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The Ford Motor Company in the Soviet Union in the 1920s-1930s: Strategy, identity, performance, reception, adaptability”.

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Summary: In 1920s the Soviet political and economic officials, engineers, mass media displayed great interest to the achievements of Industrial America, especially of the Ford Motor Company. The Communist leaders were impressed by huge output of cars and tractors, economy of scale, automatic running of Ford factories. They weren't going to imitate the whole system of capitalist industrial production. Nonetheless, the “cut out from the context” elements of this system – technologies, equipment, specialists fell into the horribly inadequate environment. Large-scale production of Soviet automobiles was detained by low quality of materials, low labor discipline, defective output and exceptionally high production costs. The Company technicians could not improve general situation. Nevertheless, the Soviets managed to start, not as quickly as desired, mass production of cars and trucks, adapted to home conditions and to the Government's economic policy.

“This was the beginning of a new era for Russia”, said Frank Bennett, engineer from the Ford Motor Company, commenting the start-up of the first Russian assembly plant in Nizhni Novgorod on February 1, 1930. Cable about this event was immediately sent to Henry Ford¹. Bennett acted as advisor to the Russian superintendent of the plant. In June, 1930 the Ford Motor Company's technical assistance was highly estimated by Soviet experts: “Agreement with Ford has a great political significance, and, from a technical viewpoint, it is our most solid connection to the American industrial mechanism”. The Russian trainees unanimously appreciated their time at the Rouge plant and courtesy of the shop administration².

The Soviet leadership wanted to harness the technical progress to strengthen the Soviet power and satisfy demand for every standardized production. The Ford Motor Company became a “beau ideal” for huge output of cars and tractors, economy of scale, alleged simplicity of factory operations, run by automatic machinery and semi-skilled labor. During the World War I, Revolution and civil war (1914-1921) the Russian labor degenerated notably, but the state monopoly, imposed by Communists, permitted to manipulate the nation's resources. By 1930 the Soviets ceased the inflow of foreign capital in form of concessions and proposed to Western businesses a wide range of technical assistance agreements, paid by the USSR. Hundreds of manufacturing and engineering companies participated in that tremendous program. The *Business Week* named economic recognition of Red Russia the *fait accompli*³. Big business men, like Henry Ford, approved intention of Russians to acquire American industrial methods.

What induced American and other foreign manufacturers to conclude agreements of technical assistance with the communist Russia? Making design of a factory or selling know-how was quite an easy way of making money. The Soviet Government compensated charges of the

firms and paid awards which constituted their profit. The Soviet organizations purchased raw materials, employed workers and paid for their training abroad. To what extent such bargains proved to be risky for foreign firms? The risk was caused by pre-schedule termination of contracts if the Soviet party undertook to finish the project independently, without full payment expected by the firm (according to Soviet data, about 37 agreements of 170, concluded in 1923-1933 in heavy industry, were ceased before agreed terms). Settling disputes in arbitration courts was usually provided. However, the contract with Ford Motor Company required settling of disagreements by negotiations only.

According to general agreement of May, 31, 1929, the Ford Motor Company was to render technical assistance to the state corporation "Autostroy" in creation of Ford-type factories⁴. In 1930, two assembly plants: No 1 in Nizhny Novgorod, and No 2 in Moscow, started to give production. They used automobile parts delivered by the Company, and after some time, made by the Soviet producers. By January 1932 the largest in Europe full-cycle automobile factory in Nizhni Novgorod was ready. Its capacity permitted to make up to 140,000 Ford vehicles (*Models A and AA*) per year. Supplied mainly by Russian producers, this factory was called *GAZ (Gorkovskii Avtomobilnii Zavod)*, in the fall of 1932, because the city was renamed Gorki.

