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The Power of Three Journals:

Analytics Without Borders

Connecting Decision Analytics Journal, Healthcare Analytics, and Supply Chain Analytics

Reflections from the Editor-in-Chief

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Abstract

Analytics has evolved beyond developing algorithms and computational models into an interdisciplinary science that connects data, information, knowledge, and decision-making. However, growing specialization across research domains has created intellectual boundaries that can limit methodological exchange and knowledge transfer across organizational settings. This editorial introduces Elsevier's Analytics portfolio, comprising *Decision Analytics Journal, Healthcare Analytics*, and *Supply Chain Analytics*, as an interconnected scholarly network united by a shared scientific vision and three complementary perspectives on decision-making. *Decision Analytics* Journal examines analytics and decision-making in organizations across sectors; *Healthcare Analytics* addresses operational, tactical, and strategic challenges within healthcare organizations; and Supply Chain Analytics focuses on decision-making across interconnected organizations, activities, and networks. The editorial examines how the four paradigms of descriptive, diagnostic, predictive, and prescriptive analytics provide a common intellectual framework while accommodating distinct research questions, institutional environments, and performance objectives.

It further explores how questions, methods, and evidence from each community can stimulate reciprocal knowledge exchange across the three journals. It highlights emerging research opportunities in trustworthy artificial intelligence, integrated prediction and optimization, digital twins, organizational resilience, sustainability, human–analytics collaboration, and decision-centered performance evaluation. The editorial argues that the future of analytics depends not merely on developing increasingly sophisticated models but on integrating analytical intelligence with organizational knowledge, human judgment, and practical decision-making. Together, the three journals provide a complementary platform for advancing analytics as an interdisciplinary science while preserving the distinctive contributions of their respective research communities.

Keywords:
Decision analytics; Healthcare analytics; Supply chain analytics; Decision intelligence; Artificial intelligence; Interdisciplinary research.

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1. Introduction

The proliferation of data has fundamentally altered the conditions under which organizations make decisions. Yet more data do not automatically create better decisions. The most consequential advances occur when information becomes credible knowledge, when knowledge informs feasible alternatives, and when alternatives are evaluated against outcomes that matter. Analytics is therefore not merely a toolbox of algorithms. It is an evolving science of decision-making that connects evidence, modeling, judgment, and action.

Organizations increasingly confront interdependent challenges. A hospital's capacity plan depends on staff, patient flows, and the availability of pharmaceuticals and equipment. A manufacturer's production plan depends on uncertain demand, suppliers, transportation capacity, and regulatory requirements. Public agencies must coordinate across institutional boundaries when confronting emergencies. These examples demonstrate why a narrow focus on isolated model performance can miss the essential decision problem.

The Elsevier Analytics portfolio, comprising *Decision Analytics Journal*, *Healthcare Analytics*, and *Supply Chain Analytics*, offers a distinctive response. The three journals share analytical foundations while emphasizing complementary decision contexts. *Decision Analytics Journal* addresses analytics in organizations across sectors; *Healthcare Analytics* concentrates on operational, tactical, and strategic problems in healthcare organizations; and *Supply Chain Analytics* examines decisions across supply chain activities and interconnected networks. Each journal welcomes rigorous theoretical, methodological, empirical, and applied research appropriate to its aims and scope. Methodological innovation is not the preserve of any one journal, and neither is application. Their relationship is not a hierarchy in which one journal produces methods, and the other two merely apply them. Research questions move in both directions. Methodological ideas can emerge from any of the three communities: a healthcare study may expose the weakness of a standard way of representing uncertainty, an organizational study may introduce a new decision metric, and a supply chain study may develop a new way to structure risk information. The portfolio's distinctiveness lies in this reciprocal circulation of knowledge.

The title *The Power of Three Journals: Analytics Without Borders reflects a deliberate editorial vision*. The three journals share common analytical foundations while addressing distinct decision problems, research environments, and practical challenges. Their collective strength lies in the exchange of questions, methods, and evidence among communities that study decisions in organizations, healthcare, and supply chains. The concept of analytics without borders emphasizes the exchange of knowledge, methods, and insights across disciplinary and institutional boundaries while preserving each journal's distinctive contributions. Together, the three journals create opportunities for interdisciplinary collaboration, scientific innovation, and research that advances both analytical knowledge and decision-making practice.

