

WORKING PAPER

JOINT VENTURES; PROSPECTS, PROBLEMS,
AND IIASA PARTICIPATION

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July 1987

WP-87-061

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PREFACE

The Director General of the Soviet firm "Electrosila", Boris FOMIN, participated in several projects and events at IIASA. He was one of the key participants in the project on Innovation in Electro-Technology Industry. During the last years he participated in activities connected to the TES-Program.

In this paper he discusses the subject of joint ventures particularly in the context of East and West cooperation with illustrations based on the Soviet firm "Electrosila" which he has been leading for many years. He also outlines the role which IIASA can play in this important field.

The paper will be interesting to a broad community of people working in this field.

Prof. Vitali Kaftanov
Deputy Director

JOINT VENTURES; PROSPECTS, PROBLEMS AND IIASA PARTICIPATION

B. I. Fomin
Director General
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The industrial world is characterized by countless inherent distinctions of a sectoral, regional, social, and other nature; but at the same time, it is unified by the warm reception it gives to new ideas. For example, in all regions of the industrial world, great interest is manifested in the problems of human and environmental protection, in the scientific mastering of concomitant processes, in the use of computers and new energy sources, and in the implementation of robots and flexible manufacturing systems.

Thus, irrespective of social, regional, national, technological, and other differences, no firm or enterprise would not welcome solutions to these and other problems of technological development. Such solutions involve diverse approaches, management methods, tactical decisions, and organizational structures. The fact that different firms succeed at basically different dynamic rates is both natural and predictable. However, the vital goal of technological development is always foremost and persistently pursued. By the same token, every industrial manager is invariably interested in implementing useful innovations, regardless of the size and specific character of the enterprise.

Accomplishment of such tasks suggests that there is a need to coordinate scientific, technological, and industrial activities throughout the world. It would be particularly useful to develop more, direct, flexible, and efficient contacts among scientists, industrial managers, specialists, and engineers from different countries, thus stimulating further cooperation.

LEVELS OF INTERNATIONAL-INDUSTRIAL COOPERATION

In the developmental history of international scientific and industrial relations, one can discern several main forms of useful cooperation. Judging by their prevalence, the following sequence of exchange seems to be typical.

Export and import of products constitute the most frequent and simplest form of contact. On a second level, the export of products may entail obligations concerning assembly, technical service, operational control, improvement, and training the client's personnel. On this level, cooperative efforts may deepen as the manufacturing firm, under the terms of the contract, supplies not only serial production, but products tailor-made to comply with specific requirements of the consumer.

A third level of cooperation, which implies substantial extension of relations beyond contract fulfillment, comprises various types of scientific-technical collaboration, including selling licenses to one another, sharing know-how, developing joint projects and programs, encouraging close connections between research centers and laboratories, training specialists, exchanging advanced experience, and providing technical help.

Once this third level has been achieved, it may be possible to organize cooperation in the form of joint ventures.

Industrial manager that I am, I shall try to illustrate these successive stages of cooperation with examples derived from the concrete practical experience of the electrotechnical complex that I head.

THE ELECTROSILA EXPERIENCE

Leningrad's electrotechnical production amalgam, "Electrosila", achieved its excellent reputation in connection with its great contribution to the creating an electrical power industry in the USSR, at the beginning of intensive socialist construction in accordance with Lenin's historical plan for the electrification of Russia (GOELRO) and in subsequent years.

Electrosila created the first Soviet hydro- and turbo-generators without foreign suppliers. It manufactured large generators for such world-famous Soviet hydroelectric stations as Krasnoyarskaya, Bratskaya, and Sayano-Shushenskaya.

Electrosila-made turbogenerators of 1000 MW capacity run successfully in scores of nuclear power stations; other large electrical machines are made for nuclear-powered ships, rolling mills, and in the mining and oil-chemical industries. Its electrical apparatus is used in thermonuclear fusion research plants of the Tokomak type and for many other purposes.

