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Organizational readiness and data-driven leadership: a multilevel framework for marketing transformation

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Организационная готовность и лидерство, основанное на данных: многоуровневая модель трансформации маркетинга

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Abstract

Research on analytics capability has shown that data-related investments acquire organizational value through culture, learning routines, and the capacity to absorb analytical knowledge, a mediating pathway documented across manufacturing, healthcare, and cross-industry firm samples. Research on leadership competencies has documented analytical literacy, technological fluency, communication, change management, and ethical judgment as domains of professional practice, established through Delphi consensus among senior managers and through contingency typologies built on strategic orientation. This article develops a multilevel reading of these two research streams through the framework for data-driven marketing leadership and organizational transformation, which brings capability readiness, technical readiness, and leadership readiness into a single diagnostic sequence ahead of a five-domain model of leadership practice. The literature review traces capability-mediated performance evidence, competency architectures

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for digital transformation, algorithm-trust findings, and data-quality communication research, and identifies where the capability-mediation literature and the competency literature locate the same contingency in different variables. The resulting synthesis specifies organizational readiness as the operating condition through which leadership competencies acquire decision relevance, yielding a four-stage sequence for transformation work and a cross-level empirical design for testing the relationship between organizational substrate, leadership competencies, and decision quality.

Аннотация

Исследования аналитических способностей организаций показывают, что отдача от инвестиций в данные определяется не столько самими данными, сколько корпоративной культурой, устоявшимися практиками обучения и способностью организации усваивать новые аналитические знания; этот опосредующий механизм подтверждён на выборках производственных, медицинских и разноотраслевых компаний. Исследования лидерских компетенций выделяют аналитическую грамотность, владение технологиями, коммуникативные навыки, управление изменениями и этическое суждение как области профессиональной практики; эти области установлены методом Дельфи среди руководителей высшего звена и с помощью типологий, построенных на стратегической ориентации организации. Статья соединяет эти два направления в рамках модели лидерства в маркетинге на основе данных, которая помещает готовность организации использовать аналитические способности, техническую готовность и готовность руководства в единую диагностическую последовательность, предшествующую пятидоменной модели лидерской практики. В обзоре литературы рассмотрены данные о влиянии организационных способностей на результативность, модели компетенций для цифровой трансформации, работы о доверии к алгоритмам и исследования, посвящённые передаче сведений о качестве данных; показано, что литература об опосредующей роли способностей и литература о компетенциях описывают, по сути, одну и ту же зависимость, но через разные переменные. Синтез показывает, что организационная готовность — это условие, при котором лидерские компетенции становятся значимыми для принятия решений, и предлагает четырёхэтапную последовательность трансформационной работы, а также кросс-уровневый эмпирический дизайн для проверки связи между организационным субстратом, лидерскими компетенциями и качеством решений.

Keywords: data-driven leadership, organizational readiness, analytics capability, marketing transformation, absorptive capacity, leadership competencies, data-driven culture.

Ключевые слова: лидерство, основанное на данных, организационная готовность, аналитическая способность, трансформация маркетинга, абсорбционная способность, лидерские компетенции, культура работы с данными.

Introduction

Data-driven management has become a defined area of organizational research as firms integrate customer data platforms, marketing automation, predictive models, dashboards, and generative analytical tools into planning and resource allocation. The marketing technology