The overlap among the three journals is productive rather than redundant. Their shared vocabulary of descriptive, diagnostic, predictive, and prescriptive analytics facilitates knowledge exchange, while their distinct decision contexts encourage specialized contributions that can inform and enrich neighbouring research fields.

2. *Decision Analytics Journal*: the organizational perspective

Decision Analytics Journal provides a broad forum for research on analytics and decision-making in organizations. Its interests include predictive modeling, simulation, optimization, prescriptive methods, business intelligence, machine learning, data mining, and performance management, all in the service of organizational decisions. The term organization is intentionally inclusive: businesses, governments, nonprofit institutions, educational institutions, healthcare providers, and other coordinated entities all face consequential choices under constraints.

The journal's four departments express distinct yet complementary questions. Descriptive analytics asks what happened. Diagnostic analytics investigates why outcomes occurred. Predictive analytics asks what may happen next. Prescriptive analytics asks what to do. These are not steps on a ladder of scientific prestige. A careful descriptive contribution may reveal an overlooked pattern; diagnostic work may establish a previously unknown performance relationship; predictive work may advance uncertainty quantification; and prescriptive work may introduce a novel model of choice under competing objectives.

A central intellectual opportunity is to connect prediction with action. Forecasts are useful only insofar as they inform decisions; an optimization model is useful only insofar as its parameters, constraints, and implementation conditions are defensible. Research that studies decision sensitivity to forecast error, uncertainty propagation, robust policies, and model governance can bridge this divide. The most persuasive evaluations therefore distinguish improvements in technical metrics from improvements in decisions. The article 'A curvature-based structural complexity measure for improving decision quality in project management analytics' [1] illustrates this organizational perspective. It introduces a measure of structural complexity and examines whether additional analytical information improves project management decisions. By considering how professionals and large language models interpret complexity information, the study addresses a broader question that extends beyond project management: Under what conditions do improvements in analytical representation translate into better organizational decisions?

A complementary perspective emerges from 'A multi-horizon analytics framework for disruption response decisions in manufacturing supply chains' [2], which connects planning, scheduling, and real-time operational interventions. By examining decisions across different time horizons, the study illustrates how analytics can support coordinated responses to disruptions rather than treating planning and execution as isolated activities. Its reported reduction in production delays demonstrates the potential operational value of connecting analytical models with actionable decisions.

Together, these studies illustrate the breadth of *Decision Analytics Journal*. The first emphasizes how analytical information influences decision quality, while the second examines how integrated analytical methods support decisions under changing operational conditions. Although their applications differ, both address fundamental organizational questions concerning information, uncertainty, coordination, and action. Their contributions are defined by the decision problems and methodological insights they develop, rather than by the industries in which they are applied.

Decision Analytics Journal thus contributes an integrative organizational perspective. It encourages scholars to ask not only whether a method can solve a problem, but also how organizations frame that problem, evaluate trade-offs, and translate analytical recommendations into action.

Explore the ***Decision Analytics Journal***

3. *Healthcare Analytics*: decisions with human consequences

Healthcare Analytics serves an interdisciplinary community focused on developing and applying analytics in healthcare organizations. Its scope spans hospitals, clinics, nursing homes, rehabilitation centers, home healthcare agencies, public health institutions, laboratories, pharmaceutical and biotechnology organizations, and healthcare research centers. The common thread is decision-making that affects healthcare services, organizational performance, and ultimately human well-being.

Healthcare presents distinctive combinations of uncertainty, scarce resources, professional expertise, institutional accountability, and heterogeneous information. A model designed to reduce costs may be unacceptable if it compromises patient access or safety. A predictive system that performs well on average may be unreliable for specific populations or institutions. An operational policy that maximizes utilization may create unacceptable waiting times or overload clinicians. Healthcare analytics must therefore evaluate outcomes that extend beyond conventional measures of computational performance.

The four analytics departments provide a coherent intellectual architecture. Descriptive studies characterize utilization, patient flows, and service patterns. Diagnostic studies investigate variation, bottlenecks, and performance drivers. Predictive studies estimate future demand, resource needs, or adverse events. Prescriptive studies evaluate staffing, scheduling, capacity, allocation, and service policies. The four perspectives are especially valuable when combined, but each can support an important contribution on its own.

