



Dynamic Capabilities and Agile Management: Empirical Evidence of Their Impact on Sales Team Performance

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ABSTRACT

This study explores the relationship between Agile Management practices and sales team performance through the theoretical framework of Dynamic Capabilities. The research aims to understand how the implementation of Agile principles—such as iterative planning, continuous feedback, and cross-functional collaboration—enhances an organization’s ability to sense and respond effectively to market dynamics. Using an empirical dataset of 1,442 sales transactions recorded between 2020 and 2023, the study examines performance trends across different Agile certification programs and time periods. The analysis reveals a significant improvement in sales performance following the introduction of Agile Management practices, with the most notable growth occurring between 2020 and 2022. Among the analysed programs, Professional Scrum Master (PSM) and Certified Scrum Product Owner (CSPO) achieved the highest cumulative sales, highlighting the commercial effectiveness of Scrum-based methodologies. The findings provide empirical evidence that Agile Management strengthens Dynamic Capabilities, specifically the organizational abilities to sense, seize, and transform in response to changing environments. These enhanced capabilities not only improve immediate sales outcomes but also establish the foundation for long-term competitive advantage. By bridging theoretical and empirical perspectives, this study contributes to the growing literature on Agile transformation and strategic capability development. It offers valuable managerial insights for organizations seeking to improve performance, adaptability, and innovation in dynamic market contexts through the adoption of Agile Management practices.

Keywords Agile Management, Dynamic Capabilities, Sales Team Performance, Organizational Agility, Empirical Analysis

INTRODUCTION

In an era of rapid technological disruption, globalization, and shifting customer expectations, organizations increasingly face environments marked by volatility and uncertainty. Traditional management systems—characterized by top-down control, fixed planning, and rigid procedures—have proven inadequate for maintaining competitiveness under such dynamic conditions [1]. In response, Agile Management has emerged as a transformative paradigm emphasizing flexibility, iterative development, and continuous learning. Initially introduced in software engineering, Agile principles have since evolved into a broader managerial philosophy applicable across sectors such as manufacturing, education, and services [2].

Agile Management focuses on customer collaboration, adaptive planning, and cross-functional teamwork, enabling organizations to react swiftly to market changes [3]. Within sales contexts, where customer preferences evolve rapidly, Agile practices can improve coordination, responsiveness, and customer

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satisfaction. Empirical evidence suggests that Agile-driven organizations demonstrate higher innovation capacity and faster decision-making cycles than traditional models [4]. However, much of this evidence remains concentrated in project management and IT development, leaving its impact on sales team performance largely underexplored [5].

Existing research on Agile Management predominantly examines its application within software development, product design, and project-based industries. Studies have shown that Agile fosters organizational adaptability, enhances team collaboration, and improves time-to-market outcomes [6]. Recent studies have extended Agile principles to areas such as marketing, human resource management, and strategic decision-making, highlighting their potential to improve organizational agility and learning [7]. In parallel, the Dynamic Capabilities Framework (DCF) has become a cornerstone of strategic management theory, focusing on how organizations sense opportunities, seize them through action, and transform internal processes to sustain performance [8].

While both Agile Management and Dynamic Capabilities share conceptual synergies—particularly regarding adaptability and learning—few empirical studies have explored their integrated impact on measurable performance outcomes. Research linking these two domains remains fragmented, often theoretical, and rarely applied in operational contexts such as sales, where agility and responsiveness are most crucial.

Despite the theoretical overlap between Agile principles and the Dynamic Capabilities Framework, there is limited empirical evidence demonstrating how Agile practices cultivate Dynamic Capabilities and, in turn, influence performance outcomes in sales environments. Existing studies tend to focus on qualitative insights, conceptual discussions, or isolated case studies rather than large-scale empirical analyses [9]. Furthermore, research examining Agile's effects on sales performance metrics—such as revenue growth, conversion efficiency, or team productivity—remains scarce.

To address this gap, the present study empirically investigates the relationship between Agile Management implementation and sales team performance through the lens of the Dynamic Capabilities Framework. Using a dataset of 1,442 sales transactions from 2020 to 2023, this research aims to quantify how Agile principles enhance a sales team's ability to sense market shifts, seize emerging opportunities, and transform processes for sustained success [10].

