UDC 338.45

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STATE SUPPORT FOR THE DIGITALIZATION OF MANUFACTURING IN THE REPUBLIC OF KAZAKHSTAN: AN ANALYSIS OF ITS COVERAGE OF MARKETING AND SALES ACTIVITIES

Abstract: Digitalization of manufacturing is a declared priority of Kazakhstan's industrial policy, yet it is unclear whether public support reaches the activities through which digital capabilities are converted into revenue, namely marketing and sales. This study examines the extent to which current state support for the digitalization of manufacturing covers the marketing and sales activities of enterprises. A qualitative document analysis with directed content coding was applied to eight normative legal acts in force in October 2026: the Law on Industrial Policy, three policy concepts and four sets of rules on support measures. Nineteen operational support instruments were coded by value-chain stage, market orientation, policy tool type, digital component and coverage of marketing and sales. Seven instruments (37%) explicitly cover marketing or sales, five of them only for exports. Six instruments (32%) contain a digital component, and the only domestic "digital technologies" measure is limited to the purchase of 3D scanners, 3D printers and wide-format plotters. No operational instrument supports the digital marketing or sales channels of manufacturers on the domestic market, and the commitment to national digital marketplaces set out in the SME Development Concept was not found to be operationalised in the rules analysed. The findings point to a production-and-export bias in the policy mix and an institutional gap at the level of domestic business-to-business marketing. Five policy adjustments are proposed, including extending eligible digital technologies to customer-management and e-commerce software and introducing a domestic counterpart to the export e-platform measure.

Keywords: digitalization; manufacturing industry; state support; industrial policy; industrial marketing; sales; SMEs; Kazakhstan.

1. Introduction

Kazakhstan has placed digitalization at the centre of its industrial agenda. The Concept for the Development of the Manufacturing Industry for 2023–2029 characterises the current situation as "patchwork digitalization" that covers only parts of the value chain,

and reports that 84% of the manufacturing enterprises surveyed in 2017 had no digital production management system [1]. The Concept for Digital Transformation, Development of the ICT Industry and Cybersecurity for 2023–2029 states that only 5% of large and medium-sized enterprises use elements of Industry 4.0 [2]. Enterprise statistics for 2023 show a similar picture: 79.5% of enterprises had internet access, but only 26.5% had their own internet resources and 16.7% had automated internal business processes [3].

International research treats digital transformation as a change in how firms create and capture value with their customers rather than only as the automation of production [4, 5]. Marketing and sales are the functions in which digital tools – e-commerce channels, customer relationship management (CRM) systems, analytics and digital communication – translate operational capabilities into demand and revenue [6, 7]. In manufacturing, however, the Industry 4.0 discourse has concentrated on smart production technologies [8], and studies of Kazakhstani enterprises have followed the same emphasis on production readiness [3, 9]. If public policy reproduces this emphasis, manufacturers, and small and medium-sized enterprises (SMEs) in particular, may modernise their production without acquiring the digital means to sell its output.

Existing research on Kazakhstan has assessed the digital readiness of enterprises [3, 9], but the design of the support system itself has received far less attention. In particular, no study has systematically examined which stages of the manufacturing value chain the current support instruments are directed at, and whether the digital components of these instruments extend beyond the factory floor. This gap matters for policy: a support system that finances equipment but not the channels through which products reach customers may raise capacity without raising sales.

The aim of this study is to assess the extent to which current state support for the digitalization of the manufacturing industry of the Republic of Kazakhstan covers the marketing and sales activities of enterprises. Three research questions guide the analysis:

RQ1. To which stages of the value chain are the current support instruments for manufacturing directed?

RQ2. Which types of policy tools are used to support marketing and sales, and which are absent?

RQ3. To what extent do the digital components of support extend to marketing and sales on the domestic and export markets?