landscape alone comprised more than fifteen thousand distinct solutions by 2025, a hundredfold increase over the preceding decade [1], a growth rate that outpaces the organizational routines needed to select, integrate, and govern the resulting tool inventory, a gap connected to architectural coherence, the alignment of strategic intent, organizational process, and technological infrastructure, under which firms with high coherence achieve a 2.3-fold marketing return on investment and 1.8-fold faster time-to-market for new initiatives relative to firms with fragmented systems. Coherence of this kind depends on organizational conditions that precede any individual tool purchase, which raises the question this article addresses: what organizational conditions allow data-driven tools to enter planning, resource allocation, customer management, and performance evaluation in a reliable form. A systematic review of ninety-four studies of data-driven decision-making in marketing found organizational readiness, analytics maturity, and leadership capability coded as an enabling or moderating condition in twenty-four percent of the reviewed material, with governance addressed in nineteen percent [2]. These proportions mark an underdeveloped segment of an otherwise active research space: technological and customer-facing applications of data-driven decision-making have accumulated a substantially larger share of published evidence than the organizational conditions that determine whether those applications convert into better decisions. Capability research supplies a vocabulary for this underdeveloped segment through data-driven culture, organizational learning, process routines, human skills, and data resources. Leadership research supplies a parallel vocabulary for the individual and relational work of interpreting evidence, communicating choices, coordinating change, and maintaining ethical judgment. The two vocabularies converge in Kalinina's [3] framework for data-driven marketing leadership, which places transformation diagnostics and competency development within a single multilevel architecture and treats them as one integrated research problem.

Materials and methods

Analytics capability and organizational substrate

Gupta and George [4, p. 1052] built a resource-based account of big data analytics capability by separating tangible resources, human skills, and intangible resources, and assigned the explanatory weight for cross-firm heterogeneity in outcomes to the intangible category: data-driven culture and organizational learning intensity, the elements that shape how analytical output is recognized, discussed, incorporated into routines, and converted into action. Technical infrastructure proved comparatively easy for competing firms to replicate. Mikalef et al. [5] organized the resulting empirical literature around five capability dimensions, process, people, technology, organization, and data, reattributing performance gains credited loosely to “big data” in earlier work to the capability layer assembled from these interacting resources. Mikalef et al. [6] tested the internal structure of that layer through survey data combined with fuzzy-set qualitative comparative analysis, modeling the analytics-performance relationship as configurational: high performance is associated with joint resource configurations, an association a single resource examined in isolation does not reproduce. Karaboga et al. [7] then supplied a direct mediation test of the specific configuration those two studies implied, surveying 432 big data experts across 132 Turkish firms and finding that data-driven culture significantly mediated the association between analytics management capability and both operational and financial performance. Wang and Byrd

[8] extended the same mediating logic to a healthcare setting distant from marketing or general management, reporting that business analytics converts into decision-making effectiveness through knowledge absorptive capacity, a construct that names the same organizational function as data-driven culture, the capacity to recognize, assimilate, and apply external analytical knowledge, from within a distinct theoretical tradition. Yu et al. [9] extended it again to supply chain management, describing data-driven capabilities as resources that generate performance gains only when embedded in complementary organizational routines. The mediating mechanism these four studies describe, data-driven culture in Turkish cross-industry firms, absorptive capacity in healthcare, and routine embeddedness in supply chains, is a single organizational function measured under three different labels in three different sectors, which is why the substrate identified by Gupta and George [4] reads as a general property of analytics-intensive organizations.

Table 1.**Capability studies and the organizational substrate of data-driven work**

Source	Design / Setting	Organizational Mechanism	Contribution to the Present Framework
Gupta and George [4]	Multi-case analysis; international firms	Data-driven culture; organizational learning intensity	Defines the intangible substrate of analytics capability
Mikalef et al. [5]	Systematic literature review	Process, people, technology, organization, and data	Maps the capability dimensions surrounding analytical work
Mikalef et al. [6]	Survey and fsQCA	Resource configurations	Shows the joint, non-additive operation of organizational resources
Karaboga et al. [7]	Survey; 432 experts in 132 firms	Data-driven culture	Establishes a direct mediating pathway to operational and financial performance
Wang and Byrd [8]	Survey; healthcare sector	Knowledge absorptive capacity	Confirms the mediating mechanism outside marketing and analytics-specific settings
Yu et al. [9]	Resource-based view analysis; supply-chain sector	Complementary organizational routines	Confirms the same mechanism a third time, in operational practice