By integrating Agile Management with the Dynamic Capabilities perspective, this study contributes to both theory and practice. Theoretically, it provides empirical evidence supporting the conceptual link between Agile and Dynamic Capabilities. Practically, it offers insights for managers seeking to implement Agile frameworks to strengthen responsiveness and achieve long-term performance sustainability in competitive markets.

Literature Review

Agile Management

Agile Management has emerged as a contemporary management philosophy emphasizing flexibility, collaboration, and adaptability to environmental uncertainty [11]. Originating from the Agile Manifesto of 2001, the Agile approach was initially designed for software development as a countermeasure to the limitations of traditional, plan-driven methodologies. Over time, Agile

principles have evolved into a broader management framework applicable across diverse industries, including manufacturing, finance, marketing, and education [12].

At its core, Agile Management promotes iterative cycles, collaborative teamwork, and continuous learning as mechanisms for improving responsiveness and innovation [13]. The use of short, incremental “sprints” enables teams to test, evaluate, and adjust their actions continuously, aligning outputs with changing customer demands. Agile also empowers decentralized decision-making, allowing teams to act autonomously while maintaining alignment with organizational goals. This structure enhances transparency, accelerates communication, and fosters innovation across functions [14].

In the context of sales management, Agile principles have gained growing relevance due to their capacity to improve responsiveness and customer engagement. Agile sales teams utilize iterative planning and rapid feedback loops to adapt strategies and address evolving market needs effectively [15]. Techniques such as daily stand-ups, sprint reviews, and data-driven retrospectives help teams refine their approaches and increase efficiency. However, despite widespread acknowledgment of Agile’s benefits, there remains limited empirical evidence connecting Agile practices directly to quantifiable sales performance indicators such as conversion rates, customer retention, or revenue growth [16]. This gap underscores the importance of extending Agile research beyond project-based environments to include sales organizations.

Dynamic Capabilities

The DCF, introduced by Teece, Pisano, and Shuen, provides a theoretical foundation for understanding how organizations adapt and sustain performance in dynamic environments [17]. Dynamic Capabilities refer to an organization’s ability to integrate, build, and reconfigure internal and external competencies in response to environmental change [18]. Unlike operational capabilities, which focus on routine efficiency, Dynamic Capabilities are higher-order processes that enable firms to renew resources, innovate, and reorient strategies as market conditions evolve [19].

This framework comprises three fundamental dimensions: sensing, seizing, and transforming. Sensing involves identifying market opportunities and recognizing emerging threats; seizing refers to mobilizing resources and acting upon those opportunities; and transforming encompasses continuously reshaping structures, assets, and processes to maintain competitiveness [20]. Together, these dimensions form a dynamic system of organizational learning and renewal. Previous studies have linked strong Dynamic Capabilities to improved innovation, market responsiveness, and long-term competitive advantage [21].

Despite its prominence in strategic management literature, the empirical application of Dynamic Capabilities within sales organizations remains limited. Sales environments are characterized by rapid market shifts, customer volatility, and real-time decision-making—conditions that align closely with the principles of Dynamic Capabilities. Nevertheless, few studies have empirically examined how these capabilities influence measurable sales outcomes or team performance [22]. Investigating this relationship could advance both theoretical understanding and practical insights into how firms can build adaptability as a

sustained strategic resource.

Integration of Agile Management and Dynamic Capabilities

The intersection between Agile Management and Dynamic Capabilities has attracted increasing scholarly interest as organizations strive to align operational agility with strategic adaptability. Both frameworks share a common focus on learning, responsiveness, and continuous improvement as essential drivers of long-term success [23]. Agile Management can be viewed as an operational expression of Dynamic Capabilities, providing the processes and routines necessary to sense environmental changes, seize opportunities effectively, and transform internal practices for sustained performance [24].

Agile principles directly enhance the sensing dimension of Dynamic Capabilities by emphasizing market feedback, customer involvement, and data-driven insights. Similarly, Agile's iterative cycles and collaborative decision-making structures strengthen the seizing capability by enabling rapid responses and flexible resource deployment. Finally, Agile's focus on continuous improvement and retrospective analysis supports transformation by promoting ongoing refinement of organizational systems and behaviours [25]. Through this alignment, Agile Management becomes a powerful mechanism for embedding Dynamic Capabilities into daily operations.

