

# Designing HP Calculators

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HP's Calculator Group has come three times and gone twice. With each rebirth a new team emerged with a different approach and new thinking about what makes an HP calculator great. The most recent rebirth was well presented at our HP User Community Conference in London in 2005 when Fred Valdez, new GM, described what was called a new business model. Fred saved HP calculators, but he did so at a high product personality cost.

Some members of the HP User Community say that the price was too high. They could not be more wrong. If the choice is for HP not to make calculators or to make calculators that differ from the past, which choice would you make if you worked for HP? The contribution that the HP User Community, HPUC, must make is one of education, analysis, and inspiration. These are the primary goals of an HHC.

HP Calculator users cannot complain about the good or bad of the new business model Fred brought to calculators because this model is being applied all across HP and is used by most major US corporations. High level managers view this out source approach as the primary means to stay profitable.

The first price to be paid for this new business model is a major break from the past. This is much easier if you don't know much about past HP calculators. After all, this is to be expected of a General Manager who is has to be more business driven than technically driven. Without a successful business model, i.e. profitable, there are no resources for new research and development. A basic business/marketing principle, however, is the need to make your product unique. Perhaps it is the uniqueness features that we legacy users are especially sensitive to. If you do not know past products you are not very concerned with the product values of the 96 past products. Of course a company's reputation depends on past performance. You may spend reputation capitol on the new business model, but only up to a point. The General Manager of quality renowned products must carefully balance the future against the past.

The second price to be paid is a switch from a specialty product to a high volume product. A specialty product commands a higher price; a high volume product must compete more closely on price. When a product becomes more of a commodity, price is a prime driving requirement. In order to lower the price the volume has to increase because high factory floor volume drives down costs<sup>1</sup>.

The third price to be paid is converting the calculator team from one of specialists such as Mathematicians, Repair Technicians, Application Engineers, etc. to one of managers who deal with outsourced vendors who do most of the work. This element of the new model is the make or break element. If the managers are not well versed in the fine details of what makes an HP Calculator how can they continue the lineage of what made HP calculators great? This is the area the HPUC must focus on and understand.

It does not contribute to the idea of making the best calculator possible to just complain about what is missing or what you want. The new team is more market driven – vs. being product driven as in the past. We, as a community, must understand this kind of thinking and provide our inputs in terms that make sense to HP. If HP is speaking a different language than the language we speak – for what ever reason – we need to study the new HP language to better communicate. This process is part of the HHC experience. We assume that we are all working to the same end.

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1. *Labor costs and volume. Third world countries provide lower labor costs (until they move up on the economic ladder) and high volume lowers manufacturing costs. The larger the factory the greater the volume. Outsourced factories specialize in what they do, and it is possible that the world can be served by a very small number of factories. Competing brands may be made in the same factory.*

The fourth price to be paid is outsourcing your product development either wholly or in part. Product development is where everything begins. If we examine HP's most recent products we can clearly see that HP does not do all of their own product development. This is very obvious. New products are evaluated product by product by the HPUC. All you have to do is visit any of the forums where HP calculators are discussed to know which is which. This, rebranding, is an open marketing "secret."

Exactly what price is being paid? Historically HP is famous for sound financial management. They were fiscal conservatives and usually funded their own product development. I started following HP's growth with my first HP catalog in 1968. I can see the economic fat vs. lean years by looking at my bookshelf of HP catalogs. Just like most of us can remember seeing the number of hamburgers sold by McDonalds grow from low millions to billions we can also see how HP has grown to become the largest technology company in the US. The larger a company becomes the more conservative and slowly it moves. Unprofitable divisions or groups must be eliminated because the giant corporate stakes are so high. Every product has to be a good one, or life itself is threatened. There can be no fat.

Marketing becomes king in this environment and recent historical product performance is a vital parameter. Trying radical and ground breaking ideas is for small companies that have much less to lose. Each product is examined by itself and not as part of the grand design of computational excellence as was done in the "old days." Rebranding becomes a means of broadening the product line. Technical consistency of numerical accuracy or following the historical internal way numbers are processed<sup>2</sup> and displayed are not even remembered in the new environment. It is our job to provide this information because we, the customer, remember, and we want to depend on HP's reputation for computational excellence.

Even with the corporate efficiencies of the new business model, high end product development is a very expensive undertaking. One of the areas HHCer's is especially interested in is the high end product, the fourth generation<sup>3</sup> HP50g. We have excitedly waited for a Gen5 product for many Conferences.

Ideas are not the issue, ideas abound everywhere<sup>4</sup>. It is meaningful ideas communicated to HP in HP's language that count. In order to do this we need to understand the marketing aspect of the business and not just the technical aspect. We are generally weak in the marketing arena, and HP is generally weak (especially historically) in the technical consistency arena.

To design the next calculator is not only technically complex, but idealistically complex. Of course it helps to have a consistent set of "rules," and that is something that we haven't heard HP enumerate for many years. Perhaps HP is too busy keeping products coming than to spend time writing a "rule book." Can we expect recent advances to continue in the future? Let's examine these questions at HHC 2009.

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2. *See a discussion of this on the December photo page of the "Calendar of HP Personal Calculators" for a description of this vital and unique HP concept that is no longer being followed. How can it? If you are unique and different (much better and much more accurate) than everyone else, and you rebrand, you are guaranteed to have dropped in excellence. How many current managers even know of this?*
  3. *I consider HP's high end generational machines as follows. Gen1 = 65/67, Gen2 = 41, Gen3 = 71, Gen 4 = 28/48/49/50. Simply adding more memory, speed, functions, screen size, battery life, etc does not make a new generation. If you examine these machines you may easily see that the generational development costs are exponential in terms of required resources (especially time). In a commodity market the profits are marginal and resources are reduced. We cannot expect a Gen5 machine from HP any time soon.*
  4. *Walter Bonin laid out a complete mid-range product line with historical justification in his presentation at last years Conference. See the last ten pages of the Conference proceedings for color photos of the ultimate RPN calculator.*