The paper makes two contributions. Empirically, it provides a systematic mapping of support instruments for Kazakhstani manufacturers by value-chain stage, policy tool type and digital component, based on a replicable codebook. Practically, it identifies a specific gap in the policy mix and translates it into concrete adjustments to existing support rules. The remainder of the paper reviews the literature, describes the materials and methods, presents the results, and discusses their implications and limitations.

2. Literature review

2.1. Digital transformation beyond the factory floor

Vial defines digital transformation as a process in which digital technologies trigger significant changes to an organisation’s properties and value creation paths [5]. Verhoef et al. distinguish three phases – digitization, digitalization and digital transformation – and

argue that the later phases involve changes in business models and in the way firms interact with customers, not merely the conversion of analogue processes into digital form [4]. A review of the state of the art by Kraus et al. likewise shows that research has moved from technology adoption towards strategic, organisational and customer-related consequences of digitalization [10].

In marketing, Kannan and Li propose a framework in which digital technologies reshape the entire marketing process, from the environment and touchpoints through which firms reach customers to the marketing actions and outcomes they generate [6]. Leeflang et al. identify the main challenges firms face in a digital era, including generating customer insights from data and the shortage of digital marketing talent [7]. Together, these studies suggest that a narrow, production-centred view of digitalization captures only part of the value that digital technologies can create for a firm.

2.2. Digital marketing and sales in industrial and SME contexts

Business-to-business (B2B) markets, where most manufacturers operate, have specific features: long relationships, complex products and buying centres. Pagani and Pardo show that digital technology changes relationships within business networks by affecting activity links, resource ties and actor bonds between firms [11]. Herhausen et al. document a gap between the digital marketing capabilities that firms consider necessary and those they actually possess, and associate this gap with weaker performance [12]. These findings imply that digital marketing in industrial firms is a capability that has to be built, not a by-product of production automation.

For SMEs, the constraints are sharper. Müller et al. show that Industry 4.0 affects not only value creation but also the value offered to customers and the way value is captured, and that SMEs differ considerably in how far they move beyond production-related applications [13]. Dethine et al. find that digitalization can strengthen the resources and capabilities that SMEs need for export management [14]. The OECD notes that SMEs lag behind larger firms in the adoption of digital tools and that public policy has a role in diffusing them, including in sales and e-commerce [15]. In Kazakhstan, enterprise-level studies point to sectoral and regional differences in digital readiness and to a low share of firms with advanced digital practices [3, 9], but they do not examine how the support system addresses these gaps.

2.3. Industrial policy, policy mixes and policy instruments

Recent literature describes a renewed interest in industrial policy, understood as a collaborative process between government and business aimed at structural change rather than as the selection of winners [16]. Edler and Fagerberg emphasise that the rationale and design of innovation policy depend on the problem it seeks to address [17]. The concept of the policy mix draws attention to the interactions between instruments, actors and levels of governance [18]. Rogge and Reichardt distinguish between the strategy level (objectives and principal plans) and the instrument mix, and stress the consistency of elements and the coherence of policy processes [19]. Borrás and Edquist argue that instruments – regulatory, economic and financial, or soft – should be chosen to match identified problems [20]. Hood and Margetts classify the tools of government into four resources: nodality (information), authority, treasure (money) and organisation [21].

This literature provides two analytical lenses for the present study. First, the instrument-level lens makes it possible to ask which activities the instruments actually finance or advise on. Second, the strategy–instrument lens makes it possible to ask whether commitments stated in strategic documents are translated into operational instruments. To the authors' knowledge, neither lens has been applied to the coverage of marketing and sales in Kazakhstan's support for manufacturing digitalization, which is the gap this study addresses.

3. Materials and methods

The study uses qualitative document analysis [22] combined with directed content analysis, in which coding categories are derived in advance from existing theory and then applied to the texts [23]. This design suits the research questions because the object of analysis – the support system as formally designed – is fully expressed in normative legal acts.

