

We have seen a number of ambitious projects falling apart. In most such projects, the cart was put before the horse. Will IT be any different?

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The more informed readers, however, may want to challenge this line of reasoning, arguing that applications of Information Technology and, indeed, its benefits extend far beyond the level-of-service concept for the common man. Agreed, but the argument initially is one of sorting out the priorities.

Can new technologies bring about the desired improvement in the service sector? The answer is clearly in the negative. A major principle of macroeconomics is being unwittingly ignored. For the present, we may simply state that the level of service available is proportional to the degree of economic prosperity. To meaningfully project and interpret this principle, however, we will have to briefly delve into its historical basis.

In the eighteenth century, Britain moved from an agricultural economy to an industrial one. The industrial revolution was made possible by a series of inventions and technological developments, and, for the next century, manufacturers relied on continuously improving technology to increase output. Subsequently, the focus shifted to the management aspect of operations. These studies clearly showed that the productivity of organizations depended both on the technology available and how this technology was utilized.

In the context of our argument, these chain of events reflect a certain order in the attainment of economic progress, both historically and logically — a gradual, well considered transition from one stage to the other, the need for marginal improvements being the

ops, it moves towards an industrial base with emphasis on the secondary industries of manufacturing and construction.

* As prosperity (measured in terms of goods available) increases, economic activity moves to the service sectors of government, education, health, transportation, retailing, banking, catering,

in service industries.

If we now project our contentions across this spectrum of the economic progression, the conclusion will be obvious: our economy is simply not anywhere near the tertiary phase where people have the economic means to purchase high-quality services. And, vice-versa, the majority of service organizations cannot equip themselves adequately to deliver

complete yet. We still need to ascertain where we are located within the continuum of economic progression. We started with an agro-based economy and still claim to possess one. Current statistics indicate that agriculture contributes 25 per cent to the GDP and employs 44 per cent of the workforce. Seventy per cent of our entire population is rural-based and dependent on agriculture.

So here, the conclusive argument is that we must divert substantial resources towards consolidating the agriculture sector.

Now, let us address the manufacturing sector. Yes, we do have a substantial manufacturing base, and we may be even able to quote statistics to show that there has been growth in several sectors, but there are major paradoxes as well. To identify

