

MODELING THE INNOVATIVE PROCESS IN THE RUSSIAN RAILWAY INDUSTRY

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The article is devoted to the adjustment of a feasibility study in the railway sector and to justification of state policy change by the increase in a share of new passenger cars in the investment program of the state company at the expense of the decrease in a share of capital renewal repair. The article draws a lot of attention to regional aspects of the issue. Proposals for the improvement of political mechanisms of the coordination of interests were worked out based on the business proposals and positions of government bodies.

Keywords: innovative process, accommodation of interests, lobbying group, railway sector.

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МОДЕЛИРОВАНИЕ ИНВЕСТИЦИОННОГО ПРОЦЕССА В РОССИЙСКОМ ЖЕЛЕЗНОДОРОЖНОМ СЕКТОРЕ

Статья посвящена корректировке методики оценки эффективности инвестиций в железнодорожном секторе и обоснованию необходимости изменения государственной политики путем увеличения доли новых пассажирских вагонов в инвестиционной программе государственной компании за счет снижения доли капитально-восстановительного ремонта. Автор уделяет большое внимание региональным аспектам данной проблемы. Предложения по совершенствованию политических механизмов согласования интересов были разработаны, основываясь на предложениях предпринимателей и позиции государственных органов власти.

Ключевые слова: инновационный процесс, согласование интересов, группа лоббирования, железнодорожный сектор.

1. Introduction

Unlike the aircraft engineering, automotive industry and the majority of other machine-building industries, suffering a lack of orders and strong foreign competition, the Russian railway machine-building industry has a good potential for innovative development. *The CJSC Transmashholding* is the largest company on the roll stock market. *The Russian Railways* has continued to be its key partner. Almost the whole range of products required by the railroad sector is supplied by *Transmashholding*: freight and passenger electrical and diesel locomotives, passenger coaches, electric multiple units and rail busses. In 2010 *Transmashholding* offered new electrical locomotives of 2ES4K model in freight and passenger modifications to *the Russian Railways* and new metro cars of 81-760/761 model to *the Moscow Metro*. That year about 13% of *Transmashholding's* production was exported [1].

Cooperating with government structures, businessmen in the Russian passenger railway machine-building have expressed their disagreement concerning the innovative process and legal mechanisms of its regulation.

2. Innovative process in the Russian railway machine-building industry

According to the Concept of the development of *Incorporated Car-building Company Transmashholding*, federal and regional public authorities are the addressee of proposals of businessmen of railway mechanical engineering for the perfection of the innovative policy in the industry. For example, the businessmen consider that gradual transition to rolling stock updating only thanks to the acquisition of new railway techniques mainly of domestic enterprises will allow to consider much more questions of the strategic development of a railway transportation [2].

Directing more than 30% of investment and research-and-development budgets of the state company *the Russian Railways* to the capital renewals, made by a foreign manufacturer instead of purchasing new railway techniques from the domestic enterprise *JSC Tver Passenger Car-building Enterprise*, they do not consider the following questions of strategic development of a railway transportation: the increase in operational expenses for the transportation of passengers owing to the aging of the park of a rolling stock; the progressing growth of the deficit of passenger cars as the service life of cars after capital renewal is twice shorter than the service life of new cars; the decrease in quality of the service of passengers as new models of cars have improved consumer qualities, meet modern safety requirements and the comfortable stay of travelling passengers.

Methodical recommendations on the calculation of efficiency of investments into updating the carriages of locomotive draft used by *the Russian Railways* do not consider profit of car-repair enterprises calculating costs of repairs. Departments of the state company have explained it by the fact that repair enterprises are a part of the company. However, such approach does not allow to compare the efficiency of

Table 1.

Cost of maintenance and repairs

№	Indicator name	Value of indicator, rubles	Source of data
1	M-2	5 679	
2	M-3	26 020	
3	RS	172 597	Planned calculation on roundhouse servicing of cars by the Directorate on passenger service of <i>Moscow Railways</i> for 2005
4	CR-1	229 315	Planned calculation on capital repair of cars by the Directorate on passenger service of <i>Moscow Railways</i> for 2005
5	CR-2 (with moderniz.)	6 701 000	Planned calculation on repair of an open type car, CR-2 (with modernization), prepared by Orekhovo-Zuyevo passenger railroad car shed

Table 2.

