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THE GOVERNMENT SUPPORT PROVIDED TO THE UKRAINIAN MACHINE BUILDING COMPANIES FOR THEIR INNOVATIVE DEVELOPMENT

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Abstract. Machine building field is one of the leaders in innovation across the industry of Ukraine. In order to enhance competitiveness, the most important result of the introduced advanced technologies is the output of innovative products and replacement of an active part of the fixed assets of machine building companies at a high technological level. In the ranking of the World Economic Forum Ukraine occupied the 63rd position among 139 countries on the criterion of “innovation factors”. The result is that most innovative technologies of high resource safeness and productivity remain unused. Innovative solutions in the machine building sector are able to provide a great increase in production output and profit. The dominant factor of the innovative machine building development is the government support.

Introduction

Over the last period the main source of structural changes throughout machine building enterprises has been a system of production restructuring and modernization. Trends in machine building enterprises are significantly influenced by the objective indicators. Among them are basic and applied research results, research funding, the fall in investment activity in virtually all areas of development.

The main objective of this work is to determine trends and challenges of innovation intensification. It is getting fundamental importance in the context of efficiency enhancement across machine building companies to provide the growth of high-tech industries, reduce energy consumption, and develop telecommunication and high-tech fields.

Method

Using the method of scientific abstraction makes it possible to explain rationales behind revealed factors and distinguish typical, permanent, essential features and characteristics of economic categories. They reflect the most important aspects of the studied objects and stable cause - effect relationships in the innovative development of Ukrainian machine building companies.

Results

The results obtained over 2012 show that the share of products delivered by the machine building enterprises in the total amount of sales of industrial products in Ukraine was 12.6%. Herewith, 21.8% of the fixed assets and 15.6% of current assets used in the industry are owned by the machine building companies; the industry employs more than 20% of the workers and employees engaged in the domestic industry.

The machine building industry is getting ahead of other industrial sectors in terms of sold innovative products. The share of enterprises having sold innovative products in the total number of industrial enterprises amounted 20.4% in 2012 (Table 2). This average indicator across the industry was 9.5%.

Innovative activity of the machine building enterprises is virtually financed due to their own funds which in average account for 84 % over the period taken for analysis (Table 3).

The government is still funding innovative activity of the machine building companies at a low level. The largest amount of money allocated for these enterprises was 120.2 million USD in 2008. Unfortunately, this figure was 53.7 % in 2012 (Table 4).

The share of local government funds in the total finances provided for innovative activity of machine building companies in 2005-2008 was approximately 0.1%. From 2009 to 2012 this source was not used for funding innovative activity at all (Table 4).

Table 1

Research Work Conducted by the Industrial and Machine Building Companies

Years	Total amount, actual prices		Including						The share of conducted research works in GDP		
			Fundamental research		Applied research		Initial research examples of gears				
	Industry	Machine building sector	Industry	Machine building sector	Industry	Machine building sector	Industry	Machine building sector	Industry	Machine building sector	
millions UAH										%	
1996	1111,7	222,3	140,6	28,12	321,6	64,3	649,5	129,9	1,36	0,27	
1997	1263,4	252,7	188,5	37,7	309,2	61,8	765,7	153,2	1,35	0,27	
1998	1269,0	253,8	205,5	41,1	297,5	59,5	766,0	153,2	1,24	0,23	
1999	1578,2	315,6	220,5	44,1	330,4	66,1	1027,3	205,4	1,21	0,24	
2000	1978,4	395,7	266,6	53,3	436,7	87,3	1275,1	255,1	1,16	0,32	
2001	2275,0	455,0	353,3	70,7	304,9	61,0	1616,8	323,3	1,11	0,22	
2002	2496,8	499,4	424,9	85,0	343,6	68,7	1728,3	345,7	1,11	0,22	
2003	3319,8	664,0	491,2	98,2	429,8	86,0	3398,8	479,8	1,24	0,25	
2004	4112,4	822,9	629,7	125,9	573,7	114,7	2909,0	697,0	1,19	0,24	
2005	4818,6	963,7	902,1	180,4	708,9	141,8	3207,6	641,5	1,09	0,22	
2006	5354,6	1070,9	1141,0	228,2	841,5	168,3	3372,1	674,4	0,98	0,20	
2007	6700,7	1340,1	1504,0	300,8	1132,6	226,5	4064,1	818,8	0,93	0,19	
2008	8538,9	1707,8	1927,4	358,5	1545,7	309,1	5065,8	1040,2	0,90	0,18	
2009	8653,7	1730,7	1916,6	383,3	1412,0	282,4	5325,1	1065,0	0,95	0,19	
2010	9867,1	1973,4	2188,4	437,7	1617,1	323,4	6061,6	1212,3	0,90	0,18	
2011	10349,9	2070,0	2205,8	441,2	1866,7	373,3	6277,4	1255,5	0,79	0,16	
2012	10714,1	2140,8	2804,7	560,9	1908,6	381,7	6000,8	1200,2	0,82	0,16	

