

Driving Innovation Through Information: Drive Healthcare Innovation by Riding These Three Waves

By: Kevin Kujawski

QUOTE

“All men can see these tactics whereby I conquer, but what none can see is the strategy out of which victory is evolved.”
– Sun Tzu

SYNOPSIS

The “digital revolution” continues to accelerate the pace of change in healthcare. My prediction is that three major “drivers” of change will operate in a somewhat sequential fashion in most markets:

1. Evolving Payment Models and Regulations
2. Employer Pressures on Cost and Value
3. Consumerism

Now is the time for forward-thinking healthcare organizations to evaluate their technology and data assets and assess how prepared they are to handle current needs as well as upcoming strategic shifts. We must take the opportunity to use the information and resources at our fingertips to drive innovation and bend the cost curve while not sacrificing quality and satisfaction (i.e., patients, enrollees, and providers). Executing additional strategies – or stepping up those that already exist – while managing all the other pressing demands for time and resources often requires significant planning, coordination, and forethought. If you do not assess where you are now, you run the risk of missing key opportunities and finding yourself behind competitors and market disrupters.

As many organizations prepare for annual budgets and strategic plan reviews for 2017, my suggestion is that Information Technology leadership (e.g., CIO, Applications Leader, Infrastructure Leader, Analytics Leader, Chief Information Security Officer) concentrate on reviewing their position relative to these three strategies:

- Focus on Operations Performance
- Build the System of Care and Wellness
- Engage and Activate the Consumer

The above strategies should be viewed as strategic “waves” that, when successfully delivered, build upon one another (Figure 1). These strategies lead to the ultimate strategic goal:

Driving Innovation Through Information

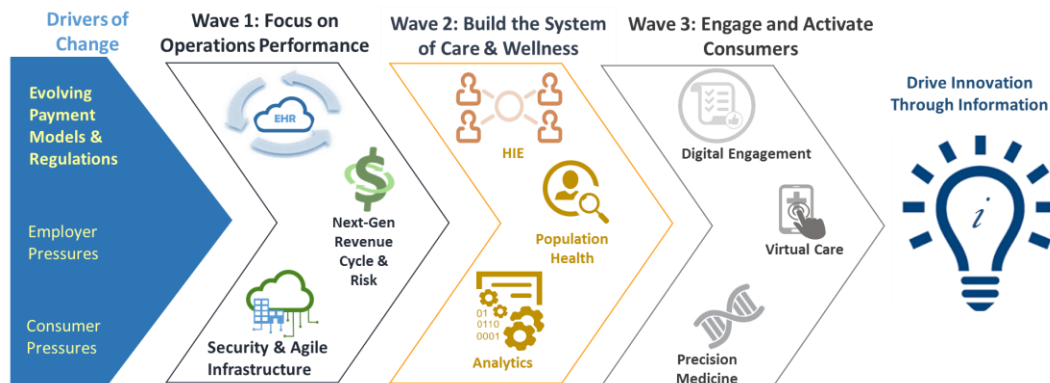
Driving innovation through information allows organizations to prosper in this time of change by driving lowest reasonable cost and best reasonable outcome while not sacrificing satisfaction. Regardless of the approach taken by an organization to address this strategy, an integrated and underlying theme is present in this paper, namely maturing data governance while maintaining an organization’s focus on Information Security and Privacy. These lynchpins should be established early in the waves and must mature. Information Security and Privacy are the foundations of patient and consumer trust. Without this trust, patient engagement and activation is difficult, if not impossible, and therefore bending the cost curve becomes exponentially more difficult.

Also critical is thoughtful build of application content (e.g., orders, social determinants of health). Integrated content can streamline value realization from each wave (e.g., high-quality information, analytics, algorithms) and enable analytics to drive subsequent action.

There are dependencies between the waves and a number of recommendations of each wave, many with long lead-times. Each organization's lead time will differ (e.g., building cross-functional teams, finding partners, becoming proficient with technology, turning raw data into insights and action). As organizations plan for the future, the 'art' is in orchestrating the response to drivers that shape the environment in order for those in our care to flourish (e.g., patients, care teams). The approach will be different for many organizations considering their current state resources and capabilities, culture, and governance. Those who deliver upon these "waves" (generic strategies) will be positioned to prosper.

A byproduct of technology-enabled innovation is continued relevance and a seat at the table for Information Technology (IT) and its leaders. Other industries are well-ahead of healthcare in experiencing the shifting role of IT and its leaders. This shift presents IT leaders with a key fork in the road to be a value driver or to simply run a utility that manages infrastructure, some aspects of automation and a number of "outsourcing" relationships (e.g., traditional outsourcing, Software or Business Process as a Service agreements).