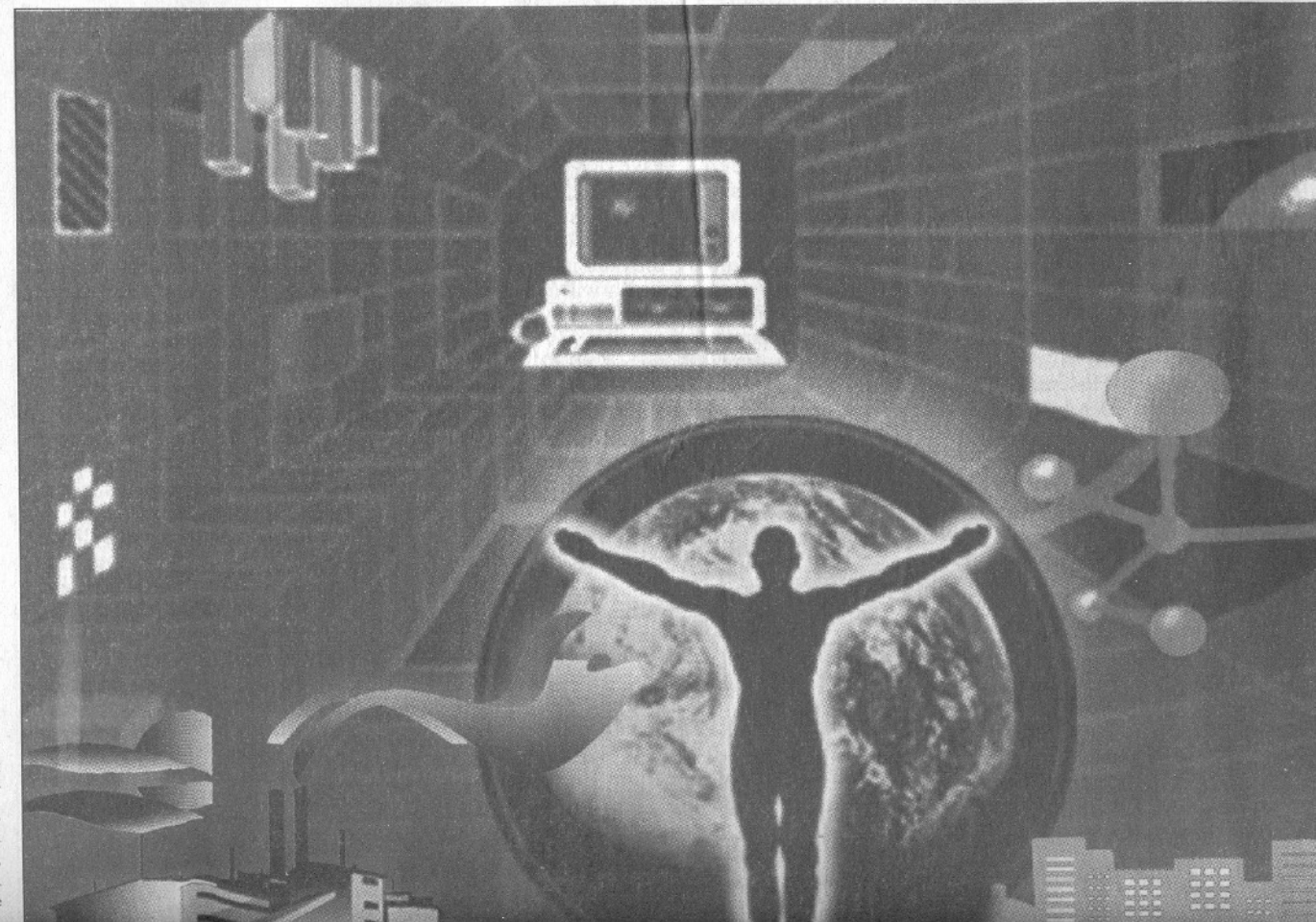
IT imperative

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WITH so much of capital, time, and collective imagination being relentlessly pumped into the resource pool for Information Technology, it becomes an economic and moral compulsion to analyze how the perceived benefits of IT will contribute towards enhancing the economic prosperity of an ordinary Pakistani.

We may begin by asking the obvious question: What are some of the most compelling problems of our people today? Not that the answer is much difficult, it is still better to state it in a specific, precise manner: steadily rising commodity prices, and acutely deteriorating standards of services and amenities, especially in education and health sectors. This description, though brief, has extremely significant interpretations and will form the basis for the following line of reasoning.

The problem of goods and commodities is linked to the manufacturing sector and involves major factors like trade policies, indigenous resource potential, duties and tariff, etc. Most others,



resource potential, duties and tariff, etc. Most others, however, stem from inefficient services provided by the various service organizations, especially in the public sector.

Further, the manufacturing domain does not feature direct interaction between the manufacturer and the consumer, whereas in most service organizations this interaction is direct and more personal, and offers the potential for quick redressal of grievances. Therefore, if investments are to be made in the promotion of IT in Pakistan, these should emphasize on improved performance standards within service organizations.

the need for marginal improvements being the underlying objective.

The industrial revolution spread to other countries, and manufacturing output soon became a measure of national wealth. 'Developed' economies were differentiated from 'developing' ones by the amount of goods they produced. This acceptance of manufacturing as the dominant sector in an economy is now seen as one step in economic development. Current opinion suggests three such stages.

* In the first stage, economic activity is concentrated in the primary industries of agriculture, mining, quarrying, forestry, and so on.

* As the economy devel-

tourism, consulting, and so on.

Most countries of the world still have economies that are based on primary industries and are 'developing' by encouraging secondary ones. Western Europe, North America, and Japan are in the 'post-industrial' stage. These have very few people employed in primary industries — perhaps, five per cent of the workforce — and a decreasing number in manufacturing — perhaps 20 per cent. The remaining 75 per cent work

the corresponding level of service.

This fact stood eminently vindicated when, just the other day, the federal Education minister categorically stated that the government was in no position to improve the standards in public schools, and that if the parents desired a higher-quality education for their children, they should opt for schools in the private sector. This may be extended into a broad generalization for most public-sector service organizations. The picture is not

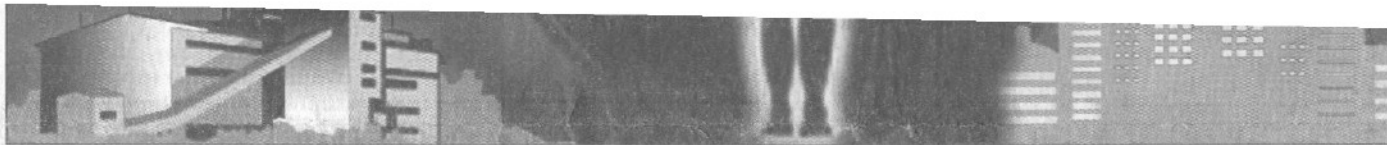
These facts probably suggest that we are somewhere in the primary stage of economic development.