Table 2

The Share of Machine Building Companies Engaged in Innovative Activity, millions UAH

	The Share of machine building companies engaged in innovative activity, %	Total expenses	Including subsectors of the innovative activity						
			Research and developments	Including		Purchase of other external knowledge	Preparation of production for innovation processes	Purchase machines, equipment and software	Other expenses
				Internal research work	External research work				
2000	18,1	352,0	54,2	x	x	14,6	32,8	214,9	35,5
2001	16,5	395,9	34,3	x	x	25,0	36,8	249,9	49,9
2002	18,0	603,7	54,0	x	x	30,0	65,0	373,1	81,6
2003	15,1	612,0	62,6	x	x	19,2	105,5	374,7	50,0
2004	13,7	906,9	89,1	x	x	28,7	161,7	543,5	83,9
2005	11,9	1150,3	122,5	x	x	48,7	198,3	629,9	150,9
2006	11,2	1232,0	198,6	x	x	31,9	190,7	697,8	113,0
2007	16,5	2170,2	197,3	158,7	38,6	65,7	x	1494,2	215,7
2008	12,4	2398,8	248,7	191,8	57,0	84,4	x	1533,0	283,9
2009	13,0	1590,0	169,3	126,7	42,7	23,2	x	994,9	233,2
2010	16,8	1609,1	199,3	163,6	35,6	28,3	x	1010,3	172,0
2011	17,2	2866,8	215,9	166,7	49,3	64,9	x	2097,8	272,2
2012	20,4	3097,9	231,6	168,1	53,2	34,1	x	2115,4	286,3

Table 3

Sources of Funding Available for the Industrial Enterprises to Finance their Innovative Activity

Years	Total expenses in the industry	Total expenses in the machine building industry	At expense of							
			Company's own funds		The State Budget		Foreign Investors		Other Sources	
			Industry	Machine building sector	Industry	Machine building sector	Industry	Machine building sector	Industry	Machine building sector
millions UAH										
2000	1757,1	351,4	1399,3	279,9	7,7	1,5	133,1	26,6	217,0	43,4
2001	1971,4	394,3	1654,0	330,8	55,8	11,2	58,5	11,7	203,1	40,6
2002	3013,8	602,8	2141,8	428,4	45,5	9,1	264,1	52,8	562,4	112,5
2003	3059,8	611,8	2148,4	428,7	93,0	18,6	130,0	26,0	688,4	138,5
2004	4534,6	906,9	3501,5	700,3	63,4	12,7	112,4	22,5	857,3	171,4
2005	5751,6	1150,3	5045,4	1009,1	28,1	5,6	157,9	31,6	520,2	104,0
2006	6160,0	1232,0	5211,4	1042,3	114,4	22,9	176,2	35,2	658,0	131,6
2007	10850,9	2170,2	7999,6	1599,9	144,8	29,0	321,8	64,4	2384,7	476,9
2008	11994,2	2398,8	7264,0	1452,8	336,9	67,4	115,4	23,1	4277,9	855,5
2009	7949,9	1590,0	5169,4	1033,9	127,0	25,4	1512,9	302,6	1140,6	228,1
2010	8045,5	1609,1	4775,2	955,0	87,0	17,4	2411,4	482,3	771,9	154,4
2011	14333,9	2866,8	7585,6	1517,1	149,2	69,2	56,9	11,4	6542,2	1269,1
2012	19485,4	3097,9	10012,8	2002,6	198,3	76,4	70,9	15,2	9203,4	1003,7