Figure 1



“DRIVERS” OF STRATEGIC CHANGE

I anticipate that three “drivers” will primarily influence strategic change in most healthcare markets.

1. *Evolving Payment Models and Regulations*

Currently, the Centers for Medicare & Medicaid Services (CMS) is the major driver of evolving payment models. In addition to CMS, the Office of the National Coordinator for Health Information Technology (ONC) and Office for Civil Rights (OCR) have influence. With CMS intending to drive 50% of payments through value-based arrangements by 2018, change is already well underway. MACRA (the Medicare Access and CHIP Reauthorization Act of 2015), MIPPA (the Medicare Improvements for Patients and Providers Act of 2008), bundled payments, and Medicare Shared Savings Plans (MSSPs) all drive new opportunities and threats that require supporting technology, higher-quality data, and increased integration (e.g., communication across settings, collaboration). This all must occur at affordable costs and with significantly increased speeds of delivery.

2. Employer Pressures on Cost and Value

While “employer pressures” are currently the second biggest driver of strategy and change in most markets, I believe that employers will likely push to take greater control rather than waiting for legislative and/or policy fixes that have consistently not met expectations. There is compelling evidence that government leadership is falling short:

- The U.S. spends the most per capita on healthcare, yet our outcomes lag.¹
- Healthcare costs are still growing faster than inflation, and the “slow” rate of 4% cost growth in recent times is expected to increase to 5% or greater per year in the next 10 years.² (compounding these increases over 10 years results in a greater than 50% increase in costs)
- Employees, not just employers, are saying the costs are untenable.^{3,4}
- Under the Affordable Care Act (ACA), smaller employers have been hit hard.⁵
- A number of large insurers are leaving or scaling back their involvement in the healthcare insurance exchanges.^{6,7}

3. Consumerism

The potential for consumers driving healthcare markets has been discussed for years, but few markets have seen significant consumer influence. This doesn’t mean that change has not occurred. The work that organizations have done to address the present and anticipated consumer demands is worthwhile (e.g., transparency of outcomes, quality, cost, and satisfaction; making their systems easier to navigate; making bills more understandable). However, the “hype” has seemingly exceeded the reality to date.

It is inevitable that increasing consumer comfort with “digital life” will translate into additional pressures within healthcare as consumers bear mounting responsibility for costs and take increasing control of their personal health. Assuming that employers are increasingly involved in healthcare, it is likely that employers will play a temporary role as much of the responsibility shifts to the employee (consumer). Consumers will expect cost-effective care, flexible payment options, and a more streamlined and coordinated experience for their care and wellness.

- (1) <http://www.usatoday.com/story/money/business/2015/11/14/24-7-wall-st-countries-spend-most-health-care/75771044/>
- (2) <http://www.forbes.com/sites/toddhixon/2016/02/16/how-small-businesses-can-survive-the-rising-tide-of-healthcare-costs/#58ce18f11715>
- (3) <http://www.forbes.com/sites/toddhixon/2016/02/16/how-small-businesses-can-survive-the-rising-tide-of-healthcare-costs/#58ce18f11715>
- (4) <http://blogs.wsj.com/washwire/2015/03/31/americans-dont-feel-the-slowdown-in-health-costs/>
- (5) <http://www.inc.com/magazine/201512/leigh-buchanan/2015-state-of-small-business-health-care-cost-regulations.html>
- (6) https://www.washingtonpost.com/national/health-science/unitedhealthcare-says-it-is-scaling-back-efforts-in-aca-exchanges/2015/11/19/5c45d9e0-8ee2-11e5-baf4-bdf37355da0c_story.html
- (7) <http://cnsnews.com/news/article/blue-cross-aetna-united-humana-flee-obamacare-exchanges>

RECOMMENDED STRATEGIES

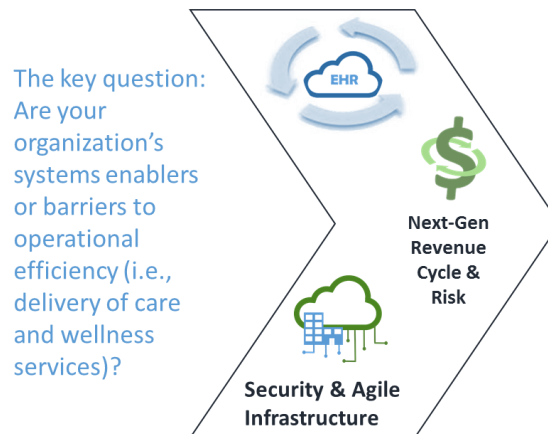
If the “drivers” of strategic change cited above make sense, what strategies should be pursued?

