Information Empowerment: Fact or Fantasy?

Unconventional Wisdom
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Introduction

One of the most cherished notions in all of enterprise IT and networking is the notion of information empowerment. Workers, armed with the best information money can buy, become productivity machines, generating a payback that justifies a lot of hardware and software investment.

In the past, we've looked at the role of empowerment in justifying things like SOA, and we've introduced the notion of "jobspace" as a means of understanding just what empowerment means in a logical sense. What we propose to do this month is look at the statistical framework of the workforce to get a notion of what workers might really be "empowerable" and thus learn how much money might be on the table.

The High-Level Numbers

In the US market, there are about 140 million workers. The average hourly wage is about $18.50, and this value is what we are calling the **average unit value of labor**. This number is important because any investment that's designed to improve productivity has to be justified by a reduction in labor cost, and an hour of labor on the average is worth eighteen and a half bucks.

Let's try some math. If we were to save an hour of labor per week for each of those workers, we'd generate savings of $2.6 billion, which is a lot of money. Since an hour per week is only about 2.5% of time, this certainly seems to justify some big spending. Unfortunately, like a lot of statistics, this one is contaminated by assumptions.

There is virtually nothing other than a biological agent that speeded up worker metabolism that could hope to impact the productivity of every worker. Certainly there is nothing that IT and networking could do for everyone, because everyone doesn't use IT and networking. That's where some of the interesting statistical refinements come in.

If we look at the workforce, we'd find that only about 48% of them are in jobs that have any information component whatsoever, which puts the "empowerable" workforce at about 63 million. Obviously the gardener or the guy putting rivets into steel isn't surfing the corporate database, so if we're looking at the possible value of information empowerment, we're looking at the worker subset noted.

The problem is that even this number isn't a realistic measure of what benefits IT and networking could bring. Obviously eliminating everyone with **no** information component to their job is helpful, but more helpful would be to eliminate the non-information-linked portion of all of the jobs. If a given manager spends only 35% of time on the computer, that's how much time is on the table. Making this adjustment, we find that we kill off about a third of all the time for the worker group that's subject to information empowerment, so we're down to having about a third of the total workforce, or about 43 million workers, on the "productivity enhancement via IT" agenda. The hourly wage average for these workers is about $28 per hour, so saving an hour of time for the whole group would generate about $1.2 billion in savings.

On the cost side, IT spending in the US is about $19 billion. If we assume that spending is divided among the 43.3 million empowerable workers, it averages out to be about $430 per empowerable worker per year. Taking that to an hourly basis, assuming a 40 hour week and 50 work weeks per year, we have about 21 cents per hour currently spent, which is clearly a small fraction of the wages for the workers.

This set of numbers is what could be seen as the philosophical basis for the view that there's a ton of value to be had in productivity enhancement. If we doubled the IT spending per worker (and thus doubled total IT spending) we'd generate a minimal incremental cost per worker, and even modest assumptions of how much time might be saved would cover that cost. Remember, saving an hour per year generates about $1.2 billion, so the whole IT budget could be doubled and the cost covered by saving only 16 hours per year across the empowered workforce.

Making Sense of the Numbers

So why isn't this happening? That's the question that the pundits and productivity apologists haven't answered. If there were such a clear value proposition, surely the corporate focus on productivity enhancement (the only legitimate target for IT spending in the first place) would have resulted in a land rush toward IT solutions. It has not, and so we have to look deeper into these issues.

One way to start is to look at the IT spending cycles, the stuff we provided in the December 2005 issue of _Netwatcher_. The rate of IT spending relative to the "average" value of about 1.55% of GDP varies from about 74% to about 118%, or a range of about 44%. Based on that, and on where we are in the cycle, we could expect an upside of about 25% in the current cycle. That would mean about $4 billion in incremental spending per year at the cycle peak point.

The return that most companies expect on IT investment in the current period is 35%. This suggests that the productivity value of the worker enhancements expected by the IT projects would be on the order of $5.4 billion. Given the fact that the empowerable workforce is about 43.3 million workers, this is about $125 per worker, which represents on the order of 4 hours of labor at the average rate per year. This is on the order of three-tenths of a percent. What we're saying is that the upside from today in terms of IT spending is about 4 hours of worker labor, and the total range of spending from the IT low point to the IT high point is worth about 9 hours of labor per year.

Which begs attention to some interesting points:

1. The total range of IT spending from the cyclic minimum to the cyclic maximum is justified by a productivity change of less than 1%. Thus, a very small increase in productivity that impacted the whole empowerable base of workers would appear to justify a rather large incremental spend. This is why industry pundits/apologists make such seemingly sweeping statements about how much productivity value might be obtained.

2. Given that this cyclic range has held true from the dawn of the computer age, it would appear that there are structural or technical factors that limit the growth in IT spending per year, regardless of how much theoretical productivity value might be on the table. **The inertia of current practices is clearly so strong that there is at least a strong perception that it cannot be overcome to support large changes in process automation, even if the theoretical gains are there for the taking.** This is why those same pundits/apologists tend to be wrong all the time.

So what exactly are the potential structural changes or inertial factors? We would suggest that there are three primary categories of issues.

Category number one are what might be called the "deployment-side issues". These include the following:

1. Risk tolerance on the part of the project planners. Projects that have benefit cases far in excess of the corporate target ROIs don't get approved any faster according to our research, and in fact may be scrutinized for optimism. Why take the chance?

2. Ancillary IT costs, particularly human costs, displacement of other technology, and so forth could be reducing the net benefit. We assumed above that the ROI was based on the IT spending increase,

but it would have to be based on the return on the combined cost of the IT and the other project costs.