Corpus. Documents were included if they (a) were in force in October 2026; (b) had the status of a law, a government-approved policy concept or rules on the provision of support measures; and (c) concerned the manufacturing industry, its digitalization, or the promotion of its products. Documents were identified through the official legal information system adilet.zan.kz and the websites of support operators. The resulting corpus comprises eight documents (Table 1), divided, following Rogge and Reichardt [19], into a strategy level (D1–D4) and an instrument level (D5–D8).

Table 1 – Document corpus

ID	Document	Legal details	Level
D1	Law of the Republic of Kazakhstan "On Industrial Policy" [24]	No. 86-VII, 27.12.2021, as amended	Strategy
D2	Concept for the Development of the Manufacturing Industry for 2023–2029 [1]	Government Resolution No. 846, 20.12.2018, as amended by No. 259, 28.03.2023	Strategy
D3	Concept for Digital Transformation, Development of the ICT Industry and Cybersecurity for 2023–2029 [2]	Government Resolution No. 269, 28.03.2023	Strategy
D4	Concept for the Development of Small and Medium-Sized Entrepreneurship until 2030 [25]	Government Resolution No. 250, 27.04.2022	Strategy
D5	Rules on industrial support measures aimed at raising labour productivity [26]	Order No. 308, 01.06.2022, as amended by Order No. 442, 17.10.2025	Instrument
D6	Rules on support for the promotion of domestic processed goods on the domestic market [27]	Order No. 342, 15.06.2022, as amended by Order No. 448, 23.10.2025	Instrument
D7	Rules on reimbursement of part of the costs of promoting domestic goods and services abroad [28]	Order No. 314-НҚ, 01.08.2022, as amended by Order No. 166-НҚ, 13.04.2026	Instrument

ID	Document	Legal details	Level
D8	Rules on state non-financial support for private entrepreneurship [29]	Government Resolution No. 626, 05.08.2024, as amended	Instrument

Source: compiled by the authors.

Unit of analysis. At the instrument level, the unit of analysis is a support instrument, defined as a separately eligible cost type (for reimbursement measures) or a separately defined programme line (for non-financial support). This yielded 19 instruments (M1–M19). Sector-neutral credit instruments, such as interest-rate subsidies and loan guarantees, were excluded because they are not tied to a type of business activity and therefore cannot be assigned to a value-chain stage. At the strategy level, provisions concerning the digitalization of industry or the marketing, sales and market access of its products were extracted and compared with the instruments.

Codebook. Each instrument was coded on five dimensions (Table 2). Value-chain stages were adapted from Porter's primary activities [30], with marketing and sales separated, following the digital marketing literature [6, 11], and with market access and compliance distinguished as a stage specific to manufactured goods. Policy tool types follow Hood and Margetts [21].

Table 2 – Coding frame

Dimension	Categories	Decision rule
Value-chain stage	Production; Market access; Logistics; Marketing; Sales; General management	Stage at which the eligible cost or service is used
Market orientation	Domestic; Export; Both; Unspecified; Not applicable	Market named in the rules as the target of the activity
Policy tool	Nodality; Authority; Treasure; Organisation	Main government resource deployed [21]
Digital component	Direct; Partial; None	Direct: a digital technology or channel is the defined object. Partial: digital forms are among eligible options. None: no digital element
Coverage of marketing and sales	Explicit; Indirect; Absent	Explicit: marketing, promotion, sales or sales channels are named as the object. Indirect: the activity enables market entry or delivery (certification, compliance, transport). Absent: otherwise

Source: compiled by the authors based on [6, 11, 21, 30].

Procedure. Instruments were extracted from the texts of the rules into a coding sheet recording the document, operator, wording of the eligible activity and the five codes. Coding was performed by the first author using the decision rules in Table 2. Frequencies and a cross-tabulation of value-chain stage by market orientation were then calculated. The coding sheet is available from the authors on request.

4. Results

4.1. Strategy level

The Law on Industrial Policy (D1) frames the support system. Among the types of stimulation measures, it provides separately for stimulation on the domestic market (Article 37), the development and promotion of exports (Article 38) and the stimulation of labour productivity (Article 39), while digital transformation and Industry 4.0 appear among the competences of the authorised body and in the provisions on the national digital industry system [24]. Marketing and sales are thus present in the law only in the form of "promotion", divided between the domestic and export markets.