Leadership competencies for digital transformation

A second literature specifies the competencies through which individual leaders conduct digital transformation, and this literature has not, so far, located the contingency the capability-mediation studies identify. Philip et al. [10] built a three-round Delphi consensus among eighteen international senior managers, arriving at thirty-nine competency items of which data-driven decision-making formed part of the six items reaching the highest agreement, alongside visionary thinking, agility, and strategic knowledge; the Delphi method registers which competencies a panel of practitioners ranks highly, a design suited to establishing relative importance among coequal items, leaving dependency between them unspecified. Imran et al. [11] proposed an eight-competency framework for industrial organizations, positioning data-driven decision-making beside adaptability, quick failure, and risk-taking without an ordering claim among the eight. Müller et al. [12] moved the literature toward an explicit contingency logic, deriving four leadership profiles, the

challenger, the bricoleur, the organizer, and the competitor, from the Competing Values Framework and arguing that the competency portfolio a leader needs depends on the organization's strategic orientation along axes of stability versus flexibility and internal versus external focus.

The contingency Müller et al. [12] specify and the contingency Karaboga et al. [7] and Wang and Byrd [8] measure name different variables for what could be the same underlying dependency. Müller et al. locate the moderating condition in strategic orientation, a classification of the organization's posture toward change; Karaboga et al. and Wang and Byrd locate it in data-driven culture and absorptive capacity, a measure of the organization's capacity to interpret and act on analytical output, a variable the archetype classification does not assess. A leader classified as an organizer under the Competing Values Framework in a firm scoring low on the Gupta and George [4] culture and learning-intensity dimensions occupies exactly the condition Karaboga et al. [7] measured as producing weak mediation between capability and performance, since the archetype describes strategic posture and the mediating mechanism those firm-level studies isolate is a separate organizational property.

Table 2.

Leadership competency research relevant to data-driven transformation

Source	Method	Leadership Structure	Analytical Relevance
Philip et al. [10]	Three-round Delphi; 18 senior managers	39 competencies; data-driven decision-making among the six highest-consensus items	Identifies the practitioner-recognized leadership repertoire
Imran et al. [11]	Framework synthesis; industrial organizations	8 transformation competencies, unranked	Places data-driven decision-making within change-oriented practice
Müller et al. [12]	Literature synthesis via the Competing Values Framework	4 leader profiles (challenger, bricoleur, organizer, competitor)	Connects competency portfolios with strategic orientation, a variable distinct from culture and absorptive capacity

Readiness and leadership in marketing transformation

Kalinina's [3] framework for data-driven marketing leadership resolves the divergence identified above by placing the substrate-based contingency ahead of the competency architecture. The framework separates three readiness dimensions. Capability readiness assesses whether the organization can interpret evidence, sustain learning routines, and convert findings into recurring decisions. Technical readiness assesses infrastructure, system integration, and data quality. Leadership readiness assesses executive sponsorship, decision authority, and resource commitment; transformation lacking executive sponsorship fails through middle-management resistance and resource constraints regardless of the technical infrastructure in place, operationalizing the same substrate-dependency Karaboga et al. [7] measured through survey data. Once these three readiness conditions are established, the framework arranges five leadership domains, analytical literacy, technological fluency, communication competency, change-management capability, and ethical judgment, around a central integrative capacity of strategic vision. Kalinina's [3] treatment of strategic decision-making gives the readiness sequence operational content beyond the diagnostic labels. Evidence-based strategy formulation, in that account, begins with hypothesis development

that translates strategic questions into testable propositions, proceeds through evidence synthesis that triangulates findings across descriptive, predictive, and experimental methods, and concludes in decision governance structures that allocate decision rights, standardize the evaluation process, and document the rationale, evidence, and expected outcome of each major choice. This sequence specifies what “using” analytical literacy or technological fluency means in practice once readiness conditions are met, which is why the readiness and competency components of the framework read as stages of one decision process: a leader applies analytical literacy by developing and testing a hypothesis, applies technological fluency by drawing on the organization's data infrastructure to synthesize evidence, and applies change-management capability by working through the decision-rights and documentation structure the organization has established. Marketing settings make this sequence unusually visible because marketing decisions combine customer data, commercial targets, creative judgment, channel coordination, and rapid feedback cycles within a single decision cadence, which is why this framework is built specifically for marketing leadership, where this decision cadence is most pronounced.

