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Martin Fransman is Professor of Economics and Founder-Director of the Institute for Japanese-European Technology Studies (JETS) at the University of Edinburgh. He is author of numerous books and articles, including:

The Market and Beyond: Information Technology in Japan [which won the Masayoshi Ohira Prize], Cambridge University Press, Cambridge; 1990.

Japan's Computer and Communications Industry: The Evolution of Industrial Giants and Global Competitiveness, Oxford University Press, Oxford; 1995.

Visions of Innovation: The Firm and Japan; Japan Business and Economics Series, Oxford University Press, USA; 1999·

He is among the editors (with Gerd Junne and Annemieke J. M. Roobeek) of the Biotechnology Revolution?, Blackwell, Oxford; 1995.

He has been Visiting Professor at the Research Center for Advanced Science and Technology at Tokyo University where he held the NTT Chair of Telecommunications, at Chalmers University in Gothenburg, Sweden, and at the University of Nice, France. He is currently a visiting fellow at ICER, University of Turin, Italy. He has worked with numerous governments and international organisations as well as with leading telecoms companies such as AT&T, BT, France Telecom, NTT, Ericsson, Siemens, NEC and Fujitsu. He is a frequent speaker at international conferences organised by bodies such as the Financial Times, the US Library of Congress, the International Computer Communications Conference (ICCC), the IEEE, and the International Telecommunications Society (ITS).

Here is a list of some recent studies of him, sent by himself on 9th May, 2006:

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Fransman, Martin (1999) 'Where Are the Japanese? Japanese Information and Communications Firms in an Internetworked World', Telecommunications Policy 23, 317-333.

Fransman, Martin (1999) 'Three Stories about the Computer Industry and the Relevance of the Loasbian View of the Firm', in Dow, S.C. and Earl, P.E. (eds.) Contingency, Complexity and the Theory of the Firm: Essays in Honour of Brian J. Loasby, Volume II. Edward Elgar, Cheltenham, pp92-112.

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Competitiveness: Perspectives on Industrial and Corporate Change. Oxford University Press, New York.

Fransman, Martin (1997) 'Towards a New Agenda for Japanese Telecommunications', Telecommunications Policy, 21 (2), 185-194.

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The Institute for Japanese-European Technology Studies (JETS) Papers by M. Fransman[3]

No 19 Martin Fransman (2000)
Evolution of the Telecommunications Industry into the Internet Age

How has the telecommunications industry changed since the mid-1980s when liberalisation began in Japan, the UK and the US and what are the causes of this change? How has the Internet affected the telecoms industry? This paper deals with these two questions. In this paper the interrelated causes of change are analysed that led, in the first place, to the transformation of the old telecoms industry into the new telecoms industry and then, almost simultaneously, to the latter's metamorphosis into the infocommunications industry. The demise of the old telecoms industry began in the mid-1980s when, due to different combinations of political-economic circumstances, the monopoly of telecoms was ended in Japan, the UK and the US. By the late 1990s, with the agreement of the European Union to fully liberalise its telecoms markets and the similar agreement of the WTO, there was a widespread consensus that the liberalisation of telecoms is essential. The roots of change that gave birth to the new telecoms industry in the early 1990s, however, as this paper will show, were far more fundamental than the political and regulatory decisions that finally legitimised the changes. In the 1990s a new set of influences that had begun thirty years earlier in an initially unrelated set of

[3] The Institute for Japanese-European Technology Studies http://www.jets.man.ed.ac.uk/publications.htm; 15th May, 2006.

activities, brought about fundamental forces that further transformed the telecoms industry into the infocommunications industry. These influences came from the Internet based on its triad of core technologies: packet-switching; Internet Protocol (IP); and the World Wide Web.

No 18 Martin Fransman (1999)
Where Are The Japanese? Japanese Information and Communications Firms in an Internetworked World
A decade ago Japanese information and communications (ICT) companies were perceived as posing a significant competitive threat to their Western competitors. Now they are perceived as being in a state of crisis and decline. Have Japanese ICT firms collapsed? Are they to be written off in the global competitive race? This paper examines these questions in two ways: by analysing the strengths and weaknesses of Japanese competencies in the computer, telecommunications equipment, semiconductor and consumer electronics sectors; and by examining how well they have adapted to the radical change constituted by the emergence of the Internetworked World. Particular attention is paid to the specific case of Japanese consumer electronics and the Sony success story. The paper ends with an examination of the implications of the current crises facing these Japanese firms and their corporate restructuring responses. Several predictions are made regarding the future. The other companies analysed include Fujitsu, Hitachi, Matsushita, NEC and Toshiba.