Table 4

Finance Allocation for Innovative Activity of the Machine Building Enterprises

	2005	2006	2007	2008	2009	2010	2011	2012
Total amount	1619,3	2137,1	2573,5	3000,5	2006,0	2541,6	2731,7	2942,3
Including at expense of:								
Company's own funds	1451,0	1876,2	2001,7	2301,3	1618,0	2334,7	2376,5	2615,4
The State budget	16,5	29,2	78,1	120,2	80,6	14,8	86,4	53,7
Local budgets	0,7	0,4	2,2	5,9	-	0,0	-	-
Private budgets	-	-	0,1	-	-	-	-	-
Domestic investors	64,7	24,9	5,8	168,6	22,9	14,5	6,8	8,2
Foreign investors	15,2	11,3	29,9	60,7	102,2	63,8	13,9	10,4
Bank credits	68,5	115,0	125,1	324,4	27,5	10,2	31,6	33,2
Other sources	2,5	80,1	330,6	19,3	154,9	103,6	216,5	221,4

International experience shows that the state's share in the innovation and R&D financing in the economy is significant and is the second largest after the private sector. In 2012, the state's share of funding in the amount of research in France was 31.8 %, in UK - 33.2 %, in Czech Republic - 41.3 %, in Poland and Lithuania - 61.2 % and 49.4 % appropriately, which was higher than the share of the private sector in financing innovations.

In the developed countries, significant amounts of public funding, particularly in the form of grants or subsidies, is flowed into innovation and R&D activity of the machine building sector. For example, the Boeing Corporation received from the U.S. government about 5.3 billion dollars in 1989-2006 in the form of subsidies and grants; the Airbus received 18 billion dollars of subsidies from the European Union. Significant support for innovation is provided for other manufacturers, such as General Electric Company, the global

leader in production of electrical equipment. In 2010-2012 it was granted 2.5 billion dollars on the research and development (mostly from the U.S. Government).

However, the total cost of innovation in the domestic engineering sector is so far below the cost of individual world manufacturers of engineering products. For example, in 2010 the cost of Shlumberger's (producer of the gas equipment) innovation activity was 6.1 billion dollars, Caterpillar's (mining machinery and construction equipment) - 10.8 billion dollars, Cummins's (power equipment) - 2.8 billion dollars, Mitsubishi Heavy Industries' - 8,3 billion dollars (Kondratev, 2011, p. 18-24).

Discussion

Despite the generally high (compared to other industrial sectors) indicators of innovation activity observed over machine building sector in Ukraine, there have been accumulated a set of problems restricting the sector's development based on innovation. They allow for:

- The low level of production concentration, especially in knowledge-intensive industries, throughout the large organizational structures;
- Inadequate use of potential of the joint production of goods with foreign partners;
- Undeveloped large complexes of machine building centers with a complete cycle of work: research, research and development, testing, innovation, production, maintenance of machines and systems of machines in their being operated, their repair, etc.
- Breaking relations with enterprises and organizations of other CIS countries, which concentrated most leading scientific bureaus and agencies, particularly in high-tech sectors.

However, the machine building sector suffers from staffing problems, lack of generational change, and deterioration of the age structure of workers in the sector.

Ineffective implementation of specific target programs for machine building development, insufficient amounts of their funding from the state budget are also challengeable. Thus, the implementation of measures suggested in the "National Target Scientific, Technical and Space Program in Ukraine for 2008-2012" in 2012, were to be funded from the State Budget of Ukraine in the amount of 311.6 million US dollars. However, they were funded only at a level of 35.8% which was 111.5 million dollars.

The lack of effective demand for innovative products delivered by the machine building sector is caused, to some extent, by insufficient pace of modern development and large-scale market of innovative products in Ukraine; influenced by inadequacy of domestic producers to act as equal partners in the international market of innovative products and services.

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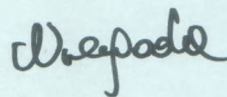
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