NEW TECHNOLOGIES ACROSS THE ATLANTIC

US Leadership or European Autonomy?

MARIO PIANTA

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with a foreword by
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Foreword

The late 1980s may turn out to be a turning point in world history, one of the moments at which future historians will mark the end of one period and the beginning of a new period. The last twenty years have witnessed fundamental structural changes in the economies of advanced capitalist countries and yet these changes have not been reflected in the behaviour of political institutions. Indeed, it can be argued that it is the mismatch between the global economy and international political arrangements that explains both the world recession and the heightened concern about security issues.

The transformation of the world economy that has occured over the last twenty years is sometimes described as a change in the 'regime of accumulation' or 'technological paradigm.' Capitalist history tends to go through phases, each characterized by a specific conjuncture of production and consumption processes, geographical location, forms of transportation, composition of the labour force, etc. Hence, the introduction of the factory system and the mass production of textiles established British economic leadership in the early part of the nineteenth century. This was followed by what Marx called the era of machinofacture, with the widespread use of the steam engine, and of iron and later steel to make machinery and railways. It was in this period that Germany and America became powerful competitors to Britain. Then came what is often known as Fordism, with the introduction of Fordist mass production techniques, the internal combustion engine, the intensive use of oil, and the spread of automobiles and consumer durables—all of which established the preeminence of the United States.

In the last twenty years, a new 'paradigm', a new way of doing

things, seems to have emerged. This is usually characterised as a revolution in information technology—the combination of large-scale data processing made possible by the use of microelectronics and improvements in telecommunications, both because of the use of microelectronics for switching and because of new forms of transmission, using fibre optics and satellites. This 'revolution', pioneered in Japan, offers the possibility of dramatic changes in the world economy. These changes include:

- A change in producer-user relations, with greater integration, through the use of information, between production and distribution, on the one hand and design and production on the other hand, allowing for much greater flexibility in automated production processes. Hence, it becomes easier to produce small batches of specialized products and respond quickly to changed requirements. These changes are often described as *flexible specialization.*
- A reduction in waste. Improved information makes it possible to reduce stock holdings and to plan production so as to reduce the use of energy and raw materials. In other words, it allows for *resource-saving* as opposed to *labour-saving* innovation.
- The transformation of the service sectors, offices and banks, and of the so-called 'sunset' industries, e.g. furniture or clothing, which were largely bypassed by the Fordist revolution.
- A change in the structure of the labour force, with the disappearance of many skilled jobs and the tendency to create a two-tiered workforce consisting of skilled, white-collar workers (computer programmers, etc.) and unskilled variable labour.
- A shift in economic geography, especially the shift from the United States to Japan. In the last twenty years, the US share of OECD manufactured exports has declined from 21 per cent to 16.6 per cent, and the US now has a substantial deficit in manufacturing trade. In contrast, the Japanese share of OECD manufactured exports has doubled, from 9 per cent to 18 per cent, and Japanese manufactured exports are

roughly four times the size of their manufactured imports. West Europeans, excluding Britain, have managed, more or less, to retain their international trading position.

Although many of these changes are already underway, the way in which information technology is diffused, how it is used, or whom it will benefit, are by no means determined. *Invention* is not at all the same as *assimilation*. New techniques are often around for a long time before they come together to constitute a new way of doing things, with transforming potential for the whole society. Generally speaking, new regimes of accumulation or new technological paradigms are introduced within a specific *culture*, a social and institutional context that is favourable to the application of a specific set of new techniques. Hence, the United States in the early part of the twentieth century, with a relatively egalitarian society, physical space, an abundance of oil, and a readiness to experiment, provided a favourable environment for the assimilation of Fordist mass production techniques, as well as mass transportation and consumption.