However, the "era of good feelings" quickly changed for tensions and mutual disappointment when the real work started and practical matters were to be solved. It happened at every Soviet construction site and at every newly-built enterprise. The American manufacturing system could work effectively in other country only at observance of all rules and norms: uninterrupted inflow of raw material, skillful engineering, good factory management, disciplined and well-trained workforce, etc. In the USSR such conditions were absent. Borrowing American industrial achievements was often called "Americanization", but Russian copies of Ford factories or other American enterprises worked poorly not only the first months, but years after their start-up. It was caused by economic and organizational factors, common to all Soviet economy during the Industrialization decade, and, especially, in the First five-year plan (Table 1).

Table 1. General conditions of manufacturing in the USA and in the USSR in the end of 20s – the beginning of 30s

In the USA	In the USSR
Abundance of raw materials and availability of all kinds of machinery	Lacks and poor quality of materials and technical devices, partly improved by imports
Taking decisions within the company	Factories were subordinate to higher administration and depended on state budget and regulation
Engineers and workers gained skills in American industries	Less than 1% of engineers and workers passed training at American or European factories. Most laborers were recruited in villages and had no industrial skills
Strict discipline, subordination, managerial hierarchy	Poor labor discipline. Local Communist party structures, labor unions, political police (OGPU, NKVD) interfered with factory operations
Economy of scale, reducing costs of production	Preference to cheaper raw materials and cheaper workforce
Horizontal coordination of supplies, production and distribution	Vertical system of coordination, managed by the top planning and distribution administration

According to Frank Bennett, “we didn’t get started immediately. It was maybe a week or ten days before we got started rolling. They would put cars on and then they would miss a part here and a part there... As a matter of fact, it was the first plant of that kind in the country... Most of these men along this assembly line had been to Detroit. My major problem to start with in getting these operations going was handling tools. The people didn’t know how to use them... They eventually grew into it so that we were turning trucks and cars off the same line. The Russian laborers... were slow in comparison with what we do here because they didn’t really know what to do. When it comes to team work, they were not too good”⁵.

The initial stage of work of any factory often happens difficult. The Ford Motor Company, created in 1903, passed through technical and organizational problems, too. Supplies were of poor quality, automobiles broke, but the factory problems were solved consistently, step by step. Perfection of manufacturing process became the strategy of the company, and quick development of parts and accessories making facilitated the process. Most importantly, the Ford factory was private, not state-governed venture. All important decisions were taken within company in the most efficient ways. Henry Ford and his managers achieved rhythmical work,

eliminated bottlenecks, introduced strict discipline in the shops. Without it there could be no conveyor system, which was entered gradually (1913-1917), in experimental way.

At factories constructed with the help of the Ford Motor Company in Russia, all occurred in a return sequence. The assembly line technique and machinery were established in the very beginning, and it was required "to draw" to them other factors and conditions of manufacturing. To accomplish it was extremely difficult, because the Government fixed quotas on every description of supplies, financing, deliveries, etc. Haste, vanity only depressed normal work. It became necessary to stop or reduce production to a minimum to remove omitted or arisen malfunctions, to wait delivery of missing tools, spare parts, materials etc. The company specialists had but limited responsibility – to consult and supervise adjustment of the machinery and to help in starting-up of the factory.

When the main auto factory in Nizhny Novgorod started work in January, 1932, the assembly plant No. 1 in the same city began to carry out various auxiliary operations: coloring, completing motor vehicles, repairing, etc. Tasks given to the plant varied 2-3 times per month. It was a fever work, which compelled the administration to hold additional labor. At reduction of tasks, the plant held up to 50% unnecessary workers, while unexpected increase created shortage up to 50%. The new, unskilled men tore off qualified employees for various instructions and explanations. At diminishing of the program, the labor force was reduced, and the staying worker was bound to carry out several operations, including those new to him, to master which it was possible in one or two months. Transition to making other production "broke all work done earlier", and it was necessary to start from the very beginning, cried the plant administration's explanatory paper in 1932⁶.

