

Alexis Jacquemin *

Intangible Resources And Competitiveness: A New Economy?

In recent years a whole range of new theoretical and empirical research, has emerged in the field of economics, under the name of "intangibles". Intangible assets are increasingly important for business competitiveness and economic performance. A shift is taking place away from competitive advantage based on size and power to competitive advantage based on the assimilation of knowledge. It embraces not only R&D but also human capital, product innovation, organisational innovation, trademarks and patents, networking and software.

1. A New Economy?

With these intangible assets becoming increasingly important, one of the issues discussed among economists is the extent to which the "knowledge economy" is bringing about a revolution of such a magnitude that traditional, well-established principles of management do not apply and new rules have to be established. For example, Kelly (1998) argues that new technology, such as the Internet, is a revolution of a kind we have never witnessed before and that it will change our lives profoundly and in all aspects. New radical concepts are needed to adjust to the new connected world and to become the fundamental sources of wealth and

* Alexis Jacquemin is Chief Adviser in the European Commission and Professor of Economics at the Université Catholique de Louvain.

value. They drive forward economic growth, creating jobs and alleviating social need.

On the other hand, in a book entitled *Information Rules*, Shapiro and Varian take the view that the current information society is not quite as revolutionary as it seems. Principles governing the exchange of goods in a liberal market economy are enduring. In the 19th century, the electricity-generating industry and the telephone network brought about a sea change in the way people were living, perhaps to the same extent that the Internet could change our own society. However, the characteristics of the knowledge economy will change the old industrial economies. Regulators need, therefore, to take a different approach.

Similarly, at the level of industrial structures, some economists fear that the characteristics of knowledge will create a society with "the-winner-takes-all" markets and that concentration will lead to an increase in market dominance, with a small number of global players determining standards, brands and the processes of innovation. For other economists, however, the knowledge economy will create opportunities for new entrants and no one firm can expect to enjoy control of its markets.

2. Making Intangibles Visible: The Challenge

In practice, the challenge then is to make intangibles visible and to evaluate their importance and efficiency.

(a) Several studies have recently been carried out at sectoral level and at firm level. The results confirmed the role of "intangibles" (see Buigues, Jacquemin and Marchipont, 2000). For example, it has been shown that in most countries product quality, innovation and marketing effort appear to be more important in explaining competitiveness than production costs (Buigues, Jacquemin and Marchipont, 2000).

Concerning human capital stock and productivity, Boon (1999) has examined the impact of employer-provided formal training programs on output using firm-level data for the Dutch manufacturing sector. The empirical results show that, for investment in human capital, the private rate of return to human capital is 23 percent for value added for manufacturing firms.

He also compares his findings for human capital with the results published for R&D capital for the Netherlands by Bartelsman (1996). Bartelsman has found that the private rate of return to R&D varies between 12 percent for gross output and 30 percent for value added. This means that the rate of return to human capital is of the same order of magnitude as that of R&D capital.

The empirical results show that investments in human capital have significant and positive effects on value added for manufacturing firms. This means that the rate of return to human capital is of the same order of magnitude as that of R&D capital.

(b) At the macro level, there are new ways of measuring gross domestic product (GDP) in order to capture a whole set of intangibles which are important for general welfare and the quality of life, such as life expectancy, morbidity, air and water quality, fossil fuel emissions and traffic congestion. Each indicator may be applied separately to assess the trend of GDP. Alternatively, a set of indicators may be converted into a single index as a measure of the quality of life, sustainability or human development (or as an "ecological footprint"). Using a particular indicator will provide information for many policy decisions (Robertson, 1999).

Such an approach has been adopted in part by the European Community in Article 6 of the Treaty establishing the European Community: "Environmental protection requirements must be integrated into the definition and implementation of the Community policies and activities referred to in Article 3, in particular with a view to promoting sustainable development."