It was not so obvious that Fordism, as practised in the US, suited the rest of the world. Indeed, it can be argued that the postwar political arrangements, especially Atlanticism, were a way of *internationalising* American culture. Atlanticism, helped to provide an international social and institutional context for the diffusion of Fordism. It did so in several ways. First, it provided a stable political framework in Western Europe and in the capitalist countries of the Pacific area. It stemmed the spread of socialist ideas and established a kind of compromise between social democracy and American individualism. Secondly, it provided a political underpinning for a global set of economic arrangements—Bretton Woods, GATT, OECD—that allowed for the free flow of trade and investment. And thirdly, and perhaps most underestimated, it gave rise to a kind of complicity or common set of preferences about technological choices. Indeed, NATO could be described as a kind of technology policy. Military technology and associated infrastructure (roads, airfields, communications, etc.) were collectively determined through the collective determination of strategy. Because military technology dominated technology budgets and the activities of technology-intensive companies, this had a powerful influence on the overall

direction of technology—for example, the emphasis on oil and nuclear power rather than coal, say, or on roads and airfields rather than railways.

The new technological regime or 'paradigm' has its origins in social conditions in Japan—shortages of space and raw materials, traditional gangs of workers, 'family' enterprises. It is cultural factors that explain the economic performance of Japan, especially in electronics. The techniques of micro-electronics were largely invented in the United States, but they were assimilated most successfully by Japan. What is at issue now is the way in which the new paradigm is developed and diffused. And this depends, first and foremost, on the domestic and international political change—who shapes future international political arrangements, and on how political institutions mediate, stimulate and respond to social and economic change. Current political institutions—NATO, the IMF, GATT, or even the political parties based on Fordist labour—seem outdated and unable to cope with the new problems and conflicts thrown up by the shift of paradigm.

The competition in technology policies described in this book can be interpreted as competing bids to determine the future direction of accumulation and to gain or regain the economic and political initiative. Pianta shows how new American military programmes or strategies, like the Strategic Defence Initiative, Air Land Battle or the maritime strategy, represent ways of adapting the new technologies to prevailing American military institutions and can thus be interpreted as *industrial* as well as political ways of restoring US hegemony. On the other hand, competing West European programmes like Eureka or the European Fighter Aircraft, do not essentially counter US hegemony; they are merely ways of establishing military-technological institutions on the American model.

The problem today is not how to copy either the United States or Japan, but how to find ways of fulfilling local needs whether here in Europe or in the Third World in the face of US and Soviet military power and Japanese economic power. The solution is not technology policy for its own sake, but rather ways of changing relations between state and society and between producers and users so as to allow both for individual creativity *and* a sense of community, for democracy and self-determination at local, national and regional levels, *and* global cooperation. We need to develop

social and political institutions that are directed towards the solution of global problems—human rights, poverty and hunger, the environment, war and violence—and yet which allow individual nations and even localities to achieve a certain economic and political self-sufficiency. Technology may well help us to achieve some of these goals but only if harnessed to a politically-determined process of decision-making. This book will help us to discuss some of the specific ways—dealignment, economic conversion, or cooperation among social movements—through which this might come about.

Mary Kaldor
January 1988

This is also the topic and the perspective of this book, focusing on the role played by technological strategies in US–European relations in the 1980s. Transatlantic relations are chosen for their critical importance in the current economic and political order, and in the decisions for the future of both Europe and the United States. The rising power of Japan, however, will be a permanent presence in the analysis. The broader context of East–West and North–South relations, a key element in the changing relations across the Atlantic, will remain in the background, as an extensive treatment would have enlarged too much the scope of this work. For the same reason, only in few major cases the book enters into the details of the political, economic and technological processes developing within the different European countries.

The genesis of this book is equally complex. Many of the questions here addressed have firstly emerged in my work with the newspaper *Il Manifesto* in Rome and with the Italian peace movement. They became more clear in discussions within the European Nuclear Disarmament network, Archivio Disarmo in Rome, and the Transnational Institute, in Amsterdam.

The search for answers began in Washington, DC, at the Institute for Policy Studies, working on a project for the United Nations University's 'Subprogramme on Peace and Global Transformations,' directed by Mary Kaldor. Finally, the book was completed in New York, as a research fellow in the 'Corliss Lamont Programme' with Seymour Melman at Columbia University.

