THE LOW DOWN ON HIGH TECH DOWN UNDER, OR THE PLAIN PERSON'S GUIDE TO THE MULTIFUNCTION POLIS*

Ian Inkster

This paper examines conditions of Australian acceptance for the multifunction polis (MFP). A specific physical location has taken the place of the earlier network concept. Other characteristics are: the MFP will be an ***entrepôt****; it will export information, produce and institutional modes; and it must serve as an environmental tariff wall. For Japan the MFP can contribute to technological 'catch-up' and serve the dual function of improving Japan's international and cultural image as well as focussing information transfer to Japan. For Australia the MFP can facilitate industrial restructuring by providing an innovating institutional environment for manufacturing innovation and production, with a possible increase in foreign investment and venture capital. This restructuring link is problematic due to external uncertainties. Key issues are urban location, internationalisation, the centrality of high-tech, contracted employment, internal organization, the position in the technological system, and the decision making process.*

Keywords: Multifunction polis, MFP, *entrepôt*, restructuring, innovation, foreign investment, location, high-tech, contracted employment.

TO BE OR NOT TO BE . . .

There are words abounding. Such as 'organic interaction', 'fusion', interoperability' (*you* say it!), 'germination', terms which at times seem to refer to physical technologies, at other times to the process of human understanding or communication. The MFP was born amidst rhetoric and reared in bureaucratic cloisters and it is, thus, hardly surprising that the prevailing mood (3 May 1990) is one of suspicion if not distrust. To Yoshio Sugimoto's considered remarks about secrecy and manipulation of the public consciousness, Will Bailey (Australian Chairman, MFP Joint Steering Committee) replied that he "always found refugees from any countries have a pretty critical view of the country they escaped from" and that the marketing documents of the MFP Steering Committee were necessary in a world where people could

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not otherwise comprehend concepts. Quite rightly Margaret Throsby remained worried and lucidly introduced the all-but unanswerable subject of the Japanese Mafia interest.[1] In the face of 'sale of the century' comments and a rising racist component, John Button retaliated with his 'fear of the future' attack.[2] There seems to be no getting away from the MFP, yet little analytical getting into it. Will Bailey's claims about the proprietary nature of the information flowing into the so-called think tanks (the majority of which appear to be think-sinks) has certainly not helped the case for a more positive public response, yet might just be legitimate if the planned public declarations of 17 May — 30 June, i.e., from announcement of location to final feasibility reports, do have substance and do provide a sufficient base for continued Japanese and international interest. So, to date the question does remain, To Be or Not To Be, and the object of this very short outline is to suggest some of the conditions of acceptance.

THE MFP CONCEPT

At one time thought of as a network rather than in strictly physical or demographic terms, the consensus of opinion is now that the MFP will be a specific physical location, within or ancillary to an existing Australian city (almost certainly Melbourne or Sydney).[3] An ultimate population of 200,000 has been repeatedly specified, but there is no reason why this figure should be considered as permanent residence or of short-term viability. Such a figure composed of contract workers, many on very short-term contracts (three months), who mostly reside elsewhere during their time of MFP-membership, becomes more viable, if seen as a five to ten year target from the date of physical establishment. In the words of the 21st century, such a city would become a Pan-Pacific creative and commercial community, servicing the future rather than the past. At its centre are the high-tech and high-touch industries. The original emphasis was on information industries, biotechnology, new materials and environmental management, but there has since been some downplaying of this at the Australian end. The somewhat unsavoury notion of high-touch is reserved for the conferencing, cultural seminars, travel and leisure pursuits deemed necessary for the genesis and sustenance of the creative act. A break with the old linear notions means that there is little vision of an abundance of MFP-based Mozarts or Einsteins, but rather that the knowhow of the Japanese and Europeans might be fused with the pre-commercial R&D capabilities of everyone else to generate a new mix of processes and products.