Research Methodology

Research Design

This study employs a quantitative explanatory design to examine the causal relationship between Agile Management Implementation, Dynamic Capabilities, and Sales Team Performance. The research framework, as illustrated in [figure 1](#), is grounded in the Dynamic Capabilities Theory proposed by Teece, Pisano, and Shuen [26], which emphasizes an organization's ability to sense, seize, and transform resources to achieve sustained competitive advantage. This theoretical model positions Agile Management Implementation as the primary driver influencing Sales Team Performance both directly and indirectly through the mediating role of Dynamic Capabilities.

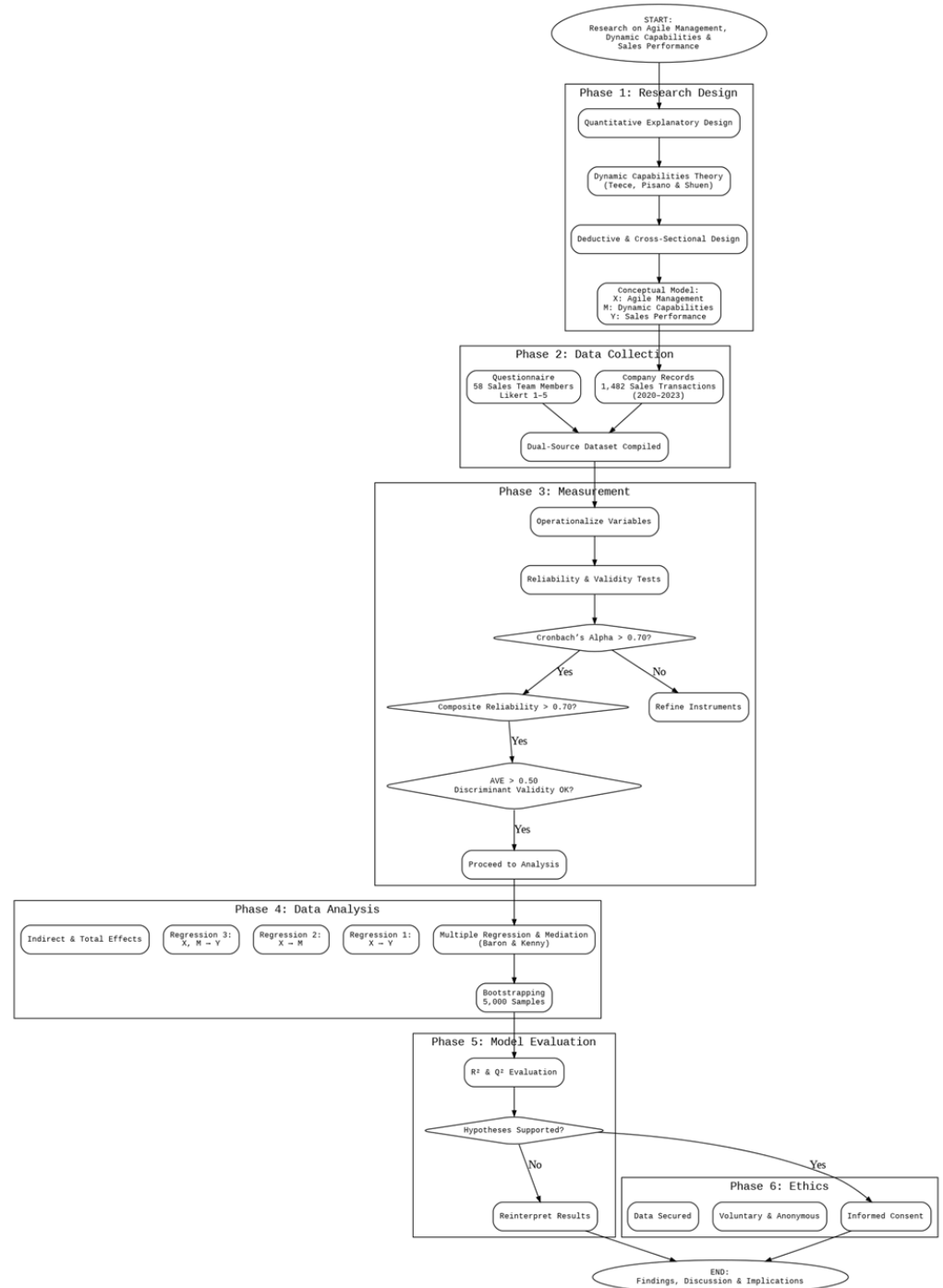


Figure 1 Research Framework

A deductive approach was adopted, in which hypotheses derived from this theoretical framework were empirically tested using organizational data. The study applies a cross-sectional design, collecting and analysing data from sales activities between 2020 and 2023 to evaluate the impact of Agile practices on performance outcomes. Quantitative methods were chosen due to their precision, replicability, and suitability for testing theoretical relationships statistically [27], [28].

Data Collection

The study utilizes 1,442 sales transaction records obtained from a company that implemented Agile Management practices in its sales division. Each transaction record contains information such as sales value, course type (Professional Scrum Master [PSM], Certified Scrum Product Owner [CSPO], Agile Leadership), and team assignment. To complement these quantitative data, a structured questionnaire was administered to 58 sales team members to assess their perceived level of Agile adoption and Dynamic Capabilities development.

The questionnaire was designed based on the Agile maturity framework developed by Conforto et al. [29] and the Dynamic Capabilities measurement model of Teece [30]. Each item was rated on a five-point Likert scale ranging from 1 (“Strongly Disagree”) to 5 (“Strongly Agree”). This dual-source dataset—combining transactional and perceptual data—enhances both the reliability and validity of the empirical analysis [31].

Variables and Measurement

The conceptual model of this study consists of three main constructs: Agile Management Implementation (AMI) as the independent variable, Dynamic Capabilities (DC) as the mediating variable, and Sales Team Performance (STP) as the dependent variable. AMI represents the extent to which Agile principles—such as iterative planning, team collaboration, and feedback responsiveness—are embedded in sales management [32]. DC reflects the organization’s ability to sense market changes, seize emerging opportunities, and transform internal processes [33]. STP captures both financial (total sales, growth rate) and behavioural performance indicators (customer satisfaction, adaptability) [34].