The Electrosila complex, which includes a modern scientific-technical center and some large well-equipped enterprises, is actively engaged in developing innovative processes. For example, during the last decade, Electrosila pioneered the development of three new turbogenerator cooling systems: hydrogen cooling for generators of 1200 MW capacity; water cooling for generators of 800 MW capacity; and helium cooling for the unique experimental 300 MW turbogenerator using superconduction phenomena in its construction.

Electrosila is also well known in connection with some widely acknowledged organizational solutions for instance, in the realm of organizational and management structures, systems approaches to personnel training, the implementation of system to encourage initiative and personal creative activity, technologically progressive management, and the development of some computer and trial systems. In the 1970s, Electrosila was awarded a UNESCO prize for promoting social progress through the export of its generators and other electrical machinery to all the continents of the world. In the 1980s, export production continues. For example, a turbogenerator of 1000 MW capacity was mounted in the Koslodui nuclear power station in Bulgaria, six turbogenerators of 500 MW capacity were installed in the Enschwalde power station in the GDR, 300 MW turbogenerators were supplied to Argentina and Greece, and turbogenerators of smaller capacity have been exported to India, Poland, Turkey, Finland,

Yugoslavia, Uruguay, Brazil, and other countries. Today, 86 countries have imported Electrosila products, and this number will increase in accordance with the amalgam's export plans. The mix of exported products will be extended to include hydro- and turbogenerators, d.c. and a.c. electrical machines, low-voltage apparatus, and household appliances.

At the same time, export of its production to many countries of the world enables Electrosila to use in its technological cycle not only home-made equipment, but that of German, Swedish, Italian, French, Japanese, and other firms, and to use English and Polish computers.

New impetus will be given to our export-import activity in 1987 as, in accordance with the decision of the Soviet government, an export-import firm will be set up as part of the amalgam. This firm will be given rights to choose its trade partners independently, fix contract prices and terms of delivery, study the world market, and advertise. With an export-import firm of its own, the amalgam will be able to build its own foreign currency funds and to acquire state currency credits. This firm will be responsible for the foreign trade relations of Electrosila as a whole, including development and implementation of extensive scientific-technical cooperative activities.

At present, Electrosila has stable contacts, of mutual benefit, with many foreign electrotechnical firms, especially in the planned-economy countries, but in a number of market-economy countries as well.

The following point is essential: in many instances, Electrosila's scientific-technical cooperation with related firms abroad has progressed from the initial stage of a limited exchange of information and experience up to the present stage of active and mutually useful scientific and production collaboration.

As examples, one can mention the contacts with the well-known Czechoslovakian firms CKD (Prague) and Skoda (Pilsen). Nowadays, Electrosila has turned from the realization of common research programs to direct scientific and production cooperation in the form of delivery of wear-proof punches and some sub-assemblies of a.c. machines, as well as close cooperation in creating a unique cryogenerator. According to the agreement, the Czechoslovakian firm has delivered to Electrosila a cryostat for the assembly of the machine and will deliver an excitation system and cryogenic appliances.

Together with the Yugoslavian firm "Rade Conchar" (Zagreb), the highest-rated generator ever used at Yugoslavian power stations was manufactured.

In the coming years in the realm of technology, we plan to cooperate directly with Bulgarian, Hungarian, and Polish manufacturers of electrotechnical products. These joint efforts will concern mechanization and automation of production processes, creation of robot-equipped punch complexes, and computer-aided design.

We are preparing to work with the well-known German firm "Sachsenwerk" (GDR) in the manufacture of a.c. electrical machines and with the large Hungarian amalgam "Ganz" in producing turbo- and hydrogenerators.

Electrosila promotes its cooperative ties with electrotechnical enterprises in such countries as Argentina - in joint manufacture of a hydrogenerator for the power station "Piedro-del-Agila"; Rumania and Poland - in manufacture of electrical motors for rolling mills; and India - in manufacture of electrical equipment for walking excavators.

One of our most complex international collaborative efforts is a long-term, multiple-target contract for joint Soviet-Indian erection of a large plant for electrical equipment production in Hardwar. This contract, which is being implemented successfully,

provides for extensive cooperation in the spheres of technology, design, production, delivery and assembly of technological and auxiliary equipment, personnel training, and post-construction development and modernization of the enterprise.