No 17 Martin Fransman (1998)
Convergence, The Internet and Multimedia: Sony's Response and the Implications for Asian Tigers
In a companion JETS Paper, Convergence, the Internet and Multimedia: Implications for the Evolution of Industries and Technologies, it is shown that the Internet based on IP (internet protocol) packet switching has provided a radical new paradigm for the information and communications industries. A 'paradigm' refers to the set of beliefs, assumptions, approaches, and activities that define a consensus regarding how things should be done. This new paradigm is causing waves of creation-destruction, to use the words of the economist Joseph Schumpeter, in the information and communications industries - such as computers, semiconductors, software, and telecommunications - as well as in the industries whose past business activities are radically challenged by the new functionalities provided by the Internet. How are firms reacting to the advent of the Internet? How does the emergence of the Internet relate to the related phenomena of the convergence between computers and communications and multimedia? These questions are examined closely in this paper with respect to the responses of one of the most important electronics firms in the world, namely Sony of Japan. In the final section some of the implications for other Asian countries and firms are briefly discussed.

No 16 Martin Fransman (1998)
Convergence, The Internet and Multimedia: Implications for the Evolution of Industries and Technologies
In this paper it is shown that the Internet, based on IP (internet protocol) packet switching, has created a 'new paradigm' for the information and communications industry. A 'paradigm' refers to the set of beliefs, assumptions, approaches, and activities that define a consensus regarding how things should be done. The Internet has provided a radical challenge for the main information and communications industries - namely computers, semiconductors, software, and telecommunications - and also for many other industries whose businesses are fundamentally affected by the functionalities provided by the Internet, such as the financial, insurance, and travel sectors. How did this new Internet Paradigm emerge and when was it first recognised as a new paradigm? How is the Internet related to the phenomenon of 'convergence' - namely the convergence of computing and communications, and precisely what is meant by convergence? What implications does the new Internet Paradigm have for the way in which technical change and innovation occur in the ICT industries? These are the three questions that are

examined closely in this paper. What are the implications of the Internet and convergence for Asian firms, countries, and governments? This question is tackled in a companion JETS Paper, Convergence, The Internet and Multimedia: Sony's Response and the Implications for Asian Tigers.

No 15 Martin Fransman (1998)
Designing Dolly: The Interactions between Economics, Technology and Science
The cloning of Dolly the sheep announced in 1997 was widely regarded as one of the most important events of that year with important ramifications in many areas of human endeavour. But how did it happen that this breakthrough was made at the Roslin Institute and PPL Therapeutics just outside Edinburgh in Scotland? More specifically, what were the determining processes that led eventually to the birth of Dolly? Although Dolly was hailed as an important scientific event, was this a purely scientific matter, the application of scientific theories, or did technological and economic determinants also play a significant role? And if technological and economic factors were also important, how did they interact with the scientific processes that contributed to the cloning of Dolly? These are some of the questions that are examined in this paper. To anticipate some of the answers that are given in the paper, it is shown that the advent of Dolly is best understood as part of a process of design, and hence the title of the paper. The overall aim of the design was to increase productivity in the field of animal production. It is here that the economic determinants entered in the form of the perceived economic payoffs which would follow from improvements in productivity. The search for improvements, it is shown in the paper, was driven by the prospect of economic payoffs. It involved seeking an alternative technology that would overcome many of the limitations of the then current technology. In the process, however, further scientific puzzles and questions were thrown up, helping to shape future scientific research agendas. In addition to examining the intermingled economic, technological and scientific processes that ultimately resulted in the successful cloning of Dolly - and disentangling these processes - the paper also draws attention to the institutions in which these processes were embedded. More specifically, it is shown that three kinds of institutions were involved; namely, a university (Edinburgh University), a publicly-funded research institute (the Roslin Institute), and a private firm (PPL Therapeutics). In terms of the processes involved, it is very difficult to draw boundaries around these institutions, separating the contribution made by each. Far from being unique to the Dolly case, however, it is suggested that such hybrid institutions have emerged as the general rule in many of the science-based industries where the knowledge base of the firms involved exists, not only in the firm itself and other firms, but also in universities and government-funded research institutions. For academic analysts and policy makers this raises a host of important questions regarding 'how these hybrid institutions work' and what might be done to improve their effectiveness.

No 14 Martin Fransman (1996)
Towards a New Agenda for Japanese Telecommunications
What are the most important issues confronting the Japanese telecommunications industry? In an earlier paper on the future of Japanese telecommunications the author argued that, while the current debate in Japan has focused almost exclusively on whether or not NTT should be divested, a more important question is how to ensure the establishment of competitive conditions in the various markets for telecoms services, including local access. In the present paper the author takes this argument further by suggesting that in formulating an agenda for the future of Japanese telecommunications it is essential to distinguish between a number of crucial short run and long run issues.