Consider emergency department congestion. Descriptive analysis may reveal recurring arrival peaks and prolonged stays. Diagnostic analysis may identify discharge delays or bed-allocation practices as contributing factors. Predictive analysis may estimate demand by hour and patient category. Prescriptive analysis may then compare staffing and capacity policies while protecting clinical service requirements. The most meaningful research connects these layers and examines whether the proposed intervention remains effective in a realistic organizational setting.

The article 'A continuous-time predictive analytics framework for quantifying information degradation in intensive care monitoring systems' [3] illustrates how healthcare challenges can motivate methodological innovation. Using intensive care data, the study examines how uncertainty accumulates when clinical observations become outdated. Rather than focusing exclusively on predictive accuracy, it addresses the reliability of information over time, a critical consideration when clinical decisions depend on irregularly updated patient measurements. The underlying methodological question extends beyond healthcare: how should analytical systems represent uncertainty when the information supporting decisions becomes progressively less reliable?

A complementary contribution appears in 'A predictive and prescriptive healthcare analytics framework for operating room planning and scheduling' [4], which integrates machine learning and mathematical optimization to improve hospital resource allocation. Using a large dataset of surgical procedures, the study connects predictions of operational requirements with scheduling decisions and evaluates trade-offs between unused operating room capacity and overtime. It demonstrates how predictive analytics can inform prescriptive decisions while recognizing the practical constraints of healthcare operations.

Together, these studies illustrate two essential dimensions of healthcare analytics. The first examines whether the information supporting decisions remains sufficiently reliable, while the second investigates how analytical predictions can be translated into feasible resource-allocation decisions. Both demonstrate that healthcare analytics must address methodological rigor and operational consequences simultaneously. Their insights into uncertainty, information reliability, resource constraints, and decision quality also offer opportunities for methodological exchange with organizational and supply chain analytics.

Healthcare also challenges analytics to account for implementation, fairness, interpretability, and human oversight. Clinical and managerial expertise should not be treated as an inconvenient obstacle to automation. Rather, it is part of the decision environment. The scientific task is to identify when algorithmic recommendations are reliable, how to communicate uncertainty, and where human review remains essential.

Healthcare Analytics contributes a perspective in which analytical rigor and consequential decision outcomes must be considered together. Its research questions can stimulate advances in methods that subsequently benefit other organizational and network settings.

Explore ***Healthcare Analytics***

4. *Supply Chain Analytics*: decisions across organizational boundaries

Supply Chain Analytics addresses analytical problems arising from the movement of goods, services, information, and financial resources across interconnected organizations. Manufacturers, suppliers, distributors, retailers, logistics providers, freight forwarders, transportation carriers, procurement organizations, and reverse logistics providers coordinate activities while pursuing objectives that are not always aligned. Their decisions are interdependent, and local improvements may produce unfavorable network-wide consequences.

The journal encompasses procurement, production, inventory management, warehousing, transportation, logistics, order fulfillment, demand planning, supplier relationships, returns, sustainability, and compliance. It encourages theoretical, empirical, and analytical contributions as well as real-world applications and case studies. Its distinctive focus is not a single industry but the decision structures and interdependencies of supply chains across industries.

Supply chains make the limitations of decisions optimized in isolation particularly visible. A retailer's aggressive inventory reduction may transfer risk to suppliers. A manufacturer's least-cost sourcing strategy may increase vulnerability to disruption. A transportation decision that improves one participant's efficiency may worsen delivery reliability elsewhere. Analytical research must therefore recognize network structure, uncertainty propagation, conflicting incentives, and the trade-offs among efficiency, resilience, responsiveness, and sustainability.

Descriptive supply chain analytics creates visibility into network performance and patterns. Diagnostic analytics investigates delays, anomalies, disruptions, and deviations from expectations. Predictive analytics estimates demand, risks, and future operating conditions. Prescriptive analytics compares sourcing, inventory, production, transportation, and recovery alternatives. Integrating them can create decision systems that respond to changing information rather than relying on static plans.

The article 'A causal analytics approach for interpretable supply chain risk and supplier performance evaluation' [5] illustrates how supply chain research can move beyond predictive associations toward causal interpretation and intervention-oriented decision support. By integrating causal discovery, large language models, and expert knowledge, the study investigates relationships underlying supplier performance and risk. Its evaluation of multiple causal discovery methods against an expert-validated reference graph highlights the importance of interpretability and domain knowledge. The broader methodological challenge is to distinguish statistical relationships from defensible causal explanations that can inform supply chain decisions.

