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The Rise of the "Product-Program" Manager: How AI and Analytics Are Merging Two Critical Roles

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Abstract: The article presents a theoretical and analytical review of the transformation of management practices in the context of implementing artificial intelligence and advanced analytics. The study is based on an interdisciplinary approach that combines methods of strategic management, innovation analysis, and digital technologies. Particular attention is paid to the formation of the hybrid role of the "product-program manager," which integrates the functions of product and program management. Scenarios of AI applications are examined, including the automation of routine management processes and predictive resource allocation. A comparative analysis of traditional and hybrid managerial roles is conducted, with an emphasis on the changing role of data and the integration of analytical platforms into business processes. It is established that the implementation of AI ensures a shift from reactive to predictive management, contributes to cost reduction and faster time-to-market, and strengthens the manager's role as an architect of the innovation cycle. Identified limitations are associated with differences in technological maturity and the need to adapt organizational structures. The article proposes a conceptual model of the evolution of managerial functions based on AI, integrating strategy, tactics, and operational execution into a single analytical framework. This work will be useful to researchers in innovation management, practitioners of digital transformation, analytics specialists, and project leaders interested in building sustainable business models in the digital economy.

Keywords: artificial intelligence, data analytics, product management, program management, product-program manager, innovation cycle, digital transformation.

Introduction

Modern product and program management is undergoing radical changes under the influence of artificial intelligence and analytical technologies. These tools are becoming an integral part of corporate practice, as they allow for the identification of hidden patterns in data, forecasting of market trends, and management of complex processes with a high degree of accuracy. In the context of accelerating innovation cycles and growing demands for speed in bringing new solutions to market, companies are faced with the need to rethink their management approaches.

Traditionally, product management has focused on identifying customer needs, shaping a vision, and ensuring the product-market fit (Barcaui & Monat, 2023). At the same time, program management has been concerned with coordinating projects, managing resources, and synchronizing cross-functional teams. This division often led to disunity, delays, and a duplication of functions. Today, artificial intelligence and integrated analytics are gradually erasing these boundaries, creating the conditions for the emergence of a new hybrid role.

The applied use of technologies aimed at solving specific tasks plays a key role in the transformation process. In project management, systems based on artificial intelligence take over routine functions—collecting metrics, preparing reports, and recording meeting minutes—freeing up resources for strategic activities. Such scenarios demonstrate that the main value of innovative tools lies not only in increasing efficiency but also in changing the very logic of role interaction.

The objective of the study is to systematize and analyze the applied effects of using artificial intelligence and analytics in product and program management, and to show how this leads to the formation of a new role—the product-program manager.

Materials and Methods

This study selected scientific publications that analyze the use of artificial intelligence and data analytics in the management of products, programs, and innovations. The selection criterion was the presence of applied examples and management tools demonstrating the convergence of product and program management.

Of particular importance to the study are the results of the work by Babina et al., (2024), which show that corporate investments in artificial intelligence are

directly linked to growth in sales, employment, and market capitalization. The authors conclude that the main channel for this growth is through product innovation. This focus makes the source important for understanding how the implementation of AI affects internal processes and the strategic results of a firm's activities. The study by Barcaui & Monat (2023) examines the relationship between the capabilities of generative technologies and traditional project management. The author raises the question of whether generative artificial intelligence can replace or surpass an experienced manager.

The practical agenda of data-driven management is shaped by the work of Grigoryan et al., (2023). It describes the steps for identifying and systematizing applied scenarios for the use of analytics in a product environment. The prospects of generative systems in innovation management are analyzed in detail by Mariani & Dwivedi (2024). The author shows that generative artificial intelligence can accelerate information processing and influence radical innovations, stimulating the emergence of new ideas and team interaction formats.

A significant contribution to the methodological base is made by the work of Panzner et al., (2024). It proposes an analytical tool in the form of a "morphological box," which allows for the structuring of data, algorithms, and metrics within information processing pipelines. This approach serves as a model for designing universal analytical solutions applicable to the management of products and programs. A systematization of achievements in the field of modeling and optimization of production processes is offered by Qin et al., (2022). The author's review emphasizes that the use of artificial intelligence and machine learning is becoming a critical factor in increasing the efficiency of complex production systems.