Recently, President Prodi has underlined that the European Commission has estimated that 1,000 to 2,000 billion euros, or 12-20% of the GDP of EU countries, are wasted each year through ill health, crime and other side-effects of joblessness and poverty. Social exclusion, quite apart from being morally unacceptable, is a waste of money.

(c) Another important domain for intangibles is organisational efficiency and innovation. The skills, creativity and commitment of its workers have always been one of the most important assets any company can possess. Yet, historically, as assets they have not been fully exploited. In the past, European companies have tended to organise their activities according to the principles of Taylorism. This is now changing.

As their competitive situation evolved, a number of companies developed different, more participative and complex relationships with their employees. Successful companies have adopted new strategies. They have sought to differentiate themselves on the basis of added value and high quality, rather than on the basis of cost.

Many case studies illustrate the main outlines of a revolution that is taking place in the way that work is organised within companies. Taylorism, with its complex organisation and simple jobs, has been replaced in some companies by a diverse mix of approaches characterised by complex jobs and simple organisation.

The main changes have been in the following areas.

- Internal flexibility has been increased, including more flexible working time, working patterns, job groups and job content.
- New organisational structures have been introduced, including process-based organisations, market-based organisations, multi-skilled teams and flatter, decentralised structures.
- New techniques and best practices have been introduced, including continuous improvement, knowledge-based IT systems, closer relationships with suppliers and customers, and quality management.
- Education and training have been improved, including improved job skills and the introduction of wider management-type skills throughout the organisation, such as problem-solving, group working and learning skills.
- New working practices have been implemented, including greater internal flexibility, multi-skilling, greater use of temporary and part-time workers, new management models based on coaching and support, more devolved responsibility and empowerment.
- New reward systems have been adopted, including payments for knowledge, performance bonuses, profit-sharing schemes and share ownership programmes.
- New corporate cultures have been developed, including more participation, greater personal autonomy, better alignment of employee and business objectives, increased consultation, focus on the customer and focus on quality.
- More generally, the role of trust and commitment is at the core of organisation (Jacquemin and Pench, 1997).

(d) The growing importance that is attached to the quality of human resources and organisational quality is borne out by empirical evidence on

the performance of business units. This shows that "intangibles" or non-cost factors, including innovation, speed to market, quality of product, quality of service and image, are the most powerful determinants of competitive performance for a large sample of US and European enterprises (PIMS, 1994).

Similar conclusions are supported by research revealing a strong link between "employee focus" (a concept combining measures of investment in traditional human resources policies and an assessment of the degree of freedom of initiative enjoyed by employees) and the stockmarket performance of companies (Bilmes et al., 1997).

In the same context, an American study shed light on the following question: does the promotion of human resources increase productivity? (Ichniowski, Shaw and Prennushi, 1995). For this study, the authors compiled basic data on 26 steel production units using the same production process. They also collected precise data on working practices.

The conclusion was that the adoption of a coherent system of new working practices, including teamwork, flexible allocation of work, training for several jobs and the use of financial incentives, leads to much higher levels of productivity than those obtained by traditional methods. Furthermore, isolated, individualistic working practices do not have a positive effect on productivity.

One interpretation by the authors provides support for the argument in favour of theoretical models that stress the importance of complementarity in working practices (see Milgrom and Roberts, 1990; Holmstrom and Milgrom, 1994).

3. Which Public Policies?

Investments in intangibles are the basis for the development and application of knowledge, for innovation and for the productive development and use of new technologies. If data on intangible investment, which are not generally available at country level, such as business expenditure on education, training, firm organisation and market development, were included in the measure of investment in knowledge-related intangibles, the total figure would be well over 10% of GDP across all OECD coun-

tries. Europe is lagging behind here, but some member countries including Finland and Sweden are among the leaders (see Croes, 1998).