Table 3.

Components of the multilevel framework for data-driven marketing transformation, adapted from Kalinina [3]

Framework Component	Primary Unit	Analytical Function	Operational Question
Capability readiness	Organization	Assesses culture, learning, and the capacity to absorb analytical knowledge	Can teams interpret and use analytical findings in recurring decisions?
Technical readiness	Organization	Assesses systems, integration, accessibility, and data quality	Can relevant data and tools support the intended decision process?
Leadership readiness	Organization and senior leadership	Assesses sponsorship, resources, authority, and coordination	Can the transformation receive direction and sustained support?
Leadership competency domains	Individual leader and leadership team	Assesses analytical, technological, communicative, change, and ethical practice	Can leaders translate analytical resources into coordinated decisions and action?

Source: compiled by the author.

Organizational readiness as the operating context

The capability-mediation literature specifies what readiness supplies to each of the five competency domains individually. Analytical literacy depends on access to reliable data, shared standards for evaluating evidence, and a decision governance structure for recording and reviewing analytical rationale. Technological fluency depends on the quality of system integration Mikalef et al. [5] place within the technology dimension of capability. Communication competency depends on the decision forums and shared metric language that leadership readiness establishes through executive sponsorship. Change-management capability depends on the resource commitment and coordination authority that the same readiness dimension supplies. Each domain, in other words, converts an organizational resource into a leadership action; where the resource is absent, the domain has no material to act on. Behavioral evidence specifies what happens once that material is absent from the organization. Dietvorst et al. [13] showed that decision-makers who observe a

single algorithmic error lose confidence in algorithmic recommendations faster than they lose confidence in a human forecaster who makes the identical error, even when the algorithm outperforms the human on average across the full observed record. An organization with the review routines Kalinina's [3] decision governance structures specify, a documented rationale, an evidence base, and a comparison against expected outcomes, can place that single error within the broader performance record the routine has accumulated; an organization without such routines has no comparative record to place the error against, which is the condition under which Dietvorst et al. [13] observed leaders reverting to unaided judgment. Moges et al. [14] documented a parallel mechanism on the technical-readiness side: communicating data-quality metadata to decision-makers degrades decision outcomes once the level of detail exceeds what the decision-maker can process, which means that the technical-readiness question posed above, whether data quality can support the intended decision process, concerns the fit between information detail and decision-maker capacity, a condition that installing a quality-monitoring system alone does not establish.

Table 4.**Readiness dimensions, documented failure modes when absent, and supporting evidence**

Readiness Dimension	Operational Question	Documented Failure Mode When Absent	Supporting Evidence
Capability readiness / data-driven culture	Can teams interpret and use analytical findings in recurring decisions?	Analytics management capability shows a weak or absent association with performance gains once the mediating cultural layer is missing	Gupta and George [4]; Karaboga et al. [7]
Technical readiness / data quality	Can relevant data and tools support the intended decision process?	Data-quality metadata degrades decision outcomes once its detail exceeds decision-maker processing capacity	Moges et al. [14]
Leadership readiness / decision governance	Can the transformation receive direction and sustained support?	Leaders default to unaided judgment after a single observed algorithmic error, absent a documented performance record to contextualize it	Dietvorst et al. [13]
Leadership readiness / executive sponsorship	Can the transformation receive direction and sustained support?	Transformation stalls under middle-management resistance and resource constraints regardless of technical infrastructure	Kalinina [3]

Read together, the capability-mediation literature and the behavioral evidence specify a single interaction. Individual competency determines what a leader can understand, communicate, and coordinate; organizational readiness determines what resources, routines, and interpretive practices are available for that competency to act on; decision quality is the joint product of the two, measured in the four documented failure modes summarized in Table 4. This joint dependency is the mechanism the conceptual model developed below specifies, and it is the mechanism a cross-level research design would need to test directly.