Cost calculation of car maintenance and repair before capital renewal repair CRR during all life cycle (without Maintenance-1 and Operational Repair with uncoupling) according to the Russian Railways's methods

Car age, years	Types of works	Repair numbers	Average costs, ruble	Adjustment factor	Factual planned calculation	Total repair costs	Car service costs on an accrual basis
0							0
	M-2	4	5 679	0.74	4 202	16 811	16 811
	M-3	3	26 020	0.74	19 255	57 764	74 575
2	RS	1	172 597	0.74	127 722	127 722	202 297
							202 297
	M-2	4	5 679	0.74	4 202	16 811	219 108
	M-3	3	26 020	0.74	19 255	57 764	276 872
4	RS	1	172 597	0.74	127 722	127 722	404 594
							404 594
	M-2	4	5 679	1	5 679	22 717	427 311
	M-3	3	26 020	1	26 020	78 060	505 371
6	First CR-1	1	229 315	1	229 315	229 315	734 686
							734 686
	M-2	4	5 679	1	5 679	22 717	757 403
	M-3	3	26 020	1	26 020	78 060	835 463
8	RS	1	172 597	1	172 597	172 597	1 008 060
							1 008 060
	M-2	4	5 679	1	5 679	22 717	1 030 777
	M-3	3	26 020	1	26 020	78 060	1 108 837
10	RS	1	172 597	1	172 597	172 597	1 281 434
							1 281 434
	M-2	2	5 679	1.3	7 383	14 766	1 296 200
	M-3	1	26 020	1.3	33 826	33 826	1 330 026
11	Second CR-1	1	229 315	1.28	293 523	293 523	1 623 550
							1 623 550
	M-2	4	5 679	1.3	7 383	29 532	1 653 081
	M-3	3	26 020	1.3	33 826	101 478	1 754 559
13	RS	1	172 597	1.3	224 376	224 376	1 978 936
							1 978 936
	M-2	4	5 679	1.3	7 383	29 532	2 008 467
	M-3	3	26 020	1.3	33 826	101 478	2 109 945
15	RS	1	172 597	1.3	224 376	224 376	2 334 321
							2 334 321
	M-2	2	5 679	1.3	7 383	14 766	2 349 088
	M-3	1	26 020	1.3	33 826	33 826	2 382 914
16	Third CR-1	1	229 315	1.46	334 800	334 800	2 717 714
							2 717 714
	M-2	4	5 679	1.3	7 383	29 532	2 747 246
	M-3	3	26 020	1.3	33 826	101 478	2 848 724
18	RS	1	172 597	1.3	224 376	224 376	3 073 100
							3 073 100
	M-2	4	5 679	1.6	9 086	36 347	3 109 447
	M-3	3	26 020	1.6	41 632	124 896	3 234 343
20	RS	1	172 597	1.6	276 155	276 155	3 510 498
							3 510 498
	M-2	2	5 679	1.6	9 086	18 174	3 528 672
	M-3	1	26 020	1.6	41 632	41 632	3 570 304
21	CR-2	1	6 701 000		6 701 000	6 701 000	10 271 304
							10 271 304
	M-2	4	5 679	1.6	9 086	36 347	10 307 651
	M-3	3	26 020	1.6	41 632	124 896	10 432 547
23	RS	1	172 597	1.6	276 155	276 155	10 708 702
							10 708 702
	M-2	4	5 679	1.6	9 086	36 347	10 745 049
	M-3	3	26 020	1.6	41 632	124 896	10 869 945
25	RS	1	172 597	1.6	276 155	276 155	11 146 101
							11 146 101
	M-2	2	5 679	1.6	9 086	18 173	11 164 274
	M-3	1	26 020	1.6	41 632	41 632	11 205 906
26	First CR-1	1	229 315	1	229 315	229 315	11 435 221
							11 435 221
	M-2	4	5 679	1.6	9 086	36 347	11 471 569
	M-3	3	26 020	1.6	41 632	124 896	11 596 465
28	CRR	1	10 034 000		10 034 000	10 034 000	21 630 465

