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INSTITUTIONAL AND FINANCING MECHANISMS FOR DIVERSIFICATION OF HIGH-TECHNOLOGY CIVILIAN PRODUCTION IN THE DEFENSE INDUSTRY

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A B S T R A C T

The research examines how enterprises within the defense-industrial complex develop and manufacture advanced civilian products. To address the research topic, the authors analyzed state policy concerning the diversification of production at defense industry enterprises. The authors examined various methods of financing investment projects to produce civilian goods and the feasibility of their application at defense industry enterprises. The methodological basis of this research encompasses general scientific and specialized research methods, including deductive, inductive, formal-logical, comparative-legal, and systemic-structural methods, among others. As a result of the research on mechanisms of government support for defense industry enterprises aimed at the development and production of advanced civilian products, the authors conclude that it is necessary to improve the mechanisms of state subsidization. In the authors' view, it is essential to develop and legally formalize a mechanism for granting government subsidies for scientific research, technological modernization, the reconstruction of production facilities, and capital construction. Refining the mechanisms of state support for firms in the defense-industrial complex will provide the requisite legal infrastructure for implementing the government's objectives on production diversification within the Russian Federation's defense sector..

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1. INTRODUCTION

Innovation development occupies a strategic position within state policy agendas and aligns closely with public interests. The innovative activity of industrial firms functions as a key driver of a nation's economic performance (Kolesnikov et al., 2016; Shatkovskaya et al., 2023b). In recent years, the importance of innovation in this sector has risen sharply, driven by Russia's growing imperative for import substitution and the push to develop indigenous technologies and manufacturing capabilities.

Against the backdrop of wide-ranging sanctions on the Russian Federation, policy and scholarly attention have increasingly concentrated on strengthening the national economy, with particular emphasis on the manufacturing base (Ilyukhina, 2023). Enterprises of the defence-industrial complex serve as a driving force for the country's scientific and technological development, providing a practical platform for implementing the advancements of research institutions at various levels (Chaikovskaya & Suleimanov, 2023). Therefore, enhancing the efficiency of such industrial enterprises is one of the priority areas for the development of Russia's national economy (Larin et al., 2021).

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Diversification of defense industry enterprises toward civilian high-technology production represents an important component of modern industrial transformation policies. Beyond military manufacturing, the conversion of technological capabilities into civilian markets enables productivity growth, technological spillover effects, and long-term structural modernization of the economy. From the perspective of innovation policy and development strategy, institutional financing mechanisms play a crucial role in supporting sustainable industrial transition.

An important direction in the development of industrial enterprises within the defense-industrial complex is the implementation of innovative technologies, including those utilizing artificial intelligence (Shatkovskaya et al., 2023a; Skvortsova et al., 2023a; Skvortsova et al., 2023b) and the expansion of production of advanced high-tech civilian products. Particularly, the Concept for Technological Development until 2030, approved by the Directive of the Government of the Russian Federation No. 1315-r dated May 20, 2023, defines the challenges, principles, and objectives of technological development for the mentioned period. The Concept places significant emphasis on providing a legal framework for the integration of advanced technologies into industrial production through investment partnership agreements, as well as the creation of new forms of integration of research and industrial-technological activities (Andreev, 2023).

In parallel, building a coherent legal and regulatory architecture to govern the development and manufacture of advanced civilian products within the defense-industrial complex is essential. Meeting Russia's industrial-development challenges and securing technological upgrading requires legal instruments that delineate procedures for deploying new technologies in production.

2. METHODOLOGY

This inquiry is built on an integrated, multi-method design that combines general scientific reasoning with domain-specific tools for the joint analysis of economic and legal phenomena. At the level of general methodology, the research employs deductive and inductive reasoning to move between theoretical propositions and observed regulatory-economic practices, formal-logical analysis to test internal coherence and non-contradiction of arguments, and abstraction and modeling to distill core categories and causal linkages.