My suggestion is to concentrate on three strategies:

1. Focus on Operations Performance
2. Build the System of Care and Wellness
3. Engage and Activate the Consumer

The above strategies should be viewed as strategic “waves” that build upon one another. However, these strategies should not be viewed in a strictly linear context, and each strategy has several components. Many components will have long lead times to build teams, find partners, identify and become proficient with technology, integrate with workflow, achieve clinician adoption, and convert raw data into insights that can be used to support continuous improvement and innovation. In short, an organization’s response to the “drivers” needs to deliver an environment in which those individuals in its care (i.e., patient and care teams) are enabled to flourish. Each organization’s approach will be different depending on its current state resources and capabilities, culture, governance, and market conditions.

Wave 1: Focus on Operations Performance



The following are the common strategic technology components:

✓ **Optimized Electronic Health Record (EHR)**

The goal should be an **optimized EHR ecosystem** that addresses the “three T’s” (clinicians’ time; the organization’s treasury (revenue and cost); trouble – providing a safe and high-quality environment). The ecosystem is comprised of the applications directly involved in the patients’ and consumers’ coordinated care and wellness experience. Ultimately, the optimized ecosystem should make the organization the easiest to do business with, while capturing the information required to meet regulatory and organization goals. Streamlining workflow, content, and interactions with patients and providers is critical. Additionally, governance is vital to balancing the competing choices for optimization.

✓ **Next-Generation Revenue Cycle and Risk Management Tools**

Clinical-Revenue Cycle integration is essential in today's complex regulatory environment. This involves linking clinical content to revenue cycle content and rules (e.g., charge description codes linked to orders, formulary and supplies, review queues, edits, prompts to capture proper acuity documentation). Ideally, cost and revenue/charge activity is captured as a byproduct of clinical documentation. The reality is much more challenging. Such integration can enable compliance while optimizing current revenue capture and preparing the organization for increased value-based reimbursement (e.g., quality, outcomes, satisfaction, access to care, cost of care, MIPPA, Hierarchical Condition Codes, acuity adjustment).

✓ **Agile and Secure Infrastructure**

The goal should be a scalable infrastructure foundation that enables, rather than becomes an obstacle to, strategic opportunities. Cloud and hybrid cloud technologies (e.g., onsite and offsite options) supported by virtualization can provide greater flexibility and agility. Virtualization and "software-defined" traditional "hardware" (e.g., computing, networks, storage, security) are allowing organizations to deliver more tailored solutions for particular challenges (e.g., remote locations, temporary locations, isolating aged but required equipment).

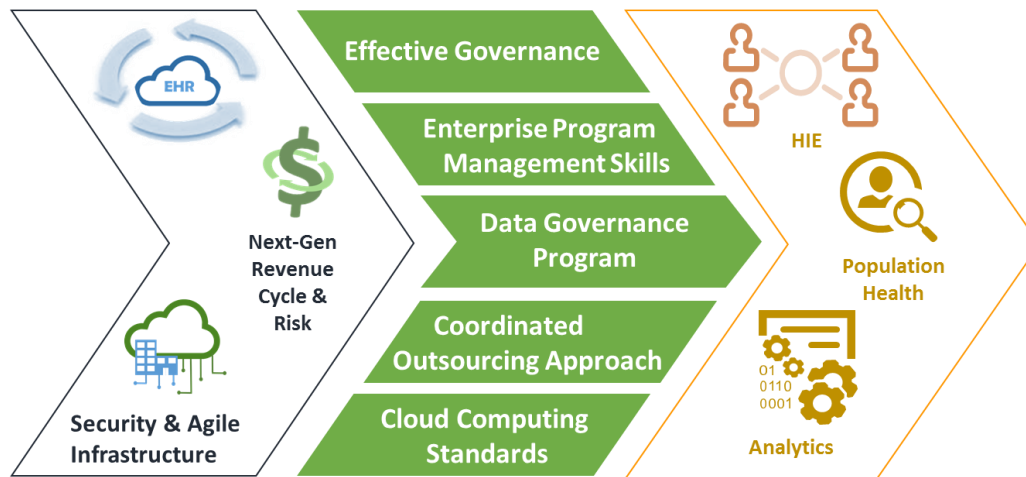
Equally important is developing a culture of security and privacy (akin to the culture of patient safety). Advanced organizations are investing in:

- Awareness (e.g., communication campaigns with patients, staff, contractors).
- Education (e.g., annual mandatory education, rapid education around near miss or actual breaches).
- Advanced security architectures (e.g., advanced persistent firewalls, layered intrusion detection systems).
- Security operations centers (e.g., 24x7x365 internal security team or purchased service monitoring for intrusions, conducting audits, continuous risk mitigation).