Cost calculation of car maintenance and repair after capital renewal repair CRR during all life cycle (without Maintenance-1 and Operational Repair with uncoupling) according to the Russian Railways's methods

Car age, years	Types of works	Repair numbers	Average costs, ruble	Adjustment factor	Factual planned calculation	Total repair costs	Car service costs on an accrual basis
	M-2	4	5 679	1.6	9 086	36 347	21 666 812
	M-3	3	26 020	1.6	41 632	124 896	21 791 708
30	RS	1	172 597	1.6	276 155	276 155	22 067 863
					0		22 067 863
	M-2	4	5 679	1.6	9 086	36 347	22 104 210
	M-3	3	26 020	1.6	41 632	124 896	22 229 106
32	RS	1	172 597	1.6	276 155	276 155	22 505 261
					0		22 505 261
	M-2	2	5 679	1.6	9 086	18 174	22 523 435
	M-3	1	26 020	1.6	41 632	41 632	22 565 067
33	Second CR-1	1	229 315	1.28	293 523	293 523	22 858 590
					0		22 858 590
	M-2	4	5 679	1.6	9 086	36 347	22 894 938
	M-3	3	26 020	1.6	41 632	124 896	23 019 834
35	RS	1	172 597	1.6	276 155	276 155	23 295 989
					0		23 295 989
	M-2	4	5 679	1.6	9 086	36 347	23 332 336
	M-3	3	26 020	1.6	41 632	124 896	23 457 232
37	RS	1	172 597	1.6	276 155	276 155	23 733 387
					0		23 733 387
	M-2	2	5 679	1.6	9 086	18 174	23 751 561
	M-3	1	26 020	1.6	41 632	41 632	23 793 193
38	Third CR-1	1	229 315	1.46	334 800	334 800	24 127 993
					0		24 127 993
	M-2	4	5 679	1.6	9 086	36 347	24 164 340
	M-3	3	26 020	1.6	41 632	124 896	24 289 236
40	RS	1	172 597	1.6	276 155	276 155	24 565 391
					0		24 565 391
	M-2	4	5 679	1.6	9 086	36 347	24 601 738
	M-3	3	26 020	1.6	41 632	124 896	24 726 634
42							24 726 634
			write-off				

investments into updating a rolling stock correctly as the cost of a new rolling stock includes profit. So, the efficiency of investments into capital renewals is artificially overestimated in comparison with investments into the acquisition of a new rolling stock. It leads to the unfairly high share of capital renewals in investment and research-and-development programs of the Russian Railways.

The use of profit defining costs of repairs of passenger cars has allowed to spend the objective comparison of efficiency of investments into updating a rolling stock and to consider issues of the strategic development of railway transportation in the formation of investment and research-and-development programs of the state company.

Transition to the acquisition of passenger cars instead of capital renewals will lead to the decrease of annual investment

and working costs by 2.34 billion rubles (annual effect = park of cars * annual economy of investment and working costs = = 25 658 * (0.097*937 678) = 2.34 billion rubles).

3. Investment efficiency calculation into updating locomotive draft coaches

Assumptions:

1. Coach service life - 28 years.
2. The price of a coach is equal to 13.5 million rubles (without the VAT) that corresponds to the average cost of an open and compartment car, produced by JSC Tver Passenger Car-building Enterprise in July, 2005.

3. Frequency of maintenance and repair of coaches corresponds to the decision of Ministry of Railways of Russia, and it is assumed that coaches are put in repair at once at the end of the standard

interrepair period (i.e. rerun is inadmissible) [3].

4. The cost of maintenance (M-2 and M-3), roundhouse servicing (RS) and capital repair (CR-1 and CR-2 with modernization) in the period under review corresponds to the accounting approved by Management on service of passengers of the Moscow Railways for 2005 (excluding VAT and planned accumulation of profit) (Table 1). Rate of inflation is zero.