Within the legal track, a doctrinal (textual and systemic) method is used to interpret statutes and by-laws in their hierarchical context. The comparative-legal method benchmarks Russian regulation against selected foreign and international approaches. The structural-functional perspective maps institutional competences and enforcement mechanisms. The economic track relies on the analytical decomposition of policy instruments, cost-benefit and incentive compatibility reasoning, and investment logic mapping (e.g., sources of finance, risk allocation, and expected efficiency effects), without purporting to conduct econometric estimation.

Procedurally, the research proceeds through the following stages:

1. Conceptual clarification and operationalization of key terms;
2. Construction of an analytic matrix linking legal norms to economic outcomes;
3. Triangulation of sources (legislation, policy documents, and scholarly literature) to validate findings;
4. Synthesis of results into normative and policy conclusions.

Robustness is supported by cross-checking interpretations across multiple authoritative sources and by explicitly stating assumptions and scope conditions.

3. RESULTS

Under the Russian Government's strategic guidance, the evolution of the defense-industrial complex (DIC) is conceived as a managed diversification trajectory that systemically increases the share of science- and technology-intensive civilian output in total production. In programmatic terms, the diversification mandate serves multiple, mutually reinforcing objectives, including the following:

1. Reliable execution of state procurement for complex, high-value products;
2. Preservation and upgrading of technological leadership through consolidation of core competencies, renewal of production assets, and sustained investment in human capital;
3. Development of internationally competitive civilian goods capable of meeting domestic demand and penetrating export markets;
4. Expansion of employment via multiplier effects along inter-industry supply chains;
5. Strengthening of technological sovereignty and import-substitution capacity;
6. Diffusion of dual-use technologies from defense to civilian domains;
7. Enhancement of regional industrial clusters and innovation ecosystems.

Operationalization relies on a layered policy toolkit that combines financial, institutional, and regulatory instruments. On the financial side, typical measures include interest-rate subsidies, concessional lending for advanced manufacturing projects, targeted grants, and co-financing for R&D and pilot production. Where appropriate, it includes tax incentives (e.g., accelerated depreciation or investment tax credits) and export-support facilities. Institutional support encompasses public-private partnerships, technology transfer centers, shared testbeds and prototyping infrastructure, and certification/standardization assistance to accelerate market access. Regulatory facilitation involves

streamlined permitting, IP protection mechanisms, and alignment with international technical standards to lower non-tariff barriers. Program governance is underpinned by milestone-based disbursement and performance monitoring using verifiable indicators, such as the civilian-revenue share in DIC firms, TRL/CRL advancement, localization depth, labor-productivity growth, export receipts, and defect or downtime rates, with ex post evaluation and clawback provisions to safeguard budgetary efficiency. Collectively, these measures aim to leverage the DIC's accumulated technological capabilities for sustainable civilian value creation while maintaining the sector's strategic readiness and long-term competitiveness.

Under current conditions, the implementation of projects for the production of advanced civilian goods at enterprises of the defense-industrial complex relies on such a tool as the investment project.

In applied investment analysis, projects can be structured into several archetypes that differ in cost composition, capitalization rules, implementation risks, and governance requirements:

Technological modernisation and production retrofit encompass engineering and design inquiries, technical surveys, the acquisition and installation of new process equipment, civil works necessary to integrate the assets, and activities associated with commissioning and ramp-up. Expenditures typically eligible for capitalization include equipment purchase and installation, utilities tie-ins, test runs prior to commercial operation, and other preparatory works that enhance productive capacity or extend asset life.

In the case of capital construction executed through contracting arrangements, the investor implements greenfield or brownfield builds by engaging external contractors. Cost items usually include general-contractor and subcontractor services, architectural and engineering design, site preparation, depreciation (or rental) of the investor's own construction machinery used on the project, and other capitalizable construction outlays. Contract structure (EPC/EPCM, design–build, or split packages) governs risk allocation, schedule control, and acceptance procedures.

IT investments projects cover the procurement of computing hardware, network and data-center infrastructure, enterprise and specialized software (including licenses and subscriptions where capitalizable), and implementation services provided by integrators. Capitalization depends on the creation of identifiable assets with future economic benefits (e.g., developed software or configured platforms). Non-capitalizable components (e.g., training, routine support) are expensed.