Unfortunately, there is no one size fits all solution in this area. The value (e.g., cost, risk mitigation, productivity) is critical to evaluate.

What needs to be in place in order for an organization to “make the leap” to Wave 2?

Enablers of a Transition from Wave 1 to Wave 2



In order for organizations to make smooth transitions to the next “wave,” a number of organization structures and capabilities are often beneficial. From an organization perspective, **effective Operations and Program Governance** is a must. Mature governance structures seamlessly combine strategic and operations oversight for business, clinical, and technology functions. These structures clearly define who has decision rights over what areas, how stakeholders’ voices are heard, and how leaders are held accountable for performance. In more a more digitally-driven world, pushing decision rights down is a must in order to remain responsive. The digital shift also means maturing from “IT Governance” to Governance bodies where IT is a partner at the table (i.e., operations drives projects using IT services).

An **Enterprise Program Management capability** can help coordinate overlapping and integrated change and transformation programs (e.g., resources, dependent deliverables, monitor costs and outcomes). This may be formalized in an Enterprise Program Management Office (EPMO) or it may be less formal. EPMOs can help consistently share information with Operations and Program Governance.

The technologies in “Wave 1” provide significant amounts of data, and if the data is not high quality, progress in subsequent waves can be slowed. Therefore, a **strong data governance** foundation can speed the realization of value from these and subsequent investments. This includes instilling a data-driven culture and enabling various data quality capabilities.

Some organizations also benefit from a **coordinated approach to services and outsourcing** procurement and management. Focusing scarce internal human resources on value-added tasks while leveraging the scale that can be provided by other service providers is a strategy that has seen limited uptake in healthcare. As services and outsourcing providers shift to adjust to the digital “as a service” economy, healthcare organizations should consider revisiting this opportunity.

Similarly, Information Technology Departments can also take advantage of “the Cloud.” The cloud is often, but not always, a cost-effective option. Security is a consideration. Establishing and maintaining **Cloud Computing Standards** is key to consistent performance in this area, and it can increase the speed of value realization (e.g., security, integration, data access, performance monitoring).

Wave 2: Build the System of Care and Wellness



The following are the common strategic technology components:

- ✓ **Health Information Exchange (HIE)**
HIEs can be a foundation for care collaboration, not just a “checkbox” for government mandates. However, HIEs can only go so far until data interoperability standards further evolve. Until “semantic interoperability” standards develop (e.g., the meaning of the information exchanged can be readily utilized by the technology), there will be limited value to the clinician. Organizations will need to define their own standards for their Clinically Integrated Networks in order to gain value. In the interim, evaluating the capabilities of the HIE (e.g., care coordination messaging, results alerting, admission notices, community encounter history, broader provider communication, community registries) to leverage them can help streamline the applications portfolio and simplify the environment for our clinicians.
- ✓ **Population Health**
The current landscape for Population Health technologies is confusing. Many vendors consider themselves to be “population health” vendors. Investments in care management and coordination as well as registries and risk management are often required. Many tools only focus on one population segment (e.g., worried well, chronic but managed, catastrophic). Like HIEs, these tools are hampered by a lack of standards that creates challenging functional overlaps with other applications used by clinicians, especially those working in more than one delivery network.

