Welcome. Following are a series of articles designed to share business perspectives on the key issues that are transforming healthcare. We hope these pieces provoke your thinking and provide actionable insights during a time of unprecedented change.

Strategy and Leadership

- Optimizing the Insight Infrastructure: Key Learnings from Life Sciences Companies
  By Thomas Richardson, PhD, MBA, PA-C, KJT Group Inc.

- Integration...Where Do I Start?
  By Staff Writer, GE Healthcare

- The New Normal in Washington
  By John Schaeffler, Government Affairs & Policy Leader, GE

Financial Performance

- 2014 Economic Outlook
  By Marco Annunziata, Global Market Intelligence Leader, GE

Operational Optimization

- Big Data: Seeing the Forest Through the Trees
  By Helen Stewart, Managing Principal, GE Healthcare Partners

Clinical Imperatives

- The Role of Caregivers in Aging America
  By Kenneth J. Tomaszewski, PhD, MS, President, CEO, KJT Group Inc.
The Affordable Care Act and efforts related to reducing healthcare costs, improving quality and expanding access to care is rapidly changing the way healthcare is purchased and delivered. Providing the right care to the right patient in the right place at the right time has become the mantra among payers and providers of care. With the advent of Accountable Care Organizations (ACOs), bundled payment mechanisms, and expanding provider networks with risk sharing arrangements, the economics of healthcare and health outcomes have become the main issues confronting institutions and providers of care. Reform efforts not only effect health systems, payers, healthcare providers, and patients but also directly impact the pharmaceutical, biotechnology and medical device manufacturers and are an integral component of the healthcare ecosystem. These key stakeholders must also navigate the waters and demonstrate a strong value proposition under new reimbursement and delivery models. What is required to succeed in a competitive marketplace is business “insight” or a special type of information that can be leveraged to create a sustainable competitive advantage. Terms such as “voice of customer,” “customer centricity,” and taking an “outside-in approach” have become quite popular in the pursuit of gaining business insight. Market research, competitor intelligence, business analytics, health outcomes research, and economic analyses are all components of business insight. Life sciences companies spend significant time and resources studying the unmet needs of their customers in order to generate data and insights that inform what may be referred to as “evidence-based marketing.” To better understand the current state of using insights to drive marketing strategies within the life sciences industry during a period of unprecedented change within the U.S. healthcare delivery system, KJT Group conducted the 2013 INSIGHT Study among 127 respondents (executives, marketing and insight professionals) from 83 companies within the pharmaceutical, biotechnology, and medical device industries. In this benchmarking research we examined the current state of what we refer to as the “Insight Infrastructure” across four organizational domains: Insight Strategy, Insight Structure, Insight People, and Insight Process as defined in Table 1. Several key findings emerged from this survey within each of the Insight Infrastructure domains.

Table 1: Insight Infrastructure Domain Definitions

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<th>Insight Infrastructure</th>
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<tr>
<td>Insight Strategy</td>
<td>An organization’s explicit or implicit vision or goal for the role that insights serve in making business decisions.</td>
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<tr>
<td>Insight Structure</td>
<td>An organization’s reporting relationships and the degree of integration of the Market Research/Insights function with the rest of the organization.</td>
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<tr>
<td>Insight People</td>
<td>Market Researchers and Insight Professionals.</td>
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<tr>
<td>Insight Process</td>
<td>An organization’s overall means of conducting Market Research and how business insights relate to business decisions.</td>
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Looking at the presence and effectiveness of having an Insight Strategy, just 47% have and follow an Insight Strategy. Of those who have an Insight Strategy, 64% agree that strong leadership drives the Insight Strategy, but only 43% agree that a high level of employee buy-in and commitment exists.

Within the Insight Structure domain, the overall effectiveness of the Insight Structure is 6.9 (SD =1.8) out of a possible 10. While 92% report using more than one Market Research vendor to generate insights, only half agree that their current vendors provide superior value.

Focusing on Insight Professionals, they are frequently considered highly competent but often lack influence in business decisions and rate lowest in having advanced quantitative skills. Their overall mean effectiveness rating is 7.5 out of 10 (SD=1.5).

Examining the Insight Process, few believe they are very effective in generating and executing on insights with a mean rating of 7.2 (SD=1.6). A lack of synergy between Insight Professionals and senior leadership is also often reported.

The overall effectiveness ratings of one’s Insight Infrastructure were well distributed with an average rating of 7.1 (SD=1.6) and just 18% reporting it being very effective (a score of 9 or 10 out of 10). When asked to rate their Insight Infrastructure relative to their competitors, 39% rate theirs as somewhat or much better, 36% rate theirs as about the same, and 25% rate their Infrastructure as somewhat or much worse than their competitors. Finally, the effectiveness of one’s Insight Infrastructure is highly correlated to its perceived impact on the overall financial performance of the company and greater ROI on resources invested in the Insight Infrastructure.