A conceptual model

The framework traced through Kalinina's [3] readiness diagnostics, competency architecture, and decision governance structures implies a specific dependency order among organizational and individual variables, which this section states as a conceptual model. Organizational readiness, the joint state of capability, technical, and leadership readiness, sets the conditions under which capability formation, data governance, data-quality management, learning routines, decision-rights allocation, system integration, and cross-functional coordination, can proceed; a firm scoring low on leadership readiness cannot sustain the sponsorship a capability-formation program requires, regardless of how well specified the program itself is. Capability formation, once underway, sets the environment within which the five leadership domains, analytical literacy, technological fluency, communication competency, change-management capability, and ethical judgment, are enacted, because each domain converts a specific organizational resource, evidence access, system integration, decision forums, resource commitment, governance structure, into a leadership action, as established above. Leadership enactment, in turn, produces the outcomes the framework is built to explain: decision quality, implementation quality, operational performance, customer value, and financial performance.

Performance assessment closes the sequence into a loop, consistent with the feedback structure Kalinina [1] develops for marketing systems more broadly, in which customer and market response data are captured and routed back into strategic recalibration. Applied to the present model, outcomes measured at the performance stage inform revisions to readiness diagnostics, to the specific capability investments the organization prioritizes, and to the competency development leaders undertake next, which means the four elements, readiness, capability formation, competency enactment, and outcomes, function as a cycle with a specified entry point. The model's contribution is methodological: it names constructs that capability-mediation research measures at the firm level and constructs that competency research measures at the individual level, and specifies the dependency order in which those constructs would need to be entered into a single research design for the joint mechanism identified in Table 4 to be tested directly.

Results and discussion

Research design implications

Testing the dependency order specified above requires a design that observes organizational and individual variables within the same sample, since the capability-mediation studies reviewed here measure firm-level outcomes and the behavioral studies measure individual-level responses. A multilevel design drawing firms from different stages of marketing transformation could measure organizational readiness through the data-driven-culture and absorptive-capacity instruments Gupta and George [4] and Wang and Byrd [8] validated, alongside the technical-integration and governance-maturity indicators the technical-readiness dimension specifies above. Leadership competencies could be measured at the individual level through instruments built on the five-domain structure Kalinina [3] sets out, scenario-based tasks modeled on the single-error condition Dietvorst et al. [13] used experimentally, and 360-degree evaluations covering the communication and change-management domains. Decision quality could be assessed through the documentation record that decision governance structures already require organizations to keep, the rationale,

evidence base, and expected outcome logged for each major choice, which supplies a naturally occurring dataset for scoring timeliness, consistency, and evidentiary grounding without introducing a separate measurement instrument. A longitudinal extension of this design would isolate the interaction Table 4 specifies through repeated observation of the same firms over time. A first wave, conducted before a transformation intervention, would establish each firm's readiness and competency profile; the intervention itself, whether a capability-building program, a leadership-development program, or the integrated readiness-to-competency sequence proposed above, would then be followed by later waves assessing changes in decision routines, model use, cross-functional coordination, and the performance indicators listed in the conceptual model. Because firms entering the study at different readiness levels would receive comparable competency interventions, the design would show directly whether the same competency intervention produces the divergent outcomes the gating logic in Table 4 predicts, above and below a specific readiness threshold, or whether competency development contributes independently of readiness.

Managerial implications

For organizations planning data-driven transformation, the framework converts into a diagnostic sequence that begins with the three readiness dimensions, ahead of competency training. A capability-readiness review examines data ownership, learning routines, and the organization's demonstrated capacity to convert findings into recurring decisions; a technical-readiness review examines integration, accessibility, and data quality against the specific decision processes the organization intends to support; a leadership-readiness review examines sponsorship, decision authority, and resource commitment, since Kalinina [3] specifies skills inventories, role-based competency models, and structured gap analysis as the instruments for conducting this review without underestimating the capability distance still to be closed. Each review should conclude with an explicit low, moderate, or high rating on its dimension and a clear recommendation on whether to proceed with competency investment or to direct the initial budget toward closing the gap first, so that the three readiness dimensions advance together, as the conceptual model above intends, rather than unevenly.