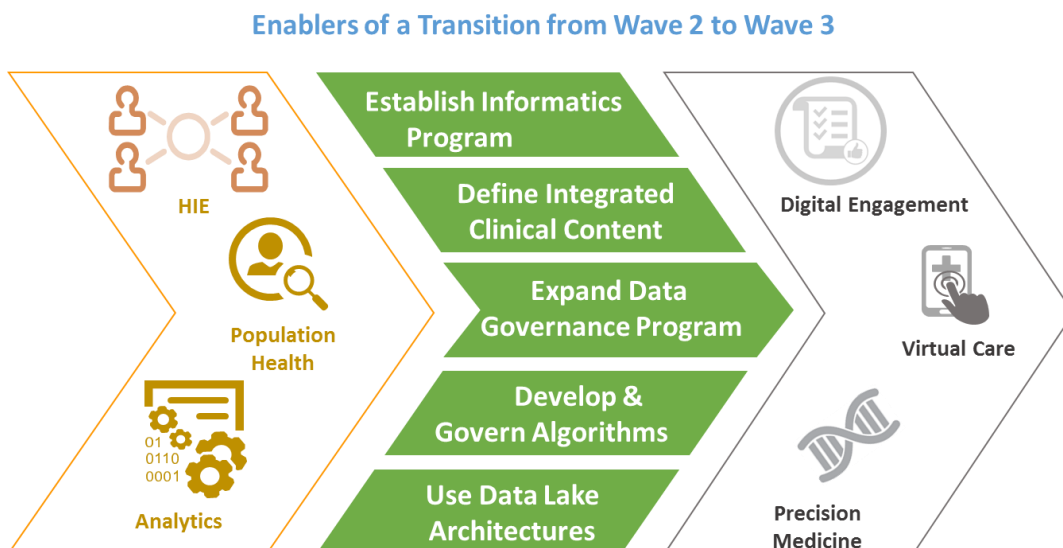
Investments in these technologies can help healthcare organizations make the most of every contact with the patient by driving action (e.g., address potential care gaps, recommend cost-effective options). Further, these investments can enable preventative care and health status monitoring activities often left for “primary care” to be the role of the entire care team (e.g., specialists, post-acute care, pharmacists, social workers, nurses, dieticians). Some tools are advancing their view of risk identification and stratification to include socio-economic determinants of health, prospective versus retrospective views of risk, and relative levels of patient engagement and activation. This can take one’s program to a very different level of intervention.

✓ **Analytics**

For many organizations, analytics haven’t focused on driving “action” and decisions for several reasons such as poor data quality, lack of experienced analysts, and lack of cultural acceptance within the organization. For advanced organizations, analytics are used at multiple levels to track and manage performance while also driving business growth and clinical process improvements. Analytics are key to helping organizations make informed decisions.

Throughout this second Wave, **it is critical to avoid “sins of the past” through overuse of numerous point solutions (i.e., best of breed or niche systems).** Such an approach will likely inhibit agility, data management, and information security. There are times when point solutions are warranted; however, organizations should also carefully consider flexible technology platforms.

What needs to be in place in order for an organization to “make the leap” to Wave 3?

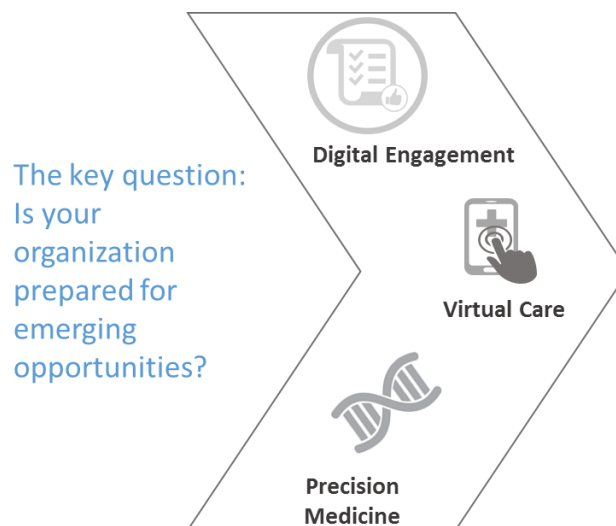


Organizations will undoubtedly need to **expand their data governance programs** to include other partners who are part of the care team (e.g., long term care, retail healthcare, behavioral health, affiliated providers). Internally, they will also often need to increase their data governance maturity to move beyond the basics (e.g., master data management, reference data management) as they focus on driving

positive change in key clinical and financial metrics. As algorithms come more and more to the forefront of innovation, advanced organizations will encounter the need to **govern algorithms and the supporting data**. From a technology standpoint, organizations will likely need to use **data lake concepts** to support their analytics plans. A data lake is a means of storing raw data (i.e., in its native or relatively native format) until it is to be included in a data mart, model, application, etc. Some organizations will take this one step further and link some key data elements to one or more pieces of master data (e.g., patient identifier, physician identifier, location).

Organizations realizing value from their analytics and data governance initiatives will undoubtedly be able to speed the spread of innovation from bench to bedside and back from bedside to bench. If **informatics organizations** were not implemented during or after EHR-implementation, it is yet another option to help realize value from the underlying tools and data while spreading innovations. Further, these organizations can help define integrated **end-to-end clinical content** (e.g., orders, plan of care, documentation, proper acuity capture, charges, patient education).

