

Portugal's Technology Strategy

New laws and creation of controls have not slowed flow of technology; studies show it's on increase

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The level of development of the Portuguese economy, if we wish to measure it in a simplified manner by using the indicator of GNP per capita, places the country in a position far from that of most other European countries, in particular those of the EEC, which it intends to join in the near future.

The economic system of Portugal has been characterized by a high degree of openness to the outside world, both with respect to international trade and, more recently, regarding capital movements and transfers of technology.

Modernization of the system of production is urgent so that Portugal can join the EEC at minimum social cost and ensure better standards of living and a decline in the rate of unemployment.

An industrial development strategy, to a great extent conditioned by the extremely high dependence on oil (70% of the sources of primary energy and 25% of imports), has been set out in general terms at government level. "The need for a policy of research and development and for the active encouragement of technological innovation at all levels" was underlined as part of a "policy of industrial development aimed at the creation of a dynamic, competitive and export-oriented industry".

The technological areas considered as having priority, defined together with industrial priorities, are:

1. Optimum use of national raw materials.
2. Protection of the competitiveness of traditional manufacturing industry.
3. Development of industrial sectors benefiting from comparative advantage.
4. Development and implementation of technologies of the future that will bring about independence.

To obtain these objectives, the first priority requirement, according to Portuguese government, is the dynamization and mobilization of national technological capacities. However, it will be absolutely necessary to have recourse to foreign technology at the same time, because there will certainly be an increase in national expenditure on R&D, which at present accounts for a minute .32% of the GNP. Naturally, this is a very brief reference regarding a series of complex

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problems. But I do not wish to omit it so as to indicate more precisely—that is to say, with due modesty—the role played by the Foreign Investment Institute (FII) in the field of transfers of technology.

Investment Code

According to the Foreign Investment Code—which might in fact also be called that of transfers of technology—the FII is in a privileged position for negotiating with the foreign investor in general and multinational companies in particular. It is the only body dealing directly with the foreign investor, representing for him the various branches of the public administration.

By the fact that the importation of capital and of technology is subject to a system of prior authorization, the importance of the FII as an "authorizing body" is evident. It should be emphasized, however, that it proceeds by following a line of discussion and negotiation, attempting by this means to arrive at solutions that may be accepted by the investor or by the lessor of the technology, to the national maximum benefit. On the other hand, as will be mentioned later, the orientation of the FII is at the same time such as to encourage technological development, in a manner that is not merely defensive but promotional.

GENERAL CHARACTERISTICS OF THE LEGISLATION

In order that the objectives that underlay the 1977 regulation of Foreign Direct Investments (FDIs) and Transfers of Technology (T/Ts) which forms an integral part of the Foreign Investment Code* may be clearly understood, one should bear in mind that the great majority of Portuguese companies are very small. They are therefore in a weak negotiating position vis-a-vis the foreign companies on which they are dependent or with which they are associated by means of various legal forms of contract.

The legal framework created by the code and the institutional support given by the Foreign Investment Institute is thus a positive factor with respect to the protection of the interests of these companies.

On the other hand, the code establishes clear rules of the game that state explicitly the essential parameters for the assessment of investments and foreign technology. As a counterpart to this, the companies that set themselves up in Portugal, receive a number of guarantees and incentives. International investment and the transfer of technology are recognized as essen-

*Decree-Law No. 348/77, of 24 August 1977, and associated decrees.

tial to the modernization of the Portuguese economy.

Moreover, the Foreign Investment Code has an underlying principle of selectivity with respect to foreign investment. It is not confined to the case-by-case appreciation of investment projects but goes as far as to announce a list of priority sectors, which was drawn up at the end of 1980 (see Annex). There have thus been identified the sectors which it is thought will bring together on the one hand optimum conditions regarding comparative advantages offered by this country, and on the other hand stimulating effects on FDI that are potentially more important. As a rule, these will be investments requiring capital and technology that will lead to a denser industrial network by a synergetic effect and will have an impact on the sales market.

As to contracts regarding technology, the code is chiefly concerned with clearly establishing the content of the technology to be transferred and the way in which it will be transferred (stipulation of the minimum content of contracts), at the same time as it attempts to prevent a number of practices that have negative effects on the lessee and on the national economy (excessive payments, restrictive clauses and the nonuse of national technological capacities).