The practical effects of applying AI and generative solutions in innovation management are presented in the work of Roberts & Candi (2024). Here, based on surveys and interviews with managers, specific scenarios for the use of technologies are identified, and their connection to indicators of innovation and market performance is quantitatively assessed. The study demonstrates that even relatively new generative models are already having a significant impact on the practice of innovation management. The work of Stark & Vanden Broeck (2024) formulates the basic principles of algorithmic management, emphasizing its role as a

new management paradigm. Ethical and organizational aspects of implementing algorithms in management activities are considered, which allows for the assessment of risks and limitations associated with the use of artificial intelligence in applied contexts.

The methodological basis includes content decomposition and comparative analysis. The role of artificial intelligence in increasing the efficiency of management processes, examples of automating routine tasks, the integration of analytics into strategic and tactical planning, and the organizational consequences of forming the hybrid "product-program manager" role were examined. Special attention was paid to applied scenarios, such as the automation of reporting and meeting minutes, predictive resource allocation, and the creation of a unified information environment for product and program tasks.

Results

The development of artificial intelligence technologies is creating new applied management scenarios that extend far beyond traditional product or program management. One of the most indicative directions has been the automation of routine processes and the integration of predictive analytics into operational decision-making, where data-driven insights form the basis for process optimization. Unlike purely theoretical models, such solutions demonstrate a direct economic effect, expressed in sales growth, cost reduction, and increased customer satisfaction.

Recent empirical studies provide quantitative confirmation of these effects. In particular, in the study by Babina et al., (2024), a one-standard-deviation increase in corporate investments in artificial intelligence over an eight-year period corresponds to a 19.5% increase in sales, a 18.1% increase in employment, and a 22.3% increase in market valuation. These results demonstrate that the integration of artificial intelligence not only reduces operational costs but also directly contributes to measurable business growth.

Intelligent algorithms make it possible to generate heat maps of customer movement, identifying zones of high interest. This approach provides a managerial effect in

the form of rationalizing product placement and optimizing the layout of the retail space, which directly affects turnover. Such methods are closely related to the concept of using AI to form the innovative value of a product, as shown by Babina et al., (2024). An equally important scenario is customer profiling using data on gender and age, obtained without accessing personal information. This approach creates opportunities for fine-tuning the product range and targeted marketing. Unlike traditional segmentation tools, the application of real-time data analysis algorithms allows for the processing of customer flows at scale, turning retail into a laboratory for studying consumer behavior.

In a highly competitive environment, controlling the availability of goods on shelves becomes a key factor. Intelligent systems can automatically detect the absence of products and send notifications to responsible employees (Georgiev et al., 2024). The effect is expressed in the reduction of lost sales and the strengthening of customer loyalty, as the consumer encounters the absence of a needed product less frequently. This scenario confirms the trend of using AI as a tool that eliminates routine tasks and increases the strategic flexibility of management (Barcaui & Monat, 2023). An additional effect is provided through queue monitoring systems. Detection algorithms signal the need to open additional checkout counters, reducing waiting times and optimizing staff allocation. This practice illustrates what Marnewick & Marnewick (2022) calls the digitalization of project and operational functions: the human ceases to be the center of problem detection and becomes a subject of decision-making based on analytics.

Technologies for identifying visitors by unique IDs that do not contain personal data are attracting special attention. The formation of "blacklists" helps to prevent repeated thefts, while "whitelists" provide premium service to regular customers. Such scenarios correspond to the principles of algorithmic management formulated by Stark & Vanden Broeck (2024), where the emphasis is on the balance between control efficiency and adherence to ethical norms. Table 1 presents key commercial scenarios for the application of artificial intelligence in retail, grouped by their managerial effect.

Table 1. Practical applications of artificial intelligence in retail (Compiled by the author based on sources: (Babina et al., 2024; Fichtler et al., 2024; Georgiev et al., 2024))

Application scenario	Description	Managerial effect
Customer movement heatmaps	Cameras record zones where visitors spend the most time	Optimization of product placement and store layout
Visitor profiling	Determination of gender and approximate age without personal data	Personalization of assortment and marketing
Shelf stock control	Automatic notification when shelves are empty	Reduction of lost sales, increased customer loyalty
Queue management	The system signals the need to open additional checkouts	Increased throughput, reduced waiting time
Identification lists (ID without PII)	Recognition of visitors by ID: blacklists and whitelists	Enhanced security and improved quality of service

An analysis of these scenarios confirms that the applied use of AI in related management practices forms a new management logic. The accuracy of control is increased, and operational losses are reduced. Companies gain the ability to integrate analytics into strategic planning while simultaneously automating routine processes. A new model of interaction with the customer is formed, where technology does not replace the human factor but enhances it, allowing managers to focus on tasks that have long-term value.