The cost of capital renewal repair (CRR) is accepted at a rate of cost of CR-2 with the modernization, increased by the price of a new air-conditioning system (3 333 000 rubles without the VAT), and equals 10 034 000 rubles.

5. The cost of M-1 maintenance and the current uncoupling repair CUR was not taken into account.

6. According to the Methodology of labor productivity calculation in passen-

ger sector, the following reduction factors are used in the case of increase in service life for the accounting of change of labor costs on roundhouse servicing [3]:

service life under 5 years	0.74
service life from 5 to 10 years	1.00
service life from 10 to 18 years	1.30
service life over 18 years	1.60

Due to the fact that in process of time not only labor expenses of operation and repair of cars are increasing, but also material expenses (the number of component and unit failure are growing), it is supposed that according to the above mentioned reduction factors the cost of maintenance and repairs are changing.

It is supposed also that the cost of the second CR-1 increases in comparison with the first on the coefficient of reduction 1.28, and the cost of the third CR-1 increases with the coefficient 1.46 to the expenses of the first CR-1.

Cost estimates:

The calculation of car service costs during all life cycle on an accrual basis is given in Table 2 and Table 3. It does not consider the profit of car-repair enterprises.

As the main settlement options the following is accepted:

1. Car service life is 28 years (standard).
2. Car service life is 42 years (after CRR with service life extension).

Comparative results of variants are presented in Table 4.

Cost estimates results:

Based on the calculations which are not taking into account a planned profit, in case of transition to the acquisition of new cars instead of carrying out capital renewal repair (CRR), the Russian Railways will cut annual investment and operational costs only on 1.07 billion rubles (annual effect = $\text{park of cars} * \text{annual cost-effectiveness of investment and operational costs} = 25\ 658 * (0.046 * 896\ 302) = 1.07 \text{ billion rubles}$).

Calculation of car service costs during all life cycle is given in the Table 5 and Table 6, taking into account the profit of car-repair enterprises (based on 10% profitability).

Comparative results of variants are presented in Table 7.

According to the calculations considering planned accumulation of profit, in case of the transition to acquisition of new cars instead of carrying out capital renewal repair (CRR),

Comparison of calculations

Car exploitation variant	Cost of purchase, ruble	Operational expenses during all life cycle, ruble	Total investment and operational expenses during all life cycle, ruble	Expenses per a car, rubles in a year	Cost-effectiveness (-) / Appreciation (+) in the comparison with standart exploitation term, %
Car service life is 28 years (standard)	13 500 000	11 596 465	25 096 465	896 302	0,00%
Car service life is 42 years (after CRR)	10 034 000	3 096 168	13 130 168	937 869	4,6%

The Russian Railways will cut annual investment and operational costs only on 2.34 billion rubles (annual effect = $\text{park of cars} * \text{cost-effectiveness of investment and operational costs} = 25\ 658 * (0.097 * 937\ 678) = 2.34 \text{ billion rubles}$).

4. Legal mechanisms of innovative process regulation

Presence of disagreements between the businessmen of railway mechanical engineering and state requires legal mechanisms for working out optimum innovative policy in railway mechanical engineering. Legislatively fixed mechanisms are not presented at the federal level, but they take place in a number of regions where enterprises of industry are located. To define possibilities for the coordination of interests at the regional level we will analyze mechanisms containing in the following regional laws: *On innovative activity in the territory of Omsk region* № 527-OZ dated July 13, 2004; *On innovative activity in the territory of Primorsky krai* № 195-KZ dated February 15, 2008; *On industrial activity in the city of Moscow* № 21 dated June 16, 1999; *On bases of an industrial policy of Tver region* № 153-OZ-2 dated June 28, 2001; *On the industrial policy of Chelyabinsk area* № 1090 dated November 27, 2003; *On industrial activity of Voronezh region* № 10-OZ dated February 21, 2002; *On bases of the industrial policy in Samara region* № 10-GD dated February 11, 2004; *On the industrial policy of Chelyabinsk region* № 1090 dated 27.11.03.