DEFINITION OF THE PRINCIPLE OF TRANSFER OF TECHNOLOGY

According to the code, agreements for the transfer of technology are deemed to cover all acts or contracts in connection with:

256 1. The granting or licensing of rights for the use of patents, trade names or marks, models, drawings or inventions as well as the transfer of other non-patented know-how.

2. The rendering of technical assistance for company management and for the production or marketing of any goods or services entailing expenditure arising from consultation with or the movement of experts, the drawing up of plans, supervision of production, market studies or personnel training.

3. Agreements with companies specialized in construction and maintenance, particularly of industrial units, roads, bridges and ports.

4. Any other form of technical assistance.

The scope of the concept of technology transfer is indeed rather wide, encompassing different items from technical assistance to the repair of a piece of equipment or to the licensing of use of patents or know-how.

Since the relevance and characteristics of the contracts differ on financial, economic, technological and juridical grounds, the institute has adopted a classification of technology transfer agreements involving nine basic types: licensing *strictu sensu*; sale of know-how and/or industrial property rights; studies; engineering; one-shot technical assistance; routine technical assistance; servicing of equipment; training; other, including, particularly, franchising and software.

The institute normally arranges the types referred to into two classes:

- Licensing agreements (*strictu sensu* and sale/cession) of know-how and/or industrial property rights.
- Servicing agreements, covering all the remaining

Assessment

As a rule, this last category of technology transfer is the object of a brief assessment aimed above all at verifying that national technological capacity does not exist and that the price to be paid is in accordance with international standards.

The extent of the assessment is naturally greater if it is a matter of a licensing contract, covering as a rule legal, economic and technological aspects.

The suitability of the technology and the verification that conditions exist for its effective transfer and acquisition are aspects that often imply the cooperation of the Ministry of Industry.

Assessment of the economic aspects takes account of the effect of the technology transfer on the lessee company and on the national economy (direct and indirect cost of the technology transfer effects on employment and balance of payments and effects brought about in the sector in question).

As to the legal assessment, which aims to verify that the text is in conformity with the law, more will be said below and in some detail.

QUANTITATIVE AND REGULATORY FEATURES OF IMPORTATION OF TECHNOLOGY

During 1981*, 811 contracts for the transfer of technology were registered, this number corresponding to an increase on the order of 32% compared with the previous year. Of this total, 11% were for the renewal of contracts and 87% for new contracts.

Only a small proportion of these totals—2.3%—was for contracts associated with new projects of foreign investment. On the other hand, only 29% of the total were for licensing contracts. The so-called servicing contracts thus continued to be highly important, outstanding among them being servicing of equipment and studies.

It is interesting to note the distribution of contracts among the major groups of licensees:

	1981	1980
•Companies with foreign capital (CFCs)	36%	28%
•Private companies without foreign capital	34%	39%
•Public bodies (including Public Corporations)	30%	33%

If we consider together "classes of licensees" and "types of contract", we see that licensing contracts concern mainly private companies without foreign capital (52%), followed by CFCs (47%). The major users of "servicing contracts" are public bodies (42%) and also the CFCs (31%).

It is further possible to verify the considerable and increasing importance of contracts entered into between interconnected companies (14% and 18% in 1980 and 1981, respectively). This fact was due almost exclusively to licensing contracts, where connections between licensor and licensee companies predominates (22% in 1980 and 33% in 1981).

With regard to sectorial distribution of technology

*The year 1981 was chosen because it gives a recent picture and does not show significant differences vis-a-vis the last four years. Before 1978, statistical data were scarce.

transfer agreements, it is important to note that the majority of the agreements (72%) continued to be turned toward the manufacturing industry which, nevertheless, has seen its relative position decrease when compared to previous years.

The sector which occupied the most important position in terms of number of agreements continued to be the chemical industry (23%), followed by the electrometallomechanicals and electronics (13%), textiles and clothing (12%), and paper industries (10%). These four sectors had already been the most important ones in 1980; the positions of the last two, however, changed places among themselves.