The use of artificial intelligence technologies in management practices significantly reduces the share of routine operations and shifts the focus of managers to strategic tasks. In the modern context, it is the automation of metrics monitoring, recording of meeting results, and analysis of resource load that becomes a key factor in increasing efficiency. As product and program teams transition to data-driven management, the role of intelligent tools grows, and the boundaries between the functions of product and program management gradually blur (Barcaui & Monat, 2023).

One of the most in-demand solutions has become automated dashboards for key indicators. Whereas previously, managers manually generated reports on return on investment, deadlines, and risks, these processes are now automated and supplemented with predictive analytics. This approach eliminates manual entry errors and ensures transparency, which

corresponds to the trends recorded by Roberts & Candi (2024).

An important area of AI application is the automatic processing of communications. Systems for recording and transcribing meetings can capture the course of a discussion and automatically generate a summary and distribute it to participants (Grigoryan et al., 2023). This significantly reduces the workload on project and program managers, increasing communication transparency and reducing administrative time costs. A significant effect is demonstrated by the use of algorithms for analyzing resource load. Prioritizing tasks and identifying bottlenecks at early stages allows for the optimization of work allocation and a reduction in the risks of failures in the execution chain. Such practices are consistent with research results showing that the implementation of analytics increases the stability of management and allows for a transition from a reactive to a predictive style (Mariani & Dwivedi, 2024).

Predictive risk analysis based on accumulated project data should be highlighted separately. Automated tools identify patterns that indicate the probability of missing deadlines or exceeding budgets, which makes it possible to take corrective measures in advance. The integration of AI reduces operational costs and strengthens the strategic management function (Stark & Vanden Broeck, 2024). Examples of such solutions are summarized in Table 2, which presents key scenarios for automating the routine tasks of managers.

Table 2. Automation of routine managerial tasks using AI (Compiled by the author based on sources: (Barcaui & Monat, 2023; Qin et al., 2022; Roberts & Candi, 2024)

Routine task	AI-enabled solution	Benefits
Collection of key metrics	Automated dashboards with predictive analytics	Time savings, elimination of manual entry errors
Meeting summarization	Recording, automatic transcription, and distribution	Reduced workload, enhanced communication transparency
Resource load analysis	Algorithms for prioritization and bottleneck detection	Optimized task allocation, reduced risk of execution failures
Risk monitoring	Predictive analytics based on project data	Lower probability of delays and budget overruns

These scenarios demonstrate that automation using AI is ceasing to be an auxiliary function and is becoming the basis of management practice. Managers gain access to a single source of reliable data, which allows for the combination of product and program approaches into a unified system. Moreover, being relieved of routine tasks creates the conditions for shifting the focus to the development of innovative strategies and long-term solutions. Thus, AI becomes not just a support tool, but a factor in the transformation of the managerial role as a whole.

Discussion

Modern management practices increasingly show a trend towards the blurring of boundaries between the traditional functions of product and program management. The product manager has historically been responsible for customer value and market fit, while the program manager has concentrated on coordinating projects, ensuring resources, and achieving operational goals. Both product and program managers initially perform strategic functions: both roles require constant interaction with internal and external stakeholders, the ability to shape and communicate a vision, as well as an understanding of the essence of the product or service. This shared foundation explains why these roles become the point of integration in the transition to a new management model. However, with the growing volume of data and the increasing complexity of innovation cycles, both roles are faced with the need for integration into a single management system (Panzner et al., 2024). Modern agile development practices increasingly shift the focus to the product and its value for the user. With routine processes being automated through artificial

intelligence, tasks related to monitoring, reporting, and resource management move into the background. As a result, program managers are increasingly involved in the product agenda, and their contribution goes beyond purely coordination functions.