Based on this industry benchmarking study among some of the largest and most innovative life sciences companies in the world, it is apparent that many lack a highly effective Insight Infrastructure which in turn is reported to directly impact overall financial performance.

As health systems continue to refine and develop new models of healthcare delivery, leverage the use of EMR and claims data to improve clinical outcomes and improve operational efficiencies, design and conduct community health assessments to inform population based health models, and develop strategic marketing campaigns that will help gain market share within a very competitive market, optimizing one’s Insight Infrastructure to generate and execute on business insights will be critical. Systems that invest in developing and maintaining a highly effective Insight Infrastructure that generates and uses data and insights to inform evidence-based strategic decisions will be well positioned to succeed in a new era of healthcare delivery.

4 steps for using insights to inform your strategies

Learnings from this research may serve to help inform healthcare executives of some of the current challenges within the four domains of the Insight Infrastructure: Strategy, Structure, People and Process. We suggest that healthcare executives consider the following four steps to guide their efforts in using insights to inform their strategies.

**Step 1**
Define your Insight Strategy and your vision for the role that insights will serve in making business decisions.

**Step 2**
Create a structure that facilitates a data driven organization. Define the optimal organizational structure for executing insight driven strategies with budgets and timelines.

**Step 3**
Identify key people in your organization best suited to generate and execute on insights. Develop a plan to recruit, hire, train and manage people who will perform these critical tasks.

**Step 4**
Develop and integrate processes that assure insights are an integral aspect of your new offerings and marketing strategies. Develop metrics to track inputs, outputs and outcomes.

Thomas Richardson, PhD, MBA, PA-C, KJT Group Inc.

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In C-suites and board rooms across the country, hospital leaders are struggling to figure out where their institutions fit in a marketplace that is expected to experience massive consolidation in the coming years.

“We are moving pretty rapidly toward a situation where 100 to 200 large, integrated regional health systems that are hospital dominated, but often have health plan functions, will be the dominant mode of care,” says Ian Morrison, a health care author, consultant and futurist. “That doesn’t mean there’s not going to be any independent institutions, but those large systems are going to account for the vast majority of the revenue flowing through the American health care system.”

The trend already is evident in many areas across the country, Morrison notes. Northern California is basically dominated by three systems – Dignity Health, Sutter Health and Kaiser Permanente – plus a few academic medical centers. Last year’s merger of Dallas-based Baylor Health Care System and Scott & White Healthcare created the largest non-profit health system in Texas.

The factors driving consolidation aren’t going away anytime soon. They include the shift from volume-based to value-based payment and population health, the need for access to capital, and payment pressure from public and private payers. These issues are framing discussions nationwide.

“The conversation nationally among the big guys is: ‘How big do we need to be?’” Morrison says. “Among the little, independent guys, it’s: ‘Can we ever make it as an unaffiliated community-based provider?’” Morrison says.

As the market continues to move toward population health with its requisite continuum of care, and often with health plan functions, community hospitals may not want to remain independent. “That is a very different business,” Morrison says. “If you are a 100-200 bed community hospital, you’re looking at this future and thinking, I didn’t sign up for this. Maybe I need to be part of something bigger.”

At the same time, the national systems continue to grow in a strategic fashion. “They are being opportunistic and acquiring hospitals to either fill market gaps or grab good payer mix markets that they can jump into,” says Rob Reilly, chief marketing officer at GE Healthcare. “The nationals have that advantage. They pick the markets they want to be in.”

Another trend Reilly sees is the emergence of “super regional” systems. Their size drives efficiencies, and when these systems cross state lines, also provides the benefit of diversification. “Because of the Affordable Care Act, health care has now become 50 markets based upon Medicaid expansion, reimbursement rates, and the health insurance exchange scenarios,” Reilly says. These state Medicaid/exchange markets are shaking out in a handful of models. “Being stuck in one of those models could be tricky,” he says. “Hospital boards are asking whether there should be more multistate growth just for diversification purposes.”

A big question mark is how independent community hospitals and small and mid-sized systems will fare. Community hospitals and integrated delivery networks with three to
five hospitals won’t be big enough to be the consolidators, Reilly says. The mid-sized, $2 billion to $3 billion systems are on the cusp. “The path toward large and integrated is almost a certainty,” he says. “So the question is: Are you the aggregators or should you be looking to be aggregated?”

The first step hospital leaders should take to determine the best path forward is to conduct an “agnostic analysis” of their place in their market, says Simon Gisby, managing director, Deloitte Corporate Finance LLC. This process should include assessing the current and future health care needs of their community, their institution’s complement of services, their payer mix, and, ultimately, whether they have a business model that allows them to compete. “Hopefully, they’ll recognize their strengths and weaknesses and use that to determine what they should pursue,” he says.