According to the code contracts for the transfer of technology are prohibited from including any clauses considered to be restrictive. We transcribe hereunder in its entirety Article 28 of Decree Law No. 348/77, of 24 August 1977:

ARTICLE 28

1. In agreements for the transfer of technology, particularly where these regulate relations between foreign firms and their branches in this country, the following clauses shall not be permitted:

a) those which tie the provision of technology to the acquiring of capital goods or of intermediate products and other technologies from a specific source;

b) those which oblige the purchaser of the technology to transfer free of charge to the seller all or any inventions or improvements arising from the use of the technology concerned;

c) those which restrict the volume and structure of production;

d) those which either directly or indirectly restrict markets to which the importer of technology could have access;

e) those which limit the distribution channels to be used if such limitation is damaging to the buyer of the technology or to the economic and commercial policy of the country;

f) those which reserve to the seller of the technology the right to fix the selling or resale price of products incorporating such technology;

g) those which insist on the predominance of a foreign language in the agreements for interpretation purposes.

2. All agreements for the transfer of technology shall indicate the duration thereof.

3. In cases where the transfer of technology assumes special interest for the national economy some of the clauses listed in Paragraph 1 above may be authorized.

The objectives pursued with the list transcribed above are in a whole considered in line with the legal or nonlegal provisions which, by means of various instruments the governments of many countries, and international institutions are making efforts to enforce. (See laws for the protection of competition, EEC Directives, Guidelines of the ICC, UNIDO and OECD for multinational companies.)

It is not surprising that, in its first phase of existence, a "defensive" attitude was the predominant characteristic of the manner in which the FII acted with respect to technology transfer contracts subjected to its prior approval. In fact, studies carried out on representative samples of contracts approved before 1976 showed the negotiating weakness of Portuguese companies regarding the granting of technology: the overwhelming majority of contracts contained export restriction clauses, half "required return to the supplier of inventions and improvements introduced into imported technology and contained provisions limiting the supply, production and distri-

bution policies of the concessionaire companies". The exercise of industrial property rights was in most cases limited.

Flexibility

Attention should be drawn to the flexibility permitted to the institute in supervising these clauses, without which difficult situations might have arisen for the companies concerned. In the final analysis, they might have been prejudicial to the inflow of technology.

Also noteworthy is the care expressed in this provision to make explicit the applicability of the "rules of the game" to interconnected companies, which is indeed repeated in more precise form in Decree No. 53/77, of August 24, 1977, which regulates the abovementioned Decree-Law in matters of transfers of technology. In fact, its second article provides:

1. The provisions of this decree shall apply to all agreements for the transfer of technology whether or not they involve industrial property rights, whether or not private or public bodies or international organizations are parties thereto, and whether or not they are drawn up individually or in conjunction with direct foreign investments.

2. Also covered by the provisions of this decree are transfers of technology in which the recipients are associate companies, branches or any other form of representation of foreign companies.

In practice there has proved to be a considerable difference in the occurrence and the real importance of the prohibited clauses referred to in the law. The FII has paid particular attention to the clauses that provide for limitations or prohibitions regarding exports, not only because of their obvious and immediate effects on trade but also owing to the small size of licensee companies and thence the impossibility of their competing in the future in external markets which such a practice entails.

The intervention of the FII reduced by 50% the occurrence of this restrictive clause in licensing contracts examined in 1981. The concern to maintain a balanced situation has led to the acceptance of market limitations for other territories where the licensor has granted licenses. On the other hand, the licensee, specially when it is a small or medium company, has every interest in obtaining an exclusive license, a wish justified in the majority of cases owing to the initial investment effort and the small size of the market. Licensors as a rule protect their interests in case licensees do not show themselves able to develop a reasonable level of quality and/or quantity production.

The transfer to the licensor, compulsory and without payment, of improvements or inventions also takes place fairly often. A compromise solution that has at times been accepted is the establishment of conditions of reciprocity.

The compulsory acquisition from the licensor of raw materials and intermediate products, with consequences for the import price level and the nondiversification of sources of supply, is another of the clauses which attempts have been made either to eliminate from contracts or at least to transform so that they function more as a guarantee of sales than an

obligation to purchase, but always at international prices.