Maybe, but the unfortunate aspect is that over a period of time system efficiencies have only decreased due to a variety of factors. Worse still, the extended drought has wreaked havoc. It has eliminated \$247 million worth of livestock and has displaced a large number of the rural poor. Excessive depletion of underground water resources has also occurred.

fy these will be a major exercise in discretion.

The government's policies on duties and taxes imposed on imports of raw materials and means of production are such that a few years ago it made a Japanese official describe them as 'disastrous.' Another foreign expert opined that if a raw material is not produced here, if a machine or tool is not manufactured here, the duties or taxes on these items should be zero. This makes sense.

When value-addition occurs in terms of quality in



because materials and machines are inexpensive, exports grow and domestic consumption increases. Further, the irrational and inconsistent implementation of duty and tax structures makes it impossible for a business to control and forecast its cost of production. How can one expect to be competitive?

Another message is to think 'medium'. It is the

and high-quality outputs require high-quality inputs.

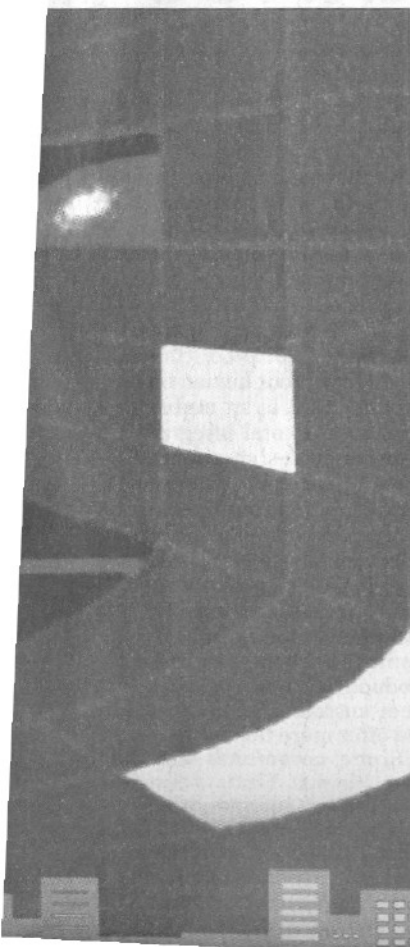
Let us take a pause here and see what we have achieved thus far. I think we have been able to construct a background that effectively identifies the composition and character of our economy, and the national priorities that must be recognized if we are conscientious enough in disowning our dubious credentials. To keep lamenting the clutches of donor agencies, and still anticipating foreign investments will not alleviate the problems.

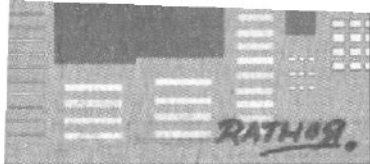
We can now begin to address the IT scenario. The strategy should be to maintain a balanced and focused action plan, targeting the agriculture, manufacturing and services sectors concurrently, but with a varying degree of emphasis. However, budgetary constraints, training and infrastructure needs, and the implications of a new technology will, in the ultimate analysis, determine the potential for the implementation of IT.

A formal definition of IT is now in order. This definition sees it in terms of, 'the acquisition, processing, storage, and dissemination of vocal, pictorial, textual, and numeric information by a microelectronics-based combination of computing and telecommunications'.

This clearly suggests that as a bare minimum one needs to have computer hardware, a variety of software (with due regards for proprietary rights), and a reliable telecommunications network. Since in the long run, IT will have to be cost-effective and sustainable, Pakistan will, therefore, have to make sizable investments in developing its own software, microelectronics, and telecommunications industry base with

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er- small-to-medium sized business community that forms the backbone of all major industrial economies. If giant industries are being wooed to invest here, they will certainly make 'giant' profits; they won't provide that many jobs.

Then there is the productivity challenge. A country cannot be a world-class competitor with second-class inputs. Poorly educated labour inputs, inadequate capital inputs, and outdated technology are second-class inputs. High productivity

its own software, microelectronics, and telecommunication industry base with capacity for continuing research.

The one thing, however, that does not stand out so clearly in the above definition of IT is the 'acquisition' part of it. Getting the right information at the right time can be very testing. Putting together the production data for a simple resource allocation model can be as elusive as some of the cases sent to the Accountability Bureau.

In any event, at a time when qualified professionals are moving out of Pakistan in great numbers, the

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