Wave 3: Engage and Activate the Consumer



The following are the common strategic technology components:

✓ **Digital Consumer and Patient Engagement**

Organizations will need coherent and aligned programs that go beyond the basic capabilities offered by the EHR vendor and government mandates. Portals, mobile health (mHealth) tools, wearables and other sensors that are integrated parts of the technology ecosystem will be required. These tools have opportunities to expand our understanding of patients, their behaviors, and their support systems. This information can enable new pathways in shared decision making for treatments and interventions. There is also the opportunity to obtain additional socioeconomic information that can be used to help manage risks and maintain 'positive health momentum' for some patients. Unfortunately, the current state of many engagement tools drives fragmentation of the customer's experience (e.g., multiple portals, multiple IDs, disparate information, disparate data definitions).

Technology alone will not be enough to draw consumers and patients into the organization. Ideally, behavioral economic incentives will exist and as they are further studied, more flexible incentive programs can be designed that address value from the patient and enrollees' perspectives. Assuming a strong foundation of Information Security and Privacy to build trust, the care team will need to reinforce the criticality of this engagement and activation. Administration will need to ensure the capabilities exposed to patients and their caregivers are streamlined and simple. Automating and exposing a complex process is likely to bring frustration. If we are able to capture information from engaged patients, we will be able to better identify those factors most influencing patient "impactability" (e.g., who can we move from the "sidelines" to controlling their own risk factors, who is likely to change based on using what intervention) and the sustainability of the lifestyle and health changes.

✓ **Virtual Care**

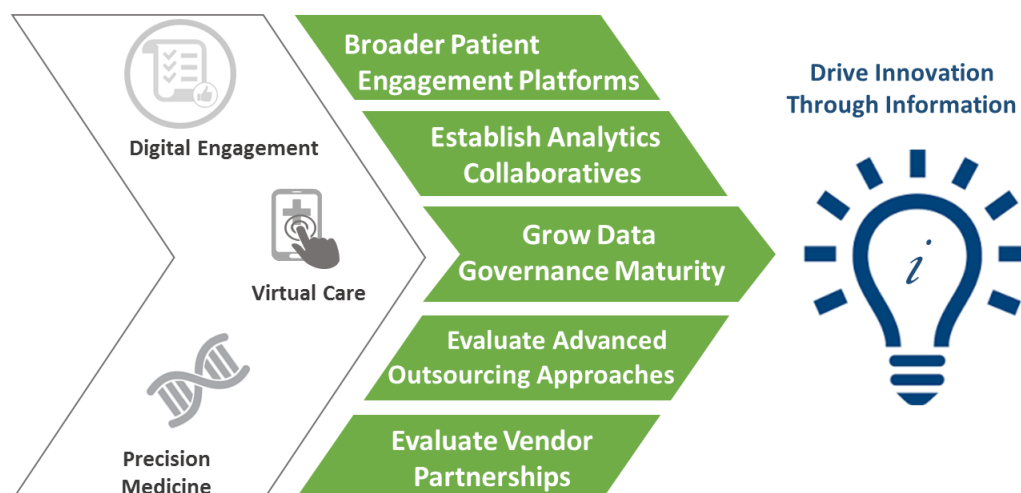
This term encompasses diagnostic quality telemedicine as well as remote monitoring and non-diagnostic support (e.g., support group interaction, observing medication administration, curbside clinician to clinician consults). In the past, Telemedicine has primarily taken the form of point solutions that served outlying or underserved areas. Virtual care tools need to expand to allow delivery of care (and monitoring) when and where required while making best use of an organization's assets. It can be a means of capturing "retail" opportunities, building a broader network of care, and spreading the organization's brand. Patients increasingly accept these technologies, and CMS is increasing areas where the care is reimbursed. However, there are regulatory, workflow/roles, and support considerations that must be addressed.

✓ **Precision Medicine**

Precision Medicine (genomics) is rapidly evolving. The medical technology holds the promise to aid in personalizing treatments to the individual (e.g., most effective medication, reflecting likelihood of outcome of various treatments). Shared decision making tools can significantly benefit from this information. If privacy issues are addressed in an acceptable manner, much of its success will hinge on addressing cost versus value while the reimbursement system is shifting. Information in the EHR, Population Health, Digital Engagement and Virtual Care tools could be used to show where precision interventions show value (i.e., balance cost with outcome and quality of life).

What might be required in order for an organization to “make the leap” beyond Wave 3?