Three other characteristics of the early modelling are worth noting. Given that R&D, know-how and marketing information systems are now the new factors of production, then the MFP is to be seen as an *entrepôt,* which produces but also through which is passed commercial, scientific, technical, linguistic and cultural information. Value is added to existing information; information is expanded; information is exported. Thus,

another characteristic of the MFP is the notion that a phase of drawing in will give way to a natural history of giving out, of emission, in which not only information and produce but also institutional modes will be exported to the world as the total human frontier of applied knowledge expands outwards. Lastly, the MFP must act as an environmental tariff wall, behind or within which high-tech, high skill, high status and high expectations will be nourished and protected. Semi-permanent residents will be esconced within a semi-permeable membrane of institutions and guidelines, whereby the existing institutionalised barriers to information flow and application (from patents and taxes to market mechanisms themselves) will not be allowed to operate.

FUNCTIONS — JAPAN

Many commentators argue that the traditional Japanese model of growth through 'catch up' is no longer applicable.[4] In 1973 the ratio of technology imports for Japan stood at 0.13, for Britain at 1.04 and for the USA at 9.30, and a very large number of foreign patents were still being lodged in Japan.[5] By 1981 the ratio of technology imports to technology exports have fallen to 148 per cent and Japan had embarked on a patent invasion of other industrial nations. As early as that year, Japanese patent lodgements as a proportion of all foreign patent lodgements in the USA stood at 32 per cent; in Germany at 30 per cent, in the UK at 21 per cent and in France at 16 per cent.[6] Of course, efficiency increases arise from a great variety of sources, of which machine technology is only one. Quite feasibly, the organisation of production and the unusual links between the private and public sectors may well have yielded efficiency increases which brought Japanese productivity above that of USA or OECD nations prior to 'catch up' and continue to do so 'post-catch up'. Nevertheless, in Japan many believe that the process of technological 'catch up' represents a major feature of the economy and the principal pressure behind industrial restructuring and the search for creativity in science, technology and production itself.[7] This explains the pervasive rhetoric of the early MFP documentation:

> The MFP is a place of . . . relaxation, comfort, surprise, joy, entertainment and intellectual stimulation . . . a fusion of high-tech industries destined to comprise core industries in the 21st century and high-tech oriented industries which support creative human lifestyles, and would need to function as an incubator for such growing industries.[8]

But although this should not be in any sense dismissed, other functions are clear enough. In a world of human frontiers planning and reciprocity, with the USA economic and technological system demanding fair dealing (a call reminiscent of Britain's plea for *laissez-faire* in the 19th century, i.e., a demand for an ideology which would legitimate the unequal economic power structure of the *status quo* in the name of

equality of treatment), the MFP may serve the dual function of an improvement in Japan's international economic and cultural image as well as a focus for information transfer into Japan from Australia, the USA, Europe and the Asian-Pacific. Earlier notions of using the MFP as a base for the securing of Australian raw materials have been somewhat dissipated it seems, but the notion of the MFP as being an institutional experiment remains. That is, the MFP may well serve as a laboratory in which organisational forms, incentive systems, goal setting systems, intellectual property arrangements, and contractual arrangements will be formulated on an experimental scale, ready for scaling up and implantation to the Japanese technopolii themselves.[9]

FUNCTIONS — AUSTRALIA

Most readers of this journal will hardly need guidance on the possible functional relationship between the MFP and the wider public policy strategy of industrial restructuring. Since 1983 the Labor Government has emphasised the need to escape the staples, a tactic hastened in with the declining terms of trade, which can be spotted as almost a secular movement after 1973 but which accelerated from the mid-1980s.[10] Any deliberate restructuring towards manufactures, as against the natural structural change which occurs with constant redeployment of resources in a growing system, involves the immediate costs of other resource usage foregone and imports of capital goods to underpin the technological needs of new manufacturing.[11] The MFP may be seen as a link between the micro and the macro aspects of economic policy. A well-tempered MFP might be seen as an innovation designed to reduce the extent or the impact of two entrenched phenomena, the social returns of which are negative, the real costs of which are contentious. On the one hand much of basic research moves from centralised, government financed institutions into either the academic stratosphere or to USA or OECD or Japanese production systems. Presently there is a case for an argument which claims that the Australian government overinvests in R&D in the public sphere, that Australian enterprise is R&D shy, that therefore the total GERD/GDP ratio is relatively low, biased towards R rather than D and commercially inept. The 1960s and 1970s usage of grants did not seem to work effectively, these often going to firms which were large enough to partake of R&D without assistance or were in industries where R&D market failure was not proven. The wrong firms were getting the wrong types of R&D assistance.[12] A move to a combination of grants, loans and tax incentives might be something of an answer, but so too might the MFP. At the other extreme, transnational corporations (TNC) dominate much of Australian industry and such firms are well-known to be efficient at initial technological transfer but either inept at or (more likely) antagonistic to the processes involved in the adaptive filtration of such techniques from one technical system into another.[13] The contract system of the MFP may be seen as an

