

# Technology, Investment and Development: Some Reflections from Portugal

*José Braz*

## Introduction

These are contemplative times. Recessions (or even just economic slowdowns) are usually times for reflection, for questioning the “new realities” and other follies of the preceding boom. My purpose here today is to share some reflections based on experience in government and in the technology private sector over the past decade. For the benefit of those whose attention span is limited to the first three minutes, let me start by laying out the main ideas:

- Clarity of objectives is fundamental. (Not every country needs a Silicon Valley to derive benefits from the use of technology.)
- Information may travel at speed of light, but change is still at a snail’s pace. (It’s not as easy as it looks.)
- Just DO it — don’t just SAY it! (Good intentions, speeches and committees are not enough.)
- New–economy success needs old–economy virtues (investment in education, increasing productivity, good governance, sound macro policies).

## Do We All Need a National NOKIA?

The answer, clearly, is no, but it often appears as if every government wants to throw money at subsidising the emergence of a national Silicon Valley. A country does not need a car or bus or locomotive factory to have good transportation services — just good roads and good drivers. It is crucial for all countries, but especially for resource–constrained developing countries, to be clear about what levels and types of technology are most useful for their development.

This is seldom the case. Perhaps because the digital revolution is so new and so powerful, it is natural that no government wants to be accused of not keeping up with technological progress. At the same time, because the new technology is complex and evolves rapidly, political decision-makers can hardly be expected to be fully up-to-date. As a result, government ICT (information and communications technology) initiatives often give the impression that anything to do with the internet is, *ipso facto*, a good thing and should be promoted with tax deductions, subsidies or special incentives. At every level of government, an enormous amount of scarce resources is wasted on creating and maintaining websites and portals that have virtually no useful purpose, except perhaps to employ expensive consultants.

The relation between technological expertise and wealth creation (or poverty reduction) is far from linear. The old Soviet Union was first in placing a human in space and getting him back safely, but this technological excellence did nothing to reduce the country's widespread poverty. An interesting, more recent example is that of the state of Karnataka in India, home to the city of Bangalore, which claims to have more engineering colleges (21) than any other city in the world and has a long tradition of excellence in engineering and, more recently, information technology. It is generally considered one of the world's leading centres of ITC excellence — a Silicon Oasis in a very poor country. Despite that, the state of Karnataka has more poverty (i.e. lower GDP per capita) than its neighbours to north and south, Maharashtra and Kerala. Its literacy rate, at 67 per cent, is not significantly different from the Indian average of 65 per cent, notwithstanding that 30 000 engineers graduate from the state's 82 engineering colleges each year (*The Economist*, 2001). Many probably emigrate — it is said that 36 per cent of NASA's engineers are Indian, as are 34 per cent of Microsoft's. Karnataka's focus on ITC excellence is certainly impressive, but not necessarily the most effective way to combat poverty.

The appropriate IT strategy for each country has to take into account that country's initial conditions — the skills of its workers, the literacy of its population, the purchasing power of its consumers and the composition of its output. For most developing countries with relatively unsophisticated productive sectors, it probably makes more sense to invest in basic education, including adult education, than to develop fancy, and expensive, programmes of getting the public sector wired to the internet, with each government department having its own website, for example.

## **Yes, Minister!**

The speed at which technology evolves can create two types of erroneous policy responses — the phobia of obsolescence and the illusion of rapid change. The first error is to rush into introducing the latest technology (even if inappropriate) so as not to be left behind; the second is to imagine that change can be effected rapidly. Let me give two examples of this latter type of error from my own experience, one from the

public sector, the other from the private. In the early 1990s, the Portuguese Treasury tried to streamline the network of treasury offices throughout the country. It wanted to reduce the cost of running a payments system that made sense when it had been introduced at the beginning of the century but was largely redundant when ATMs, checking accounts and post office branches were available in even the smallest towns. The project was keenly supported at cabinet level and even at the top level of the Finance Ministry's civil service. Yet, in the finest "Yes, Minister" tradition, small practical problems kept delaying the implementation of the changes long enough for a Cabinet reshuffle to bring in a new Finance Ministry team that was more pragmatic and shelved the project. As a result, Portugal continues to have an expensive system of treasury branches with 21st century technology and salaries and 19th century staffing levels.

