WHITE PAPER

Are we truly innovating – or just automating the past?

Reimagining healthcare through a connected ecosystem

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Executive Summary

With today's technology and the surging expertise of digital health, it's finally possible to break down data silos and connect fragmented workflows that have traditionally held back innovation in healthcare. The key to making this possible is adopting an ecosystem approach that integrates data, processes, and people – including patients.

This connected ecosystem includes key commercial players in the healthcare sector, primarily life sciences organizations, retail pharmacies, health plans, and digital health technology vendors. The foundation of the ecosystem is a steady and secure flow of current, evidence-based information. With this information in hand, ecosystem participants are not only able to generate meaningful insights; they also pave the way for informed, reliable decision-making that supports personalized care, reduces redundancies, and helps improve clinical and business outcomes.

When commercial organizations operate as part of an ecosystem rather than in isolation, they unlock the conditions for true innovation, said Chris Sullivan, Vice President and General Manager, Pharmacy and Health Technology Solutions, Wolters Kluwer Health. "This requires rethinking how care is delivered and building seamless, interoperable systems – marking a fundamental transformation, not just incremental change."

The healthcare ecosystem explained

In the reimagined healthcare ecosystem, previously disparate stakeholders and their data come together to better identify proactive interventions, disseminate information, and enhance their clinical expertise. In this environment, care delivery can be transformed from a series of episodic transactions to continuous, proactive, and coordinated

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engagement that is more actionable for intended outcomes. This allows patients to build stronger, longer-lasting relationships with their clinical care team no matter which ecosystem stakeholder those caregivers or advocates represent.

Ultimately, the ecosystem, the flow of evidence-based data and the technology infrastructure supporting it – all backed by the latest advances in artificial intelligence (AI) and advanced analytics – collectively empower stakeholders with trustworthy insights at each touchpoint with a patient or health plan member.

Alex Tyrrell, Ph.D., Head of Advanced Technology, Wolters Kluwer, and Chief Technology Officer, Wolters Kluwer Health, said this helps care teams connect the dots. Because there are more meaningful insights at the point of care, there is less noise to get in the way of a meaningful interaction. As a result, patients and members would benefit from earlier detection and proactive intervention, while feeling both heard and supported at times of uncertainty.

“It becomes a context-aware and patient-focused experience,” Tyrrell said. “That paves the way for coordinated care across multidisciplinary teams, seamless handoffs, authentic encounters, meaningful discussions, and greater situational awareness about what’s happening to a patient. It also puts clinical teams in a position to deliver tailored, personalized care plans and explanations that firmly align with a patient’s medical history and personal wishes.”

Leverage the ecosystem transformation in four key steps

This degree of transformation cannot be achieved with a series of quick fixes. It requires a strategic shift. At a time when every industry, including healthcare, must embrace a future that includes safe and effective use of AI, the ecosystem transformation has to emphasize AI’s role in accelerating technological innovation. But that must be balanced with strategies and systems that amplify human expertise in healthcare and life sciences. Fortunately, the four key steps to leveraging ecosystem transformation are already underway (to some extent) at many organizations.

1. Ingest, integrate, and cleanse data

The goal for this step is to create a single version of the truth accessible to all stakeholders in a single, access-controlled and cloud-based repository. Cleansing data assures that all data sources are stored in a consistent, machine-readable format.

Natural language processing and agentic AI tools can be deployed to align complex, unstructured data to common codes and standards. That makes data useful for stakeholders across vertical industries – and their unique business applications and use cases – so multidisciplinary collaboration from any part of the ecosystem can become a standard of care. Meanwhile, stakeholders benefit from lower IT and operational costs, as they are no longer maintaining infrastructure to store and process data.

2. Ensure data is AI-ready

Once data is available to all ecosystem partners, the next step is ensuring that cutting-edge AI tools can use it for an organization's predefined use cases. The chart below highlights the main features of AI-ready data. When data is both usable for AI and aligned with the appropriate use cases, stakeholders can prepare to take advantage of what AI has to offer: automated workflows, predictive analytics, actionable intelligence, ambient listening, reliable recommendations, and more.

Key characteristics of AI-ready data[1,2]	
Usable by AI tools	**Aligns with use-case requirements**
• Evidence-based • Thorough • Consistent • Reliable • Diverse	• Properly labeled • Meets quality standards • Available in sufficient volume • Consistent with the type of model it will be applied to

3. Ground insights in mutual trust

In a true healthcare ecosystem, *all* stakeholders can trust the output of the AI tools transforming clinical and business operations. Three things must happen for the ecosystem to reach that point:

Stakeholders collaborate to build robust data and AI governance frameworks. This defines who can access what, when, and for what purpose. “Governance is critical to support data privacy and safety, as well as AI model transparency and explainability,” Tyrrell said. “A governance framework will promote responsible and effective AI and data use.”

Multidisciplinary teams validate evidence, such as clinical decision support systems outputs, based on existing clinical guidelines and best practices. Likewise, teams verify AI model outputs and refine models as necessary.