The most important factor in this process is the use of artificial intelligence as a universal analytical platform. Such systems form a "single source of truth," eliminating the gaps between strategic planning and tactical execution. On one hand, data on consumer behavior and market trends enrich the product strategy, and on the other, predictive analytics provides for the early identification of risks and optimization of resource load at the program level (Qin et al., 2022). As a result, a new managerial figure emerges—the product-program manager, who combines strategic vision with coordination of execution. At the same time, the increasing complexity of processes and the interdependence of the project portfolio require product managers to understand the entire managerial ecosystem of the company. They must take into account not only the individual product but also its connections with other initiatives and resources. Thus, in real-world conditions—especially in startups and small to medium-sized businesses—the functions of program and product managers increasingly overlap, forming the basis for the emergence of the hybrid role of Product-Program Manager.

This hybrid role is characterized by several key differences. Instead of the separate use of tools (e.g., product roadmaps and project schedules), a single intelligent system is used that synchronizes all stages of the lifecycle. The horizon of responsibility expands from individual stages to end-to-end management—from

product concept to its market implementation. Finally, the role of data changes, from the static collection of feedback and monitoring of execution to the dynamic

modeling and forecasting of development scenarios. A comparative characterization of the traditional and hybrid roles is presented in Table 3.

Table 3. Comparison of traditional roles and the hybrid role of the "Product-Program" Manager (Compiled by the author based on sources: Grigoryan et al., 2023;Panzner et al., 2024; Qin et al., 2022)

Criterion	Product Manager	Program Manager	Product-Program Manager
Main focus	Customer value, market fit	Coordination of projects and teams	Integration of value and execution
Tools	Market analysis, product roadmaps	Project schedules, resource control	Unified AI-driven analytics system
Horizon	Long-term product strategy	Tactical program execution	End-to-end lifecycle management
Role of data	Customer feedback, trends	Task monitoring	Predictive analytics and process synchronization
Key contribution	Defining “what to build”	Ensuring “how to deliver”	Combining “what” and “how” in a single integrated management loop

For clarity, the comparative analysis of traditional and hybrid managerial roles is presented as a summary diagram in Figure 1. The visualization illustrates the shift of emphasis from separate functions to an integrated management model.

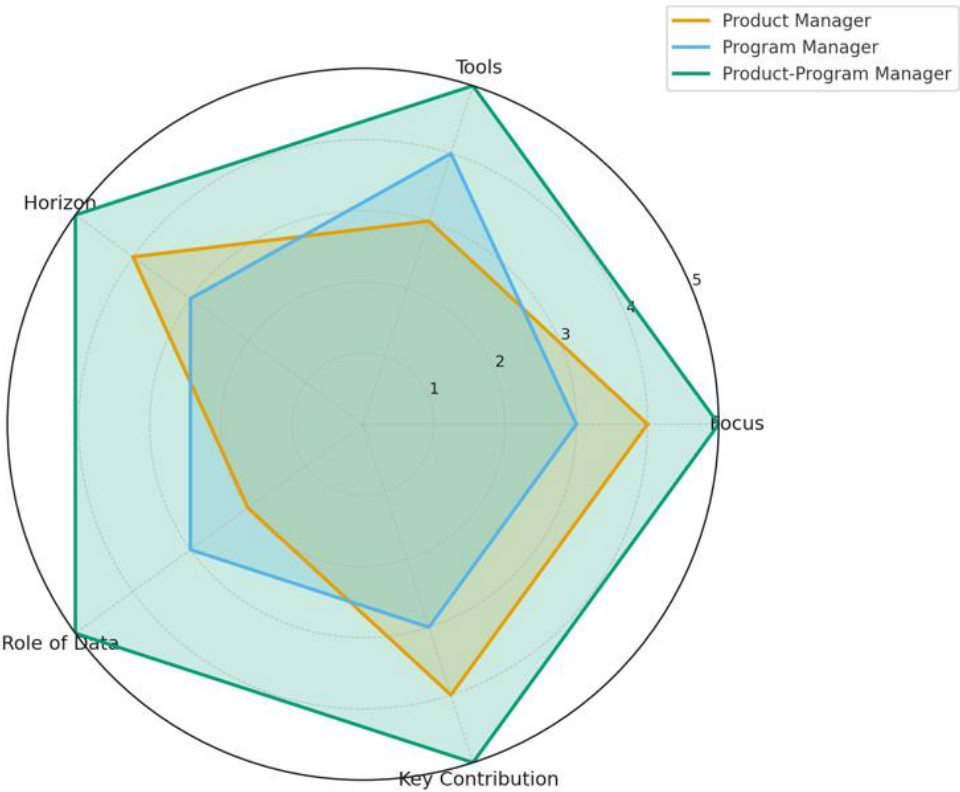


Figure 1 – Comparison of roles: Product Manager, Program Manager, and Product-Program Manager (Compiled by the author based on sources: Grigoryan et al., 2023;Panzner et al., 2024; Qin et al., 2022)