The private-sector example has to do with attempts to introduce sophisticated risk-management software in financial institutions. Generally, top management is keen to introduce computer systems that measure value-at-risk (VAR) to help monitor the risk levels at which traders operate and to improve capital efficiency. Traders, however, prefer greater freedom in decision-making and would rather not allow top management to monitor them so closely. As a result, practical problems of database synchronisation or staff reassignment frequently are exaggerated sufficiently to delay or even impede the introduction of systems that would lead to greater efficiency and cost savings.

In both cases, the lesson to be learnt is that no matter how sophisticated or rapid the systems made possible by technological evolution, the end-user is normally a human being, fearful of the consequences of change and with a strong preference to maintain the *status quo*. It is prudent to be realistic about how long things can take to change and to identify at the outset what obstacles need to be overcome.

### **Just DO It — Don't Just SAY It!**

In Caesar's time, wives had not only to *be* virtuous, but also to *appear* to be virtuous. Nowadays, politicians seem to be mainly concerned with appearing to be virtuous, especially in complex areas like technology or slow-moving ones like poverty reduction, in which the results of not being virtuous usually materialise only in someone else's mandate. In politics, what appears, is! The result is that every government makes the right noises — declarations of the priority of technological excellence or of poverty reduction, creation of special task forces or even agencies to promote innovation and special incentives to encourage "industries of the future" (as if anyone can predict what they will be). With few exceptions, all this activity is a monumental fraud — a public relations exercise to show that the government is concerned with issues that are current and that public opinion deems important even though it realises that achieving results is not within its power.

Portugal is a good example of this tendency to make the right noises and fail in the substance. The last Portuguese presidency of the EU, in the first semester of 2000, gave special importance to issues of innovation, competitiveness and employment. The tone was set by a Presidency Document in January on *Employment, Economic Reforms and Social Cohesion — Toward a Europe of Innovation and Knowledge*. In March, a special meeting of the European Council in Lisbon and a Ministerial Conference in Noordwijk focused on “Knowledge and Innovation for European Competitiveness”. They set targets for improvements in R&D, the use of ICT and the importance of benchmarking, all with a view to catching up with and then overtaking the United States as the world leader in technological innovation. In June, the Feira Summit achieved a promise of possible, distant harmonisation of taxation, meant to contribute to European cohesion. Again, the Summit conclusions were replete with references to innovation, reforms, flexibility, pragmatism, dynamism, entrepreneurship, employment and growth. All the right sounds had been made and politicians could go on holiday with a clear conscience.

When they returned, the rude reality of having to get a budget approved made the government look for support wherever it was most forthcoming, which happened to be on the left and came with severe strings attached. A social security “reform” entrenched the *status quo* and made it impossible even for parliament to make significant changes without the explicit approval of the unions. A tax “reform” paved the way for the lifting of bank secrecy, sharply raised effective taxation on small enterprises and introduced capital gains taxation on equity transactions. As a result, the Portuguese Stock Exchange is the worst performing of all European exchanges this year, with the price index having fallen by almost 20 per cent since the beginning of 2001. Less than a year after the commitments to dynamism and growth, the Portuguese economy is in considerably worse shape — not only cyclically but also structurally — than it was before the fine speeches and the summits.

### **“New–Economy” Success Needs “Old–Economy” Virtues**

Portugal is a good case study of what needs to be done to make the economy more competitive and so raise average incomes. By most measures of competitiveness used in benchmarking exercises, Portugal is at or near the bottom of the list. Comparative data reproduced in the graphical annex to this paper show Portugal to be somewhat or very much at a disadvantage relative to the EU average, the United States and Japan when measured by indicators of:

- Enterprise investment;
- R&D spending in education;
- Number of researchers in industry;
- Attitudes to new technology;

- Quality of ICT infrastructure;
- Cost of internet access;
- Levels of higher education; and
- Labour legislation inflexibility.