The policy concepts treat digitalization predominantly as a production matter. The manufacturing concept (D2) describes model digital factories, technological audits and digitalization roadmaps for selected enterprises, and addresses markets mainly through trade policy and priority export destinations [1]. The digital transformation concept (D3) envisages a smart industry management platform and reports that the share of e-commerce rose from 2.2% to 5.2% in 2020, but contains no provisions on digital marketing or B2B platforms for manufacturers [2]. The only strategic commitment directly addressing digital sales channels is found in the SME concept (D4), which proposes incentives for national digital marketplaces and for the entry of Kazakhstani SMEs into international marketplaces [25]. Table 3 compares these commitments with the instruments identified in the corpus.

Table 3 – Strategic commitments and corresponding operational instruments

Strategic commitment	Source	Corresponding instrument in D5–D8
Model digital factories, technological audits, digitalization roadmaps	D2	Partly: reimbursement of digital equipment (M2) and production organisation (M4); no instrument for digitalization roadmaps
Smart industry management platform	D3	Not an enterprise support instrument; not covered by D5–D8
Incentives for national digital marketplaces and SME entry into international marketplaces	D4	International: registration on e-trading platforms abroad (M11). National marketplaces: no instrument found
Promotion of products on priority export markets	D2	Covered: M8–M13

Source: compiled by the authors based on [1, 2, 25–29].

4.2. Instrument level: value-chain stages and policy tools

Table 4 lists the 19 instruments and their codes. Production accounts for four instruments (21%), all of them under the labour productivity rules (D5). Marketing accounts for five instruments (26%), sales for two (11%), market access for three (16%), logistics for two (11%) and general management for three (16%).

Table 4 – Coded support instruments

ID	Instrument	Doc	Stage	Market	Tool	Digital	M&S coverage
M1	Upskilling of engineering and production staff	D5	Production	n/a	T	none	absent
M2	Digital technologies: 3D scanners, 3D printers, wide-format plotters	D5	Production	n/a	T	direct	absent
M3	Process improvement: energy audit, technological equipment, installation	D5	Production	n/a	T	none	absent
M4	Production organisation: lean and energy-efficient technologies	D5	Production	n/a	T	none	absent
M5	Certification and laboratory testing	D6	Market access	domestic	T	none	indirect
M6	Marking of light-industry goods	D6	Market access	domestic	T	partial	indirect
M7	Rail transport of priority goods within Kazakhstan	D6	Logistics	domestic	T	none	indirect
M8	Advertising abroad	D7	Marketing	export	T	partial	explicit
M9	Participation in foreign exhibitions incl. online	D7	Marketing	export	T	partial	explicit
M10	Foreign branches, warehouses, shelf space	D7	Sales	export	T	none	explicit
M11	Registration on e-trading platforms and trademarks abroad	D7	Sales	export	T	direct	explicit
M12	Foreign certification, accreditation, inspection	D7	Market access	export	T	none	indirect
M13	Transport of exported goods	D7	Logistics	export	T	none	indirect
M14	Demonstrations of digital services to foreign buyers	D7	Marketing	export	T	direct	explicit
M15	Kasipke bagyt: consultations, training, business review	D8	General management	n/a	N	none	absent
M16	Kasipker ayel: training and mentoring	D8	General management	n/a	N	none	absent
M17	One Village One Product: branding and market entry	D8	Marketing	both	N	none	explicit
M18	Service support incl. annual sales, promotion plan review	D8	Marketing	unspec.	N	none	explicit

ID	Instrument	Doc	Stage	Market	Tool	Digital	M&S coverage
M19	Business links, expert services, EBRD advisory	D8	General management	n/a	N	none	absent

Note: operators – QazIndustry (D5, D6), QazTrade (D7), National Chamber of Entrepreneurs "Atameken" (D8); T – treasure; N – nodality; M&S – marketing and sales; unspec. – unspecified. Source: compiled by the authors based on [26–29].

