



Legacy skills and the baby-boomer timebomb

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The IT industry is now waking up to its greatest challenge since the Year 2000 – the impending enterprise skills crisis. The baby-boomer generation (essentially those currently in their early to mid-50s) are rapidly nearing retirement; when they go they will leave a large hole in the mainframe data center skills base which will not easily be filled. It has been estimated that more than half of mainframe operations and support specialists are now over 50, a proportion vastly different from other areas of IT expertise.

The death of the mainframe has often been predicted, but this looks less likely today than it has for some years. Centralized transactional applications built around the IBM MVS operating systems and its descendents still control the vast majority of the world's truly business-critical data, and this won't change overnight (indeed, many CIOs believe that there is no realistic alternative to the mainframe powerhouse). The question is whether companies will be able to find the skills to keep these systems running in-house once the baby-boomers sign out.

In many ways, the Year 2000 compliance issue is a good analogy for the impending retirement of the baby-boomers. In both cases, it has taken a long time for senior managers to recognize the extent of the problem. And, although January 1 2000 was without doubt the most immutable deadline to which any of us have ever had to work, the impact of the predicted retirements will be no less sudden or widespread. If anything, many companies are making matters worse right now; they are undervaluing key data center skills and paying the highest salaries for knowledge of newer areas of expertise, such as XML, J2EE or SAP. Many mainframers feel disinclined to work longer than is absolutely necessary, yet there are few indications that universities are gearing up to plug the gap.

The skills imbalance

The problem is that IT, to a greater degree perhaps than any other industry, is shaped and driven by fashions of technology. Every new technical wave brings with it a generation of disciples with associated skills. Unfortunately these waves rarely replace the 'legacy' technologies that they supersede; instead they merely add a further stratum of complexity to the enterprise IT environment. For every different database, development tool, networking protocol set, and operating system used, a separate range of maintenance and support skills is needed, leading to the inevitable internecine squabbles that have characterized IT for several decades.



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'Legacy' is a dangerous word to use in this context, as it describes any set of skills that are currently out of fashion, but which may nevertheless be as vital to IT cost containment and service delivery as newer platforms. Generally, the response to niche legacy systems has been to automate them as far as is practical, and to reduce the organization's reliance on the skills involved. However many of the associated skills - such as capacity planning, performance and security management, which are far more basic on distributed platforms than on the mainframe - are being lost at the same time.

What's more, in the heterogeneous data centers running in large companies, there are countless different 'legacies' to manage, many of a similar vintage to the IBM mainframe. Numerous business-critical processes are still dependent on back-end pockets of technology built around VMS, Prime, PICK, SSP, MUMPS, Wang... The list goes on. Even some of the earlier versions of Windows and the more obscure Unix implementations are deeply imbedded in corporate IT systems, and these involve their own legacy skill-sets!

That's not to suggest that the average data center should maintain a vast range of semi-redundant skills – that would simply be unworkable. But CIOs need to be more aware of the balance of their employees' knowledge base. They should ensure that junior recruits spend some time in each area of technical operations, and not allow them to focus simply on the technologies that appear most strategic or attract the highest salaries outside their existing employment.

The mainframe skills dilemma

As we said, companies are now waking up to the problem of baby-boomer retirement. Arcati Research has been comparing the level of reaction to the issue in Europe and the USA, and there is no doubt that there is currently more concern in America than elsewhere. There are several reasons for this: the US has more large-scale 'true-blue' data centers than their European counterparts, and probably more resistance to outsourcing their operations (more of which later).

Whatever the reason, there are now a few (though not many) initiatives underway in the USA to re-balance the enterprise skill-set. For example, the Data Center Institute (the research arm of Data Center managers' association AFCOM) has recently launched a program to help companies retain older staff, while encouraging emerging IT and computer science graduates to take a greater interest in mainframe technologies and associated data center disciplines. They are working closely with Marist College, one of the most influential IT training institutions on the East Coast, which is reintroducing an extensive range of core OS/390 operational course to its core curriculum, with widespread backing from US corporations that need the skills. Moreover, the two organizations are together running a business-focused professional qualification for data center professionals: a little late in the day, perhaps, but an essential step in raising the status of these increasingly scarce skills.



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IBM and external service providers

IBM has not been slow to pick up on customers' concerns over diminishing skills. Its recently published Mainframe Charter (www.arcati.com/charternew.pdf), which underlines the company's long-term commitment to the mainframe platform, contains a section on rebuilding legacy skills and supporting customers who need additional expertise. In fact, IBM is currently spending a small fortune on mainframe-related education, both externally and internally, and is clearly making sure that it is prepared to make up any skills shortfall in the years ahead.

Now that the wheels are in motion, we can be reasonably confident that large enterprises will find a way of fulfilling their technical expertise requirements, either in-house or (more and more likely) by buying in services from IBM and other outsourcing and remote sourcing companies.

But here companies face a more insidious problem. Outsourcing can be a highly cost-effective and efficient way to manage IT operations (or parts of it). But it is only really effective when users still have the option of running their systems internally. Numerous companies have chosen to outsource the problem of legacy skills rather than facing it head-on, but this robs them of the opportunity to reassess their strategic direction at a later date. Choice is a great bargaining counter, and if users no longer have the skills available to make internal IT management viable, their negotiation position will be severely compromised. There is no evidence to suggest that IT service companies will use the skills shortage to drive a harder bargain, but IT users must protect themselves from this risk by planning ahead.

Bottom line

With most large companies currently facing short-term budgetary constraints and tight service level requirements, it's harder than ever for CIOs to take a long-term view of their skills base and consider demographic trends over the coming decade. Nevertheless, it makes good sense to ensure that IT staff receive comprehensive experience within the IT environment, and that junior employees gain some understanding of legacy data center management disciplines. This doesn't guarantee that they will opt to remain in the mainframe environment in the longer term, but it will at the very least allow them to understand the technical and cultural differences between various 'silos' of computing. IT chiefs should also work closely with local colleges and universities to make sure that the curriculum reflects the medium-term requirements of the business.

Unless they pay some attention to manpower changes over the five-year timeframe, we believe many companies will be forced to rely much more heavily on third-party data center service providers than they would wish.

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