Similar lacks took place at No. 2 assembly plant in Moscow. Its work entirely depended on shipments of auto parts from the Ford Motor Company. In 1931 the plant's capacity was used on the average of 56%. The dependence on deliveries created sudden fluctuations of the production program and necessity of hiring excessive labor. In February, 1931 the factory was stopped because of absence of parts for assembly. Only in August the monthly plan was completed under the strict Government order to provide additional motor vehicles for harvesting, but next month the assembling operations again dropped down. In the fall of the year the financing of the plant was reduced from 4 million of gold rubles to 1,5 million. Such fluctuations did not allow to check the conformity of the technological process, designed in America, to Russian conditions, to find bottlenecks and other obstacles. Neither it was possible to maintain a uniform rhythm of work in all shops to lower costs of assembling⁷.

One American expert wrote in 1932, that the value of this plant's excellent facilities was being discounted badly by lack of attention to details, particularly in the handling of materials and the disposal of incoming crates and boxes. "Some of the mechanical operations indicated a greater regard for numbers than for quality". He summarized difficulties, common to all Soviet automotive industry: floating labor, lack of experienced supervisory and technical personnel, shortage of materials, inadequate transportation, muddleheaded thinking, etc.⁸

The Ford Motor Company was by no means guilty of lack of supplies: it was the Soviet policy to reduce purchases as soon as possible. In August, 1931 Joseph Stalin angrily insisted upon the hard currency saving and demanded termination of bargains with American firms⁹. Orders for factory equipment were transferred to European and Russian factories. The progress of the main automobile plant (*GAZ*) was exceptionally slow, with an emphasis upon mastering techniques and upon manufacturing tools, dies, and automobile components. The "Autostroy" sent about 230 workers and engineers to study at Ford Motor Company, but upon their return some of these men were assigned to other plants. Efforts to recruit, in exchange, skilled workers

from other places were often unsuccessful.

The social-political climate in the Soviet industry was a mix of enthusiasm and fear. The political police, local Communist party structures and union leadership were very influential, and their suspicion towards engineers, as a part of intellectual class, “intelligentsia”, was evident. Moreover, strong professional jealousy had risen between Russian and American engineers. The Russians were proud of their theoretical knowledge, while Americans stressed the importance of practical experience¹⁰. The whole Soviet automobile production reached only 23,879 units in 1932, and 49,710 in 1933¹¹. Most of them came from GAZ. These figures represented only a fraction of the capacity that the factory was designed for, and a significant portion of this production involved merely the assembly of Model A and AA kits purchased from the Ford Motor Company.

Ford engineers evidences were especially important. Nilkanth Chavre, employed as a gauging and inspecting specialist to the GAZ, reported to the American consul at Riga, that the “Autostroy” adopted Ford methods entirely. However, the Gorki plant, able to produce at least 1,200 trucks per day, with planned daily production of 500 trucks during the first two years, actually gave 75 trucks per day, of which about 30 were in running conditions. The unfinished trucks remained for some days in the yard of the plant. When their quantity in the yard became too great, the trucks were taken to the assembly plant No 1, about six miles distance, to be stored there until such time as the necessary parts to complete them could be obtained. Most of them lacked electrical and body equipment. Mr. Chavre named major causes for non-fulfillment of the plan: poor transportation facilities, which delayed the receipt of raw materials; lack of uniformity of the parts received from other plants. The steel was for the most part purchased from Germany and to some extent from England. Some was supplied from the Russian steel mills, but it was generally not uniform in quality. “In some cases the Russian steel was absolutely unusable...”¹².

The engineer stated the slowness with which Russian labor could be trained. Within two days he could train the average inexperienced employee hired in a Ford plant in the United States well enough so that he could do his task accurately, and could increase his productive power without further teaching. “The Russian laborer is difficult to train since he generally comes to the factory from the farm with absolutely no experience with mechanical devices. It requires days to train him properly and it is difficult to discipline him. If he is given some instruction while at work on a production line, he is likely to take out a note book, make notes on the instruction, and then to sit down to study them, being more concerned with his own education than he is with the orderly routine of production of the plant. Furthermore, he may question any orders given to him, and may, if unsatisfied with the reasons advanced in support of the order or advice, do a little experimenting of his own”. Mr. Chavre compared Russians to a group of children playing with their first mechanical toys. They smashed them, run them improperly, and generally made a mess of things, but he regarded the Russian experiment in industrialization as a schooling period. He noted, that they would eventually outgrow their childish inquisitiveness over theoretical points and their desire to experiment, and will learn to produce according to proper industrial methods¹³.

