



Marketing Engineering Expertise

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Management Summary

What do you do if you need ten thousand or so gizmos for something you are building – but it isn't something you can buy? You know what it must do, and how it must fit in with other systems, but you often do not have the time or all the specialized knowledge to design it yourself. You might be able to build it badly out of commodity stuff, but you need it done well and to your specifications. You want it done well (and inexpensive to run). Where do you go? One answer is IBM.

Like many vendors, IBM has engineers who know how to build far more than the products IBM chooses to bring to market. IBM used to undertake custom-design projects extensively. Several years ago, when they decided to limit the breadth of their operations (about the time they stopped developing applications), they pulled out of the custom design for hire business. They notably did not narrow the breadth of their offerings, and continue to have extensive engineering expertise, in addition to, and contrasted with, their computer scientists. These engineers know how to build hardware and architect memory. They are often inordinately fond of miniaturization and embedded systems and the challenges they pose.

As IT intersects with human processes more and more pervasively, there is a need – and an opportunity – to use engineering know-how more effectively. This mirrors a similar trend in medicine, where specialists and specializations have both proliferated, and in law, where single practitioners are now rare. Such specialization, in turn, needs efficiency and broad utilization to be financially sustainable.

In the trough of the recent recession, IBM decided to get back into the business of custom design, launching a business line named *IBM Engineering and Technology Services (IBM E&TS)*. This is not as crazy as it seems. The shibboleth against outsourcing design was weakened by the recession. Moreover, launching a new initiative in bad times washes out bad ideas and evolves the concept more quickly than when budgets are lush. In addition, today's wireless connectivity, bandwidth, and miniaturization provide a wealth of opportunities for the design of data capture and client devices, particularly in IBM E&TS's target markets of medical devices (one client is Medtronic), aerospace/defense (one client is Raytheon), and consumer electronics (one client is Microsoft for its X-box).

Bringing engineering services to market has some quirks. Many of the manufacturers who need technology design services have (or have recently downsized), their own highly-esteemed engineers. Design is often seen as the crown jewel, the differentiator, particularly in the United States, and collaboration with outsiders requires attitude adjustments. Outsourcing engineering design is not part of a bigger initiative – it often is the initiative¹.

Providing design services also requires attitude adjustments. The engineers may spend years working to achieve a customer's goals, for these engagements are not by-the-hour garage-type

¹ It is not the same as productizing genius (see **The Clipper Group Captain's Log** entitled *Productizing Genius*, dated November 19, 2003, at <http://www.clipper.com/research/TCG2003062.pdf>).

stuff. This detached service is not what many people think of when they think of working for IBM.

IBM's two fabrication plants, one in Burlington, VT, and a new, highly automated one in Fishkill, NY, are sometimes an attractive part of the E&TS package, though ET&S will use other fabs as well. Just recently, the fabricator TSMC announced the intention to get into the design business, and there are rumors that Infineon will offer a similar service in Europe, where there are many small design firms and a strong tradition of using them. These developments are good news, for they indicate a growing acceptance of design outsourcing as an acceptable way to get a custom design done affordably. Meanwhile, IBM E&TS has opened up offices in India and, more recently, in China.

Why is this important? Technology tempts us with the ability to be connected but independent, and would seem to promise ways to run an enterprise with less bossing for its own sake and more productivity. The enterprise systems needed to support such a vision of what-could-be will contain much that does not yet exist. Engineering and design services give the enterprise a way to build the vision into reality. Think of what you could do if a custom design team could expeditiously "make it so." **Engineering and Technology Design Services may be the way to optimize your processes and products in ways that merely faster-better-smaller cannot.**



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