3. "Political" issues on the part of the organization(s) involved. Projects with major productivity impacts normally mean projects with major staff reductions.

4. Capital spending programs that exceed a certain size are simply not tolerated no matter what the benefit. This factor has been recognized in the carrier space, where capex-to-sales ratios are enforced by the financial markets pretty much regardless of how they might constrain future opportunity, but we've never seen direct evidence that this works in the enterprise space. We think the cyclical numbers offer that evidence.

The second cost category would be the "supply-side issues". These relate to the production of the new capabilities on which the IT investment is proposed, the vendor side, and include:

1. Risk tolerance on the part of the vendor. Vendors rarely want to propose revolutionary changes, and sales organizations are particularly likely to try to grab the low apple, to get some dollars flowing quickly.

2. The development of a completely new technology paradigm is exceptionally difficult, and it is difficult to see how something less than that would induce buyers to rethink automation strategies. The inertia of a large application is so great that it might well take longer to change than the total time consumed by an IT spending cycle.

3. Developers will often resist major changes because they obsolete the skill sets that each believes will maintain job security.

What seems pretty clear is that there is in fact an opportunity to improve productivity through IT and network means, but realizing it fully involves more than just presenting a solution. We are going to have to resolve some of the structural problems cited here to get the most bang for our productivity-enhancing buck.

Doing What Comes Unnaturally

Our thesis here is simple; **no matter what the prospective benefits of a given IT paradigm might be or how radically they could impact both cost and benefit, the tolerance of the buyer/seller exchange process for revolution will constrain behavior to very predictable levels**, and it is this factor that accounts for the cyclical nature of IT spending.

We can reach two conclusions from this:

1. Any attempt to create more IT and networking investment than the past cycles have generated will fail unless these factors are considered in some way.

2. While it is possible that a given IT paradigm that's driving a cyclic upswing (the current SOA paradigm, for example) might claim to deal with some or even all of these issues, it seems certain that these claims have been made in the past for other paradigms and have been proved false. Could the future be different? Possibly, but odds seem stacked against it.

Let's take our second point first here, because (as you'll see) it might help shed some light on what needs to be done for the first point.

Most IT paradigms of the past have in fact included factors that were either designed to mitigate some of the risks we've outlined, and/or mitigated them by accident. Distributed computing, personal computers for desktop productivity enhancement, etc. have all included things that were supposed to ease the buyer's transition, and of course producer organizations have always tried to design software and hardware to prevent the bottlenecks we've defined on the supply side. Why have these not worked?

We submit that the largest reason has been lack of strategic insight, both on the part of the buyer and the seller. All of the factors of both the spaces that we cited earlier could be resolved by proper internal planning and preparation. That this was not done is a pretty clear indication that the parties were not properly educated to do it. One thing that we think has been pretty consistently lacking has been a realization that **new IT has to be introduced into a work process so as to bring about the benefits that are postulated for the investment**. No productivity gains can be expected without some impact on production, after all.

The reason this is important is that the SOA activity that is currently ramping up is the first of all of the strategic cycle drivers to have explicit business process integration goals. SOA offers orchestration in a number of ways, broadly in terms of "eyeball" or "jobspace" orchestration and in terms of process orchestration. The former is focused on bringing a worker the information they need in the correct visual context, and the latter on integrating individual worker contexts into an overall process.

If SOA could solve the problem of binding IT into business practices better, that could in theory resolve many of the barriers to expanding the IT investment in worker productivity. In fact, we could say that the biggest question in SOA, and in the whole principle of cyclical IT spending, is whether SOA (accidentally, to be sure) addresses the key issues at least in part, for the first time. If it does, we might break out of the current pace of spending to a new high.

But Can It Happen?

The "pro" argument here is based on the fact that SOA orchestration and process management could literally remake the way that productivity enhancement is achieved. In the past, IT has sought to improve productivity by creating an IT context for work that we'd call an "application". SOA eliminates the notion of an application in a classical sense, substituting a set of services that can be orchestrated into individual "views" or "jobspaces" and also onto processes.

One could well argue that this is a truly revolutionary change, and we'd so argue and be happy to do it. Unfortunately, just as beauty is reputedly in the eye of the beholder, so "orchestrability" is in the eye of the CIO or business planner. The media has uniformly failed to portray the real import of SOA, the buyers are largely under-educated, and so the question is whether the potential revolution of SOA will fail because all the revolutionaries decided to nap under a tree instead.

Inertia is a heavy burden (how do you like that for picturesque allusions?). The mass IT market takes time to move, and it may well be that there won't be enough time to move it within the framework of the IT cycle that is now moving forward. If that's the case, we'll drive productivity up but fail to achieve a higher peak, a better ratio of labor spending to IT support spending, than we have in the past.

About the Author

Tom Nolle is the founder and president of CIMI Corporation, a telecommunications, media, and technology consulting and research firm since 1982. Tom is a software architect and developer by background, but currently focuses on strategic market, product, financial, and regulatory issues. He's also the Chief Strategist for ExperiaSphere, an open source initiative that focuses on development of Java-based service logic and service management frameworks for next-generation networking. Tom is a contributor to Network World, the No Jitter CMP publication, Telecommunications Magazine, Tech Target Search Telecom, and Internet Evolution. He's also the author and publisher of Netwatcher, the oldest continuously published networking publication in the industry. He's a 25-year member of the IEEE Communications Society, a member of the Telemanagement Forum, and a speaker at many industry events.

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