In February, 1933, the situation at GAZ had not changed significantly. By words of other American engineer, Hyman S. Wolfson, uncompleted automobiles did not overflow a factory yard, and were detained on the main conveyor. Instead of 60 – 70 trucks a day, which was being turned out for a time in the autumn, the plant was again producing 30 – 35 machines a day. The main reasons for the decline were “lack of raw materials, poor transportation facilities and poor labor morale”. Cars were held up for completion, even though the whole plant had to be held up along with them. The Russian industry, said the engineer, was incapable of replacing the mechanical equipment as it wore out, and it was necessary to import such equipment for years in

order to operate the plant at all. The failure of the Gorki plant to receive the necessary raw materials was attributed to the general conditions prevailing in Russian heavy industry¹⁴.

Brothers Victor and Walter Reuther, who worked at Gorki plant from the end of 1933 till spring 1935 marked in their memoirs, that coordination between shops was too bad. If the monthly task for the tool shop was to make certain number of stamps, the necessary drawings, models for moulding and steel for them came with about two weeks delay. This time the shop stood idle, and speed-up racing began in last decade¹⁵. Meanwhile, links between the Ford Motor Company and the Ford-type plants in Russia faded in 1933, five years before the expiration of general agreement of 1929. Hardly one American specialist remained at the Gorki auto plant after 1935 to teach Russians to handle the newly imported machinery.

Analyzing conditions at the Gorki Automobile Plant in the fall of 1937, the U.S. Embassy in Moscow stressed upon technical difficulties that handicapped this industry more than injuries caused by Stalin's purges. Large-scale production of automobiles based on modern American methods was detained by defective output and exceptionally high production costs. 12,000 tons of high priced metal produced in 1937, had to be scrapped because of various defects. Remarkably, that this information was taken from the central Communist newspaper "Pravda" (October 7, 1937, No 277) which pointed out the main reasons of poor work: 1) machinery, essential to the operation of the plant's foundry, was not properly installed; 2) that machinery was not kept in working order; 3) much of it was worn out because of insufficient care; 4) the best equipment purchased abroad stood idle because Russian engineers did not know how to use it. "One of the machines at this plant for cleaning castings for which several thousand dollars has been paid in the United States has not been in operation for two years and no one at the plant has ever even to endeavor to utilize it in spite of the fact that the machine is capable of cleaning 120 motor blocks during one seven-hour shift". Undoubtedly, the American Government took into consideration such information of strategic character, revealing the inherent weakness of Stalin's industrialization¹⁶.

The "technological transfer", inspired rather by political ambitions than by sound economic calculation, resulted in crude copies of Ford automobile plants. They were built and equipped in modern industrial fashion, but their productivity remained low, production quality stayed poor, plant management was a part of Soviet bureaucratic system. The Russians realized that they were building an obsolete model but seemed to be well satisfied with the bargain had been made by them with Ford. The main task of motor car industry became fulfilling of the state schedule of production and supplying car factories with materials and equipment. Simplicity and durability of vehicles (with a small number of de luxe autos for top officials), working for home market, and absence of foreign competition became the main conditions for the automotive production in the USSR. It was mass production, but of completely national type! Importation of American or European vehicles was stopped, besides shipments on lend-lease terms during the World War II.