We consider the participation of businessmen (as subjects of innovative and industrial activity, subjects of innovative and industrial policy or subjects of industry) in the functioning of these mechanisms in the following directions: powers of public authorities and local

government and the right of businessmen in the formation and realization of innovative and industrial policy; and also functions in the realization of powers of public authorities, local government and the rights of businessmen in the formation and realization of innovative and industrial policy.

The following reasons were taken into consideration in the analysis: the research of a parity of powers of public authorities (both legislative and executive), local governments, the rights of subjects of innovative and industrial activity, public organizations and citizens allow to define as much as possible particular possibilities of the participation of subjects of innovative and industrial activity in working out and realization of innovative and industrial policy at the level of the subject of the Russian Federation; the consideration of definite functions of public authorities and local government allows to define scales and directions of the state innovative and industrial policy and hence, to estimate each function of possibilities of the coordination of interests of the state and subjects of innovative and industrial activity.

The list of public authorities, local governments and the subjects of innovative and industrial activity having according to the legislation of the subjects of the Russian Federation powers and the rights in the sphere of innovative and industrial policy, is distinguished in each subject of the Russian Federation which legislation is investigated in the given work.

The list of participants having powers in and the rights in the sphere of innovation policy of the Primorsky krai consists of the Administration of Primorsky Krai, public authorities and subjects of innovative activity [4]. In Voronezh region the list looks as follows: public authorities (the Voronezh regional Duma, the Vo-

Cost calculation of car maintenance and repair before capital renewal repair CRR during all life cycle (without Maintenance-1 and Operational Repair with uncoupling) taking into account the profit of car-repair enterprises