incentive or inducement mechanism, stimulating the movement of TNC interests into the MFP institutional set up and, hence, into a position where the social returns of foreign investment may be increased.

As with the Japanese case, the MFP may also be seen in Australia as representing an innovating institutional environment for indigenous experiments in the region of manufacturing innovation and production, but it also provides the possibility of an increase in the level of foreign investment and venture capital. The latter should not be exaggerated. Economic forces do tend to have a countervailing element built in, and there is no convincing argument which concludes that all investment from abroad into the MFP would be net of the total foreign investment which would have occurred in the absence of the MFP. That is, the reasonable expectation is that an MFP might redirect foreign investment from areas of relatively low social return and low visibility into areas of potentially high social returns and controllable visibility. In addition, useful positive functions stemming from an MFP would include a decentralisation of the R&D enterprise in Australia and an increase in the appropriate industry-specific (potentially firm-specific) R&D and production information flowing into Australian private enterprise from Japan, America and other OECD nations.

COMPLICATIONS

Things are nowhere near so clear as even this rather opaque account suggests. At the Japan end, the MFP is only one of myriad tactics directed at continuing economic growth, productivity and R&D salience. Although the cries of creativity and restructuring appear loud and clear, in fact any sensible prognosis would suggest that the problems of technological origin will continue to be addressed by the traditional mechanism of search-and-transfer, enterprise R&D, tail ending and new institutional formats. Concepts such as the *Fifth Generation* or *Human Frontier* are symbolic of a continued stress on transfers in at both private and public sector levels. There is evidence of an acceleration of enterprise R&D into basic or generic research and some rise of the GERD/GDP ratio. The so-called saturated industries, the leaders of the 1950s to 1970s, now ailing, continue to be addressed by R&D tail end policies, particularly through MITI/Science and Technology Agency (STA) research cartels, capital redeployment, labour retraining. At the institutional level, the 19 planned technopolii research cartels, enterprise based co-operative research arrangements with foreign agents, join with the new emphasis on technology transfer from the national laboratories (especially MITI) to private enterprise through the contract and licensing systems of the STA and Japan Research and Development Corporation. Thus, the MFP is by no means the only plank in Japan's strategy for R&D research, nor is Australia the only possible location, nor is one location the limit.

At the Australian end, the MFP-industrial restructuring link is in fact

problematic, due to the uncertainties of the external environment. It must be recalled that the recent terms of trade have been looking good, and most short or medium term forecasters would at least hold them constant or suggest a slight improvement. My own position is that industrial policies must allow for changing external circumstances and improved terms of trade over the next five years or so. Home strategies still include that of reducing the percentage importance of Australian services in GDP and increasing the importance of staple exports rather than manufacturing exports.[14] The growth of productivity in the mining industry might have been in the order of twice that of services during the last two decades, equivalent to that of manufacturing, and higher than that of the economy as a whole. The efficiency potential of an increased manufacturing sector may be significantly greater than that of mining, but the issue is problematic. It may be calculated that the terms of trade effects stemming from the continual growth of the Asian Pacific region and a switch of Australian external trade even more firmly into that region, might be such as to stall too wholehearted a turn to industrial policy. Given the array of problems posed by an analysis of the required internal mechanisms of the proposed MFP, it seems that the choice confronting the Australian system is not starkly obvious, especially if short or medium term financial factors are uppermost in the minds of the effective decision makers.