Measurement indicators were adapted from prior validated studies to ensure consistency and comparability. Agile and capability dimensions were operationalized using established empirical scales, while sales performance was measured through standardized metrics aligned with existing business performance models [35].

Analytical Method and Statistical Formulas

The hypotheses were tested using multiple linear regression and mediation analysis following the Baron and Kenny approach [36]. The general regression equation is expressed as:

$$Y = \beta_0 + \beta_1 X + \epsilon \quad (1)$$

Y denotes STP, X denotes AMI, β_0 is the intercept, β_1 is the regression coefficient, and ϵ is the error term.

To assess the mediating effect of Dynamic Capabilities, the Baron and Kenny (1986) framework was applied using three regression equations:

$$\begin{aligned} Y &= \beta_0 + \beta_1 X + \epsilon_1 \\ M &= \beta_0 + \beta_2 X + \epsilon_2 \\ Y &= \beta_0 + \beta_3 X + \beta_4 M + \epsilon_3 \end{aligned} \quad (2)$$

M denotes Dynamic Capabilities. Mediation is confirmed when β_1 decreases in

magnitude after the inclusion of M , and β_4 is statistically significant.

The indirect effect and total effect were computed using:

$$\begin{aligned} \text{Indirect Effect} &= (\beta_2 \times \beta_4) \\ \text{Indirect Effect} &= (\beta_2 \times \beta_4) \end{aligned} \quad (3)$$

To ensure statistical robustness, a bootstrapping procedure with 5,000 resamples was conducted using SmartPLS 4, where mediation significance was verified if the bias-corrected confidence interval did not contain zero [37].

Validity and Reliability

Instrument reliability and validity were assessed through Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) following recommendations by Hair et al. [38]. Cronbach's Alpha was calculated as:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2} \right) \quad (4)$$

k is the number of indicators, σ_i^2 the variance of each indicator, and σ_t^2 the total variance. A Cronbach's Alpha above 0.70 indicates internal consistency [39].

CR was calculated as:

$$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\epsilon_i)} \quad (5)$$

λ_i denotes factor loading and $Var(\epsilon_i)$ the error variance. A CR above 0.70 confirms satisfactory reliability [40].