Even more disquieting than these static indicators, however, is the evolution of public spending in Portugal over the past decade. Between 1991 and 2000, all other countries in the EU significantly lowered their ratios of public spending to GDP — by four percentage points on average in the EU and by 13 percentage points in Ireland. During the same period, Portugal increased the weight of its public sector in the economy by no less than seven percentage points, to over 50 per cent of GDP in 2001 (see Mateus, 2000, for a fuller account). The increase in public spending has been predominantly in larger transfer payments and in bloating the civil service even further. In a relatively short period, Portugal has reached Nordic levels of public spending, while retaining Third–World quality of public services.

The solution to this problematic situation is easy to prescribe but difficult to implement. Improving competitiveness and productivity calls for:

- Lower public current spending and more investment in improving education and training;
- Reducing effective tax rates to promote new productive investment;
- Making labour legislation more flexible to promote employment;
- Increasing competition in utilities and ICT services, to reduce costs and improve quality; and
- Improving the functioning of the judiciary and of the official bureaucracy.

In most of these areas, technology could give an invaluable assist in the form of more efficient procedures and greater productivity. Yet that would require tough political decisions to close down redundant divisions or departments and retrain or lay off personnel, something which politicians have great difficulty in doing.

The painful bursting of the Nasdaq bubble over the past year has shown that “new–economy” firms could not forever ignore “old–economy” management principles. Similarly, in the management of national economies there is no escaping the need to adhere to the “old–economy” virtues of prudent fiscal management, good governance, investor–friendly legislation and tax structures and a well trained labour force. In Portugal over the past decade, a favourable external environment has been squandered while populist policies have made the country less competitive, in spite of all the lip service paid to the frothy buzzwords of the internet age.

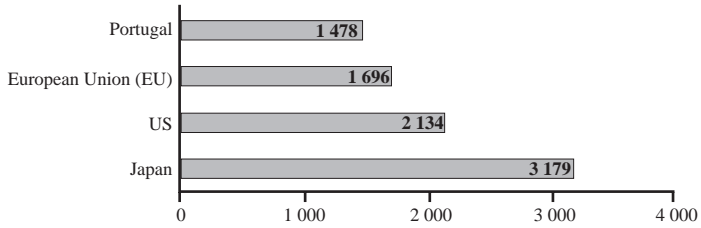
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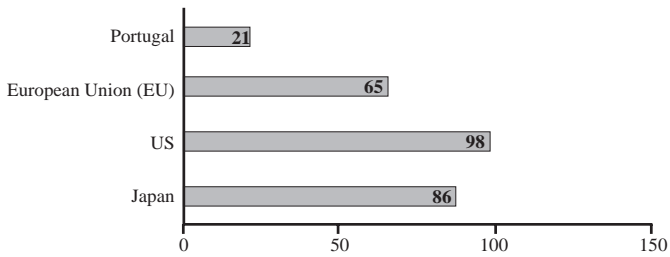
## **Appendix**

The following figures, taken from the UNICE *Benchmarking Reports* of 1999 and 2000, compare selected variables for Portugal, the European Union (EU), the United States (US) and Japan.

**Figure 1. Average 1992-97 Enterprise Investment Per Capita (€)**



**Figure 2. Average 1997 Per Capita R&D Spending on Post-secondary Education (€)**



**Figure 3. Number of Researchers in Industry, per 10 000 Workers, 1996**

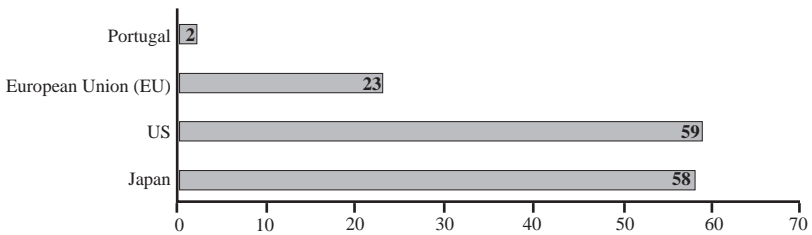


Figure 4. **Negative Attitude to New Technologies**  
(Percentage of adults polled, 1996)