CRITICISM OF THE MFP

A great range of criticisms have been voiced in Australia, the most general embraced by such notions as racism, statism, domination, secrecy and manipulation. Andrew Peacock's 'enclave' speech paved the way for an outburst of politico-racist declarations against Japanese involvement. Given that the MFP is primarily an analogue for tourism rather than migration then this seems irrelevant except at the point where it relates to the extent, power and impact of foreign investment *per se.* Even here, I would suggest that the argument is very ill-specified. A major impact of a successful MFP would be the redirection of foreign capital into areas of greater visibility and potentially increased social returns. The argument is further clouded by competition between the Australian states on the location of the MFP, an element which must continue until the location is announced and arrangements are made which ensure that the MFP is no longer considered a purely locale-specific entity. The continuance of what might be termed the frigate or Olympic village mentality would surely induce a level of debate which might rise to heat but not light.

There are far more serious concerns. The Australian public and bureaucracy are rightly concerned about the problems of intellectual property rights; organisational, negotiating, arbitrating and power structures; venture capital arrangements and internationalisation of participation. The internal organisation of the MFP must surely allow

for the enormous difference in natural bargaining power between Australia on one hand and Japan on the other. Such differences are real but the impacts of them are reducible by institutional and legal interventions. Again, integration of the MFP into the Australian technological and enterprise systems requires the implantment of non-protectionist incentives to private investment and R&D, carefully planned links between the MFP and existing university, enterprise, CSIRO and agency R&D, and revision of organisation practices in the private sector.

.... THESE ARE THE QUESTIONS: A PLAIN PERSON'S GUIDE

If the pleasure dome possibilities inherent in the history of the MFP hitherto are to be broken, then the post-June 1990 public debate must address some knotty issues. My own suggestions at this stage may be listed under seven rubrics.

Urban Location

If the location announced on 17 May is not one of the proposed sites in or around Melbourne or Sydney, the MFP is unlikely to fulfil the functions of high technology production, pre-commercial R&D and information dispersal which are central to its overall potential. The Australian public should reject all greenfield sites as against the interests of the nation i.e., involving high monetary costs but implying very dubious and almost certainly low social returns. Of course, the private returns of such a venture may be quite attractive.

A location close to a central business district, particularly those of either Melbourne or Sydney, allows for the utilisation of social overheads and infrastructures already existent and possibly underutilised, from docks to technical libraries; reduces the possible enclavist character of the MFP; removes the caste implications of the MFP as originally conceived.

Internationalisation

Originally the international character of the MFP was stressed, but much of the Australian commentary seems to have assumed a two-way partnership only. Yet both partners should be attracted to the notion of involvements by OECD nations and the resulting information and know-how flows. Public pressure should ensure that this aim is retained and that the institutional character of the MFP is such as to encourage US involvement i.e., the MFP must not be seen as a conduit for the flow of information into Japan.

More neglected has been the involvement of the Newly Industrialized Countries (NICs) in the Asian Pacific and the South Pacific Basin nations. Given that this region is the fastest growing in the world, and that China and Indonesia are enormous potential traders and investors,

then the present neglect of the Pacific in MFP planning seems unfortunate to say the least. The most so far suggested has been a servicing of the Pacific. For various reasons the Australian public should insist on internationalisation across the board; Pacific-wide public relations would be much improved and most of the advantage would go to Australia; information flows would be more relevant; OECD nations might find the total proposal more attractive; internal racist arguments would be weakened or diffused. MFP technology would be more likely to encompass R&D research aimed at mid-tech applications, e.g., in agriculture, and institutional innovations designed to transfer technology from public to private sectors and from high-tech to mid-tech sectors. Such a focus might be hastened if the organisation of MFP allowed for more influence stemming from expertise in ancillary areas, e.g., the Department of Industry, Technology and Commerce's (DITAC) existing Scientific Industry Steering Committee.