R&D initiatives fund a wide range of activities and resources, including scientific materials and equipment, base salaries and supplemental compensation for project personnel, outsourced laboratory or design services, mobility and travel associated with experiments or trials, other direct research expenses, general project overheads, and costs related to prior-art analysis, patent landscaping, and filings. Accounting treatment varies by jurisdiction: research costs are typically expensed as incurred, while development costs may be capitalized once technical feasibility and commercial viability have been demonstrated and properly documented.

Acquisition of integrated property complexes includes the purchase of buildings and structures, standalone real-estate objects, and land parcels required for operations or expansion. Due diligence addresses title, encumbrances, environmental liabilities, and utility access. Valuation recognises the distinct treatment of land (non-depreciable) versus improvements (depreciable) and allocates the purchase price across these asset classes.

Investments in intangible assets may target patents, licenses, software, trademarks, databases, and other non-physical rights that confer measurable future benefits. Key issues include legal defensibility, useful life determination (finite versus indefinite), amortization policy, and impairment testing tied to market and technological change.

In practice, investment programs blend several of these archetypes. For example, a capacity-expansion project may involve the modernization of process lines, a contractor-built utility building, a new MES/ERP layer, and the implementation of proprietary algorithms or patents. Therefore, effective appraisal requires an integrated financial model that distinguishes between capitalizable and period costs, stages risk assessment across the project lifecycle, and utilises decision metrics (e.g., NPV, IRR, payback, and sensitivity to schedule slippage, cost escalation, and demand uncertainty).

The structure of the investment project is presented in Figure 1.

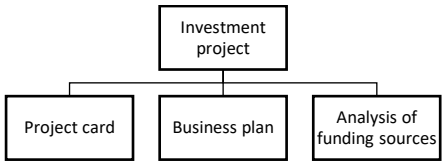

Figure 1. Structure of the investment project. *Source:* Compiled by the authors.

The division responsible for producing civil-purpose products or for the enterprise's investment activities prepares a document containing a detailed description of the project, known as the "Project Card." The "Project Card" includes the following sections:

- Project description;
- Investments;
- Economic analysis;
- Marketing;
- Risk analysis;
- Project implementation schedule.

Business plans also have their own structures (Figure 2).

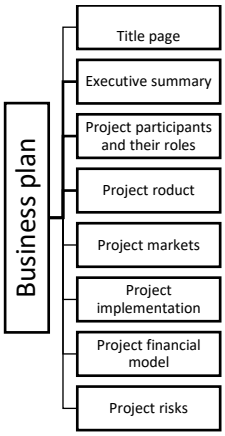

Figure 2. Structure of a business plan. *Source:* Compiled by the authors.

Analytically, funding for investment projects is typically classified into the following three broad classes:

- Internal (own) financing: retained profits, depreciation allowances, and other forms of cash generated within the firm that do not give rise to third-party claims;
- Debt financing: bank facilities and term loans, bond issuances, finance-lease obligations, and other interest-bearing liabilities subject to contractual servicing and repayment;
- Attracted (external, non-debt) capital: equity injections from outside investors and non-repayable transfers such as grants or budgetary contributions.

Table 1. Comparative analysis of sources of finance for investment projects. *Source:* Compiled by the authors.