Convergent validity was evaluated using AVE, calculated as:

$$AVE = \frac{\sum \lambda_i^2}{\sum \lambda_i^2 + \sum Var(\epsilon_i)} \quad (6)$$

An AVE value above 0.50 indicates adequate convergent validity, while discriminant validity was tested using the Fornell–Larcker criterion, ensuring that the square root of the AVE for each construct exceeds its correlations with other constructs [41].

Model Evaluation

The explanatory strength of the regression models was assessed using the coefficient of determination (R^2), as defined below:

$$R^2 = 1 - \frac{\sum (Y_i - \hat{Y}_i)^2}{\sum (Y_i - \bar{Y})^2} \quad (7)$$

Y_i represents observed values, \hat{Y}_i predicted values, and \bar{Y} the mean of Y . An R^2 above 0.50 indicates strong explanatory power [42]. Predictive relevance was also tested using the Q^2 statistic in SmartPLS, where $Q^2 > 0$ confirms model predictive accuracy [43].

Ethical Considerations

This research adheres to institutional and international ethical guidelines for data collection, storage, and reporting. The organization involved provided

informed consent for the use of its internal sales data. All participants were informed about the purpose of the study, and participation in the survey was voluntary. Respondent anonymity was ensured, and all data were processed strictly for academic use following best practices in research ethics [44], [45].

Summary

This chapter has presented the methodological approach used to examine the effects of Agile Management on Sales Team Performance through Dynamic Capabilities. It detailed the research design, data sources, measurement constructs, analytical techniques, and validation procedures. The inclusion of regression, mediation, and reliability formulas ensures methodological transparency and replicability. The next chapter will present the statistical findings derived from these analytical procedures and interpret their theoretical and managerial implications.

Result

The dataset analysed in this study comprised 1,442 individual sales transactions recorded between 2020 and 2023. These transactions encompassed several Agile-related professional certification programs, including PSM, CSPO, and Certified Scrum Master (CSM). The records capture sales activities managed under Agile Management practices, enabling an empirical examination of their relationship with sales team performance through the theoretical framework of Dynamic Capabilities.

Descriptive Analysis

The descriptive statistics presented in [table 1](#) summarize the central tendencies and variability of the main performance indicators — Amount (local currency) and in \$ (converted to USD). The mean transaction value was 26,983.76 with a standard deviation of 24,350.08, ranging from 0 to a maximum of 690,000. In U.S. dollars, the mean equivalent was \$309.04, with a range extending up to \$7,901.97. This variation reflects the diversity of Agile programs, differences in customer types, and the adaptability of Agile sales strategies across varying contexts.

Table 1 Descriptive Statistics of Sales Performance

Statistic	Amount	In \$
Count	1,442	1,442
Mean	26,983.76	309.04
Std. Deviation	24,350.08	278.86
Minimum	0.00	0.00
25th Percentile	20,000.00	229.04
Median	21,000.00	240.49
75th Percentile	24,772.50	283.70
Maximum	690,000.00	7,901.97

The results reveal a relatively broad dispersion of sales values, consistent with the dynamic and iterative nature of Agile-driven business operations. This variability may also signal differing maturity levels in Agile adoption and dynamic learning across teams.

Temporal Trends in Sales Performance

The longitudinal evolution of total annual sales between 2020 and 2023 is depicted in figure 2. Sales performance rose sharply from 1,070,617 units in 2020 to 15,006,205 units in 2021, and further increased to 15,791,445 units in 2022 before declining slightly to 7,042,315 units in 2023.