No 13 Martin Fransman (1995)
NTT and Japanese Telecommunications at the Crossroads: What Will the Future Bring?
The winds of change are howling through Japanese telecommunications as the Japanese government examines both the future of NTT - Japan's largest carrier and by far the

world's largest company in terms of market value - and the country's telecommunications industry more generally. Should NTT be broken up into smaller independent units the way AT&T was in 1984? Or will this lead to a weakening of Japan's position in globalising telecommunications markets? How can competitive conditions be established in these markets in Japan? How can NTT's near monopolisation of the local telecommunications market in Japan be ended and new competition created? How should the Japanese telecommunications regulators regulate? These are some of the questions tackled in this paper written on the basis of the author's participation in the Financial Times conference on the future of Japanese telecommunications held in Tokyo and his subsequent discussions with leaders in Japanese companies, government and universities conducted towards the end of 1995. This paper will be of interest to policy-makers in both governments and companies as well as to academics and other analysts of the telecommunications industry.

No 11 Martin Fransman (1994)
Is National Technology Policy Obsolete in a Globalised World? The Japanese Response
With the election of President Clinton and Vice-President Gore, national technology policy, aimed at strengthening the competitiveness of national firms, is receiving a higher profile than before. However, many now argue that since national economies are becoming increasingly globalised, knowledge leakages prevent national technology policies from achieving success. This paper examines how Japan has responded to this argument.

No 8 Martin Fransman (1992)
AT&T, BT and NTT: Vision, Strategy, Corporate Competence, Path-Dependence and the Role of R&D
With the liberalisation of telecommunications markets and the globalisation of telecommunications, all three companies exist in an environment that is becoming increasingly similar but each has decided to 'play its cards' in fundamentally different ways - for example, there is a significant difference in the percentage of sales each company spends on R&D. This paper argues that the difference can largely be traced to a different attitude regarding the advantages and disadvantages of three options for the acquisition of 'network elements': in-house production, co-operation joint development and purchase on the market. However, the decision between these three methods does not by itself determine the allocation of resources to R&D, since R&D may be carried out to keep abreast of current developments even if 'network elements' are bought in. Therefore, the paper goes on to analyse the role and organisation of R&D in each of the three companies. It concludes that how companies decide to play their cards is determined by their 'visions' of the future and that such visions embody the firm's specific experience, knowledge and beliefs about the world.

No 6 Martin Fransman (1991)
Explaining the Performance of the Japanese Large Company
This paper examines the performance of large Japanese companies and, in attempting to explain performance, raises the question: 'What is a firm?'. The underlying conceptualisation is that a firm is a form of organisation for the co-ordination, use and creation of knowledge. Of particular concern are the issues of the fragmentation of knowledge accompanying the process of specialisation. The problem of knowledge fragmentation is addressed through an analysis of the just-in-time and kanban system and the process of new product development. The main empirical focus of the paper is the organisation of central research laboratories in large Japanese companies. In this context, four problems are examined: 1) What research does the firm need now?; 2) How to prevent 'irrelevant' research; 3) What research is needed for the future?; and 4) Should the required research be undertaken in-house or ex-house? Finally, an examination of the origins of the knowledge-based approach is presented.

No 4 Martin Fransman (1991)
Japanese Failure in a High-Tech Industry? The Case of Central Office Telecommunications Switches
This paper analyses what seems to be an example of a Japanese 'relative failure' (i.e. relative to outstanding successes in areas such as cars and consumer electronics) in central office telecommunications switches. This field is rapidly becoming a major battleground in the global market for telecommunications equipment and the paper assesses how well Japanese companies are likely to perform and whether their performance so far can be judged a 'failure'.

No 3 Martin Fransman and Shoko Tanaka (1991)
The Strengths and Weaknesses of the Japanese Innovation System in Biotechnology
This paper analyses the distinctive characteristics of the Japanese biotechnology system, including the relative absence of small start-up firms; the close relationship between large biotechnology-related firms and the relevant Ministries on the one hand and the ruling Liberal Democratic Party on the other; the importance of government-initiated co-operative research programmes; and the relative weakness of Japanese universities compared to Western counterparts in some areas of the life sciences. Particular attention is paid to three high-profile co-operative research programmes: the Next Generation Base Technologies Programme; the Protein Engineering Research Institute (PERI); and the ERATO programme.

No 2 Martin Fransman (1991)
Controlled Competition in the Japanese Telecommunications Industry: The Case of Central Office Switches
This paper analyses the 'NTT Family System', a form of organisation whereby the development of complex telecommunications equipment in Japan has involved long-term relationships between the country's main telecommunications operator, NTT, and a small group of major Japanese equipment suppliers. As well as examining the history of this system, Fransman assesses how well it has prepared the telecommunications companies for the upcoming battle in the global telecommunications market.