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**REVIEW OF THE FOREIGN SCIENTIFIC CONSULTANT
on the dissertation work of
Alexander Neske
entitled
«Managing sustainability-related complexity in supply chains:
A capability-based managerial framework for organizational response»
Submitted for the degree of Doctor of Philosophy (PhD)
in the educational program 8D04101 – Management**

The dissertation submitted for defense by Alexander Neske addresses one of the most demanding questions in contemporary supply chain management: how an organization constructs a response to sustainability requirements that is not only intended but governable and capable of being evidenced. In the European Union, the Supply Chain Due Diligence Act, the European Sustainability Reporting Standards, and the Carbon Border Adjustment Mechanism have turned sustainability from a reporting exercise into an obligation to demonstrate control over multi-tier supply chains. For companies in export-oriented economies, among them the Republic of Kazakhstan, the ability to produce verifiable evidence of that control has become a condition of market access. The topic is therefore relevant in scientific terms and urgent in managerial terms.

International research on sustainable supply chain management explains drivers, practices, and the quality of reporting, but it does not explain how



organizations select, configure, and stabilize the capabilities with which they answer these requirements, and it does not connect that mechanism to auditable outcomes. The author closes this gap. He treats sustainability-related complexity as a differentiated construct covering regulatory, stakeholder, data and auditability, interorganizational, and temporal dimensions, and he conceptualizes the organizational response as selective stabilization into routines, roles, and evidence practices. This moves the field from the description of individual initiatives toward the reconstruction of a management mechanism.

A particular strength of the work is the organic integration of theoretical analysis, empirical reconstruction, and applied modeling. In Study I the author reconstructs, from 23 semi-structured interviews in 17 German organizations across six supply-chain cases, the taxonomy of Packed Business Capabilities across the Strategy, People, Process, and Technology domains. In Study II he examines the publicly articulated capability profiles of 11 large Kazakhstani companies on the basis of 20 sustainability and annual reports published between 2022 and 2025. The German findings are not transferred mechanically to the Kazakhstani context. The author first systematizes the institutional, regulatory, and assurance boundary conditions of both countries and then states explicitly where his findings hold and where they do not. This comparative discipline gives the study its international value.

The methodological foundation of the research deserves particular attention. The author combines an abductive two-study design with the case-study methodology of Yin and Eisenhardt, qualitative content analysis, computer-assisted coding in NVivo, an intercoder reliability check using Krippendorff's alpha ($\alpha = 0.818$ on a stratified subsample), and the formal scoring and classification of all 20 reports of Study II against the 30 GRI disclosures of the Capability Maturity Score. Every score is anchored to a cited page of the source document, and the results are tested for their sensitivity to weighting, aggregation rules, and document type. The work thereby satisfies the standards of empirical research in international management journals, and its results can be reproduced by a third party.

The theoretical contribution is threefold and is deliberately delimited. Social Systems Theory is used as an interpretive lens for the reduction of complexity through selection and stabilization, without any claim to test the theory or to operationalize autopoiesis. The routing mechanism of the model specifies the decision between internal capability build-up and collaborative arrangements, which the dynamic capabilities and transaction cost literatures treat only in general terms, as a function of two observable field conditions. The mechanism of capability signaling connects the legitimacy logic of institutional theory with the maturation logic of capability theory and explains why sustainability





communication can precede embedded practice instead of merely substituting for it.

The central scientific result is the capability-based Organizational Response Model. It distinguishes four response types, Internal-first, Co-Developer, Selective Joiner, and Collaborative-first, through the two routing conditions of perceptual convergence and prevalent cross-firm orchestration, specifies five moderators and six mechanism claims with their scope conditions, formulates a normative transition logic, and links the capability portfolio to three mechanism-oriented outcome metrics, namely time-to-mitigation, auditable tier coverage, and coordination cost per covered spend. The quantitative operationalization of the model as a GRI-anchored Capability Maturity Score with a formal classification function turns a conceptual framework into an instrument that an analyst can apply to public reports under documented decision rules.

The practical significance of the research extends to both institutional contexts. Companies subject to European due-diligence and reporting obligations can use the taxonomy and the maturity score to determine where their response is thin and to justify the choice between building capabilities internally and joining collaborative arrangements. Companies in the extractive, energy, financial, construction, and transport sectors of Kazakhstan, as well as the ministries and authorized bodies of the Republic of Kazakhstan, the Astana International Financial Centre, and the Kazakhstan Stock Exchange, can use the mechanisms and policy levers of the third chapter to raise verification capacity and field-level coordination. Consulting and audit organizations can use the instrument as a structured diagnostic of assurance readiness. The taxonomy and the model are already being used in the teaching of the Faculty of Business Sciences of Westsächsische Hochschule Zwickau.

The scientific integrity of the author should be emphasized. He discusses the limitations of his design openly. He states that the contrast between the two corpora is not isolated from period, sector, and evidentiary modality, and he therefore claims a replicated cross-context pattern rather than a country effect. He discloses the use of artificial intelligence tools in the revision of the manuscript in accordance with the Rules for Awarding Degrees. The dissertation is written in clear academic language, the argumentation is consistent, and the conclusions are supported by tables, calculations, and modelling results. Throughout our cooperation, Alexander Neske has worked with a high degree of independence, has formulated and defended his own scientific position in discussion, and has carried out all stages of the research personally, from the development of the design and the collection of the empirical material to the construction of the model and the formulation of the recommendations.





From both scientific and methodological perspectives, the dissertation of Alexander Neske meets the international requirements for research at the level of a doctoral degree. The work is distinguished by its relevance, its scientific novelty, its theoretical depth, and its practical significance, and it represents a completed, independent, and substantive piece of scientific research.

Thus, I consider that the dissertation by Alexander Neske entitled «Managing sustainability-related complexity in supply chains: A capability-based managerial framework for organizational response» fully meets the criteria established for dissertations submitted for the degree of Doctor of Philosophy (PhD) in the educational program 8D04101 – Management, and may be recommended for public defense.

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