To all these groups and institutions I owe thanks for their stimulating environment, for their generosity and hospitality. Information, discussion and advice have come from too many people to list them all here. To Mary Kaldor I owe my greatest debt for many of the ideas and the approach here used, and for much discussion and help. Special thanks are due to Bob Borosage of the Institute for Policy Studies, Seymour Melman and the other 'Lamont fellows' at Columbia University. Among my Italian friends I wish to thank Danielle Mazzonis, Giovanna Ricoveri, Daniele Archibugi, Mario Martiny and Tom Benetollo. Finally, thanks are due to the many friends that have accompanied parts of my travels and stays over the last two years, and to Roberta Pirastu for her reappearance. Needless to say, the responsibility for judgements and mistakes is only mine.

Preface

'Will technology eventually be our salvation? Quite possibly.' In this way, a special report of the American magazine *Business Week* (20 April 1987, p.66) tried to answer the disquieting question: 'Is the US going the way of Britain?.' The way, obviously, is that of economic and political decline.

With growing economic problems and falling competitiveness, the United States fears a loss of world leadership and is searching for remedies. To look at technology as a possible salvation is natural for a country that had built its international power on technological leadership and maintains an unshakable faith in the possibility of finding technological solutions to the most intractable economic and political problems.

At the same time, this question reveals the widespread concern for America's economic decline and its international consequences, while reasserting that 'salvation' (i.e. a renewed world leadership) is a promise made from the newest technology.

Behind an apparently innocent question, an amazingly complex set of issues emerges, ranging from the broad transformations in the world economy and politics to the concrete technological initiatives that may bring about a new US leadership. Economic processes, international relations and technological change are drawn together in a tangle of issues.

This, in fact, has been the web of problems raised by the restructuring of US–European relations in the 1980s. In a changing international division of labour and with new strains in the old world order, the transformations across the Atlantic have been shaped by new technological strategies, as well as by the traditional economic, strategic and military policies.

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1 A technological fix for the crisis of US hegemony?

The United States in the 1980s has often taken the world by surprise. The decade opened with a new 'Cold War' wind between East and West, and shortly after came the election of Ronald Reagan at the White House. His promise to 'make America stand tall again' brought the United States into the deepest recession since the 1930s and to the greatest arms race of recent history. Europe, needless to say, was affected by both, with economic stagnation and the deployment of new US nuclear weapons, Pershing II and cruise missiles, in five West European countries.

After the initial hardship, the promise of 'Reaganomics' seemed fulfilled by a new cycle of growth, the fastest in decades, and the rise of the dollar in all the world's exchange rates. Then US policy became even more adventurous: the first missiles were not yet in Europe when the US president announced a gigantic programme to bring the arms race into space: the Strategic Defence Initiative, that immediately became 'Star Wars'. The economic marvels and the political successes brought Reagan back to the White House in 1984 with a second presidential mandate.

The latter part of the 1980s has been less triumphant. The US had to control the downfall of the dollar and engage in difficult negotiations on the arms race with the new dynamic Soviet leadership of Mikhail Gorbachev, that resulted in the December 1987 treaty for the elimination of 'Euromissiles.' In November 1986 the Democratic Party victory in the US mid-term elections for the House and the Senate and, immediately after, the scandal on the supply of arms to Iran and the secret funding of the Nicaraguan 'Contras' marked the beginning of the end of the Reagan's 'restoration' in American politics. The Stock Market

crash of October 1987, the continuing danger of 'trade wars' and the falling confidence in the US leadership, on the eve of the 1988 presidential elections, may lead to a watershed in American politics.

Now that 'the party is over,' the US is presented with the costs of its superpower craze of the 1980s. While economic growth is vanishing, the US continues to have record deficits in the balance of payments and in the federal budget. The US is now a debtor nation, borrowing more than what it is investing abroad, while the federal debt is also at record levels. In the meantime, productivity has stopped growing and US competitiveness continues to fall. The innovative capacity is declining and the US technological leadership is being lost.

It may be surprising that an America 'standing tall again' is having such hard times, but if we look at recent economic processes with some perspective, the present situation is simply the result of the progressive erosion of the US economic and technological leadership on Western Europe and Japan. Since the end of the Second World War, the US performance has been regularly surpassed by the European and Japanese economies. The US had a slower growth and, year after year, smaller shares in the world's industrial production and trade; the US has also ceased to be the major source of technological innovation. Step after step, Western Europe and Japan have completed the 'catching-up' with the US economy and technology. The levels of productivity, production, real income and consumption are now similar in all advanced capitalist countries. Starting from a position of undisputed economic and technological leadership, the US finds itself in the company of other major countries, in an increasingly integrated world economy, with a more articulate division of labour.