As shown in the diagram, the hybrid role demonstrates a higher level of integration across all key parameters. This confirms the conclusion that the use of artificial intelligence and analytical platforms shapes a new managerial logic, in which strategy and execution are combined into a unified system of predictive, data-driven management.

The analysis shows that the product-program manager is becoming the carrier of a new type of competence. Whereas previously the separation of roles ensured a balance between strategy and implementation, in the context of digitalization, it was becoming a source of friction. The implementation of a unified analytical platform allows these limitations to be overcome, ensuring the synchronization of all processes. This approach increases the consistency of team actions and minimizes the loss of time and resources that occur at the interface of the product and program levels. Consequently, it can be argued that the formation of the product-program manager role is not a temporary trend, but a natural stage in the evolution of management practices in the context of the active implementation of artificial intelligence technologies.

The implementation of artificial intelligence and advanced analytics in management practices demonstrates a transformational effect that extends far beyond increasing operational efficiency. At the strategic level, it leads to a change in the management paradigm, from reactive response to events to predictive management based on a model of anticipating risks and opportunities. While traditional approaches were built around the analysis of past events, modern algorithms allow for forecasting market dynamics, identifying potential bottlenecks, and adjusting plans in advance. This logic is particularly significant in conditions of high market turbulence, where the ability to foresee and adapt becomes a critical source of competitive advantage (Roberts & Candi, 2024).

The transition to predictive models is directly related to cost reduction and accelerating the market entry of products. AI-based tools allow for the automation of key processes—from collecting metrics to analyzing resource load. At the same time, the speed of passing through all stages of the innovation cycle increases: from idea formation to commercialization. In conditions where the product lifecycle is rapidly shortening, it is the reduction of time to market that becomes a survival factor (Babina et al., 2024).

No less significant is the strengthening of the manager's role as an architect of the innovation cycle. Whereas previously the product manager concentrated on the market and the consumer, and the program manager on the coordination of tasks, in the context of integrated analytical platforms, the need for a universal figure capable of combining both planes arises. Such a manager must not just control execution or form a strategy, but design the entire cycle as a unified system in which data becomes the connecting element between the idea, development, and implementation. This trend reflects broader shifts in the theory of algorithmic management, where the emphasis is on the fact that management decisions should be formed in the context of end-to-end information flows (Stark & Vanden Broeck, 2024).

The emerging logic indicates that the strategic consequences of implementing artificial intelligence are not limited to cost optimization or the improvement of individual metrics. It is about a qualitative change in the management model, in which the role of the leader is enhanced by expanding the toolkit of predictive analysis and integrating functions. Thus, artificial intelligence acts not as an auxiliary tool, but as the architectural foundation of an innovation management system, changing the practice and the very nature of the management process.

Conclusion

The study conducted has allowed for the systematization and analysis of the key trends that define the formation of the "product-program manager" role as a new managerial figure that has emerged at the intersection of product and program management. It has been established that it is the integration of artificial intelligence and advanced analytics that becomes the foundation of this process, ensuring the elimination of information gaps and forming a unified environment for decision-making.

The comparative-analytical review showed that the traditional roles of product and program managers were characterized by narrow specialization. The former focused on market value and strategic vision, the latter on the coordination of processes and resource provision. The new hybrid role combines both directions, turning data and predictive analytics into the connecting link between strategy and execution. Particularly significant was the use of automated tools that relieve managers of routine operations and allow

them to focus on the architectural aspects of the innovation cycle.