Car age, years	Types of works	Repair numbers	Average costs, ruble	Adjustment factor (for profit)	Average costs (with profit), ruble	Adjustment factor	Factual planned calculation	Total repair costs	Car service costs on an accrual basis
0									0
	M-2	4	5 679	1.1	6 248	0.74	4 623	18 494	18 494
	M-3	3	26 020	1.1	28 623	0.74	21 181	63 543	82 037
2	RS	1	172 597	1.1	189 857	0.74	140 494	140 494	222 531
									222 531
	M-2	4	5 679	1.1	6 247	0.74	4 623	18 491	241 022
	M-3	3	26 020	1.1	28 622	0.74	21 180	63 541	304 562
4	RS	1	172 597	1.1	189 857	0.74	140 494	140 494	445 056
									445 056
	M-2	4	5 679	1.1	6 247	1	6 247	24 988	470 044
	M-3	3	26 020	1.1	28 622	1	28 622	85 866	555 910
6	First CR-1	1	229 315	1.1	252 247	1	252 247	252 247	808 157
									808 157
	M-2	4	5 679	1.1	6 247	1	6 247	24 988	833 144
	M-3	3	26 020	1.1	28 622	1	28 622	85 866	919 010
8	RS	1	172 597	1.1	189 857	1	189 857	189 857	1 108 867
									1 108 867
	M-2	4	5 679	1.1	6 247	1	6 247	24 988	1 133 854
	M-3	3	26 020	1.1	28 622	1	28 622	85 866	1 219 720
10	RS	1	172 597	1.1	189 857	1	189 857	189 857	1 409 577
									1 409 577
	M-2	2	5 679	1.1	6 247	1.3	8 121	16 242	1 425 819
	M-3	1	26 020	1.1	28 622	1.3	37 209	37 209	1 463 028
11	Second CR-1	1	229 315	1.1	252 247	1.28	322 876	322 876	1 785 903
									1 785 903
	M-2	4	5 679	1.1	6 247	1.3	8 121	32 484	1 818 387
	M-3	3	26 020	1.1	28 622	1.3	37 209	111 626	1 930 013
13	RS	1	172 597	1.1	189 857	1.3	246 814	246 814	2 176 827
									2 176 827
	M-2	4	5 679	1.1	6 247	1.3	8 121	32 484	2 209 310
	M-3	3	26 020	1.1	28 622	1.3	37 209	111 626	2 320 936
15	RS	1	172 597	1.1	189 857	1.3	246 814	246 814	2 567 750
									2 567 750
	M-2	2	5 679	1.1	6 247	1.3	8 121	16 242	2 583 992
	M-3	1	26 020	1.1	28 622	1.3	37 209	37 209	2 621 201
16	Third CR-1	1	229 315	1.1	252 247	1.46	368 280	368 280	2 989 480
									2 989 480
	M-2	4	5 679	1.1	6 247	1.3	8 121	32 484	3 021 964
	M-3	3	26 020	1.1	28 622	1.3	37 209	111 626	3 133 590
18	RS	1	172 597	1.1	189 857	1.3	246 814	246 814	3 380 404
									3 380 404
	M-2	4	5 679	1.1	6 247	1.6	9 995	39 980	3 420 384
	M-3	3	26 020	1.1	28 622	1.6	45 795	137 386	3 557 770
20	RS	1	172 597	1.1	189 857	1.6	303 771	303 771	3 861 540
									3 861 540
	M-2	2	5 679	1.1	6 247	1.6	9 995	19 990	3 881 530
	M-3	1	26 020	1.1	28 622	1.6	45 795	45 795	3 927 326
21	CR-2	1	6 700 000	1.1	7 370 000		7 370 000	7 370 000	11 297 326
									11 297 326
	M-2	4	5 679	1.1	6 247	1.6	9 995	39 980	11 337 306
	M-3	3	26 020	1.1	28 622	1.6	45 795	137 386	11 474 691
23	RS	1	172 597	1.1	189 857	1.6	303 771	303 771	11 778 462
									11 778 462
	M-2	4	5 679	1.1	6 247	1.6	9 995	39 980	11 818 442
	M-3	3	26 020	1.1	28 622	1.6	45 795	137 386	11 955 828
25	RS	1	172 597	1.1	189 857	1.6	303 771	303 771	12 259 599
									12 259 599
	M-2	2	5 679	1.1	6 247	1.6	9 995	19 990	12 279 589
	M-3	1	26 020	1.1	28 622	1.6	45 795	45 795	12 325 384
26	First CR-1	1	229 315	1.1	252 247	1	252 247	252 247	12 577 630
									12 577 630
	M-2	4	5 679	1.1	6 247	1.6	9 995	39 980	12 617 610
	M-3	3	26 020	1.1	28 622	1.6	45 795	137 386	12 754 996
28	CRR	1	10 034 000	1.1	11 037 400		11 037 400	11 037 400	23 792 396

Table 6.

Cost calculation of car maintenance and repair after capital renewal repair CRR during all life cycle (without Maintenance-1 and Operational Repair with uncoupling) taking into account the profit of car-repair enterprises

Car age, years	Types of works	Repair numbers	Average costs, ruble	Adjustment factor (for profit)	Average costs (with profit), ruble	Adjustment factor	Factual planned calculation	Total repair costs	Car service costs on an accrual basis
30	ТО-2	4	5 679	1.1	6 247	1.6	9 995	39 980	23 792 396
	ТО-3	3	26 020	1.1	28 622	1.6	45 795	137 386	23 929 782
	ДР	1	172 597	1.1	189 857	1.6	303 771	303 771	24 233 552
									24 233 552
32	ТО-2	4	5 679	1.1	6 247	1.6	9 995	39 980	24 273 533
	ТО-3	3	26 020	1.1	28 622	1.6	45 795	137 386	24 410 918
	ДР	1	172 597	1.1	189 857	1.6	303 771	303 771	24 714 689
									24 714 689
33	ТО-2	2	5 679	1.1	6 247	1.6	9 995	19 990	24 734 679
	ТО-3	1	26 020	1.1	28 622	1.6	45 795	45 795	24 780 474
	2-йКР-1	1	229 315	1.1	252 247	1.28	322 876	322 876	25 103 350
									25 103 350
35	ТО-2	4	5 679	1.1	6 247	1.6	9 995	39 980	25 143 330
	ТО-3	3	26 020	1.1	28 622	1.6	45 795	137 386	25 280 715
	ДР	1	172 597	1.1	189 857	1.6	303 771	303 771	25 584 486
									25 584 486
37	ТО-2	4	5 679	1.1	6 247	1.6	9 995	39 980	25 624 466
	ТО-3	3	26 020	1.1	28 622	1.6	45 795	137 386	25 761 852
	ДР	1	172 597	1.1	189 857	1.6	303 771	303 771	26 065 623
									26 065 623
38	ТО-2	2	5 679	1.1	6 247	1.6	9 995	19 990	26 085 613
	ТО-3	1	26 020	1.1	28 622	1.6	45 795	45 795	26 131 408
	3-йКР-1	1	229 315	1.1	252 247	1.46	368 280	368 280	26 499 688
									26 499 688
40	ТО-2	4	5 679	1.1	6 247	1.6	9 995	39 980	26 539 668
	ТО-3	3	26 020	1.1	28 622	1.6	45 795	137 386	26 677 054
	ДР	1	172 597	1.1	189 857	1.6	303 771	303 771	26 980 824
									26 980 824
42	ТО-2	4	5 679	1.1	6 247	1.6	9 995	39 980	27 020 804
	ТО-3	3	26 020	1.1	28 622	1.6	45 795	137 386	27 158 190
									27 158 190
write-off									