If the US was experiencing such a decline, how could the dramatic recovery of US international economic power occur? It was possible because the US still controls the 'rules of the game' of the international economy, rules that were set at the end of the Second World War, dictating free markets, open trade and a monetary order based on the US dollar, with the system of American military alliances as the enforcer of the economic order. In monetary and military relations, the US in fact has maintained its international leadership; it has even 'specialized' its economy in these functions, with a growing supply of financial services and weapons.

On the basis of these priorities, US policy in the 1980s did not address the structural processes of its economic decline *vis-à-vis* Europe and Japan. The road chosen by the US government has been to reassert American leadership using the most accessible means, with the most direct effect on international power relations: military and monetary policies, and later technological strategies, have provided the tools for such a project.

In the early 1980s Europe and Japan had to confront a major US offensive, that used dollars and missiles to reassert US power and its hegemony over the West. The European acquiescence allowed a temporary 'restoration' of the old order within the West. The next step in the US strategy aimed at laying a new basis for a renewed hegemony over the West. A crucial part of this strategy has been to reorganize the relationships among advanced countries through a technological strategy that influences the direction of innovative efforts, the path of technological progress and the resulting economic structures. This has been the answer to the relative economic and technological decline of the US: not the reconstruction of a capacity to produce and innovate, but a use of international power and technological specialization, especially in the military field, to redirect economic and technical progress in the most favourable terms for the US. A strategy that is searching for a 'technological fix' for the crisis of US hegemony.

In the current transformations of the world economy, the activities of research and development, innovation and investment, together with the technological policies of governments, are increasingly important in shaping a country's position in the international division of labour and hierarchy of states. In sectors such as microelectronics, computers, telecommunications and other new technologies, the strategy of the US government and of many US corporations has aimed first of all at maintaining the leadership in a set of 'strategic technologies' that are considered the key to international power relations for their military applications and their economic importance.

The development and control of new technologies has therefore become a crucial area of US policy; this has led to strict controls over international transfers of technology and to corporate and government strategies that use technology as a weapon in international relations. Obviously, a central part of this strategy has been the launch of the Strategic Defence Initiative, the largest

research programme ever financed by a Western government. In military terms, 'Star Wars' aims at recovering the US superiority on the Soviet Union; in technological terms, the objective is a new US leadership on Europe and Japan, to be achieved by setting the ground for innovation and competition within the West.

The result is what could be defined as a strategy of 'Technological Star Wars' against the other advanced countries. Its aim is to renew a US hegemony on the basis of a technological leadership limited to 'strategic' sectors—the military, space, other high technologies—and that is enforced by the political power that comes with military force. This falls short of recreating the overall economic and technological leadership that provided the basis for the US hegemony in the post-war period, and resulted in a regime of accumulation that spread all over the world. This time, the US strategy does not even address the decline of its economy, that is rather accelerated by the concentration of resources in areas that do not contribute to the competitiveness of the US economy.

For Europe and Japan, such a strategy raises fundamental questions not only concerning the direction of economic and technological change, but also about the future of their relations with the US. The European and Japanese passivity in the years of American political and military activism should not lead to underestimate the strength of their economies and the importance of the greater political role they can play in international relations. These processes are going to continue in the future, making more acute both the US decline and its attempt to restore power, and, on the other hand, the need for a new economic and political order within the West, opening new alternatives for the future of Europe.

In the current restructuring of the world econony and of relations among states, each country's position is defined by a combination of technological advances, economic strength, political prominence and, to a certain extent, military power. In order to investigate this combination of factors, an appropriate framework for analysis is developed in Chapter 2. It describes the changing modes of accumulation in the economy and modes of intervention of the state; an interpretative hypothesis is also formulated.

In Chapter 3 the recent economic processes are reviewed. The relative decline of the US economy is documented, with the comparative performances of Europe and Japan in terms of growth, productivity and competitiveness. Special attention is devoted to