Transparent, mutually agreed upon metrics help highlight for all ecosystem partners how innovation initiatives are progressing – whether those metrics include high-risk patients identified, readmissions avoided, prescriptions filled, or clinical trials completed.

4. Embrace a phased approach

While ecosystem transformation represents a major strategic shift, it doesn’t have to happen overnight. In fact, according to Sullivan, “Balancing innovation with financial realities requires a deliberate, phased approach.”

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>
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> **Head of Advanced Technology, CTO**
> **Wolters Kluwer**

Organizations should start with high-impact solutions, such as AI-driven preventive care outreach or pharmacy-based digital medication education, which can scale quickly. Leaning on ecosystem partners to share costs and risks is also effective for moving innovation forward, as is focusing on existing value-based care models to which ecosystem partners have already agreed. Finally, stakeholders cannot overlook the value of workforce training; this can better support teams in making the most of the tools now at their disposal *and* building new skills as AI and other technology continues to evolve.

The ecosystem in action: How information and decisions can flow

What can happen in a healthcare ecosystem once data is accessible and AI-ready, and when the insights derived from that data are based in evidence and grounded in trust? The examples below highlight how a holistic approach to collaborative and patient-centered care could be done.

Drug development

Enroll patients in clinical trials sooner. Applying AI models to clinical, claims, patient-reported, and genomic data can help ecosystem partners identify potential indicators of cancers or other rare diseases in undiagnosed patients (this is particularly valuable for conditions with symptoms that frequently overlap with more common diseases). When life sciences and digital health partners make these tools available at the point of care, patients with health indicators may be identified earlier in their care journey. That could put patients on the appropriate treatment pathway, including clinical trials where necessary.

Get patients on new therapies faster. The sooner stakeholders know a therapy has been approved for a new indication, and the sooner they have access to peer-reviewed research showing its effectiveness for a certain population, the sooner patients are poised to benefit from it. Payers and pharmacy benefit managers (PBMs) get the evidence they need to add a therapy to a formulary, while providers can access the evidence they require to have an informed conversation with a patient and make an educated prescribing decision.

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Simulate a therapy's impact with digital twins. McKinsey has described a digital twin as a virtual replica of a system, object, or person.[3] In healthcare, a digital twin would contain all relevant patient information – clinical, claims, pharmacy, life science and genomic sources along with app and device data. The richness of data available within the digital twin may support robust risk assessment or even make it possible to simulate how a therapy would act inside a patient.

Chronic care management

Streamline medication reconciliation. Retail pharmacists struggle to do what's right for their patients when medication lists are redundant and potentially contradictory. In a connected ecosystem, stakeholders can access an updated list and receive alerts when new prescriptions are ordered and filled and old prescriptions are dropped. Along with reducing the likelihood of preventable drug interactions that can result in costly episodes of care, better medication reconciliation may improve the patient experience by cutting down the confusion of managing many medications. Plus, life science organizations may be positioned to see better outcomes for their therapies when patients can take medications as directed and may avoid unanticipated interactions or side effects.

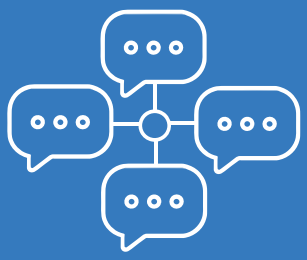
Recognize – and intervene on – rising risk factors. All ecosystem partners benefit when patients at risk of a chronic condition are identified and flagged early enough to begin proactive and preventive care management. Risk factors are not always readily apparent, and they can vary depending on a patient's medical history and current condition. Predictive analytics models may be effective here, especially when they have access to a complete member or patient record. From there, validated AI tools capable of providing evidence-based treatment recommendations can help payers and clinicians to encourage healthy behaviors and prioritize the scheduling of care patients need without the long wait time for an appointment with a specialist.

Deploy wearables for patient self-management. As wearables move from the wrist to the finger and add medical-grade capabilities for measuring blood oxygen, sleep quality, and heart activity, they can become an increasingly valuable piece of a patient's record. The key is the ability to synthesize the data, within a trusted app and/or alongside a medical professional. This will help generate meaningful insights and evidence-based recommendations for health and lifestyle changes – allowing health plans, provider organizations, other ecosystem partners, and patients to align on the value of wearable data for condition management and care planning.

Embed care management in the pharmacy. Research has shown more than 80% of patients are comfortable going to their pharmacy for low-acuity care.[4] At the height of the pandemic, pharmacies administered about 45% of COVID vaccinations and nearly 40% of flu vaccines for adults.[5] Couple that with a projected shortage of 40,000 primary care physicians by 2036[6] and there are clear incentives to empower pharmacists to more effectively support care delivery. Ecosystem transformation makes this possible by providing pharmacy partners with the same access to patient data, insights, and evidence-based recommendations as other care stakeholders, allowing them to become the "quarterback" of the care team when applicable.