The new economy, based on intangibles, requires changes in public policies. Some of them are:

- devising a new set of indicators to monitor the development of the new knowledge-based industries. This involves providing statistical offices in the Member States and at European level with the necessary resources;
- bolstering public support for investments with strong positive externalities, ranging from R&D to training, so that these activities are appropriate from a societal viewpoint;
- increasing the scale and enhancing the cooperative nature of pre-competitive research efforts. If the efforts of public authorities are to bear fruit, firms must do something to correct the excessively low level of their own investment in technological research, development and innovation;
- promoting an active innovation policy based on the rapid transfer of know-how from basic research to industrial application by ensuring that small businesses and start-up firms have access to this know-how and the ability to make the best use of it;
- implementing new forms of regional policy to foster "soft" infrastructures, innovation-support services, the exploitation of research and technological development (RDT), and to promote themes like the information society, equal opportunities, the environment and new skill sets. This is at work in the *Structural Funds* for European regions. Instead of heavy infrastructures in less-favoured regions, like roads, buildings or basic training, the new policy emphasises soft infrastructures (Morgan and Nauwelaers, 1999).

To conclude, we are clearly at the beginning of a process which could last a very long time and will undoubtedly require a serious rethinking of our priorities and the tools used to take account of the intangible dimension.

But the transformation of our economies into an information-based economy ranges far beyond the economic aspects and touches deeply on basic social values, from the concepts of public services for all citizens, to freedom of speech and protection of privacy. With such a radical economic transformation of society, a new economic paradigm is emerging. More than ever, governments have an important role to play in promot-

ing the development of human capital and ensuring access to new knowledge for society as a whole. Conversely, these changes must not be used as a pretext for discriminating against the disadvantaged, whether individuals or specific groups. Everyone must be given *equal opportunities* in the new economy.

Bibliography

- BARTELSMAN, E., G. VAN LEEUWEN, H. NIEUWENHUIJSEN and K. ZEELBERG (1996), "R&D and productivity growth: evidence from firm-level data for The Netherlands", *Netherlands Official Statistics*, 11 (3), 52-69.
- BOON, M. (1996), "Human Capital Stock and Productivity: the Case of Dutch Manufacturing Firms", in: P. BUIGUES, A. JACQUEMIN and J.-F. MARCHIPONT (2000), *Competitiveness and the Value of Intangible Assets*, London, Edward Elgar Publishing.
- BUIGUES, P. and A. JACQUEMIN (1997), "Haute technologie et compétitivité: Une comparaison entre l'Union Européenne et les États-Unis", *Revue d'Économie Industrielle*, No. 80.
- CROES, M. (1998), *Intangible Investments: Definition and Data Source for Technological, Marketing, IT and Organisational Activities and Rights*, Voorburg, The Netherlands, Centraal Bureau voor de Statistiek.
- EUROPEAN COMMISSION (1997), *Treaty on European Union*, consolidated version.
- HOLMSTROM, B. and P. MILGROM (1994), "The Firm as an Incentive System", *American Economic Review*, September, vol. 84.
- ICHNIOWSKI, C., K. SHAW and G. PRENNUSHI (1997), "The Effects of Human Resource Management Practices on Productivity", *American Economic Review*, June, vol. 87.
- JACQUEMIN, A. and L. PENCH, eds. (1997), *Europe Competing in the Global Economy*, London, Edward Elgar Publishing.
- KELLY, K. (1998), *New rules for the new economy: 10 radical strategies for a connected world*, Viking Penguin.
- MILGROM, P. and J. ROBERTS (1990), "The Economics of Modern Manufacturing", *American Economic Review*, June, vol. 80.
- MORGAN, K. and Cl. NAUWELAERS (1999), *Regional Innovation Strategies: the Challenge for Less-Favoured Regions*, The Stationery Office.
- ROBERTSON, J. (1999), *The New Economics of Sustainable Development*, Forward Studies Unit series.
- SHAPIRO, C. and H.R. VARIAN (1999), *Information Rules: A Strategic Guide to the Network Economy*, Harvard Business School Press, USA.