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**HIGH GROWTH INDUSTRIAL COMPANIES AS THE MAIN
AGENTS FOR BREAKTHROUGH DEVELOPMENT**

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Abstract

Amid the Fourth industrial revolution not only is the list of cross-cutting technologies changing but also the way of thinking and methodological approaches to the development of scenarios of the leap are fundamentally transforming. It is rather obvious that actively restoring industry will become one of the main drivers of the economic growth in Russia in the nearest future. Promising high growth industrial companies that have the highest leadership potential both in the Russian and the global market will become the main agent for breakthrough development in these conditions. They are national private high-tech export-oriented companies, leaders in terms of development and potential participants of transnational companies basing in Russia. On the base of "TechSuccess" rating, 62 such companies were selected in 2016-2017. In 2018 it is planned to select another 30 companies. Despite the fact that currently the program "Digital economy of the Russian Federation", Strategy of scientific and technological development of the Russian Federation, National Technological Initiative have been approved, road maps have been developed, the program "Digital industry" is being prepared, top-priority project "National champions" is being implemented and the rating TechSuccess is being calculated, it must be admitted that there are no particular mechanisms and scenarios of implementation of breakthrough development in top-priority sectors of industry.

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1. Introduction

Russia has currently reached the point when evolutionary scientific and technological, social and economic development prevents achieving targeted indicators set by the President of the Russian Federation (table 01).

Table 01. Key development goals of Russia up to 2024

Subject	Address to the Federal Assembly - 2018	Decree of the President "On national goals and strategic tasks for development of the Russian Federation for the period up to 2024"
Volume of GDP	Anchor in TOP-5 world's economies	Enter into TOP-5 world's economies
GDP per capita	Increase by 1,5 times	-
GDP growth rate	Above international	Above international
Investments	25 % GDP	-
Small business	Employment in small business: 25 mln people, contribution to GDP: 40%	Employment in small and medium business: 25 mln people
Rise in labour productivity	At least 5 % per year (in medium and large enterprises of basic sectors)	At least 5 % per year (in medium and large enterprises of basic non-resource sectors)
Non-resource non-energy export	\$ 250 bln	\$ 250 bln
Costs for development of digital economy	-	Three-fold growth (share of GDP)
Housing construction	120 mln m ² per year	120 mln m ² per year
Life expectancy	80 years by 2030	80 years by 2030, 78 years by 2024

Note: Source of a table: developed by the authors

Only through breakthrough, inclusive and innovative development can Russia ensure global competitiveness, rise in labor productivity, improvement of the quality of people's lives (Tolstykh, Shkarupeta, Kostuhin, & Zhaglovskaya, 2018).

2. Problem Statement

These days, when Russian economy has exhausted potential for growth based on extensive use of raw material resources, amidst formation of digital economy, a narrow group of leading countries oriented towards the use of renewable resources and having advanced production technologies has emerged. In these circumstances it is crucial for Russia to take steps to carry out accelerated social and economic, scientific and technological development in order to overcome the gap between Russia and the world's leaders, create globally demanded technologies, products and services of new generation. One of the leading roles in solving this problem belongs to industrial complexes and industrial enterprises included therein whose total contribution to GDP of the Russian Federation was 26.4% in 2017.

Reindustrialization – a new industrial policy implying the increase in role of qualitative shifts in social and production development, active development of sectors of new economy and re-equipment of

basic sectors on new technological platform (Demir, Wennberg, & McKelvie, 2017) – represents the basic trend in development of industrial complexes.

One of the main drivers of economic growth in the context of reindustrialization is the development of industrial complexes mainly in manufacturing sectors. The reason for this is that manufacturing industry is changing the structure of economy ensuring the transition from labor intensive types of economic activity towards more capital intensive and technology-intensive ones (Grillitsch, Schubert, & Srholec, 2018; Chauvet & Ehtart, 2018).

In this regard it is necessary to form fundamentally new approach towards the management of development of industrial complexes in manufacturing sectors under the conditions of reindustrialization and digital transformation by means of which it will be possible to ensure sustainable (Khmeleva, Tyukavkin, Sviridova, & Chertopyatov, 2017), dynamic and balanced development, independence and competitiveness of Russia for the long-term period.