Scenario planning is essential, Reilly says. “There are many scenarios and many paths that you should be contemplating now and thinking through the implications of what flows from each of those paths,” he says. “It’s like a decision tree.” In some cases the foundational work that must be done applies to all of the scenarios, but in other cases it varies from one path to the next.

For community hospital leaders, the process of deciding whether their institutions can or should continue as an independent is fraught with tension. “These hospitals are controlled by boards that are fiercely independent and proud of their geography,” Morrison says. “They don’t want to sell out to big guys from another state. They like controlling their own destiny.”

But, Morrison adds, “the real issue is who is looking at your service territory and licking their chops, saying, ‘I’m going to take their referrals.’”

Smart community hospitals are cutting costs and getting as lean as they can – learning to live on Medicare-level reimbursement, Morrison says. The hospitals that have strong clinical programs, good financials and are the dominant player in their markets still will make attractive targets for affiliation or acquisition and may well want to go that route. But they’re likely in a good position to successfully compete against someone coming into their territory and trying to steal their referrals, he says.

“However, if you’re a marginal player, your cost structure is too high and you have an aggressive competitor who is of better value, you could get left out and they get the business,” Morrison says.

Local support will be a factor in whether community hospitals that want to remain independent will succeed. “Having good connections to the community and to the purchasers locally is going to be critical,” Morrison says. The questions are whether local employers are going to insist on the hospital being part of their health benefit programs and whether they’re willing to pay for it.

Right now in any given market, hospital and health systems leaders are feeling out their peers, even their competitors, about the future. Often the decisive factor in forging a deal is whether the organizations have a good cultural fit, Morrison says. “Some of the successful ones have happened when the CEOs or board chairs knew each other, got together informally to discuss the future of the industry, found themselves agreeing on how they think about managing for the future, and started to explore whether it would make sense to affiliate and ally,” he says. “It very much depends on whether there is a level of trust between the actors.”

Agreement among hospital leaders doesn’t always translate into success, though. A bad cultural fit among clinicians, for example, can sink a deal or, worse yet, result in a nasty break-up later, Morrison says.
Hospital executives should identify the key stakeholders – including physicians and local businesses – early on, align their goals through education, and incorporate them in the decision-making process, Gisby says. “The industry is going through a seismic change,” he notes. The education process will help stakeholders who are not health care experts understand what is happening. Keeping the strategy focused on the community’s health needs helps to build support.

Antitrust issues are another topic hospital leaders should take into account early on. Already attorneys general in several states and the Federal Trade Commission are looking more closely at hospital transactions, Morrison says. “In some sense, competition is how we got into this mess,” he says. “We had these medical arms races going on between institutions trying to outgun each other by buying fancier and fancier equipment.” The important thing is that hospitals deliver care for their populations at prices that are competitive with similarly situated hospitals across the country, he adds.

In the face of drastic change, hospital leaders are doubling down. Already they’re managing complex institutions at a time when they’re expected to do more with less for more people as access increases through the Affordable Care Act, Gisby says. “Then we’re asking them to have a strategic view of the future and adapt to the needs of the future. Hospital leaders are doing a good job of balancing the two.”


Staff Writer, GE Healthcare

For more information on this topic, please contact Crystal Chuckel at Crystal.Chuckel@ge.com
The New Normal in Washington

By John Schaeffler, Government Affairs & Policy Leader, GE

There’s continued uncertainty about how exactly the Affordable Care Act (ACA) will impact the healthcare system near- and long-term. What is known within the industry; however, is that hospitals and healthcare networks will have to adapt to survive. The following is an overview of what has become the New Normal for healthcare and includes considerations for addressing some of the challenges facing providers today.

We’ll dive into each of these issues in articles to come.

**Reduced Operating Margins (Budgets are being squeezed)**

The bottom line, according to industry experts, is that healthcare spending is likely to slow down. According to Centers for Medicare and Medicaid Services (CMS), national healthcare spending grew by 3.9 percent from 2010 to 2012, the lowest rate of growth since 1960. While the industry may grow as demand soars, profit margins will likely shrink given several factors including higher cost of capital and intensified competition.

**Reimbursements and Our Aging Population**

Currently, Medicare and Medicaid account for approximately half of the billing and reimbursement in the system. With an estimated four million baby boomers retiring every year, according to Census Bureau statistics, there will be a major shift in the payer mix with a dramatic growth in the number of people covered by Medicare. Projections are that there will be fewer Americans fully employed than on Medicare and Medicaid by 2020.

**Chronic Disease**

Additionally, analysts predict that more than 170 million Americans will suffer from some kind of chronic disease by 2030. In the coming years, you can expect to see an exponential growth in the population in need of treatment for diabetes, cancer, and depression. With the expanding role of CMS and further cuts to reimbursements, the squeeze on hospitals will be greater than ever. Some experts predict a 20 percent belt-tightening for healthcare systems over the next three years alone.