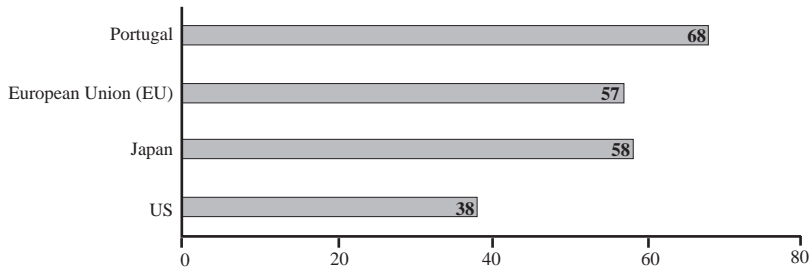


Figure 5. **Quality of ICT Infrastructure**  
(Index base year 1998)

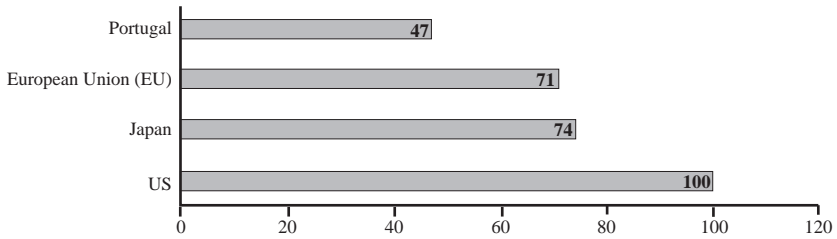
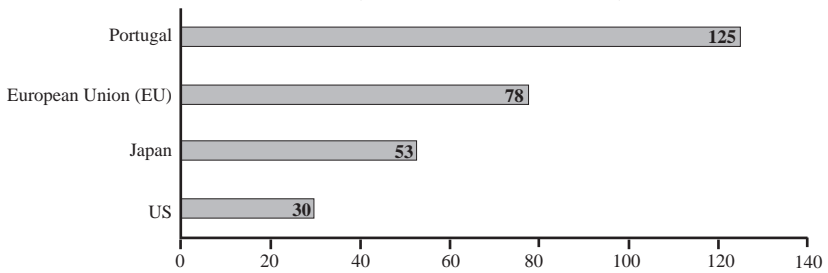
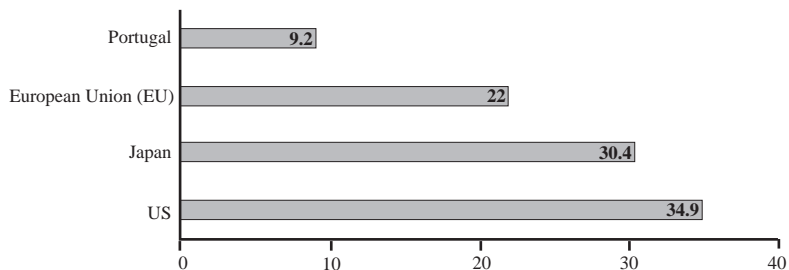


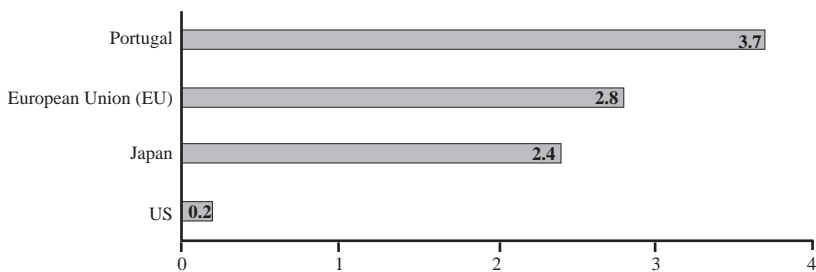
Figure 6. **Cost of 40 Hours of Peak-Hour Internet Access**  
(\$, with VAT, October 1999)



**Figure 7. Percentage of Population (25 to 64 years old) with Post-Secondary Education, 1998**



**Figure 8. Inflexibility of Labour Legislation, on a Scale of 0 to 4, 1999**



*Note: This measure is originally from OECD (1999), *Employment Outlook*, OECD, Paris.*