Criteria for comparison	Methods of project financing – Purchase of fixed assets		
	Appropriations from budgets of different levels	Attracting bank credit	Acquisition through leasing
Source of financing	Municipal, regional, and federal budgets of the Russian Federation	Bank credit of up to 100% of the equipment cost	Own and borrowed funds of the leasing company
Financing terms	One-time	From one to three years, depending on the type of equipment and the borrower's credit history	From one to seven years, depending on the type of asset and its useful life
Payment conditions	–	Repayment of the loan principal in installments during the term of the contract	Monthly payments throughout the entire term of the leasing contract
Cost of the financing method	Payment to the city budget of at least 50% of the total amount of taxes and other mandatory payments to the budgets of the budgetary system of the Russian Federation during the validity period of the subsidy agreement	Loan interest + various fees	The total increase in the asset's cost over the lease term, related to the asset's value
Sources for repayment of attracted funds	–	Depreciation charges, net profit	Working capital
Disadvantages	Subsidies are provided in the amount of no more than 50% of the total project costs incurred by the SME entity for the implementation of the Project, determined by the sum of declared and documented costs, as well as the planned costs provided for in the Project's estimate and justified in the business plan. Large pool of applicants. Longer application review period compared to a bank loan.	The ratio of equity to borrowed funds changes (increased share of borrowed funds in current liabilities)	Not advantageous for small transactions, low-margin businesses, or companies using the simplified taxation system.
Advantages	Grant funding (free provision of funds). No collateral, surety, or guarantee required.	Possibility to reduce income tax by including loan interest in costs up to the refinancing rate. In some cases, it is cheaper than leasing.	Possibility of accelerated depreciation; Deferred profit tax payment due to accelerated depreciation; Savings on property tax payments through accelerated depreciation; Cheaper than leasing; Lease payments in full reduce the taxable income base for profit tax; Lease obligations do not affect the equity-to-debt ratio; The lease contract term is comparable to the asset's depreciation period.

Own resources, together with attracted funds, form the enterprise's equity capital. In the defense-industrial sector, attracted funds are often non-repayable public instruments (e.g., budgetary appropriations, grants, or targeted contributions) that expand the capital base and support investment without increasing leverage. Depending on the applicable accounting framework, these inflows may be recorded within equity or as deferred income tied to specific performance conditions. Where private or institutional equity participation is permitted (typically outside restricted areas of military production), investor returns are realized through residual claims, such as dividends and capital gains, rather than fixed contractual payments.

In contrast, borrowed funds constitute debt capital, creating legally binding obligations regarding principal repayment, interest payments, financial covenants, collateralization, and information disclosure. The cost of debt is reflected in the weighted average cost of capital and is influenced by credit risk, maturity structure, and prevailing market conditions.In practice, investment programs employ blended capital structures that combine these sources in proportions conditioned by asset specificity, project stage and risk, availability of collateral, regulatory constraints, and the presence of state support instruments (subsidies, concessional lending, guarantees). The comparative logic guiding the selection among sources (e.g., cost, risk allocation, control implications, and speed of mobilization) is summarized below.

The structure of the comparative assessment of financing sources for investment projects is presented in Table 1.

The review of Table 1 indicates that each financing modality exhibits a distinct set of strengths and limitations. For enterprises within the defense-industrial complex, given the constantly increasing demand for expanding the production of military goods, the use of internal funds or raising credit resources to organize the manufacture of civilian products is significantly less prioritized compared to obtaining subsidies from budgets at various levels.

For the 2025 program year, the Ministry of Industry and Trade (Minpromtorg) is organizing a project competition to allocate subsidies supporting the launch of production for promising civilian or dual-purpose products. The selection process is governed by Government Decree No. 1780, dated October 25, 2023, which outlines the procedures for providing subsidies, including grants issued in the form of subsidies, from the Russian Federation's budget to corporate entities, individual entrepreneurs, and individuals engaged in manufacturing, works, or services.

It should be noted that the subsidies are primarily directed toward the development of new products, technological equipment, and chemical substances. For participation in the competitive selection, applicants shall submit the following information set:

- Legal name of the applicant organization;
- Project title;
- Type of capital asset involved (e.g., process equipment, technological tooling, materials);
- Technological scope and thematic focus of the project;
- Designation/description of the target product;
- Intended domains of application (use cases);
- Core performance metrics and principal technical specifications;
- Anticipated customer base / end-user cohort;
- Implementation schedule, including key milestones and the planned completion date;
- Total project budget (aggregate cost);
- Amount of public co-financing requested (subsidy sought).

The development and production of promising products constitute a complex and multifaceted process that requires consideration of a multitude of factors (e.g., market and technological conditions, consumer expectations and needs, as well as the competitive environment) (Afanasyev et al., 2023).

Turning a promising idea into a marketable product runs the entire lifecycle: market intelligence, concept development, detailed design and engineering, industrial manufacture, go-to-market planning, and the commercial launch. It is an inherently cross-functional effort that demands close coordination among engineering, design, marketing, production, and finance, coupled with continuous analysis and iterative course corrections as new evidence emerges.