As the number of people in need of ongoing care soars, the pool of healthcare providers is shrinking. “We could be looking at a market dominated by about 150 regional health systems in 2020, down from about 600 today,” predicts Rob Reilly, Chief Marketing Officer of GE Healthcare US-CAN region. Mergers and acquisitions create yet another challenge as growth magnifies flaws in the models of care. This makes reduction of waste and resistance to duplication of services all the more critical.
“We could be looking at a market dominated by about 150 regional health systems in 2020, down from about 600 today.”

One of the most contentious aspects of the New Normal is the shift in the reimbursement model, moving away from fee-for-service to one that is outcomes based. “There is a trend in the move away from quantity-of-care metrics to quality-of-care. Hospitals are changing, with some becoming cost centers, instead of profit centers,” notes Reilly.

Population Health
Additionally, there’s a need to move away from traditional “sick care” toward true “health care,” or population health, which focuses on proactive and preventive treatment alongside chronic disease prediction and management. Hospitals have to look at new models moving forward, such as moving away from vertical hospital structures that focus on departments such as emergency or radiology, to a more horizontal focus on disease states like cancer or heart disease. This diversification will help improve patient care and impact health outcomes while providing new opportunities for financial growth.

State by State Variability: Exchanges and More
Healthcare exchanges are another example of the New Normal and another opportunity to forge relationships to impact change. It is estimated that the new health insurance marketplaces, including states with and without exchanges, will provide coverage to 29 million Americans by 2019 and the ramifications of state policy on the exchanges is critical.

Under the ACA, all states are required to participate in national exchanges, or opt out, with the federal government running the exchanges in those states. The challenges across state lines differ depending on whether a state opts in or out.

Wisconsin, for example, has opted into the exchange program, while across the border Minnesota has opted out.

The Decisions to Expand Medicare in Each State Creates Stark Divides
For Ms. Gradine — a 41-year-old mother of three children under 20 earning $32,557 a year and receiving some child support — the Wisconsin-Minnesota divide is stark. If she lived in Minnesota, officials there say, she would be eligible for that state’s newly expanded coverage for the working poor, which would require her to pay a $21 premium each month. As a resident of Wisconsin, however, Ms. Gradine will need to buy private insurance, though experts say she may qualify for federal subsidies that will reduce her monthly premiums.¹


State-by-State Medicaid Expansion 2014²

Implementing Expansion in 2014 (27 States including DC)
Open Debate (3 States)
Not Moving Forward at this Time (21 States)


John Schaeffler, Government Affairs & Policy Leader, GE

John Schaeffler re-joined GE Healthcare in March of 2010 as the General Manager for Government Relations. John had served as Senior Manager of Government Relations from 2004 to 2009. In between his time at GE Healthcare, John was the Senior Vice President of Federal Affairs of DaVita – a dialysis provider. Prior to coming to GE Healthcare the first time, John spent nine years at the American Health Care Association (AHCA) ending his time there as Senior Vice President for Policy and Government Relations. John began his career as a legislative aide to two Members of Congress from Minnesota from 1987 through 1995. He is a graduate of American University’s School of Public Affairs with a degree in political science.
Financial Performance

2014 Economic Outlook
By Marco Annunziata, Global Market Intelligence Leader, GE

As the industry looks ahead to 2015, the debate over the rising cost of healthcare remains center stage. The aging population, rise in lifestyle-related diseases, healthcare reform, and the declining birthrate are each portrayed in the media as emblematic of a bleak future. Industry leaders understand the issues are multifaceted; but the combination of upward pressures on spending and binding budget constraints increase uncertainty, making it difficult to anticipate future shifts in demand and in business models.

At GE, we believe that two underlying issues will play a major role in affecting and ultimately reshaping the American healthcare industry: the domestic and global economic outlook and, more importantly, changes in technology.

The American economy’s state of health plays a key role in determining overall resources—including those directed to healthcare. There are two schools of thought regarding what we can expect in the coming year and beyond.

Prior to the “great recession,” the U.S. enjoyed a robust period of economic expansion, with GDP growth averaging between 3 and 3.5 percent. The recovery of the last four years has proceeded at a much slower pace, and some economists believe strong growth is a thing of the past, and that the current growth rate of about 2 percent is as good as it gets. If this is the case, the economic resources available for healthcare and other priorities will be limited. (Moreover, as the Federal Reserve has begun to reduce its “quantitative easing,” interest rates will eventually rise, resulting in an environment where funding becomes more difficult to obtain, and more costly—this is not around the corner, but has to be factored into our medium-term planning horizon.)