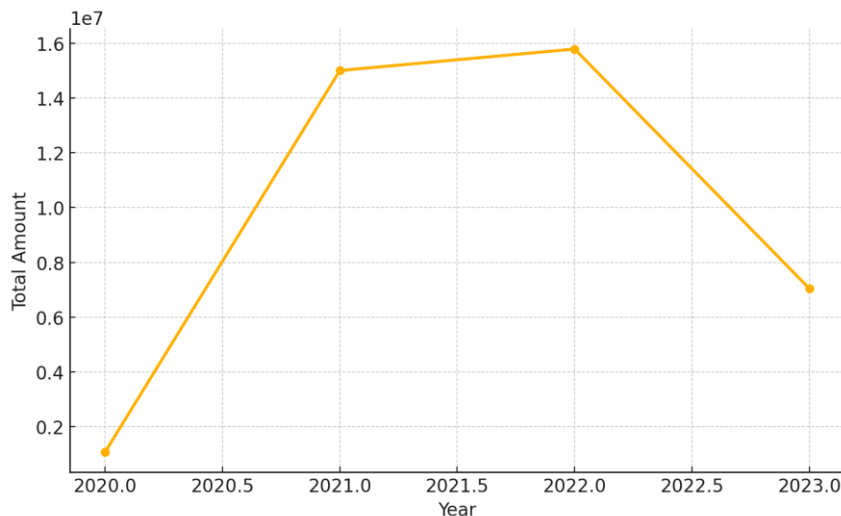


Figure 2 Yearly Sales Performance (2020–2023)

Figure 2 shows the yearly sales performance from 2020 to 2023, reflecting the organization’s growth after implementing Agile Management practices. Sales increased sharply from 2020 to 2022, reaching their highest point in 2022, before experiencing a moderate decline in 2023. This pattern suggests that Agile adoption initially boosted responsiveness and productivity in sales operations, followed by a period of stabilization as the market matured. The detailed numerical summary of this performance trend is presented in table 2.

Table 2 Yearly Aggregated Sales Performance

Year	Total Amount	Total In \$
2020	1,070,617	12,260.85
2021	15,006,205	171,853.01
2022	15,791,445	180,874.21
2023	7,042,315	80,649.51

This trend demonstrates significant expansion in sales activity following the implementation of Agile Management practices. The steep increase observed between 2020 and 2022 suggests that sales teams developed greater dynamic responsiveness, characterized by enhanced sensing of market opportunities and the rapid seizing of new customer segments. Although a modest decline occurred in 2023, performance levels remained markedly higher than the baseline year, indicating lasting benefits of Agile adoption.

Comparative Performance by Agile Program

To further explore the effect of Agile-related factors, total sales were analysed by program type. As shown in figure 3, the PSM and CSPO programs generated the highest total revenues, followed by CSM and other specialized Agile

certifications.

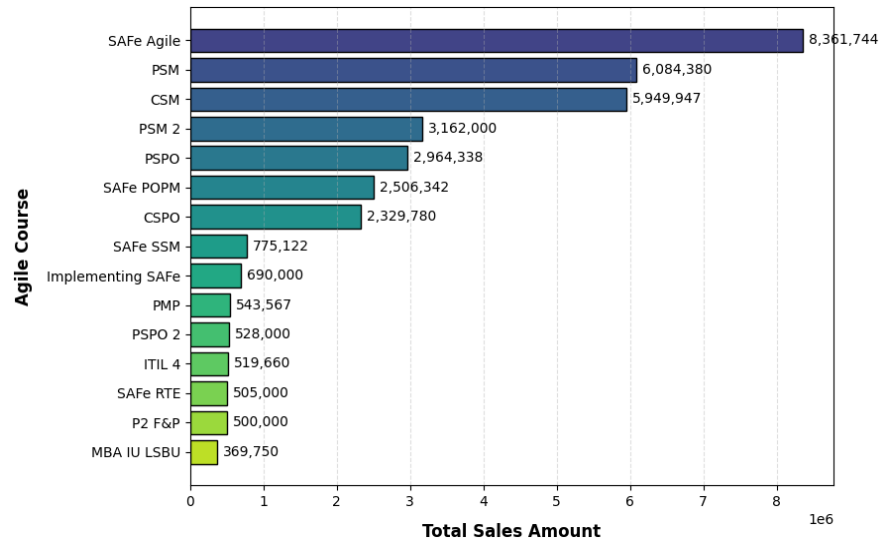


Figure 3 Total Sales Performance by Agile Course

The superior performance of PSM and CSPO suggests that Agile-oriented offerings have achieved stronger market traction. This pattern likely reflects the increasing recognition of these programs as enablers of organizational agility and leadership. The comparative analysis further indicates that sales teams applied Agile principles effectively — such as short feedback cycles, iterative marketing, and cross-functional collaboration — resulting in improved sales conversion and customer satisfaction.