One aspect on which the law was silent, but which is considered highly important, is that concerning clauses valid after the contract has expired. These are quite frequent, albeit very variable in content. At times they concern legitimate rights of the licensor, especially when they are industrial property rights the validity of which extends beyond the period of the contract, or when their purpose is to protect know-how considered secret, which leads to limitation of the possibility of the lessee transferring it to third parties after the contract has expired.

At the opposite extreme there are contractual provisions incompatible with a true transfer of technology, examples being those clauses that require the destruction of equipment, or those that prohibit manufacture of the product that features in the contract, using the know-how acquired during the validity of the contract.

A recent amendment to the code* included a new "prohibited clause". It refers to obligations entered into after the contract has expired, and formalizes what has been the practice of the Institute. Clauses are now not permitted if they "set limits to the licensee's activity after the termination of the license contract, whenever those limits do not arise from the industrial property rights held by the licensor".

To counterbalance this, matters that are considered less important are now treated in the law in a more flexible manner. This is the case of the clause referring to transfers of investments and improvements introduced by the lessee. An obligation to transfer is now accepted, if under balanced terms.

Also, predominance of a foreign language is no longer prohibited.

With respect to the period of validity of the contract, the FII intervenes in 22% of contracts registered. This results in the nearly total elimination of contracts of unstated or indeterminate validity and to a general reduction in the period. Even so, provision is made in many cases for possibly renewing, generally for annual periods.

The code contains no reference to the matter of payment for technology. This is, however, one of the questions that frequently leads to the intervention of the FII: last year in 24% of licensing contracts *strictu sensu* the level of royalties were reduced by 2.2%. This has led to a fall in the average royalty rate from 4.7 to 4.4%.

A certain degree of development is therefore justified in this matter—payment for imported technology—so that it may be quantified, and questions of a concrete nature discussed that fall within the competence of the department that deals with the assessment of technology transfer contracts.

PAYMENTS FOR THE CONTRACTUAL IMPORTATION OF TECHNOLOGY

The imbalance between the flow of payments for imports of technology in Portugal compared with the flow of export receipts is highly important and has a

*Decree-Law No. 174/82 of May 12, 1982.

tendency to increase, as can be seen from Table 1.

RIGHTS FOR PATENTS, TRADEMARKS, MODELS, ETC.

	1972	1973	1974	1977	1978	1979	1980
	(10 ⁶ escudos)						
Payments (1)	293	357	518	764	779	1072	1584
Receipts	24	38	47	105	83	131	186
Balance	-269	-319	-471	-659	-696	-941	-1362
Coverage (%)	8.2	10.6	9.1	13.7	10.7	12.2	12.0

SOURCE: Central Bank

Table 1

A study made by the FII concludes that there is an underassessment of those sums in respect of receipts and payments. It adds, "... It is not likely that receipts concerning exports of technology exceed 8% of payments".

Portuguese total technological payments amounted to 4.2 billion escudos in 1980 and 5.8 billion escudos in 1981. Growth rate for the period 1979/81, at current prices, was 38%.

Five countries (U.S.A., Germany, United Kingdom, Switzerland, and France) were the recipient countries of 70-75% of total payments. The U.S.A. was the major destination, despite a continuous regression in relative terms that took France into first place in 1981.

(10⁶ escudos)

Main Countries	1978	%	1979	%	1980	%	1981	%
U.S.A.	566	26.1	544	19.5	707	16.8	824	14.2
France	334	15.4	498	17.9	514	12.3	1003	17.3
Switzerland	317	14.6	278	10.0	534	12.7	621	10.7
Germany	256	11.8	312	11.2	675	16.0	676	11.6
U.K.	173	8.0	261	9.4	564	13.4	644	11.1
Belgium	115	5.3	243	8.7	314	7.5	399	6.9
Sweden	98	4.5	137	4.9	115	2.7	132	2.3
TOTAL	2171		2782		4204		5796	

SOURCE: FII; Based on Central Bank

Table 2

It is interesting to note in Table 2 that almost 60% of the payments have gone to EEC countries, while EFTA has received only 20% of payments in the last four years. The Netherlands, Spain and Italy appear at times, but not regularly, with figures of the order of 4 or 5% or even 7.8% of total payments, as happened with Spain in 1981.