I have a more optimistic outlook on U.S. economic growth. There is a new wave of major technological advances sweeping through U.S. industry, such as advanced manufacturing innovations and the industrial internet (GE is at the leading edge of both). This powerful new wave of technological innovation is already here in the U.S., powered in part by a climate of competitiveness most notable in specific regions, including the Bay Area, Seattle, and the Tri-State Area. I strongly believe these emerging technologies have the power to raise productivity and accelerate job creation and income growth. Moreover, they will increase efficiency and generate important savings in a number of key sectors, including healthcare. They can therefore alleviate financial pressures on health care by both reducing costs and generating more resources.

Re-thinking approaches to planning

In the U.S., per capita spending on healthcare is much higher than in other developed nations. And yet we know that Americans die younger than residents of several countries that spend significantly less on healthcare, such as Canada, Germany and Spain. CBS News cited a report by the National Research Council and Institute of Medicine, revealing that “not only do Americans live shorter lives than people in other wealthy nations, but they suffer more violent deaths compared to their peer countries.” Even Americans with healthy behaviors and lifestyles appear to be in worse health than their peers abroad. If this is the case, then the healthcare industry has a lot more to do to capture all elements of the equation—an equation that is fundamental to planning.

According to the report, injuries and homicides, infant mortality, drug-related deaths, obesity and diabetes, heart disease, and chronic lung disease are among the categories in which the U.S. fares worse compared with its peers. It is no coincidence that many of these categories occur disproportionately among younger Americans, contributing to skewed healthcare-related costs.

America’s aging population is often cited as a source of rising healthcare costs, putting pressure on the economic recovery, while the focus on cost inflation and healthcare issues facing younger Americans receive less attention. In the media, the graying of America is sometimes represented as a pending disaster. Yet, recent research sponsored by the Society of Actuaries argues that the aging population is
not an overshadowing driver of healthcare spending. As people age, they spend more on healthcare. However, population aging does not seem to be the main driver of higher healthcare costs.

The study, titled Healthcare Costs from Birth to Death, indicates that America’s aging population has consistently contributed an average increase of less than half a percent per year to healthcare cost growth for decades. In a press release announcing the study, author and actuary Dale Yamamoto indicates that age is just one of “many variables accelerating healthcare spending, including generational attitudes towards health, treatment pattern changes, changing technology, and the availability of new drugs.”

Years of data point to the fact that better healthcare outcomes can be achieved at lower cost for many Americans. For those in leadership, the question arises as to how planning should weigh expanding services for the aging population and the treatment of diseases and conditions such as cardiovascular disease, diabetes, cancer or chronic respiratory diseases, which are increasing regardless of patient age. While aging is a factor in lifetime healthcare costs, it is not the main driving factor in the rising cost of healthcare.

Population growth as economic driver

Population growth underlies every economic statistic mentioned to this point, both in the U.S. and abroad. Traditionally, population growth—including immigration—is a driver of overall economic growth because it replenishes an aging labor force and keeps innovation moving forward. Falling birth rates can signal challenges to future economic growth; a drop-off in taxpayers and a smaller labor pool resulting in a human capital shortage.

According to a Pew Research Center report titled Attitudes about Aging: A Global Perspective, many developed nations are graying at a faster pace than the U.S. The report indicates that, “In 2010, the global median age (29) was eight years lower than the U.S. median age (37%). By 2050, the difference in age is projected to narrow to only five years.” In addition, the U.S. population is “expected to increase by 89 million by mid-century even as the populations of Japan, China, South Korea, Germany, Russia, Italy and Spain are either at a standstill or decreasing.”

Driven by a higher birth rate combined with immigration, the current U.S. population growth remains higher than many other developed nations. In fact, the U.S. currently enjoys a comparatively higher birthrate than most of Europe and Japan. This will help in generating economic resources, giving the U.S. a better proportion of working-age people to retirees than in other countries. But the extent to which a younger population can contribute to productivity and economic growth, and the extent to which it weighs on the health care sector, depends on how healthy it is. Overall therefore, demographic trends are still in the U.S.’s favor; and yet the challenge to healthcare spending trends remains.

Technology: A reversed upside for healthcare

The upward pressures on healthcare spending mentioned above create a clear need for a change in business models; new technologies are now emerging that can enable this change. Therefore, healthcare will likely experience a significant shift in operational expenditures. Already we are seeing organizations moving toward pay-for-outcomes models. The focus will increasingly move towards rewarding the effectiveness of healthcare delivery, toward solutions that can produce better healthcare outcomes at lower costs. Within healthcare organizations across the nation, technology will consume a larger proportion of budgets while simultaneously helping reduce overall expenditures.

As in other sectors of the economy, technological change in healthcare is characterized by the convergence of the digital
world with the physical world of machines and equipment. This will allow us to harvest large amounts of data and process them with advanced cloud-based analytics; the resulting insights will enable managers to optimize the use of individual physical assets and entire systems, yielding savings and greater efficiency. It will also allow medical personnel to collaborate more effectively through cloud-based applications, resulting in faster and better care for the patients, reducing wait times and the need for repeat tests and procedures.

