

IT Is Not A Magic Wand

by

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Pakistan yearns for a magic lamp that can make wishes come true, a golden goose that can secure its future from want. Some think that this is now at hand. Information technology (IT) is being offered as a way to catapult Pakistan's stagnant economy into motion, generate vast amounts of foreign exchange through software exports, transform education, cause revolutionary increases in industrial productivity, modernize governmental administrative structures, create an informed citizenry, and much more.

To see whether there really may be gold in the mines of cyberspace and whether we have what it takes to mine it, I recently met with IT's most passionate, articulate and powerful advocate in Pakistan, Dr. Atta-ur-Rahman, minister of science and technology, and a first-rate scientist. Whizzing from one meeting to the other, and working while others sleep, he has come up with an impressive panoply of projects. These range from training for simple data-entry and medical transcription to elaborate projects for making physical and virtual IT universities, and from E-commerce and E-governance to business incubators and overseas marketing offices.

As the minister breathlessly reeled off one plan after the other from a list of 29, several thoughts - and doubts - passed through my mind. Here, I wish to share my feelings on three key issues with the reader, hoping that they will help him or her to separate fact from hype, and the doable from the impossible.

First, Atta gets full marks for aggressively working to make the internet more cheaply and widely accessible in Pakistan. Costs have plunged, free internet has been promised for universities, and access by a local telephone call has increased from 29 cities in August to 300 now. Although critics say that decreasing internet rates bites into government revenues, I think it is a bold and correct decision. The number of connected cities and towns will be doubled by next June, and eventual plans call for internet provision even to distant villages. During this process, telephone networks will be completely digitalized, the optic fibre network expanded, and internet via cable will be permitted.

These are impressive achievements and plans, but they also beg a fundamental question - what shall we do with the internet once we have it? Computer hardware prices drop by 20-30% every year. In a decade or two, it will become cheaper to put a computer in every "jhuggi" than to put the proverbial chicken in every pot. Will this really be revolutionary? Or, like someone with a recurring sickness, do we need both medicine and to change our bad habits to get well?

To see the possibilities of the promised “internet revolution”, it is useful to compare it against an earlier “revolution”, also mothered by communications technology. Today 70% of urban households, and 30% of rural ones, watch TV. But has this wide access really enabled Pakistan Television to fulfill the promises made at the dawn of the television age? Has television increased social awareness, improved education, or spread literacy? Has it promoted a sense of civil society, emphasized civic duties, or helped in creating better citizens?

Opinions may differ, the gains have been relatively small. Although a wise use of television could have generated an almost revolutionary social transformation, tragically that opportunity was lost. The reason was not for want of production hardware a grant of \$100 million from the Japanese government for establishing Educational Television (ETV) a decade ago, and a relatively recent grant of \$10 million to Allama Iqbal Open University for distance-learning studio facilities, led to the procurement of facilities (cameras, post-production units, computers, studios, etc) that were once the finest in Asia. However, the educational programs produced by both institutions continued to be precious few in number. Worse, they generally were (and are) of such pathetic quality and content that often they insult the imagination and intelligence of viewers.

We can, if we so choose to, learn much from the failure of television (also radio!). The mere existence of a medium does not guarantee the existence of a worthwhile message. While the interactivity provided by the internet can be used to advantage, it can also easily be wasted – the user’s educational level and goals decide between the two. Whether it be television or the internet, it is crucial to move away from total emphasis on the medium to a more balanced position that gives pre-eminence to generating high-quality materials specific to Pakistani users. Without this fundamental shift of mind-set, for the bulk of users, computers and the internet will be good only for email, chat sessions and, like television, advertising and cheap entertainment.

Disappointingly, even at the present time the importance and difficulty of generating content is only dimly realized, and it receives attention only in the margins of the present IT policy. If education is a major objective behind investing in the internet, then why is there no credible plan to generate multi-media materials for the teaching of school, college, and university subjects? Similarly, who will invest in the massive effort to make web-based vocational training courses? And where is the recognition that less than 5% of Pakistanis are literate in English? Without addressing these fundamental questions, and coming up with credible solutions, we simply cannot claim to have a comprehensive IT policy.

Second, Atta gets good marks for recognizing that Pakistan lacks – and must speedily increase - the number of computer scientists, programmers, networking specialists, and information technologists. Scholarships and Qarz-e-Hasna schemes for 1,070 students in Bachelors and Masters IT Degree programmes are being provided on a competitive basis,

and a total of 10,000 students appeared in the National Entry Test last month. But who will train them in a country where competent faculty is scarce? In response to my question of how many Ph.D's in computer science are currently resident in Pakistan, he promptly responded "probably around seven or eight". While this reply should be appreciated for its candidness, it also underscores the fragile foundations for his move to create large-scale training programs and new high-level institutions within the country, a cornerstone of the new IT policy.