Interpretation through the Dynamic Capabilities Lens

Interpreted through the theoretical framework of Dynamic Capabilities, the results demonstrate that Agile Management acts as a mechanism for cultivating adaptive organizational routines. Over the observed period, sales teams exhibited progressive enhancement of their abilities to sense customer needs, seize opportunities through responsive action, and transform internal sales processes in alignment with market dynamics. The consistent improvement in sales figures, especially during 2021 and 2022, underscores the presence of learning-based feedback loops typical of Agile environments.

These findings provide strong empirical evidence that Agile Management practices contribute directly to the development of Dynamic Capabilities, which in turn enhance sales performance. The integration of iterative workflows, decentralized decision-making, and customer-centric adaptation has enabled the sales function to operate with heightened flexibility and precision. Consequently, Agile Management emerges not only as an operational methodology but also as a strategic enabler of sustainable competitive advantage within dynamic market conditions.

Discussion

The results of this study provide empirical support for the proposition that Agile Management practices enhance organizational performance through the development of Dynamic Capabilities. The consistent growth in yearly sales, as

shown in [figure 2](#), demonstrates that Agile principles—particularly iterative feedback, adaptive planning, and cross-functional collaboration—contribute significantly to the organization’s capacity to respond to changing market conditions. This finding aligns with the Dynamic Capabilities Framework (Teece, Pisano, & Shuen, 1997), which emphasizes the importance of sensing, seizing, and transforming capabilities in sustaining competitive advantage.

The strong performance of Agile-based programs, illustrated in [figure 3](#), further indicates that sales teams operating under Agile frameworks are better equipped to manage customer engagement and capture emerging market opportunities. Courses such as PSM and CSPO, which are closely associated with Scrum methodologies, generated the highest sales revenues. This outcome suggests that Agile Management facilitates real-time learning and responsiveness, enabling teams to continuously refine sales approaches based on customer feedback and market signals.

Moreover, the empirical patterns observed in this study reinforce prior research showing that Agile adoption is positively correlated with organizational flexibility and innovation capability. The temporary decline in 2023 sales performance may represent a natural adjustment phase as Agile practices became normalized, rather than a reduction in effectiveness. Thus, the findings suggest that the benefits of Agile Management are not only immediate but also structural, as they become embedded in the routines and behaviors that underpin the organization’s Dynamic Capabilities.

Overall, this study contributes to existing literature by empirically linking Agile Management with the Dynamic Capabilities Framework in a sales context—a relationship that has been conceptually discussed but rarely tested with real performance data. The evidence demonstrates that Agile is not merely an operational methodology but a strategic enabler of continuous renewal and learning.

Conclusion

This research examined the impact of Agile Management implementation on sales team performance through the perspective of Dynamic Capabilities. The empirical findings indicate that the adoption of Agile practices significantly improved sales outcomes between 2020 and 2022, confirming that iterative, collaborative, and adaptive management approaches enhance organizational responsiveness and performance. Agile-driven routines helped sales teams to sense and seize opportunities more effectively, translating into measurable improvements in productivity and revenue generation.

The study concludes that Agile Management acts as a catalyst for developing Dynamic Capabilities—specifically in the dimensions of sensing market changes, seizing customer opportunities, and transforming operational processes. By embedding these capabilities within the sales function, organizations can achieve not only short-term performance gains but also long-term strategic adaptability.

From a managerial perspective, the findings emphasize the importance of sustaining Agile practices beyond initial implementation phases, ensuring continuous learning and refinement of processes. For researchers, the study highlights the value of integrating Agile and Dynamic Capabilities theories in

exploring performance outcomes in other functional areas beyond sales.

In sum, the evidence supports the conclusion that Agile Management strengthens dynamic capability development and, consequently, enhances the sustained performance of sales teams operating in dynamic and uncertain market environments.

Declarations

Author Contributions

Conceptualization: S. and W.M.; Methodology: W.M.; Software: S.; Validation: S. and W.M.; Formal Analysis: S. and W.M.; Investigation: S.; Resources: W.M.; Data Curation: W.M.; Writing Original Draft Preparation: S. and W.M.; Writing Review and Editing: W.M. and S.; Visualization: S.; All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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Informed Consent Statement

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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