Potential Enablers of a Transition Beyond Wave 3



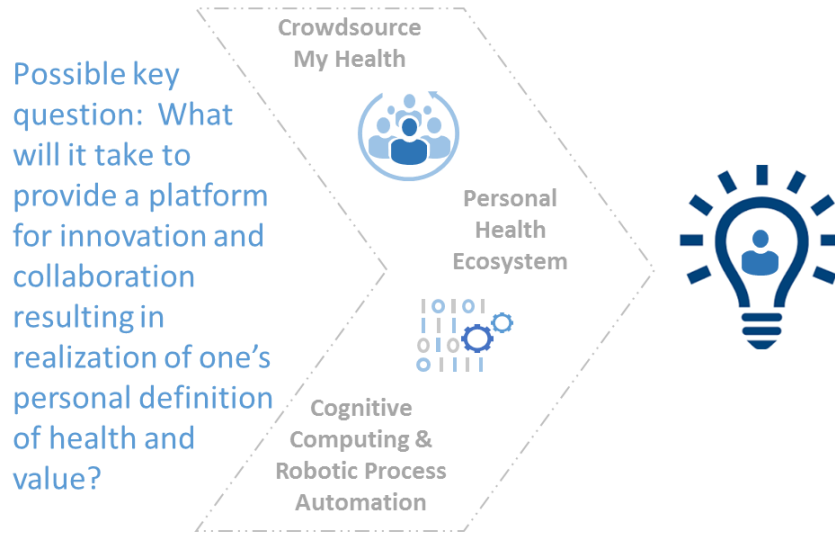
These previously noted initiatives could have a combinatorial effect that can greatly boost an organization’s effectiveness as well as disrupt the initiative. There are few examples of organizations undertaking more than one or two of the recommended initiatives **at scale**.

Critical to making the leap is continuing to make the most of an organization’s information assets. Once again, this will mean continuing to **grow in data governance maturity**. Designing content in the organization’s core systems that works together to drive outcomes is required (e.g., highest reasonable quality, lowest reasonable cost, satisfied and engaged patients and clinicians). This can drive action. Organizations will need to coordinate their analytics resources and spread best practices through **virtual or physical analytics collaboratives** (e.g., Analytics Competency Center, Analytics Centers of Excellence).

As organizations continue to innovate, focusing their limited internal human resources on the most value-added tasks will be required. Organizations may benefit from more **advanced sourcing relationships** (e.g., encompassing gainsharing, innovation agreements) **and vendor partnerships** (e.g., Allina with Health Catalyst, IBM with many Watson collaborators). This can provide access to new streams of talent while also bringing scale to the organization.

Organizations will also benefit from experimenting with and **defining broader patient engagement platforms than simply EHRs**. These platforms will likely be untethered from the EHR in order to allow more information and technical architecture flexibility and control. For patients and consumers who prefer digital interactions, these platforms will become the ecosystem where interaction occurs, regardless of the underlying application initiating the push or pull of information.

THE ULTIMATE STRATEGIC GOAL – DRIVE INNOVATION THROUGH INFORMATION



The preceding “waves” are intended to prepare the organization to **drive innovation through information**. These are the types of innovations organizations will come to expect from their Chief Information Officers. Possible characteristics, needs, and requirements of this “fourth wave” futuristic wave include:

✓ **Personal Health Ecosystem**

Patients are increasingly likely to grow in their comfort of directing their own care while expecting or demanding an integrated experience between their providers. The untethered engagement platform can likely evolve into a broader ecosystem or a personal health “operating system.” As digital tools in other industries are driving simplification or obfuscating the complexity of the underlying processes, these ecosystems offer the promise of simplifying one’s journey of lifelong health and wellness.

✓ **Crowdsourcing My Health**

There is the opportunity to extend the Personal Health Ecosystem to include capabilities to offer “second opinions,” reviews, and patient-initiated collaborations. Crowdsourcing is emerging as a tool for patients to evaluate treatment options. Natural integration points to initiate crowdsourcing include one’s social media applications and interaction and shared decision making tools.

✓ **Perceptive and Prescriptive Analytics**

Application-centric robots (or “bots”) are beginning to transform much of the repetitive tasks and low-level knowledge work in other industries. Analytics-enabled applications are being positioned to aid, extend, and even replace a number of tasks for knowledge workers (such as detecting relationships and pre-emergent trends). Such technology has the potential to provide immense scalability for today’s time-strapped primary care physicians and their care teams.