ronozh regional administration), local governments, subjects of industrial activity, public associations, labor collectives and citizens [5]. In Samara region the list includes the Samara Provincial Duma and enforcement authorities [6]. In Chelyabinsk area it consists of the Legislative Assembly, the Area Government, local governments, subjects of the industry, noncommercial organizations and citizens [7]. In Moscow and Tver region powers of public authorities and local governments are only described, the rights of subjects of an industrial activity are not registered [8, 9]. The list of participants of Omsk region also consists of the Administration of Omsk region, public authorities and subjects of innovative activity [10].

We consider the maintenance of the powers of public authorities, local governments and subjects of an innovative

and industrial activity in working out and realization of innovative and industrial policy in regions where it is a chance in details to estimate possibilities for the coordination of interests.

The above-stated powers and the rights provided by articles of the law on industrial activity in Voronezh region, unlike the legislation of other areas, are detailed, concrete and most evident for

Table 7.

Comparison of calculations

№	Car exploitation variant	Cost of purchase, ruble	Operational expenses during all life cycle, ruble	Total investment and operational expenses during all life cycle, ruble	Expenses per a car, rubles in a year	Cost-effectiveness (-) / Appreciation (+) in the comparison with standart exploitation term, %
1	Car service life is 28 years (standard)	13 500 000	12 754 996	26 254 996	937 678	0,00%
2	Car service life is 42 years (after CRR)	11 037 400	3 365 794	14 403 194	1 028 800	9,7%

the estimation of possibilities for the coordination of interests in the sphere of industrial policy.

Powers of the Voronezh regional Duma consist of the statement of the Concept of the development of industrial activity and the program for the development of the industry, the hearing of reports on their realization, the establishment of privileges in the taxes and tax collections enlisted in the regional budget to subjects of industrial activity [5].

The administration of Voronezh region develops the Concept and programs of the development of the industry in Voronezh region and carries out control over the target use of the means of the regional budget allocated for financing programs of the state support for subjects of industrial activity.

Local governments coordinate programs and plans concerning the developments of subjects of industrial activity whose functioning infringes their interests regarding the influence of the enterprises in social, economic and ecological conditions; development of offers for the development of the industry and representation them to the administration of Voronezh region; participation in working out and realization of the Concept of the development of industrial activity and programs for the development of the industry of the area.

Subjects of industrial activity can participate in working out the Concept of the development of industrial activity, forming and realizing the programs for the development of the industry of Voronezh region; receiving in the administration of Voronezh region and local governments the information on working out and realization of the programs for the development of the industry of Voronezh region and about possibilities and conditions of granting the state and municipal support; bringing into the administration of Voronezh region and local governments the proposals for the formation and realization of an industrial policy in the area both in the city of Voronezh and Voronezh region as a whole; addressing the administration of Voronezh region and local governments for the support of the activity in the substantiation of the expediency of the application of these or other measures of the state (municipal) support.