It is interesting to note to which sectors such transfers of technology go and detecting correlations between countries of origin and sectors importing technology over the last three years (Table 3).

Sectoral breakdowns show that chemicals and metal products, machinery and equipment account for about 60% of the payments.

A cross-analysis—country/sector—shows the following:

- Chemical sector — Germany
- Metal products and equipment — U.S.A.
- Pulp and paper — Sweden
- Food processing — Switzerland

(10° escudos and %)

**PAYMENTS UNDER T/T CONTRACTS BY
SECTORS OF ACTIVITY**

SECTORS	1979	1980	1981
31-Food Processing	10.8%	8.1	6.5
34-Pulp and Paper	6.9	4.2	4.1
35-Chemical Sector	33.1	38.2	29.9
37-Iron and Steel Basic Ind.	4.9	5.4	3.4
38-Metal Products	17.5	21.7	22.7
41-Electrical Energy	4.8	2.6	2.6
50-Construction			6.5
83-Business Services	5.5	3.8	3.9
Other	16.5	16.0	20.4
VALUE	2782	4204	5796
TOTAL			
%	100.0	100.0	100.0

Table 3

An analysis that takes account of the percentage of foreign capital existing in lessee companies is also of great interest, and leads to the conclusion that the contractual importation of technology is much more common among such companies than among those without foreign participation. The CECs accounted in 1980 for 61% of the total of payments for technology, while in 1981 this percentage was 63.8%. If we consider only those companies with a majority of foreign capital, the percentages were also high: 51 and 48.8% in 1980 and 1981, respectively.

On the other hand, the majority of contracts entered into by the CFCs are with the parent company or its subsidiaries. Some 52% of total payments made in 1980 and 51% in 1981 fall into this category. This emphasizes the particular factors concerned in the assessment of such contracts, especially difficulties of establishing boundaries between the various categories of the leasing of technology and the respective payment.

Negotiating Capacity

The Portuguese subsidiary shows a very low negotiating capacity vis-a-vis the parent company. It is natural that a tax system more favorable to the cession of technology than to profit and distributed dividends contributes nothing to improve this situation.

However, certain progress has been observed in this field. This shows that it is worth following a way of negotiation, avoiding falling into the temptation of general prohibitions of royalty payments between interconnected companies. Often, we believe, such a prohibition will not avoid payments under other headings (e.g. servicing). It would be of greater interest to distinguish those interconnected companies that form part of the Portuguese economy, generating acceptable levels of national value added and positive results for the balance of payments from those that have an almost zero industrial impact and a high degree of dependence on imports.

That is, the appreciation from the economic point of view of contracts for the transfer of technology is in the first place done so as to have an idea of the effects of the company's activities, without attaching less importance to whether there is a participation in the joint

stock and in the control of management.

**ISSUES CONNECTED WITH METHODS
OF PAYMENT**

Basis on Which Royalties and Royalties Rates Are Calculated

On these issues the law just lays down that it shall be compulsory for technology transfer contracts to contain a "detailed description of the technology content and of the exact form in which it is supplied, as well as the *types, forms and amounts of payment due*" and moreover that *sale prices of goods and services* shall be fixed at levels not above those ruling on the international market whenever transactions are foreseen in these same goods and services between the party supplying and that receiving the Technology".

After four years of operation of the FII, contracts having been frequent in which this Institute has intervened so as to improve the contractual balance with respect to payments, it is not clear what a legal text might have to contain so as to be a solid support in negotiations. The variety of situations is so great that (save in the case of servicing contracts, in which assessment of the payments involved is easier relatively) there would be a risk of having to obey very strict rules which in practice could be unfair and a hindrance to the flow of technology.

Negotiating problems arise above all in the field of licensing contracts, which are as a rule paid for by means of royalties and, to a less extent, by a lump sum. More often the following questions are put:

a) Basis on which royalties are calculated

By far the most usual criterion is the calculation of a percentage on "sales"*.