# Information Technology and Development Co-operation: A View from the DOT Force

*Gilles Brégant*

The French Ministry of the Economy, Finance, and Industry created the Mission for a Digital Economy in March 2001, with three objectives:

- *First*, to promote a forward-looking consideration of the issues surrounding the new information and communication technologies (NICT) economy, such as electronic trade, secure exchanges, electronic signature, taxation and public markets, as well as the spread of the internet and the digital divide;
- *Second*, to ensure a permanent discussion between the ministry's services and the economic actors, enterprises and professional associations; and
- *Third*, to present the ministry's positions to international authorities dealing with new technologies, using the best public and private experts.

The Seventh International Forum on Asian Perspectives could not better correspond to this definition of assembling the best public and private experts, and I would like to thank the Asian Development Bank and the OECD Development Centre for the honour of inviting me to speak to you on this occasion.

All of us are concerned with the issue of technological progress and investment strategies. With the recent creation of the internet, this subject concerns all countries and our mission works on these themes, particularly within a national context. Because the internet raises similar questions everywhere, our mission has been involved for the last several months in the work of the G-8 on this issue and, more specifically, in the work of the Digital Opportunity Task Force (DOT Force), known in French as the GEANT group. I would like, therefore, to develop this topic with you. As many of you know, this unusual structure was created after the Okinawa Charter, when Japan presided at the G-8 meeting, to develop several themes that the Charter had already clearly presented.

- *First*, the DOT Force was to facilitate discussions among economic development actors from developed countries, international organisations and developing nations alike. The goal of these discussions was to encourage the creation of regulatory frameworks, improve connectivity and reduce its costs, and advance in training and the creation of economic activities.
- *Second*, it was to help co-ordinate the work of different entities in development aid for new technologies.
- *Third*, it was to promote an understanding at the highest political level of the development issues that information technologies represent.
- *Fourth*, it was to better assess the contributions of enterprises and all actors of good will to reducing the digital divide.
- *Last*, it was to present its conclusions before the G–8 Summit in Genoa, in July, which our newspapers have been discussing very actively.

The DOT Force is indeed an original institution. It brings together 17 governments (the eight G–8 countries, the European Commission, eight developing countries, including India and Indonesia, who are here with us at this conference), seven international organisations including the OECD, eleven private–sector representatives and eight NGO representatives, one from each G–8 country. These 42 official delegations rapidly received contributions from local and regional communities, from other enterprises and associations, and even from individual experts. This diverse structure brings together many different and complementary experiences and has functioned quite effectively. This in itself is a first important lesson for organising international working groups on these issues. It may well be that the unusual composition of this group led it to go further than simply making an analysis of the situation, to define a set of actions by targeting from the outset practical solutions to the problems addressed to it. The group sought to work by consensus on the major directions to recommend. Three points of consensus became clear.

- *First, the NICTs offer real opportunities for reducing inequalities and beginning to create local wealth.* The DOT Force members were not utopian. They did not seek to transmit the enthusiasm of the first internet promoters. The NICTs are not a panacea and their effects are not automatic, but if they are adapted to local uses, they can help to share crucial knowledge, for example about weather conditions, health, market prices or the availability of scarce resources. Sharing knowledge makes it possible to improve production methods and facilitates greater access to mutually beneficial services. Having a community *appropriate* crucial information that affects its own development is the beginning of a virtuous cycle.
- *Second, technologies cannot resolve all problems.* The governments of all developed countries are working to reduce today’s digital divide, which is the product of a combination of factors — the state of infrastructures, access costs, regulatory arrangements, the absence of local content and the difficulty of turning

information flows into productive economic activities. For these reasons, the digital divide will grow exceptionally quickly if we are not careful. It is therefore important to create a clear framework from the outset so that parameters do not diverge and these technologies always benefit the greatest number.