In the West the motor car industry progressed quickly due to working for individual customers, not so much for the government. The Soviet automobile industry, created with the American technical assistance, symbolized, first of all, the "victory of socialism". Its further progress before and after the World War II was retarded and deformed heavily by the Soviet economic system, which tried to sacrifice everything possible in favor of the defense and heavy industry programs. Frequent change or diversity of cars and trucks were contrary to such policy. Lots of vehicles were demanded by the army, the government, stores, municipal agencies. Making trucks remained major state concern until 1960s¹⁷. All these limited output of automobiles for individuals, offering public transportation as alternative. Cars in family use were

relatively few, and for a long time remained a “luxury” in Russian eyes¹⁸. Nevertheless, the demand was great. To buy a modest car in the Soviet Union, one had to wait many months, or to employ privileges given to the War and Labor veterans, handicapped persons, Heroes of the Soviet Union, etc. In the post-Soviet years buying cars obtained market mechanism and depends solely on individuals incomes. Cars shipped from abroad, or made in Russia according to foreign technologies, like *Ford-Focus*, introduced an unprecedented competition to the old auto plants with the Soviet past.

¹ Frank Bennett, *Reminiscences*, p. 130. *From the collections of Henry Ford Museum & Greenfield Village Research Center. Oral History Section*. November, 1954.

² “The results of foreign technical assistance in the automobile and the tractor industries”, in the *RSAE* (The Russian State Archives of the Economy), RG. 7620, Inv. 1, F. 701, pp. 46-47, 56 (RG – Record Group, Inv. – Inventory, F. – File).

³ “What Big Business thinks of Russia”, in *The Business Week*. February 12, 1930.

⁴ Boris M. Shpotov, “Ford in Russia, from 1909 to World War II”, in *Ford: The European History, 1903-2003*, ed. by Hubert Bonin, Yannick Lung, Steven Tolliday. In 2 vols. Paris, P.L.A.G.E., 2003, pp. 515-518.

⁵ Frank Bennett, *op. cit.*, pp. 128-129, 133.

⁶ *RSAE*, RG. 7620, Inv. 1, F. 554, pp. 52-54, 57-58.

⁷ “Explanatory note to the Report of the Assembly plant [No. 2] for 1931”, in the *RSAE*, RG. 7620, Inv. 1, F. 491, pp. 1-13.

⁸ Walter L. Carver. “Amo and Nizhni-Novgorod Plants Lead Soviet Vehicle Plans”, in *The Automotive Industries*, March 12, 1932, pp. 419, 421.

⁹ Boris M. Shpotov, *op. cit.*, pp. 518-519.

¹⁰ “6,000 Artisans Going to Russia Glad to Take Wages in Roubles”, in *The Business Week*, September 2, 1931. This difference was noticed and commented by all American engineers who worked in Russia.

¹¹ Lev M. Shugurov, *Automobiles of Russia and the USSR*, pt. 1, Moscow, ILBI publ., 1993, p. 160 (in Russian).

¹² A.E. Carleton, American Consul, Riga, December 7, 1932, to the Department of State. “Memorandum on the Plant “Autostroy”, near Gorki (Nizhni Novgorod), Russia”, in *NAMP* (The U.S. National Archives Microfilm Publications, Records of the Department of State relating to Internal Affairs of the Soviet Union, 1930-1939), microcopy T-1249, roll 72, doc. 861.797/31, pp. 2-6.

¹³ *Op. cit.*, pp. 9-10.

¹⁴ “Conditions at the Gorki Automobile Plant”. Memorandum to the Department of State, February 17, 1933, in *NAMP*, microcopy T-1249, roll 72, doc. 861.797/32. pp. 1, 2.

¹⁵ Frank Cormier and William J. Eaton, *Reuther*, Upper Saddle River, N.J.: Prentice Hall, 1970, pp. 30-44.

¹⁶ Joseph E. Davies to the Secretary of State. Oct. 12, 1937, in *NAMP*, roll 72, doc. 861.797/39, pp. 1-5.

¹⁷ The ratio of truck to passenger car production was about 8,5:1 in 1935-1939; 7,9:1 during 1945-1949, and 3,8:1 in the next five years. In: *Borders of Socialism: private spheres of Soviet Russia*, ed. by Lewis Siegelbaum, New York, Palgrave., 2006, pp. 97-98, note 4. The situation began to change in 1960s. All new passenger cars were made in the USSR.

¹⁸ *Op.cit.*, pp. 86-87.