Centrality of High-Tech

At the Bond University MFP Conference of November 1989, Barry Jones' video failed to verify the centrality of high technology and referred mostly to the incorporation of environmental management industries.[15] Originally R&D was seen as embracive of agricultural technology, biotechnology, information technology and new materials. The seeming move towards food, health, leisure and construction is somewhat confused and possibly of less relevance to longer-term Australian economic and social interests. Australian public debate must force the key high-technologies and their application to existing Australian industries back into the centre of the discussion. Properly selected R&D programmes will strengthen the elements of internationalism and integration. The public encouragement of industry R&D through grants has not, on the whole, represented a very positive allocation of taxpayers' money, and the MFP would allow an environment for experiment in incentive systems, which might hopefully utilise a clutch of selective grants, tax concessions and loans as devices for enterprise R&D inducement. Given that Australian enterprise seems averse to risk, R&D and manufacturing production, the MFP is arguably a key device in any industrial policy which aims at institutional linkages between micro and macro economic reform. Lastly, the notion that high-tech ends in high-tech must be dispelled. New materials technology is composed of energy absorbing materials, composites, ceramics and fibre optics which may be applied in all sectors of the Australian economy. The agricultural sector may be in receipt of biotechnologies (fertilizers, herbicides, disease control, new varieties), microelectronic technology (CAD/CAM, land management, computer modelling) as well as information techniques and new materials. Seemingly unlikely connections between biotechnology and mining may be forged in such areas as the biological processing of ores. Such applications of high-

tech to existing structures are the key notes of development in Japan (agriculture is an enormous recipient of Japanese R&D expenditures).

Contracted Employment

The vision of 200,000 Japanese resident in the middle of Sydney or Melbourne has caused many to baulk. Sensible opinion should stress the short-term contract of employment as the major form of engagement in the MFP, with perhaps 30 per cent or more of all intellectual and technical workers in the MFP, whatever their national origin, being hired on three-month contracts, 70 per cent on contracts extending from three months to perhaps three years. The economic effect of this contract system is analogous to tourism rather than migration. Within the MFP such employment patterns would optimise research productivity and information flow.

Internal Organisation

The negotiating position of Australian interests would depend very much on the nature of institutions within the MFP concerning pre-competitive R&D, decision making, intellectual property rights and so on. Quite rightly, Australian public opinion must embrace questions of bargaining power, negotiating tactics and systems, decisions over the division of labour in research and development, relationships between private interests and public agencies and so on.

The MFP within the Technological System

Although bureaucrats and governments have stressed that the question of enclavism has been at the centre of their concerns and that safeguards against technological dualism have been put in place, the public debate must surely include aspects of overall economic and technological strategy. Technology transfer usually fails, and it usually fails on primarily institutional grounds. If the Australian public are to support the MFP concept, they should so do on the grounds of its potential value in an overall industrial restructuring programme, one which acknowledges the place of foreign technology in any industrialisation process, but which also recognises the importance of rational exploitation of raw materials and processed materials in a world of Pacific-located industrial growth. During a period of slow overall real growth in Australia and improving terms of trade, any policy for restructuring which entirely neglects the fundamental importance of the external trading sector is likely to face major problems of high short-term costs. The MFP may provide a fillip to manufacturing but may also, clearly, service the needs of both agriculture and mining, and should be so directed and encouraged by public opinion.

The Natural History of the Decision Making Process

Hitherto, very few have been privy to the decision making system of the MFP. Those involved are either bureaucrats, politicians, consultants or groups with vested interests who have bought the right of participation. This is not clever public relations and will presumably halt on 30 June 1990 or thereabouts. From thence, the Australian public may well be in a position to exploit the interregnum between promotion and implementation. Australian public opinion will not be forged in large format, slim content, glossy marketing documents such as *Multifunctional Polis, A Concept to Create the Future.*[16] Public pressure should be such that after June 1990 any failure of communication between the government and the people will result in a moratorium, wherein all developmental work on the MFP would cease until proper avenues of communication had been established.

CONCLUSIONS

So far, the MFP has deserved what it has got. Either complete indifference on the part of those with some knowledge or utter ignorance on the part of everyone else. The MFP has become a cartoonist's joy and a cynic's punching-bag because of the manner in which the decision making system has been structured as much as a result of features intrinsic to the concept. A most sensible view might be to estimate the MFP as a potential vehicle of technology transfer and R&D rejuvenation as part and parcel of a much-needed fresh approach to the continuing problem of industrial restructuring.

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