The IT policy calls for setting up 7 new IT universities, making major improvements in over 30 universities and institutes, and setting up a TV channel dedicated to IT. Fortunately, by taking over existing buildings, there will be no major investment in bricks-and-mortar. Nevertheless, to set up so many new universities is a tall order for which even 70-80 computer science Ph.D's, rather than the 7-8 at hand, would be far from sufficient. Where shall all the trained and experienced computer science faculty for the new universities and other professionals come from? Even so-called "top-class" teaching institutions like GIKI, NUST, and FAST cannot find the high-level computer people they need. Glancing through recent newspaper advertisements, one sees that many universities and technical institutes are seeking computer science department heads who "may be M.Sc in computer science although Ph.D is preferred".

Should one then do without real computer science and concentrate on the "marketable" only? This is dangerous and ad-hoc. Simply teaching software packages and languages is not good enough because they are applications of what someone else has developed and, useful as they are, there are few abiding principles to be learnt from them. Obsolescence is built into the product - packages and languages have the permanence of a Parisian fashion. For example, Cobol or Fortran programmers, as well as card-punch operators, are today seen as quaint relics belonging to the age of dinosaurs.

We need to learn from past mistakes. The build-now-get-faculty-later approach to higher education just hasn't worked; the disastrous state of Pakistan's 24 state universities is solid proof. It may be that nothing short of an all-out national campaign to bring in hundreds of qualified foreign nationals, as well as Pakistanis living abroad, is going to change the situation. It is encouraging to note that preliminary steps in this direction have been taken and advertisements for hiring high-level computer and IT specialists are expected to appear shortly in the international media. However, in my opinion, at least until there is some indication that this effort will bear fruit, it is unwise and premature to announce new universities.

Thirdly, and finally, Atta has generated real enthusiasm among overseas Pakistanis who, stung by Indian IT advances and dismayed by Pakistan's backwardness, seem to be willing to put some hard cash into creating "business incubators" and loan banks for Pakistani IT entrepreneurs. The Bangalore model has become the dream and envy of our leaders today. Wealthy Pakistanis have created a venture capital initiative aimed at

stimulating software production and export, and capturing software niche markets overseas.

Streamlining laws, tax concessions, and developing a reliable communications network will certainly help in attaining this goal, but two major impediments cannot be ignored. The first is the generally poor educational quality of local computer science and IT graduates, the products of an educational system that went to pot decades ago. These are precisely the workers who are supposed to make the product and produce the wealth - management and finance are mere facilitators. But while the best local graduates are indeed world-class, the majority suffers from an acute lack of depth and breadth. In comprehension of English they are way behind their Indian counterparts, and we have not even begun to realize that the enormous success of India in computers and IT owes much to high Indian standards in mathematics research and teaching.

The large and increasing emigration of the best IT workers (along with many other people with skills that are valued in the international marketplace) is another negative factor. Pulled by salaries that are huge on the Pakistani scale, and pushed by the growing pessimism about the country's future, there is an unending hemorrhage. I see long lines of visa applicants queue up before the European and US embassies on every working day.

Nevertheless, one hopes that IT export plans will work, and work well. The growing number of software companies is a hopeful sign. Further, the energy and enthusiasm generated by IT is quite unprecedented and, in a country that has become increasingly cynical and less hopeful, provides a welcome relief. My personal belief is that despite hyperbole and exaggeration, advances in computer and communications technology definitely offer Pakistan the promise of a better future, one that we should eagerly grasp and invest in. The present IT policy is forward-looking and far superior to other government policies, but nevertheless incomplete and shaky in places. Golden geese tend to be finicky and not to lay their eggs when mistreated. In the above I have discussed crucial policy flaws that, if not corrected, would negate positive gains.

Finally, it is a fact of history that no technology has ever made a real difference to society unless accompanied by an ideology of progress and rational apportioning of resources. The Taliban, for example, smash TV sets rather than trying to build or use them. Pakistan wastes its few scientific and technological resources to make nuclear weapons and ballistic missiles, adding nothing to society or economy. Real progress will be possible only if Pakistani society is willing to use information technology as a vehicle that brings us closer to modernity, and makes us more accepting of science and reason in the arbitration of human affairs.

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