In terms of policy tools, 14 instruments (74%) rely on treasure, in the form of partial reimbursement of costs, and five (26%) on nodality, in the form of consultations, training and advisory services provided through the National Chamber of Entrepreneurs "Atameken". None of the instruments uses authority (for example, standards or procurement rules favouring digital sales channels) or organisation (for example, a state-operated B2B platform for manufacturers) to support marketing and sales.

Seven instruments (37%) explicitly cover marketing or sales, five (26%) cover them indirectly through certification, compliance or transport, and seven (37%) do not cover them. Of the seven explicit instruments, five are export-oriented (M8–M11, M14). The two remaining ones are non-financial: branding and market-entry support under the "One Village – One Product" programme (M17), which targets producers of local products rather than manufacturing enterprises in general, and a review of a sales or promotion plan available once per calendar year (M18). On the domestic market, the only financial instruments for manufacturers concern certification, the marking of light-industry goods and rail transport (M5–M7).

4.3. Digital components and market orientation

Six instruments (32%) contain a digital component (Table 5). The only measure titled "digital technologies" (M2) reimburses 40% of the cost of new 3D scanners, 3D printers and wide-format plotters, with an annual cap of 60 million tenge; software, information systems and digital sales channels are not listed among eligible costs [26]. The marking measure (M6) includes identification means and marking equipment [27]. The remaining four digital instruments are export-oriented: advertising abroad (M8) and participation in exhibitions, including online formats (M9), allow digital forms; registration on electronic trading platforms abroad (M11) is the only instrument in the corpus that directly finances a digital sales channel; and demonstrations of digital services (M14) are available to providers of digital services rather than to manufacturers [28].

Table 5 – Instruments by value-chain stage and market orientation

Stage	Domestic	Export	Both	Unspecified	Not applicable
Production	–	–	–	–	M1, M2*, M3, M4
Market access	M5, M6*	M12	–	–	–
Logistics	M7	M13	–	–	–
Marketing	–	M8*, M9*, M14*	M17	M18	–
Sales	–	M10, M11*	–	–	–

Stage	Domestic	Export	Both	Unspecified	Not applicable
General management	–	–	–	–	M15, M16, M19

Note: * – instrument with a direct or partial digital component. Source: calculated by the authors from Table 4.

The cross-tabulation in Table 5 answers RQ3 directly. Every instrument that combines a digital component with explicit coverage of marketing or sales (M8, M9, M11, M14) is export-oriented, and three of them are relevant to manufacturers. The “Domestic” cells for marketing and sales are empty: no instrument in the corpus supports the digital marketing or sales channels of manufacturers on the domestic market.

4.4. Eligibility conditions

The conditions attached to the instruments reinforce this pattern. The domestic market rules (D6) are restricted to SMEs producing goods on the priority goods list, reimburse 50% of costs within caps of 15,000 and 10,000 monthly calculation indices, and require recipients to increase their income by at least two tenge for every tenge of support within two years [27]. The labour productivity rules (D5) exclude large businesses, except for training, and require revenue to grow by at least twice the amount of support [26]. The export rules (D7) exclude applicants that have not increased their payroll by at least 10% over the two preceding years [28]. Reimbursement is document-based: the productivity rules require primary documents such as acceptance certificates and waybills [26], and the export rules require invoices, transport documents and supply contracts [28]. Such evidence is easier to provide for equipment and transport than for services.

5. Discussion

The results reveal what can be described as a production-and-export bias in Kazakhstan’s support for manufacturing digitalization. Domestic digital support is concentrated on production equipment, and support for marketing and sales, including its digital forms, is concentrated on exports. Between these two lies an uncovered area: the digital marketing and sales of manufacturers on the domestic B2B market, which is the principal market for manufacturers that do not export.