A complementary perspective emerges from 'An optimization-simulation framework for recovery decisions under information uncertainty in circular construction supply chains' [6]. The study integrates mathematical optimization and discrete-event simulation to examine how information quality influences decisions involving reuse, remanufacturing, and recycling. It further demonstrates that information availability is not merely a technical consideration but an important determinant of operational performance and sustainable resource recovery by quantifying the economic consequences of different information scenarios.

Together, these studies illustrate two complementary contributions of supply chain analytics. The first emphasizes causal understanding and interpretable risk assessment across organizational relationships, while the second examines the operational and economic value of information in interconnected recovery processes. Both demonstrate how analytical methods can support decisions that extend beyond individual organizational boundaries. Their contributions also connect naturally with broader questions of information reliability, uncertainty, decision quality, and sustainable operations across the three journals.

Supply Chain Analytics research examines the interconnected decisions, relationships, and uncertainties that shape the performance and resilience of supply chain networks. It investigates what makes a network vulnerable, which decisions can reduce that vulnerability, what information is needed for effective coordination, and how policy consequences are distributed among participants. This network perspective complements the organizational decision-making focus of *Decision Analytics Journal* and the healthcare focus of *Healthcare Analytics*, creating opportunities for methodological exchange and interdisciplinary collaboration across the three journals.

Explore ***Supply Chain Analytics***

5. Connecting knowledge across three journals

The portfolio's most interesting contribution is its potential to move research ideas across boundaries. Consider allocating critical medical supplies during a public health emergency. A general decision analytics contribution might formulate a novel model for allocating scarce resources under uncertain demand and competing objectives. A healthcare analytics contribution might examine how shortages affect patient priorities, hospital capacity, and continuity of care. A supply chain analytics contribution might focus on sourcing, transportation, distribution, and network recovery. These are different scientific questions arising from a connected problem.

Knowledge exchange is reciprocal. A new optimization approach may begin in an organizational setting and later be adapted to hospital scheduling. A healthcare problem may expose shortcomings in standard uncertainty representations, prompting methodological innovation. A supply chain disruption problem may generate new insights into interdependent risks that can subsequently inform public-sector or healthcare decisions. The three journals provide complementary venues for these contributions without suggesting that the same manuscript should be submitted to multiple outlets.

Figure 1 depicts this intellectual architecture as overlapping domains rather than a hierarchy. The shared center represents analytical science; the distinct regions represent the journals' primary decision contexts. The overlap does not erase editorial-scope boundaries. It shows why methods, research questions, and practical insights can cross boundaries even when each manuscript must make a clear, original contribution to one scholarly community.

A useful way to identify the appropriate journal is to ask three questions. What is the principal research question? What is the main contribution beyond established knowledge? Which scholarly community can best evaluate and benefit from that contribution? The answers are more informative than whether a manuscript uses machine learning, optimization, simulation, or a particular industry dataset.

The six featured articles [1–6] illustrate both the distinctiveness and the intellectual connections among the three journals. The *Decision Analytics Journal* studies examine how analytical information improves organizational decision quality [1] and how coordinated planning and operational interventions support disruption response [2]. The *Healthcare Analytics* studies investigate the reliability of information under irregular clinical observation [3] and the integration of prediction and optimization for hospital resource allocation [4]. The *Supply Chain Analytics* studies address causal interpretation in supplier risk assessment [5] and the operational value of information in circular recovery decisions [6].

These contributions reveal common scientific questions across different decision contexts. Information reliability in intensive care monitoring [3] raises issues relevant to organizational decision quality [1] and supply chain information uncertainty [6]. The integration of prediction and optimization in operating room scheduling [4] shares methodological foundations with multi-horizon manufacturing decisions [2] and circular recovery planning [6]. Similarly, causal interpretation in supplier risk assessment [5] offers insights relevant to understanding performance drivers in organizational and healthcare systems. These connections demonstrate that methodological



Figure 1. **Three complementary journal perspectives connected through shared analytical foundations.**

innovation and practical decision challenges can originate in any of the three communities and generate valuable insights for the others. The journals remain distinct in their principal research questions while contributing to a shared and evolving science of decision-making.

The portfolio also helps resist disciplinary fragmentation. Increasing specialization can strengthen scientific depth, but it can also create separate terminologies for closely related problems. Researchers may repeatedly develop methods without recognizing related advances in neighboring fields. By articulating a common framework, the portfolio can encourage more effective intellectual exchange while preserving the distinctiveness that makes specialized peer review valuable.