Of particular value from an applied perspective are the scenarios of commercial use of AI, such as the intelligent automation of project management processes and predictive resource allocation. These examples demonstrate that the implementation of AI provides a reduction in operational costs and accelerates product market entry, qualitatively changing the nature of management activity. For instance, AI-driven innovation initiatives are associated with a 19.5% increase in sales, a 18.1% increase in employment, and a 22.3% increase in market valuation, directly linking AI implementation with measurable business growth. In retail scenarios, intelligent shelf stock control reduces lost sales, while queue monitoring systems shorten waiting times and increase throughput, demonstrating tangible operational effects.

Separate attention in the work was paid to the strategic consequences for business. It was shown that the transition from reactive to predictive management is becoming a key factor in the sustainability of organizations. The analysis showed that companies implementing AI platforms are able to minimize the risks of failures and design more flexible models of interaction with the market and customers.

It has been proven that the effectiveness of AI implementation is determined by the quality of the tools themselves and the degree of their integration into management processes. The key result is that it is the ability of systems to ensure the synchronization of strategy and implementation that determines their value to the business.

Prospects for further research are related to refining the architectural principles of this role, developing typical models for integrating analytical platforms into corporate processes, and forming methods for assessing its impact on the sustainable growth and competitiveness of organizations.

Alongside managerial advantages, the use of AI in project offices contributes to economic efficiency and sustainability. The reduction of transactional costs, the optimization of resource allocation, and the increased accuracy of forecasts form the conditions for a more rational use of organizational capabilities. At the same time, such solutions support the strategic sustainability of companies by ensuring compliance with the

requirements of transparency, accountability, and long-term development.

References

1. Babina, T., Fedyk, A., He, A., & Hodson, J. (2024). Artificial intelligence, firm growth, and product innovation. *Journal of Financial Economics*, 151, 103745.
<https://doi.org/10.1016/j.jfineco.2023.103745>
2. Barcaui, A., & Monat, A. (2023). Who is better in project planning? Generative artificial intelligence or project managers? *Project Leadership and Society*, 4, 100101.
<https://doi.org/10.1016/j.plas.2023.100101>
3. Fichtler, T., Kirchberg, L., Grigoryan, K., Koldewey, C., & Dumitrescu, R. (2024). A method for identifying use cases in data-driven product management. *Procedia CIRP*, 122, 539–544.
<https://doi.org/10.1016/j.procir.2024.01.079>
4. Georgiev, S., Polychronakis, Y., Sapountzis, S., & Polychronakis, N. (2024). The role of artificial intelligence in project management: A supply chain perspective. *Supply Chain Forum: An International Journal*, 1–14.
<https://doi.org/10.1080/16258312.2024.2384823>
5. Grigoryan, K., Fichtler, T., Schreiner, N., Rabe, M., Panzner, M., Kühn, A., Dumitrescu, R., & Koldewey, C. (2023). Data-driven product management: A practitioner-driven research agenda. *Procedia CIRP*, 119, 290–295.
<https://doi.org/10.1016/j.procir.2023.03.099>
6. Mariani, M., & Dwivedi, Y. K. (2024). Generative artificial intelligence in innovation management: A preview of future research developments. *Journal of Business Research*, 175, 114542.
<https://doi.org/10.1016/j.jbusres.2024.114542>
7. Marnewick, C., & Marnewick, A. L. (2022). Digitalization of project management: Opportunities in research and practice. *Project Leadership and Society*, 3, 100061.
<https://doi.org/10.1016/j.plas.2022.100061>
8. Panzner, M., von Enzberg, S., & Dumitrescu, R. (2024). Developing a data analytics toolbox for data-driven product planning: A review and survey methodology. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 38, e18.
<https://doi.org/10.1017/S0890060424000209>
9. Qin, W., Zhang, Y., Qu, T., & Li, X. (2022). Special issue on data-driven modeling and analytics for optimization of complex manufacturing systems.

International Journal of Computer Integrated
Manufacturing, 35(10–11), 1025–1027.

<https://doi.org/10.1080/0951192X.2022.2141948>

10. Roberts, D. L., & Candi, M. (2024). Artificial intelligence and innovation management: Charting the evolving landscape. *Technovation*, 136, 103081. <https://doi.org/10.1016/j.technovation.2024.103081>
11. Stark, D., & Vanden Broeck, P. (2024). Principles of algorithmic management. *Organization Theory*, 5(2). <https://doi.org/10.1177/26317877241257213>