Several explanations are consistent with the evidence. First, the strategic documents frame digitalization in Industry 4.0 terms – model factories, platforms, automation – which mirrors the production focus of the international Industry 4.0 literature [8] rather than the broader, customer-oriented view of digital transformation [4, 5]. Second, the logic of verification favours tangible assets: document-based reimbursement makes equipment easier to finance than software subscriptions or digital marketing services. Third, in the current design marketing support is treated as a trade-promotion task, which places it under export instruments operated by a different body (QazTrade) from the one operating domestic industrial support (QazIndustry). This is the kind of interaction between instruments and actors that the policy mix literature warns about [18, 19]: each instrument may be coherent on its own, while the mix as a whole leaves an activity without a responsible owner.

The strategy–instrument comparison points to an implementation gap. The SME concept commits to incentives for national digital marketplaces [25], yet no corresponding instrument was found in the rules analysed. In the terms of Rogge and Reichardt, the strategy level and the instrument mix are not fully consistent [19]. The narrow definition of "digital technologies" in the productivity rules is a second form of inconsistency: it equates digitalization with the purchase of three types of equipment, whereas the literature associates the value of digital transformation with changes in customer interaction and business models [4, 6, 13].

These findings matter because the capability gap in digital marketing is associated with weaker firm performance [12], and because digital tools can strengthen the capabilities SMEs need to reach new markets [14, 15]. A support system that finances production capacity without helping firms build digital sales capabilities risks creating capacity that cannot be fully used. This interpretation is consistent with the low share of Kazakhstani enterprises that have their own internet resources [3].

Policy implications. Five adjustments to the existing rules follow from the analysis and match the problem identified, as Borrás and Edquist recommend [20]:

(1) Extend the list of eligible costs under the "digital technologies" measure (D5) to software for customer relationship management, e-commerce, product information management and sales analytics, with verification based on licence agreements and implementation acts.

(2) Introduce a domestic counterpart to the export e-platform measure (M11) in the domestic market rules (D6), reimbursing registration and placement on domestic B2B marketplaces and electronic catalogues.

(3) Combine treasure with nodality by linking a digital marketing voucher to advisory services delivered through the Atameken network (D8), so that firms receive both funding and know-how.

(4) Include indicators of digital sales activity of manufacturing enterprises, such as the share of firms receiving orders via the internet, in the monitoring of support programmes.

(5) Assign a lead body responsible for the digital marketing and sales of manufacturers, to coordinate the measures of the industrial, trade and SME support systems.

Limitations. The study analyses support as formally designed, not its uptake or effects; actual practice may differ from the rules. The coding was performed by a single coder, which limits the assessment of reliability, although the codebook and decision rules are reported to allow replication. Sector-neutral credit instruments and regional programmes were excluded, and some strategic documents were analysed through their principal provisions rather than their full action plans. Finally, document analysis cannot show whether enterprises perceive the identified gap as a constraint; this requires enterprise-level evidence.

6. Conclusion

This study examined the extent to which current state support for the digitalization of Kazakhstan's manufacturing industry covers the marketing and sales activities of enterprises. In response to RQ1, support is directed mainly at production, market access and logistics; marketing and sales instruments exist but are concentrated on exports. In response

to RQ2, treasure in the form of cost reimbursement dominates, nodality plays a secondary role, and authority and organisation are not used to support marketing and sales. In response to RQ3, digital components rarely extend to marketing and sales, and when they do, they apply only to export markets: the domestic digital marketing and sales of manufacturers are not covered by any operational instrument in the corpus.

The paper contributes a replicable mapping of support instruments by value-chain stage, policy tool and digital component, and identifies an institutional gap that has received little attention in the discussion of Kazakhstan's industrial digitalization. Future research should measure the digital maturity of the marketing environment of manufacturing enterprises and test whether it is associated with sales performance. Such enterprise-level evidence would make it possible to assess the practical importance of the gap identified here and to design support instruments accordingly.

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