Nevertheless, the right of the participation of subjects of industrial activity declared in the law in working out the Concepts, formation and realization of programs of the development of the

industry has a declarative character as the law does not assume the realization of this right. Therefore the full coordination of interests of the state and businessmen is not possible and working out the weighed industrial policy of the state in Voronezh region is complicated.

The regional law of Tver region formulates the functions of public authorities, local government and subjects of industrial activity in the formation and realization of industrial policy in the following way. The Legislative Assembly confirms the Concept of industrial policy of Tver region which contains: the primary goals and principles of the formation of industrial policy; criteria of the choice of priorities for the state support of subjects of industrial activity; priority directions of development of the industry of the area; criteria of the efficiency of concrete measures of the state support of subjects of industrial activity; directions in the creation of conditions of the maximum employment of the population; ways of a rational use of natural resources of the region [9].

The administration of the region is engaged in working out the Concept for the period of upto five years and the acceptance of programs for the development of the industry, containing concrete actions for the realization of the concept of industrial policy; terms of their carrying out; data on executors and participants, the mechanism of their interaction; financing sources; the mechanism of the control over the execution of programs; criteria of the estimation of their efficiency.

Local governments participate in the Concept working out. Functions of subjects of industrial activity consist of the coordination of the Concept of industrial policy and working out the programs for the development of the industry.

The concept of industrial policy is affirmed by the Legislative Assembly only after the coordination with the interested organizations and subjects of industrial activity. However, the coordination mechanism is not registered and therefore has a declarative character.

The public authorities of Omsk region according to their competence carry out the state support of innovative activity by workings out and acceptance of legal acts about innovative activity in Omsk region and the organization of their execution; preparations, statements and realizations of regional target programs; granting of funds, guarantees and privileges to subjects of innovative activity at the expense

of the regional budget. But subjects of innovative activity can only cooperate with public authorities [10].

Interaction between subjects of innovative activity and public authorities of Primorski krai is carried out by the coordination council for the scientific and technical and innovative policy of Primorski krai where subjects of innovation activity have possibility only for participation in discussions [4].

Summarizing this part, the author would like to point out that an additional information on legal and political mechanisms of innovative process regulation can be found in following works: Hudorenko E. A., Lipatov V. A. *Accommodation of interests between government and business making industrial policy (by example of passenger railway machine-building)* [11]; Hudorenko Elena A., Cherevyk Konstantin A. *The labour arrangement of persons with disabilities in russia: statutable aspect* [12]; Hristolyubova N. E. *Theoretical and educational and methodical problems of innovative education and formation of innovative thinking* [13]; Khmelev Igor B., Kruglov Sergei V. *Factors and motives for the spin-off process* [14]; Nazarova E. A., Hudorenko E. A. *Modernisation of educational programs of the higher vocational education by introduction of the praktiko-focused technologies of training* [15].

5. Conclusion

The Russian railway machine-building industry has a lot of innovative opportunities. *The CJSC Transmashholding*, the largest company on the railway techniques market, has proposals aimed at the perfection of investment efficiency calculation into innovative productions and juridical methods influencing the innovative and industrial policy at federal and regional levels.

Unfortunately, currently in the Russian Federation, there are no effective legal mechanisms of the coordination of interests between the state and businessmen in designing innovative and industrial policy at the federal level. At the regional level among the regions where the basic enterprises of passenger car building and suppliers of accessories are placed only in Tver, Voronezh and Chelyabinsk regions the participation of businessmen in working out and realization of innovative and industrial policy is provided. Nevertheless, in Chelyabinsk region it is restricted only to gaining information on the working out and

realization of policy and making proposals, in Voronezh region it is limited to the attraction of subjects of industrial activity towards the formation of industrial policy. Though in Tver region the coordination of the concept of industrial policy by businessmen is provided, the mechanism for its practical realization is not provided by regulatory documents. Therefore, railway machine-building enterprises cannot effectively work out an innovative activity.

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