This vision requires rigorous editorial standards. Novelty must be assessed against relevant prior research, including work published outside the manuscript's immediate application area. Validation should support the claims made, whether through mathematical analysis, experiments, simulations, empirical evidence, or carefully designed case studies. The significance of the contribution must be explained in terms appropriate to its research question. A portfolio identity is meaningful only if it is accompanied by a commitment to quality across all three journals.

6. A common research agenda for connected decision intelligence

A shared research agenda emerges naturally from these connections. First, predictive and prescriptive analytics must integrate more closely. Better predictions do not always produce better decisions, and optimization results may be fragile when inputs are uncertain. Research should examine how forecast error, model uncertainty, and changing conditions affect decision quality. This agenda applies to organizational planning, healthcare capacity, and supply chain coordination alike. The multi-horizon manufacturing framework [2] and operating room scheduling study [4] illustrate this connection by linking analytical predictions and operational information with planning, scheduling, and resource-allocation decisions.

Second, trustworthy artificial intelligence requires attention to accountability, transparency, robustness, and human judgment. Organizations increasingly use automated systems to support or influence consequential choices. Yet a recommendation is not necessarily actionable merely because an algorithm produces it. Research should clarify when models are sufficiently reliable, how to present uncertainty, and how professional expertise and organizational responsibility interact with automated recommendations. The examination of information degradation in intensive care monitoring [3] and the integration of causal discovery with expert knowledge in supplier risk assessment [5] illustrate complementary challenges involving information reliability, interpretability, and human expertise.

Third, resilience must be examined alongside efficiency and sustainability. Reserve capacity, supplier diversification, flexible staffing, and redundant transportation options can improve continuity under disruption, but they also create costs and resource trade-offs. Analytics should help decision-makers understand these trade-offs rather than treating resilience as a secondary performance metric. The multi-horizon manufacturing framework [2] illustrates how coordinated operational decisions can support disruption response, while the circular recovery framework [6] demonstrates how information quality influences economic and sustainability-related decisions.

Fourth, digital twins and adaptive decision systems create opportunities to connect real-time data, simulation, prediction, and optimization. Their scientific contribution depends on the quality of the representation, model validation, uncertainty management, and evidence that resulting recommendations improve decisions. A digital representation alone is not a sufficient innovation. The same standard applies to organizational digital twins, healthcare service systems, and supply chain network models.

Fifth, researchers should pay greater attention to implementation and adoption. The project management study [1] examines how analytical information influences decision quality, while the operating room scheduling framework [4] illustrates the importance of translating analytical recommendations into operationally feasible decisions. Both reinforce the need to consider how analytical information is interpreted, incorporated into organizational processes, and translated into action. Future work should examine not only whether a method can produce a solution but also what is needed to operationalize it responsibly.

Sixth, analytics must become more explicit about its outcome measures. Predictive accuracy, computation time, and objective-function values remain important, but their relationship to organizational performance, patient well-being, or network resilience is not automatic. The operating room scheduling study [4] evaluates the consequences of analytical decisions through capacity utilization and overtime, while the circular recovery study [6] quantifies the economic value of improved information. These examples demonstrate why technical improvements should be evaluated alongside operational outcomes and practical trade-offs. Researchers should therefore distinguish technical validity, decision relevance, and implementation value.

Finally, the research community should explore how knowledge transfers across contexts. An approach developed for one type of organization may fail elsewhere because objectives, data, regulations, or decision-making authority differ. These failures can be scientifically productive: they reveal which assumptions are generalizable and which are context-dependent. Cross-domain research should make these conditions explicit rather than assuming that analytical approaches developed in one context are universally transferable.

Figure 2 summarizes the portfolio's decision-intelligence framework. Descriptive, diagnostic, predictive, and prescriptive analytics form a shared vocabulary. Their interaction with organizational, healthcare, and supply chain problems generates new research questions. Findings and implementation feedback can then inform further methodological development. The process is iterative: data and models influence decisions, decisions create outcomes, and outcomes generate new evidence.