Concept exploration begins with a thorough analysis of the market and real user needs, alongside an assessment of technical constraints and competing offerings. This stage helps estimate potential demand and identify areas where the product can achieve a competitive advantage. By the end of this phase, a preliminary concept is defined for further development.

During the design stage, the team prepares detailed engineering drawings and technical specifications. Models and working prototypes are built, tested, and refined through iterative learning until the architecture is ready for production.

The production phase follows the approved documentation and requirements. Manufacturing is supported by a robust quality assurance system that ensures any nonconformities are promptly detected and corrected before reaching customers.

In parallel, marketing campaign planning defines the go-to-market strategy: identifying target segments, selecting promotional channels, analyzing the competitive landscape, and establishing the initial pricing framework. Market introduction marks the transition to commercialization. The SKU lineup is finalized, pricing is confirmed, and branding may be updated to ensure a strong, consistent launch.

This process is far from simple. Teams must navigate market uncertainty, demanding technical challenges, the need for highly skilled specialists, and constant competitive pressure. However, when successful, the rewards are substantial, new market niches emerge,

profitability increases, and the company's competitive position strengthens.

Legal regulation of the development and manufacture of advanced civilian products is anchored, first and foremost, in Federal law "On science and state scientific and technical policy" (August 23, 1996 No. 127-FZ), which governs interactions among participants in scientific and scientific-technical activity, public authorities, and users of the resulting knowledge and technologies (Skvortsova et al., 2023c).

Currently, the existing mix of regulatory provisions and budgetary support instruments is effectively concentrated on a single channel of investment financing for civilian production. By contrast, investment outlays aimed at technological upgrading, facility reconstruction, and capital construction executed under contract models within civilian manufacturing require commensurate legal treatment and access to subsidization on an equal footing.

Government Resolution No. 109 of 17 February 2016, as revised on 14 April 2021, may be regarded as a benchmark regulatory instrument governing the budgetary support of investment initiatives aimed at expanding the production of defense-oriented goods. Adopted in execution of the Budget Code of the Russian Federation and related public-finance norms, the Resolution approves a set of rules under which subsidies from the federal budget are allocated to Russian organizations to compensate a portion of expenditures incurred in building scientific and technological reserves that underpin core manufacturing technologies in priority segments of electronic components and radio-electronic equipment.

In doctrinal terms, the Resolution structures the subsidy regime along the following interlocking elements:

1. Beneficiaries – a defined class of Russian legal entities that satisfy compliance, solvency, and other eligibility filters;
2. Subsidizable costs – expenditures that credibly contribute to the creation or expansion of scientific-technical reserves and demonstrably facilitate the transfer of advanced technologies into serial production;
3. Co-financing parameters – the proportion of public to private funding, ceilings on the subsidy share, and conditions precedent to disbursement;
4. Selection and documentation – a competitive procedure with a mandatory dossier and transparent evaluation criteria, including technology-readiness advancement, import-substitution impact, economic efficiency, and realism of implementation schedules;
5. Control and liability – post-award reporting, audit and monitoring mechanisms, and restitution duties in cases of misuse of funds or failure to meet agreed performance indicators.

The 2021 amendments further calibrated the framework by clarifying the taxonomy of eligible expenditures, tightening milestone-linked tranche payments, and reinforcing ex post oversight. Collectively, these refinements improve legal predictability for recipients, align budget spending with verifiable technological outcomes, and reduce incentive distortions commonly associated with subsidy programs.