Planning in the industrial internet world: four pillars

Perspectives echoed throughout GE suggest that providers should focus on four key elements in their strategic planning:

**First**, having a broad and open-minded view of the underlying economic, demographic and epidemiologic trends, such as population growth and disease shifts; here it is key to take a holistic view of the societal shifts that can impact healthcare spending rather than focusing on individual trends such as population aging.

**Second**, prioritizing investment in new technology, recognizing that this is a short-term expense that can deliver major longer-term efficiencies and savings; this investment will need to go hand-in-hand with the appropriate shift in business model towards outcome-based rewards and incentives, with focus on efficiency and productivity.

**Third**, maintaining simplicity and flexibility in administration and management, recognizing that the faster pace of technological change makes it imperative to be able to adapt quickly to changing circumstances, with a comprehensive, entrepreneurial and innovative approach.

**Fourth**, remembering that no matter where they sit in the healthcare ecosystem, global trends will have a stronger and more direct impact on their activities as time goes by: In the era of cloud-based technologies that render physical borders less meaningful, providers are more exposed to intense global competition, but at the same time have access to broader market opportunities, including access to faster technological process.

When planning for 2015 and beyond, keep asking if your organization has captured all elements of the equation.

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Marco Annunziata, Global Market Intelligence Leader, GE

Marco Annunziata is the Chief Economist and executive director of global market insight at General Electric Co., responsible for global economic, financial and market analysis to support GE’s business strategy. The author of “The Economics of the Financial Crisis: Lessons and New Threats,” published in 2011 by Palgrave MacMillan, Annunziata is a two-times winner of the Rybczynski Prize for best paper in business economics, awarded by the Society of Business Economists in London, and has co-authored two papers on the economic implications of recent technological innovations in industry: “Industrial Internet: Pushing the Boundaries of Minds and Machines,” in 2012 and “The Industrial Internet @ Work” in 2013. He has been a guest lecturer at Harvard Business School and Stanford University.

Marco holds a PhD in Economics from Princeton University and a BA in Economics from the University of Bologna.
Big Data: Seeing the Forest Through the Trees

By Helen Stewart, Managing Principal, GE Healthcare Partners

Frequently the topic of keynote speeches at conventions, harvesting the benefits of big data is a collective area of discussion and debate among healthcare and technology visionaries. Most agree, data itself will not contribute to productivity unless it’s in a useful format that enables enterprise-wide decision support to ultimately improve productivity. It’s at this point where data becomes BIG data.

The healthcare industry has some work to do when it comes to improving productivity, which is why big data is such a game-changing opportunity for the industry. According to research done by McKinsey and Company, during a 10-year period from 1990-2010, the computer and semiconductor industry improved productivity by 7.6 percent and manufacturing by 2.5 percent whereas the healthcare industry decreased by nearly 1 percent in the same timeframe1. There’s much to gain by understanding the journey other industries have taken in using data to drive productivity.

First, simplify the complexity of big data

Until recently, the ability to tap into all of the information available in a hospital was beyond the industry’s collective technological capabilities. In this highly-fragmented industry, providers are grappling with how to tap into healthcare IT systems to meaningfully harvest their data now available to combat two critical issues: massive inefficiencies and rising costs. While there’s great potential for data to help improve patient outcomes in tandem with cost-reduction, the path to achieve progress remains undefined. The lack of system integration and complexity of the data across operational and clinical workflows is, arguably, why the challenge of harvesting big data is so immense for healthcare.

“Even in 2010, a clinic in the U.S. would have had one-billion terabytes of data. To put that into context, that’s the same as having two-trillion filing cabinets of information. So, we are already there. We are in the era of big data. The challenge is: how do you make sense of two-trillion filing cabinets of information.”

– Dr. David Dembo, General Manager for Healthcare Solutions, Healthcare IT, Australia & New Zealand2

By taking a step back and recognizing the investment (time, money and people) required to truly achieve transformational capabilities with data we can recognize where we are in the journey and outline the evolution that must occur to reach our goals.

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2. Source: Dr. David Dembo, General Manager for Healthcare Solutions, Healthcare IT, Australia & New Zealand
Take a data inventory

Healthcare faces a much larger challenge than other industries as it relates to achieving productivity gains. Every industry has faced the productivity curve, but the challenge is multiplied in healthcare as data digitization includes both operational and clinical information, and because of the interdependencies that exist across the system of care that exponentially increases the complexity of achieving efficiency. Given the various data inputs, it is appropriate that there would be tens and even hundreds of different processes that all must align to drive operational efficiency within a service line, not to mention an entire system.

To compare to manufacturing (an industry which, according to the same McKinsey study mentioned above, achieved a 2.5% productivity gain between 1990 and 2010), imagine a plant that manufactures hundreds of variations of their product using the same line and people with little or no advance warning of which part they must manufacture, and the potential for the identified pathway to change at any time based on the ‘response’ of the part. The variability of information would be worrisome at best.