Once the readiness profile is established, capability-building activity can be sequenced ahead of competency development, following the dependency order the conceptual model specifies. Kalinina [3] describes this sequencing concretely: training programs delivered through formal instruction, hands-on workshops, mentoring, and project-based experiential learning, run as an ongoing program, because the underlying methods and technologies continue to change; recruitment strategies that target capability gaps training cannot close within an acceptable timeframe, drawing on diverse professional backgrounds; and strategic partnerships with agencies, consultants, or technology vendors structured around explicit scope, knowledge-transfer expectations, and a transition plan to internal ownership, so that the partnership closes a capability gap on a defined timeline. Competency training in analytics, digital tools, communication, and change management can then be linked to specific decision processes, campaign allocation, customer segmentation, pricing, channel investment, and retention management, using the documented evidence standards and decision-rights structure the readiness review has already established. Sequencing this activity works best with a single accountable owner for each capability-building track, ordinarily the executive sponsor identified in the leadership-readiness

review, and a scheduled re-scoring point three to six months into the program to confirm progress before committing further budget to competency training; at that checkpoint the organization can continue the training track or draw on the recruitment or partnership route specified above to close any remaining gap. Incentive alignment determines whether this sequence persists once the initial program ends. Kalinina [3] specifies that traditional marketing incentives built around campaign-launch counts or creative recognition discourage the rigorous testing that a data-driven decision process requires, since testing delays launches and constrains creative latitude by design, and recommends aligning incentives with performance improvement, learning velocity, and analytical rigor regardless of whether a given test confirms or disconfirms the leader's initial hypothesis. Ethical judgment operates within this same incentive and governance structure: marketing data practices raise consent, profiling, fairness, and transparency questions that a leader can identify only if the organization's decision governance structure, the same structure specified above for evidence-based strategy formulation, routes those questions to a defined escalation point, applied consistently across cases. In practice this means building incentive metrics around hypothesis-testing throughput, the share of decisions logged against the documentation standard specified above, and the rate at which disconfirmed hypotheses lead to a change in subsequent action, alongside the campaign-launch and creative-recognition measures already in place, so that the incentive structure stays aligned with the evidence-based decision process Kalinina [3] describes.

Conclusion

The capability-mediation literature measures a mechanism, data-driven culture and absorptive capacity converting analytics investment into firm performance, in Turkish cross-industry firms, in healthcare, and in supply-chain operations. The competency literature measures a different mechanism, the repertoire of analytical, technological, communicative, change-oriented, and ethical practices through which individual leaders conduct digital transformation, established through Delphi consensus and contingency typologies built on strategic orientation. These two literatures locate the operative contingency in different variables: the competency literature in strategic orientation, the capability-mediation literature in organizational substrate. This divergence is resolved by sequencing substrate-based readiness ahead of competency enactment, a sequencing this article has traced through the framework's treatment of readiness diagnostics, decision governance, and incentive alignment. This article has developed organizational readiness as the operating condition through which leadership competencies acquire decision relevance, specified in the four documented failure modes in Table 4 and formalized in a conceptual model that orders readiness, capability formation, competency enactment, and outcomes into a cycle with a defined entry point. Three recommendations follow directly from this ordering. Organizations should audit all three readiness dimensions, capability, technical, and leadership, before committing budget to competency training, so that the three dimensions advance together rather than unevenly. Capability-building should be sequenced ahead of competency development on an explicit three-to-six-month timeline, with a named executive owner accountable for the readiness gap it closes. And incentive structures should incorporate hypothesis-testing throughput and documented decision quality alongside existing campaign-launch measures, keeping incentives aligned with the evidence-based decision process the framework specifies. The research design implications translate this order into a testable proposition: a cross-level, longitudinal design comparing firms at

different readiness levels receiving comparable competency interventions would establish whether decision-quality gains depend on readiness thresholds or accrue independently of them. The sequence Kalinina [3] specifies, readiness diagnosis, capability formation, competency development, and performance assessment, is the most operationally complete account available in the reviewed literature, and the three recommendations above state what that account requires of an organization before the cross-level design proposed here has been run.

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