3. Research Questions

Research questions are the following:

- what is a high growth firm? What are the differences among startups, scaleups and scalers?
- what does the profile of a company - champion in the sector look like?
- how to identify hidden champions?
- how to ensure breakthrough scientific and technological development? How can dynamic companies help in that?

4. Purpose of the Study

The purpose of this study is to carry out analysis and to develop relevant theoretical and practical tools for breakthrough scientific and technological development whose main agents are high growth industrial companies.

5. Research Methods

Following their research on companies – champions in the sector (figure 01) and following the analysis of publications devoted to this problem (Fan, 2018; Analytical statement, 2018; Bergbrant, Hunter, & Kelly, 2018; Arkolakis, Papageorgiou, & Timoshenko, 2018; Lee, 2018; Shchedrovitskiy, 2010), the authors have concluded that:

- The strategy itself does not make difference between the champions and ordinary companies. Either of them may have well-designed strategies, which is not the guarantee for the fast growth.
- High growth firms that have achieved outstanding results have never focused on what to do; they focused on what not to do and what to stop doing immediately.
- In fact, technologies have nothing in common with transition to high growth. Technologies may accelerate the process of transformations but cannot be the reason of it (Vasin, Gamidullaeva, Shkarupeta, Finogeev, & Palatkin, 2018).

- Integration, mergers and acquisitions play almost no role in activation of transition to high growth (Decker, Haltiwanger, Jarmin, & Miranda, 2016).
- High growth firms do not necessarily pay a lot of attention to change management, motivation of employees and discipline. In favorable conditions, problems related to responsibility, discipline, motivation or fear of changes may resolve by themselves (Delmar, Davidsson, & Gartner, 2003).



Figure 01. Differences among startups, scaleups and scalers

Source of the figure: (Business cooperation of Russian scaleups may result in the emergence of innovative export cooperatives).

In the framework of a Fourth Industrial Revolution, the industry leaders will be the companies that, while following global trends in the digital economy, shift their focus to the fields of digital design and modeling, computer and supercomputer engineering, along with the methods for multicriteria, multi-parameter, multidisciplinary optimization, topological and topographic optimization, bionic design, additive manufacturing, robotization, etc. The authors have constructed a profile of a champion (table 02).

Table 02. Profile of a company – champion in the sector

Sector	Year of foundation	Revenue, mln. rub.	Rate of revenue growth, %	Market share, %
Mechanical engineering	2000	4186	13%	12%
Industrial equipment	1995	3518	39%	11%
Electronics and instrument engineering	1995	1835	60%	37%
Sector	Export, % of revenue	Number of employees, people	Share of scientific personnel, %	Number of patents, pcs.
Mechanical engineering	22%	981	1,6%	22
Industrial equipment	4%	768	2,1%	6
Electronics and instrument engineering	25%	496	11,8%	55

Note: Source of the table: developed by the authors on the basis of the catalogue of companies participating in the top-priority project of the Ministry of Economic Development of Russia National Champions.

Accelerated scientific and technological development of Russia and your regions requires elaboration of platform (cross-cutting) technologies that have significant multiplicative potential (Khmeleva et al., 2017).

6. Findings

The following may become tools for breakthrough scientific and technological development whose agents are high growth industrial companies (Tolstykh, Shkarupeta, Kostuhin, & Zhaglovskaya, 2018):

- Concentration of sufficient minimum of human capital around creation of advanced (singular) products at the intersection of markets and technologies with the view of occupying centers of added value setting.
- Setting: frameworks of thinking and activities on the basis of nets within which the players choose optimal (AI-optimized) strategies for achievement of their own goals.

Advanced (singular) products: products that significantly outperform competitors' products (in certain categories) or that create insurmountable barriers (material, energy, combination of the uncombinable).

7. Conclusion

Theoretical and practical tools for breakthrough technological development of industrial complexes amid digital transformation have been elaborated through examining of the essence of the concept "development", interconnection of types of development, characteristics of digital agenda of sustainable development of industrial complexes, technological future of Russian economy, algorithm for ensuring of breakthrough technological development for the purposes of achievement of global competitiveness, ranging and establishment of frontiers of advanced production technologies, construction of a profile of a leading company in the sector, identification of principals of breakthrough technological development.

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