Given the systemic nature of investment needs within enterprises of the defense-industrial complex engaged in diversification, an equivalent legal approach should apply to projects aimed at the development and production of civilian goods. To ensure parity of legal treatment and avoid unjustified discrimination among investment modalities (technological modernization, reconstruction, and contractor-executed capital construction), it is advisable to revise Government Resolution "On the approval of rules for granting subsidies, including grants in the form of subsidies, from budgets within the budgetary system of the Russian Federation to legal entities, individual entrepreneurs, and individuals producing goods, performing works, or rendering services" (October 25, 2023 No. 1780)). Specifically, Resolution No. 1780 should be amended to:

- Explicitly recognize defense-industry enterprises implementing civilian-production investment projects as eligible beneficiaries;
- Enumerate subsidizable cost categories related to technological renewal, facility reconstruction, and capital construction, including design and survey works, equipment acquisition and installation, commissioning, and site infrastructure;
- Establish transparent co-financing ratios and milestone-linked tranches tied to measurable key performance indicators (capacity added, localization depth, technology readiness, and export potential);
- Prescribe a competitive selection procedure with clear scoring criteria and safeguards against conflicts of interest;
- Codify enhanced monitoring and audit provisions, including recovery of funds where performance indicators are not achieved.

Such amendments would align the civilian-production financing toolkit with the tested mechanisms of Resolution No. 109, promote legal predictability for investors, and advance overarching public-policy goals of technological sovereignty, import substitution, and productivity growth, while maintaining budgetary discipline through objective eligibility, verifiable outcomes, and enforceable accountability.

4. DISCUSSION

First, the findings of this research reinforce the broad consensus that innovation-centric industrial policy and civil-military integration are central to national competitiveness, while adding a legal-financial lens that prior accounts often treat only tangentially. Earlier studies highlight the role of state regulation in catalyzing innovation and institutional coherence (Kolesnikov et al., 2016; Shatkovskaya et al., 2023b) and examine the organizational and legal modalities of embedding advanced technologies in production (Andreev, 2023). The analysis presented in this research complements

these streams by demonstrating that the current subsidy architecture disproportionately favors R&D and first-product development, whereas large, capital-intensive modernization, reconstruction, and contractor-executed capital construction in civilian manufacturing at defense enterprises remain under-supported in practice. In policy terms, this asymmetry impedes the very diffusion pathways that legal policy intends to stimulate.

Second, the results nuance ongoing debates on the governance of AI and advanced digital technologies within industrial settings. Prior contributions document the emergence of AI as an object of regulation and a tool of public governance (Shatkovskaya et al., 2023a; Skvortsova et al., 2023a; Skvortsova et al., 2023b). We extend this conversation from "what to regulate" to "how to finance adoption at scale," showing that without legally codified access to milestone-based, co-financed capital programs, firms in the defense-industrial complex (DIC) will rationally prioritize short-cycle R&D grants over deeper process renewal. Aligning subsidy eligibility with technology-readiness and commercialization-readiness trajectories can close this adoption gap and convert research outputs into serial civilian production.

Third, our evidence interfaces with the accounting and contract-management challenges observed in defense enterprises executing R&D and pilot-production mandates. Prior work flags frictions around percentage-of-completion (PoC) revenue recognition and risk allocation in R&D contracts (Chaikovskaya et al., 2023). By mapping the investment archetypes typical for DIC diversification (e.g., modernization retrofits, EPC/EPCM builds, IT platforms, development work, and intangibles) to financing instruments and capitalization rules, the authors clarify where PoC-related uncertainties and compliance risks are most acute (e.g., commissioning costs, test runs, and configured software). This has direct implications for auditability, covenant design, and eligibility screening under public support programs.

Fourth, the research advances the legal design discussion by proposing that the proven mechanics of the 2016 budget-support framework for electronic components and radio-electronics be transposed, with appropriate tailoring, to civilian product investment at DIC firms. Concretely, the authors argue for the following:

- Explicit beneficiary recognition of DIC enterprises pursuing civilian lines;
- An enumerated list of subsidizable costs covering technological renewal, reconstruction, and capital builds (including design and survey, equipment purchase and installation, commissioning, and on-site infrastructure);
- Transparent co-financing ratios and tranche disbursements linked to verifiable KPIs (added capacity, localization depth, TRL/CRL progress, export readiness);
- Competitive selection with clear scoring and conflict-of-interest safeguards;
- Enhanced monitoring, audit, and clawbacks.

This package would improve legal predictability for investors while tightening alignment between budget outlays and measurable technological outcomes, thus furthering the state goals of technological sovereignty and import substitution articulated in strategic documents (Skvortsova et al., 2023c).