FINAL THOUGHTS

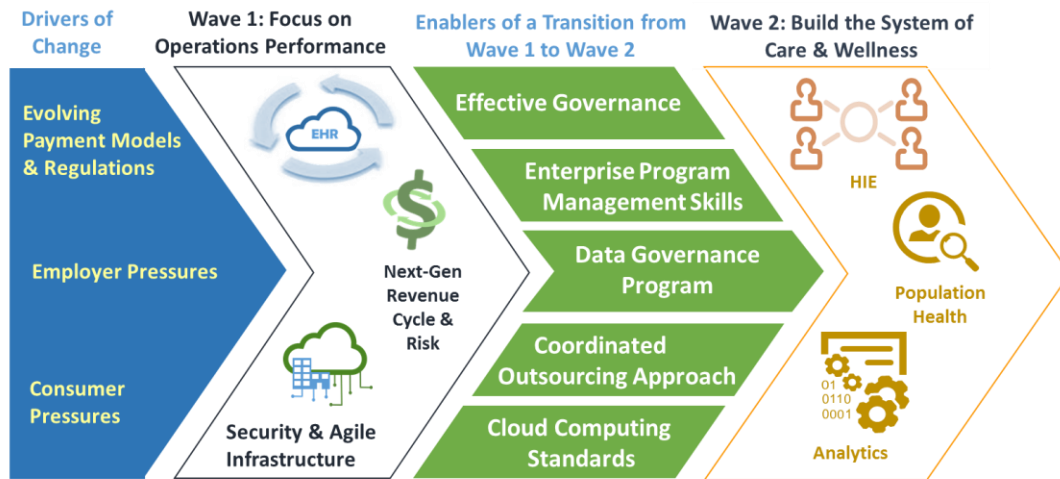


In order to bend the cost curve, drive strategic value, and remain relevant, IT Leaders need to ensure they are responding to these drivers by working with their peers to define the response to these strategies. Throughout the waves, two themes are present.

1. The first is **maturing data governance to drive realization of strategic goals** (e.g., driving lowest reasonable cost, best reasonable outcome). Expanding data governance beyond the basics of patient, provider, and location master data is critical. Organizations have the opportunity to orchestrate how they build and enhance content in many of their applications to speed the realization of value from the data (e.g., how and where is this orderable used, how might it be part of a plan of care to drive an optimal outcome, what socioeconomic determinant of health information is available and trusted, how may this clinical documentation impact my reimbursement). Viewing content in clinical, financial, and patient engagement silos will make realizing value from the waves increasingly challenging.
2. The second is **Information Security and Privacy are critical**. It can provide a **foundation for trust** with a delivery system or it can be an insurmountable barrier to patient and provider engagement. Information Security and Privacy are as much or more about human change and behavior than they are about technology. The best technologies and architectures can often be subverted without sound responses from our customers (e.g., employees, affiliated providers, patients). Taking this message to our affiliates and patients is a logical next step that must occur as their role in the delivery of care and service grows.

As you prepare to review progress in the current year, plan subsequent years, and submit budgets for the following fiscal year, the information in this position paper can help you organize your thinking and develop your own strategic and tactical portfolios. Market dynamics influence the general drivers noted (e.g., payment models, employer pressures, consumerism). Those drivers are specific to your situation so be sure to review them.

Next, consider the following:



Drivers

- How are these drivers impacting my organization?
- What are the local drivers of change?

Waves and Transitions Between Waves

- Do I understand my stakeholders' priorities and needs for each capability? Are they aligned?
- Do I understand where my organization's maturity with each capability (e.g., EHR, Data Governance, HIE)?
- Are there dependencies and long lead-time changes that I need to address within and between capabilities?
- Do I have the resources and commitment to make the necessary changes (e.g., IT resources, Operations and Clinical Resources, funding)?

The answers to these questions will help you prepare for the collaboration ahead and drive innovation through information.

ABOUT THE AUTHOR

Mr. Kujawski is an accomplished healthcare consultant and healthcare delivery system leader with strong operational experience. In addition to his consulting experience, he led the strategic planning, IT budgeting, research and development, and portfolio and program management functions of a large mid-western health system. He has also held interim leadership roles as a Chief Information Officer, Chief Technology Officer, and Applications Leader.

Mr. Kujawski has deep knowledge and experience at the intersection of healthcare operations and information technology including Value-Based Care, Analytics, Consumer-Patient Digital Engagement, Inpatient and Ambulatory Electronic Health Records (EHR), Access Management, Revenue Cycle, Health Information Exchange, IT Service Management and Program and Portfolio Management applications.