-line described in the earlier section gave us a general glimpse into the choice-making phenomenon that we all experience, though this experience is not explicit. It is indeed true that none of us really are thinking in terms of the opportunity cost when we walk into an electronics store. But the thoughts, the emotions and the subjective evaluations which implicitly drive our decision making, as far as we are engaged in the economic activity of purchasing a product, manifest themselves in a *manner* of the opportunity cost.

Notice that even though there is this fault-line running through the worldviews of a marketing manager and an engineering

manager, this fault-line does *not* manifest itself until there is a customer request for a feature enhancement.

But why do we see such seemingly unrelenting requests for feature enhancements from a customer in the first place? For that matter, *why* does a customer choose one feature over another, one product over another?

To say that it is to minimize his opportunity cost would be simply to shift the burden to the next question: "How does a customer *evaluate* these benefits to measure the implicit opportunity cost?"

To say that it is to differentiate would be close. All marketers treat differentiation as a fact of life. In every marketer's worldview, unless you differentiate your product, your service, your message, for that matter *anything* you have to offer, you don't stand a chance to survive.

Differentiation is important not just because it almost single-handedly determines the success or failure of the product in the market place. It is important also because any differentiating feature can only be built successfully into the product by a conscious *joint* decision between a marketing manager and an engineering manager. Not a day goes by without a senior manager wondering if the team fully appreciates the value of a certain differentiating feature in the product.

So, what exactly is "differentiation?" This is the question we tackle in the next chapter.