PROSPECTS FOR INCREASED INTERNATIONAL-INDUSTRIAL COOPERATION

These examples, I hope, reflect the diverse export-import, scientific-technical, production and other beneficial foreign connections of Electrosila. Such examples confirm, first of all, the unquestionable urgency of stimulating and supporting international cooperation on the level of firms and research centers. They stress the evident trend to transform initial connections, mainly for purposes of information exchange, to the level of close, beneficial, and I would say, mutually indispensable cooperation. It seems safe to predict that the next most important stage of international scientific-technical and industrial development will involve not only production and technological cooperation but, resulting naturally from this, the organizational integration of enterprises and firms in different countries as well.

In the near future, one can foresee an increase of the number of joint ventures. The experience acquired to date makes it possible to affirm that the organizational forms of such enterprises and firms will be extraordinarily and, I would say, unpredictably diverse. There can be differences in their principal organizational structures, both simple and complex partnerships, diverse scientific exchanges, joint and parallel research programs, interaction in manufacturing prototypes, and beneficial cooperation in delivery of mass products. There exist wider prospects in the realm of technological specialization and the use of new technology: computers, robotics, and so on. There are no formal limitations for joint production practices, organization and management systems, implementation of perfect planning methods, organization of production and quality control, and developing means of stimulating creative labor and initiative.

Joint ventures will extend a company's access to world-wide experience, on the one hand, and expand a company's opportunities for profit and achievements, on the other.

The experience of international cooperation gained in many companies confirms the favorable prospects for creating new joint ventures; but at the same time this experience, including the experience of Electrosila, suggests that development is not likely to be problem-free.

PREDICTABLE PROBLEMS IN THE JOINT VENTURE APPROACH

The consecutive process of "reciprocal deliveries-scientific-technical collaboration-cooperation", described above as the typical basis for the creation of joint ventures, often proceeds too slowly. One can cite cases when some objective or subjective factors arrested progress half-way, when cooperation failed to go beyond the exchange of certain information, and even when the relationship deteriorated into an inefficient circular negotiation. The reasons for such "inhibition" are not yet sufficiently known and systematized.

One can fail to conceive the full scope of an acute personnel training problem. Introduction of new principles of international exchange, particularly at its highest level in the form of integrated enterprises, requires essentially new approaches to training a large number of specialists who have adequate qualifications. One-sided and disconnected training of intermediaries, whether in countries of planned or market economy, will not solve the problem more than temporarily.

Finally, for the international cooperation to gather momentum will require new, profound, and active research into world markets; innovative approaches to mutual information and advertising, research, and design; and substantial adjustment of strategies and long-term plans.

What is peculiar about these challenges is, first of all, their international nature. Moreover, virtually every potential

problem associated with managing joint ventures is complex; and that is why they can be solved only on the basis of a systems approach and flexible, scientific coordination confirmed by experience.

IIASA'S POTENTIAL CONTRIBUTION

Considering these factors, it is possible to foresee that international organizations close to industrial circles, especially such a competent scientific center as IIASA, may play a great role in accelerating and rationalizing the creation of future joint ventures. Owing to its high scientific status, its close connections with industrial firms, its applied problems orientation, and its staff of international experts, IIASA can contribute not only in the sphere of research, but in the promotion of its valuable recommendations and the new ideology of international cooperation.

IIASA's flexible organization would make it possible to bring together small, but competent and authoritative, coordination committees for organizing joint ventures. For instance, there might be an electrotechnical coordination committee that included managers of some leading electrotechnical firms.

Besides sector coordination committees, responsible for quick and effective promotion of IIASA recommendations with the financial support of the firms concerned, a team could be formed for theoretical and practical training of a group of skilled experts. In the course of their study the experts, selected from the most competent and innovative specialists of large firms, East and West, would have an opportunity to make informal, as well as business, contacts. They would benefit from this direct intercourse by substantially extending their professional and personal outlook, to say nothing about acquiring special information and mastering the new ideology of international-industrial cooperation.

IIASA's contribution to organizing joint ventures would increase greatly, if its current research objectives were supplemented by business-related activities that promoted useful contacts between managers and specialists of collaborating firms and enterprises.