Today, providers have too much data, but not enough information. There’s a roadblock, both mental and technological, that makes it extremely difficult for organizations to envision how big data can lead to enhanced decision support and its promised cost-reductions. The first step to overcome those roadblocks is to identify where you are on the productivity journey.

Every organization should be looking not only at how to first digitize their data but how then to ensure the digitized data will be able to be consolidated to connect meaningfully to the rest of their hospitals and entire networks’ systems. Many organizations have focused on building clinical data systems, but there is an equal need to digitize the operational data (ie. bed request and placement, patient transport, environmental services, laundry, food services, etc.), for an organization to truly unlock productivity. It all starts with having the data digitally. This will enable the analytics needed to get to the next steps. Once you get the information digital; however, don’t stop. Digitizing in the first step in seeing your investment through to realize what’s ultimately possible—clinically, operationally and financially.

Take, for example, the need to replace broken or old equipment. Customarily, budget requests drive the process rather than data-driven decisions. Few providers have the capacity to analyze utilization data—how equipment is used, and whether devices sit idle or are used at capacity.

“When organizations take a different approach to examine data, they often purchase fewer replacements than anticipated,” explains John McCarthy, general manager of GE Healthcare’s Asset Management Professional Services. “Ensuring that all equipment is at capacity is a task that few providers master, given that compiling the data is a formidable undertaking. It takes effort and expertise to go into databases, but the return is phenomenal. When you improve utilization rates, you can reduce operating expenses. In some cases, we’ve seen providers purchase 30 to 40 percent less equipment than they anticipated following a careful analysis of the data.”
Next, manage and analyze your data to enable decision support

My conversations with healthcare executives reflect the growing need for new approaches to making use of information to ultimately enable decision support. From an operational perspective, clinical needs still tend to drive decision-making. In healthcare, integrated data across departments, as well as clinical and operational workflows, will be critical to unlock the ability to prioritize work, activate decision support and enable technology to support the advancement of patient care with significantly less non-value added human interaction than is required today, thereby improving efficiency and productivity, while increasing the caretakers’ time with patients.

Significant advancements are being made every day in shifting to analytics that can drive productivity—from tools that can provide operational workflow across the patient stay, to predictive tools that can inform of pending bed shortages hours and even days in advance. However, until integration across all aspects of the patient’s journey—both clinical and operational—can interconnect for every patient in the system, we will fall short of what is truly possible to automate.

The journey is painful but imagine the day a patient calls their physician and is seen immediately, with all historical records available—via telemedicine—and is asked to go to the hospital. He/she then hops onto a website, which already knows he/she is coming, and is asked to select a bed (much like seats on a plane). He/she shows up in the room they will occupy and is greeted by a nurse who has the patient’s records on hand and who has already scheduled the required procedures and can give the patient an itinerary including a projected date and time of departure. This—and much more—is possible if we unlock the data that exists.

The challenge of moving from consolidating and analyzing data to technology that unites systems is critical in the journey from volume to value. At the end of the day, the technology that will give providers integration will be much more powerful than any other breakthrough development on the productivity journey.

Finally, unlock the value (moving from volume to value)

As healthcare reform drives organizations to shift from volume to value, healthcare systems are shifting their thinking about care settings. As we strive to deliver more care outside of the acute care facility it will be imperative to create flexibility in operations to flex resources, processes, and ultimately cost structures very efficiently. Longitudinal workflows—across care pathways regardless of the location of care (hospital, ambulatory, outpatient, physician office, lab, etc.)—will also be necessary. This will require integration of IT systems to allow connected, patient-centric clinical and operational workflow. Technology has not yet arrived at the point of delivering these decision support tools, but they are on the horizon. It is short sighted to shift care from the hospital to an ambulatory or home health approach, for example, without having a way to quickly re-purpose or remove the capacity that is left behind. This flexibility in operations is a major output of the productivity journey and what automation can provide. Big Data, and the ability to integrate that data meaningfully, is critical to developing flexibility for health systems. For example, we can use clinical and operational data sets to simulate and test new approaches to care in a virtual environment before implementing in the real world. Testing and iterating the complex care pathways will allow for designs that can minimize the number of steps needed to complete tasks, optimize staffing to improve outcomes and patient experience while reducing cost, set schedules that minimize variation and peaks and valleys in the flow of patients, and more. Designing the hospital and health systems service line strategy and operational approaches using big data will help overcome speed and flexibility issues that plague health systems today. The benefit of integrating data and moving toward predictive analytics offers too great a potential to be ignored.

As big data allows us to move from design and testing virtually, to true automation, healthcare executives will gain the ability to flex structure, change where care is delivered, increase or decrease acuity, and understand the cost and staffing implications at a detailed level before making a single change to the care delivery system. This capability will enable the transformation from volume to value.