- *Third, we must put an end to the either-or debates*, i.e. either development aid or financing for information technologies. These technologies are in fact part of any approach to development aid. In today's world, they underpin improvements in agriculture, industrial production, health care, education, and soon in community living. Leaders of developing countries daily confront questions more serious than IT equipment, but it is nonetheless important that they integrate the new technologies into their decisions as an aid or even as a lever for resolving certain problems. Many developed countries are already operating this way, dispatching IT expertise to every branch of their administrations. Since 1997, every ministry in France has had a representative of the new technologies, and the Prime Minister himself is responsible for co-ordinating them. International organisations are similarly organised, as they incorporate new technologies increasingly into their development aid programmes.

Having posed these principles, the group then proceeded to analyse four specific areas, identifying the state of the art, the obstacles to avoid, and the possible initiatives. The first was the national legal and regulatory context and the issue of international governance of the internet. The second concerned infrastructure and access. The third covered the development of human capital and the fourth the development of applications and services. Each area raised a different set of problems. The work showed that IT should, above all, be *disseminated* as a stimulus within communities so that they can play their role fully, depending on the specifics of each country and culture. To make this possible, the group proposed nine directions for action.

1. *Establish strategic programmes (e-Strategies) for developing an information society.* Each government must define its specific priorities and strategic programme. The regulatory and institutional framework should be made coherent as soon as possible to enable public and private actors to play their roles. The DOT Force also proposes the creation of a virtual resource centre to facilitate the exchange of solutions. France, where the regulatory plan was quickly established, would be ready to share its experience in this area with both governments and independent regulatory agencies.

2. *Improve connectivity, create widespread access and lower costs.* Here, it is important to allow the different available technologies to compete and to encourage the creation of public access points. France is committed to this idea, and we already have an aid fund for creating such access points.

3. *Improve human development, create and share knowledge.* The issue here is to encourage the dissemination of IT in schools and universities, without forgetting to include girls and boys alike, for they will all play a crucial future role in accepting these technologies into their daily lives. Enterprises in developed countries should encourage the temporary loan of some of their experts to launch these education programmes more quickly.

4. *Promote the emergence of an entrepreneurial spirit, which is key to sustainable development.* The internet lends itself well to the creation of enterprises by opening new areas of possibility, as many countries have seen — and continue to see despite the end of an era of exuberance. Enterprises can be created anywhere, so long as financing is available and all the requisite conditions exist for new, profitable companies to emerge. The experience of private enterprises in terms of incubation time should be put in the service of development, and public and private capital should be invested in these initiatives.

5. *Make it possible for all countries to participate in the international debates on the internet and IT.* The DOT Force suggests that all countries be involved in questions concerning internet governance and that they have access to the necessary expertise in order to take positions in these debates.

6. *Support the initiatives of developing countries for IT access.* Public and private support should go especially to large-scale national and regional projects designed to provide higher-speed communications access or rural development.

7. *Support the use of IT for health, particularly in the fight against pandemics such as AIDS, and infectious diseases.* The world-wide dissemination of information made possible by the internet is one of the first benefits to be expected.

8. *Support the creation of local content and applications.* This supposes that communities have access to low-cost or free (open-source) tools to develop programmes and applications in local languages that are immediately useful. It is also possible to imagine that administrations could promote the spread of the internet, once a sufficient number of public access points exists, which is also a vector for familiarising the public with these technologies.

9. *Determine the priorities of the G-8 and of the different development aid programmes, and improve the co-ordination of multilateral initiatives in line with e-Strategies.* This means creating transversal co-ordination for more effective action.

The Mission for a Digital Economy and the head of the Treasury have already proposed incorporating these nine directions into their thinking about the strategies of French development agencies. Indeed, the breadth and objectivity of these initial concrete results for using the internet for development already provide some clear indications for defining public policy.

Given the initial objectives of the DOT Force — to facilitate discussion, co-ordinate action, create awareness, bring together all concerned actors and finish in less than a year — we can be satisfied with the work accomplished thus far and particularly with the dynamism that this structure has created. We have also seen that where organisation lends itself to such an endeavour, governments, enterprises and NGOs can all work together productively on important international issues. Having been personally involved in this work, I can assure you that it was also particularly harmonious. I would like to express my wish that these proposals soon lead to concrete actions, and that it will be possible in the near future and, who knows, perhaps within the context of this forum, to monitor the concrete effects for development and for the reduction of poverty.