Policy and managerial implications follow directly. For regulators, a broadened subsidization perimeter reduces the current mismatch between legal aspirations for diversification and the financeable investment menu available to enterprises. For firm managers and CFOs, the findings imply a financing stack that blends internal funds with concessional instruments and (where feasible) private equity, calibrated to asset specificity and risk stage. Program participation should be prepared with audit-ready cost classification, IP-and-licensing roadmaps to de-risk later appropriation (Afanasyev et al., 2023), PoC-aware contract portfolios to stabilize earnings quality (Chaikovskaya et al., 2023), and KPI dashboards that mirror likely government indicators (civilian-revenue share, localization, labor-productivity growth, defect/downtime metrics).

Simultaneously, several risks merit attention. Subsidies can induce moral hazard or crowd out bank lending if not bounded by milestone-linked tranches and credible clawbacks. Overly narrow cost taxonomies may privilege "new product" optics over systems-level upgrades with larger productivity payoffs. Finally, rushed adoption of AI-enabled production without commensurate governance can widen compliance gaps in data protection, liability, and IP ownership (Shatkovskaya et al., 2023a; Skvortsova et al., 2023a; Skvortsova et al., 2023b). The safeguards outlined (i.e., eligibility clarity, staged disbursement, ex post verification, and standardized KPI sets) are designed to mitigate these risks.

Limitations of the present study stem from its normative and design-analytic focus. The authors do not claim econometric identification of causal effects of specific legal changes on firm performance, nor do they observe confidential, firm-level budget data that would permit micro-estimation of cost pass-through or crowding-out. The generalizability of the legal blueprint beyond the Russian DIC context may also be conditioned by sectoral security constraints and fiscal space. Therefore, future research should focus on the following:

- Assemble panel microdata on DIC enterprises to run difference-in-differences or synthetic-control evaluations of subsidy uptake and productivity effects;
- Conduct case studies tracing dual-use lines from R&D to serial civilian manufacture, with attention to IP and standardization bottlenecks;
- Undertake comparative legal analysis of subsidy regimes in peer jurisdictions to benchmark co-financing ratios, KPI architectures, and audit modalities.

In sum, the Discussion refines prior narratives on innovation policy and civil-military integration (Andreev, 2023; Kolesnikov et al., 2016; Larin et al., 2021; Shatkovskaya et al., 2023b) by specifying a legal-financial mechanism that can translate research capacity

into scalable civilian output at defense enterprises. By coupling eligibility clarity with performance-contingent support, the proposed approach strengthens institutional credibility, aligns enterprise incentives with public objectives, and operationalizes the diversification mandate under current economic conditions.

5. CONCLUSION

The research investigates the pathways and practices through which defense-sector firms design and produce cutting-edge civilian goods. The production of such goods is a complex process that requires significant investments.

The analysis of various sources of investment project financing has demonstrated that the most in-demand mechanism is currently state subsidization. However, this mechanism has been developed and is effectively employed only in relation to new products, technological equipment, and chemical substances.

Nowadays, public funding for technological upgrading, production reconstruction, and contract-executed capital construction is confined to projects yielding military goods. To successfully achieve the state-assigned goals of production diversification, it is necessary to establish such a subsidization mechanism for the production of civilian goods as well.

In conclusion, the study highlights the importance of designing institutional and financial mechanisms that support the transformation of defense industry technological capabilities into sustainable civilian high-technology production. The proposed framework contributes to policy discussions on industrial diversification, innovation-driven development, and long-term economic modernization in high-technology manufacturing sectors.

In this context, it is proposed to introduce amendments to the Resolution of the Government of the Russian Federation "On the approval of the rules for the provision of subsidies, including grants in the form of subsidies, from the budgets of the budgetary system of the Russian Federation to legal entities, individual entrepreneurs, and individuals who are producers of goods, works, or services" (October 25, 2023 No. 1780) to provide the possibility of receiving state subsidies for financing investment projects aimed at technological modernization and capital construction in the sphere of civilian goods production by enterprises of the defense-industrial complex.

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