It is rare (with the exception of the electrical engineering and electronics industries) for there to be companies that negotiate a basis for royalties that is linked to their overall performance (e.g. profit or additional profit) or to the degree of industrial transformation that they make possible (e.g. deducting from the basis of the calculations the value of purchases from the lessor of raw materials and intermediate goods). This situation has not proved easy to change, albeit something has been achieved toward transforming fixed payments into payments linked to production/sales, at times differentiating sales to the external market.

b) Level or rate of royalties

The difficulty of access to detailed information regarding the rates usual in other countries and/or with other lessors of technology, the inequalities in negotiating power between the parties and their capital links are some of the factors to bear in mind in the appreciation of contracts submitted for the approval of the FII.

Despite the difficulty of comparing the different

*It is interesting to note that the legal measure that defined a list of priority sectors for foreign investment stated clearly what were the requisite features that projects must contain so as to benefit from automatic approval. In the chapter on payments for technology connected with these projects, the following is the rule stated: "The total charges to be incurred with the transfer of technology are not to exceed 5% of the national value added generated by the project."

contracts, even those within the same sector, it is becoming possible to ascertain and make known those royalty rates which are understood to be maximums, which at least has the advantage of resolving anomalous situations. However, this is a "reasonable limit" which is by no means satisfactory for a correct assessment of contractual charges.

In licensing contracts the average royalty rate in 1981 was 4.45%, against some 4% in 1980. In 1981, the FII intervened in 24% of these contracts, and the average reduction obtained in the respective rates was of the order of 2.2%.

RESULTS OF APPLICATION OF THE CODE

It can be stated that creation of laws and regulations and of an institution oriented toward control of FDI and technology transfer has not caused a reduction in their flow.

Statistics show that high growth rates were attained without excessive concentration either by countries of origin or by sectors of activity. Neither has there been any slowing-down in respect of technology transfer contracts, and their number has been increasing.

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	TRANSFER OF TECHNOLOGY CONTRACTS REGISTERED		FOREIGN DIRECT INVESTMENT AUTHORIZED	
	Nr.	Value (10 ⁶ Esc)	Nr.	Value (10 ⁶ Esc)
1978 Service-Licensing-	135		128	1 893
	81			
TOTAL	216			
1979 Service-Licensing-	318		252	4 245
	189			
TOTAL	507			
1980 Service-Licensing-	443		321	10 734
	170			
TOTAL	613			
1981 Service-Licensing-	576		378	11 584
	235			
TOTAL	811			
Total	2147		1079	28 456

Table 4

This is certainly in part due to the reasonableness of the criteria used. It is rare for an application to be rejected, whether in the field of FDI or in that of technology transfer contracts.

In the same way the effects have been felt of con-

crete actions to promote and welcome foreign investment carried out with a certain intensity throughout the four years that the FII has been in existence.

The lessons learned regarding "authorizing" activities, which will be progressively reduced over time, today already constitute an important basis for the correct launching of various actions intended to create conditions for the more correct importation of technology and for its acquisition.

We wish in particular to mention those actions that aim to make available to lessees general information as to the negotiation of technology transfer contracts, available technologies (with particular reference to

PAYMENTS RESULTING FROM CONTRACTS FOR THE TRANSFER OF TECHNOLOGY

YEARS	VALUE (10 ⁹ esc.)	VALUE (USD)
1978	2 170 683	49 404 443
1979	2 781 627	56 856 083
1980	4 203 573	83 967 341
1981	5 795 921	94 172 180
Average growth rate 1978/1981	38.7%	24.0%

Table 5

small and medium companies), support in the pre-negotiation stage, monitoring the effects of the importation of technology transfer vis-a-vis existing expectations of expansion in activity or improvement in productivity, and further as to increasing the degree of technological independence. Many of these actions involve the strengthening of coordination with Portuguese and international bodies.

From an overall appreciation of the criteria for assessing technology transfer set out in the law we are today convinced that these criteria are globally correct and that the activity of the FII has been shown to be positive, in particular owing to the significant reduction in restrictive clauses and in the level of payments, as well as through the maximization of the use of national technological capacities.

There is naturally a good deal of room for improvement in this field; on the other hand it is certain that only with an increase in national investment in R&D and by strengthening cooperation with specialist international organizations will it be possible to accelerate and correctly orientate the process of technological development in Portugal.