Communication and education

Produce messaging that's consistent yet tailored. Medical affairs, commercial, marketing, and field teams at life science organizations produce written content for different purposes. At the same time, that content must meet strict legal requirements and maintain consistent language in communicating about indications, efficacy, and side effects. The combination of a centralized platform for integrating disparate datasets and purpose-built generative AI tools can make it possible to unify approved messaging across various channels to healthcare providers, patients, insurers, and more. This may help reduce errors and miscommunication while lightening the medical and legal review (MLR) workload.



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Adapt education to user context and preference. Discharge summaries mean different things whether a patient transitions to post-acute care, recovers from surgery or simply goes home, and they may also inform payer-driven care management, benefits navigation or follow-up outreach. Routine prescription refills tend to be far less stressful than new medications to manage a new diagnosis, particularly when coverage rules, prior authorization, or cost-sharing apply. Creating educational materials—supported by AI—that are appropriate for the situation and tailored to a member's stated preferences, benefits and current health status as documented in a shared longitudinal record can help improve adherence with treatment plans, reduce avoidable utilization and provide peace of mind for both patients and payers.

Bring education to the community. As many as half of healthcare providers in the U.S. are based in the community.[7] These practitioners often lack the time or resources to attend medical conferences. Digital medical education can augment traditional in-person learning and empower community-based providers to learn about new evidence-based guidelines, medical devices, care models, or clinical trials. Ecosystem partners can go a step further and make these programs available to pharmacists, behavioral health providers, and non-clinical professionals such as social workers – all of whom may have more touchpoints with patients than primary or specialty care.

Care delivery optimization

Synthesize and summarize clinical records. When patients' records must be pulled from disparate portals and apps – and those with chronic conditions may have dozens – they and their care team may struggle to understand and act on that information. As with medication lists, the challenge is multiplied when records are duplicated, potentially redundant and conflicting, and when there's no way to tell which record is most recent. Leveraging clinically validated AI tools to synthesize data from multiple sources and summarize it in plain language gives everyone a single version of the truth to promote informed decision-making. It also saves patients the trouble of answering the same questions – especially the sensitive or embarrassing ones – at every touchpoint within the healthcare ecosystem.

Integrate shared decision-making. Ecosystem stakeholders manage an array of resources – from educational pamphlets and evidence-based guidelines to targeted treatment recommendations and digital therapeutics – which can benefit practitioners regardless of their care setting or credentials. These work best when they are directly integrated with the technology solutions a physician, pharmacist, nurse, care manager, or social worker already uses. An ecosystem capable of making resources available with little heavy lifting for the IT team and little disruption to clinical workflows will be a valuable partner for provider organizations.

Elevate the standard of care. Assessing how provider groups perform against a wide range of clinical and operational metrics makes it possible to recommend best practices from high performers that elevate the standard of care across the ecosystem. The metrics are an important piece of the puzzle here. Practitioners who see empirical evidence that they over-prescribe less effective medications or over-order medically unnecessary treatments, particularly when compared to their peers, may be influenced to change their behavior. This can reduce variations in care across the ecosystem and ultimately reduce costs for payers.

Incorporate the patient voice. Whether it's asking providers for anecdotal evidence of medication side effects or patient responses, or directly involving patients in the drug development process, respecting the patient voice is essential to improving outcomes. Patient-reported outcomes should be part of the ecosystem's central data repository. This will let life sciences organizations incorporate patient feedback into study design. Downstream, other stakeholders will have honest and relevant information to share with patients or members about what to expect as they begin a new treatment.

> When you can leverage technology to reduce complexity and administrative burdens, you create a better set of conditions for engagement and empathy. That frees up the valuable time you need to develop meaningful relationships and shared understanding with patients and members.

ALEX TYRRELL, PH.D.
Head of Advanced Technology, CTO
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Build the future of healthcare

To fully realize the potential of a connected healthcare ecosystem, Sullivan suggests that stakeholders should be prepared to undergo significant business and operational shifts. These will likely include accelerated adoption of value-based care models, use of AI and analytics to personalize care and identify at-risk populations, and breakdown of silos among stakeholders.

“I urge leaders to embrace radical collaboration across the care continuum—bringing together payers, pharmacies, digital health technology, and life sciences organizations to co-create solutions,” he said. “This means sharing data, aligning incentives, and prioritizing long-term outcomes over short-term gains.”

Successful innovation and transformation will require rising above patchwork technology systems and transitioning to an integrated framework that better supports a stakeholder’s role in a larger healthcare ecosystem. Ultimately, that may mean aligning with a smaller set of clinical solutions capable of facilitating access to trusted medical information within clinical workflows. “Transparency and trust will become a core currency for integration,” Sullivan said, “as well as supporting consistent information availability to help activate preventive care.”

Learn more about accelerating AI-enabled growth: https://www.wolterskluwer.com/en/solutions/medi-span

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Endnotes

1 IBM. What is AI-ready data?

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