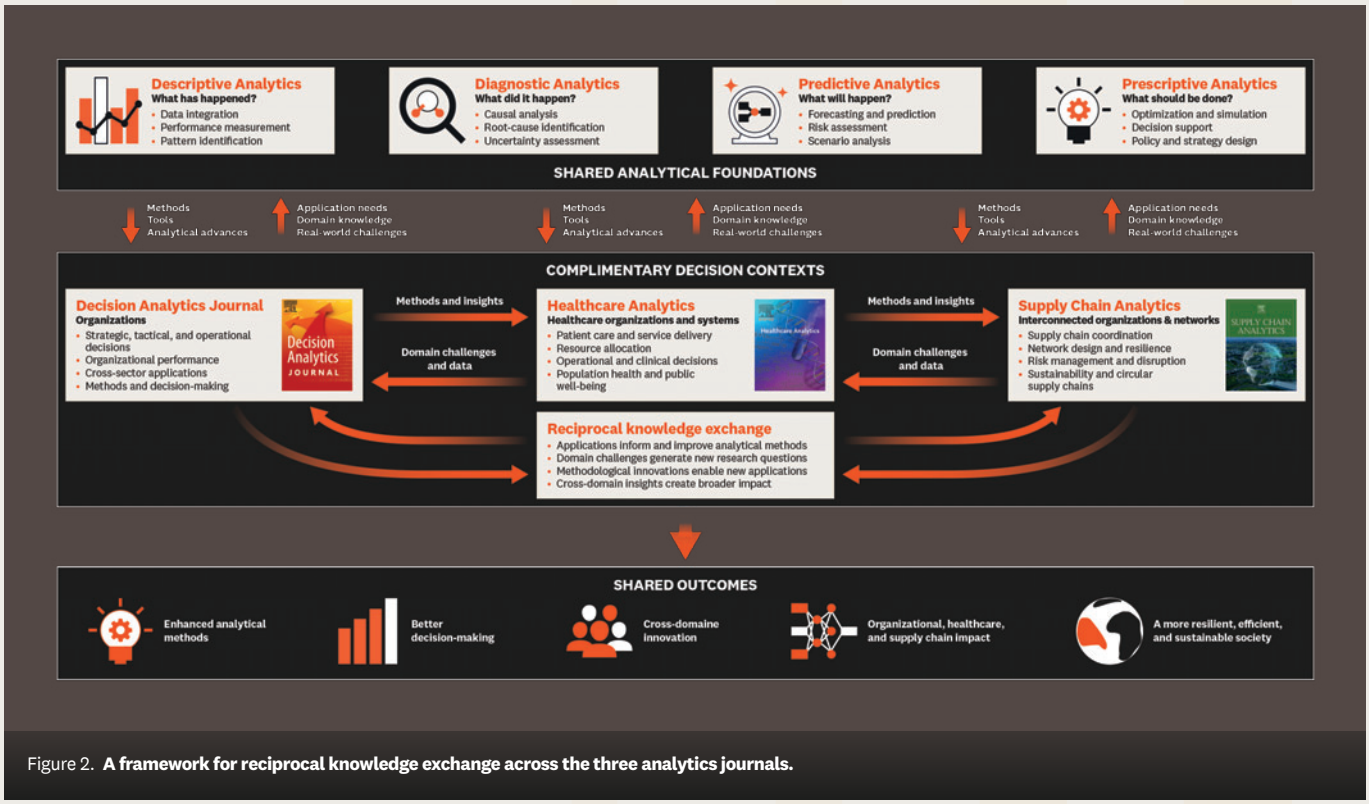

Figure 2. **A framework for reciprocal knowledge exchange across the three analytics journals.**

7. A shared future for analytics without borders

The strength of the Analytics portfolio lies in its shared analytical foundations and three complementary scholarly perspectives. Decision Analytics Journal examines analytics and decisions in organizations across sectors; Healthcare Analytics addresses the operational, tactical, and strategic challenges of healthcare organizations; and Supply Chain Analytics focuses on decisions across interconnected organizations and networks. None is a source of methods for the others to apply. Each welcomes methodological innovation and applied work within its decision context, and ideas move among them in every direction.

The research agenda outlined above, from integrating prediction with decision-making to evaluating analytics by the quality of the decisions it supports, will benefit most when these communities read one another's work. For authors, the portfolio offers three complementary venues, each asking its own central question. For readers, practitioners, and policymakers, it offers connected perspectives on decisions under uncertainty, resource limits, and competing objectives.

Analytics without borders does not mean analytics without boundaries. It means rigorous, well-situated research that stays open to insight from neighboring fields. This is the promise of Analytics Without Borders.

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