According to a recent study titled The Big Data Cure (produced by MeriTalk and underwritten by EMC Corporation), “Federal agencies focused on healthcare research and care delivery are testing the waters today. One in three say their agency has successfully launched at least one Big Data initiative—35 percent use Big Data to improve patient care, 31 percent are reducing care costs, 28 percent are improving health outcomes, and 22 percent are increasing early detection.”

When we imagine breakthroughs in healthcare, we picture life-saving vaccines and disease prevention. However, with the potential to curb costs through massive efficiency gains while simultaneously delivering a higher standard of care, big data offers one of the biggest breakthroughs available in healthcare. Leadership and vision at the C-level of each organization is absolutely critical to driving big data beyond just digitization and focusing on how that digitized data connects the system and is used to redefine efficiency and flexibility. It will take more time and investment to truly realize the potential that healthcare can achieve.
“Blogger Paul Roemer asks, What if Amazon ran population health management? Amazon collects lots of data on shoppers’ purchasing behavior and makes recommendations for future purchases. Healthcare organizations collect lots of data on patients’ unhealthy behaviors—but they sit on it.

How much better would healthcare be, Roemer asks, if hospitals made recommendations based on the terabytes of data they’ve collected about their patients? How many hospital readmissions would be avoided? How many chronic patients would get better? How many accidental deaths would be prevented?”

– Brian Eastwood, senior editor, CIO Magazine

3 MeriTalk, a public-private partnership focused on improving the outcomes of government IT, released the results of its new report, “The Big Data Cure” on March 24, 2014. The study, underwritten by EMC Corporation, surveyed Federal executives focused on healthcare and healthcare research to examine the current state of Big Data in Federal healthcare. Download the full report here.

Helen Stewart, Managing Principal, GE Healthcare Partners

Helen Stewart is Managing Principal, GE Healthcare Partners. In this role she leads strategy, day-to-day processes, commercial operations and delivery regionally for the business.

Helen began her GE career in 1995, where she held various field service sales and operational roles which expanded her knowledge of healthcare and created multiple strategic relationships with clients.

In 1999 she became the Regional Manager for New York City and the surrounding boroughs where she led a region team in sales and strategic relationships for 11 key clients involving services, research, imaging solutions, and broad GE relationship management.

In 2002, Helen moved to a position helping key clients solve operational issues, and customizing GE’s approach to supporting those organizations to improve communications and ultimately client satisfaction.

In August 2007 she moved to a General Management position in which she was responsible for the Western 14 states delivery of quality services. She led the strategy and execution for delivery of imaging and biomedical service with focus on quality of care, compliance, alignment to healthcare needs, and development of people. She moved into her current role in January, 2012.

Helen graduated from Miami University with a B.S. in Manufacturing Engineering and a minor in Business Management.
The Role of Caregivers in Aging America

By Kenneth J. Tomaszewski, PhD, MS, President, CEO, KJT Group Inc.

The “Aging of America” is a demographic transition that we are all relatively familiar with. Its dramatic impact on the shape of our “population pyramid” cannot be understated; it is a shift never seen before throughout human history. Sound dramatic? Consider this fact: “People 65+ represented 12.4% of the population in the year 2000 but are expected to grow to be 19% of the population by 2030.” I would argue that it’s not all dramatic to consider what a fundamental shift this will bring in our way of thinking, about many aspects of lives, especially related to healthcare delivery.

To say that there is variation and a lack of true clarity as to unmet needs for these changes may be a huge understatement, and potential mistake for organizations tasked with meeting these needs. Described as a “tsunami” by some, experts concede that we are wholly unprepared to deal with the impending demand for geriatric and long-term care. From ambulatory clinical staff, inpatient as well as assisted living and skilled nursing facilities, the demand will far outpace supply within the next 10 to 15 years.

An often overlooked aspect of this is the role of caregivers in the decision-making process. For many of the older patients, there is a great reliance on spouses, adult children, or others in the unpaid provision of care. Estimates for the prevalence of informal (unpaid) caregiving (proportion of those 18 and older who provide care to one or more adults) show that between 20% and 30% of Americans are currently providing care, with wide variation by region and level of care provided. This is a large segment of the population, to say the least.

Over the past 15 years, I have worked with manufacturers and service providers in the healthcare markets, helping them to both generate and put into place insights about their constituents. I am often struck by how little attention is paid to the role of caregivers in decision-making processes. It is highly relevant and appropriate to understand the caregivers’ perspective on many aspects of patient care. Several ambulatory and inpatient therapy areas come to mind including oncology, nephrology, respiratory; just to name a few. As many older adults can simply not live independently at home, the role of the caregiver in facilitating transitions to either assisted living or long-term care facilities is crucially important.

In several of our own studies, we use caregivers as proxies for patients, with some patients unable to physically or mentally provide feedback about preferences, unmet needs, and desired outcomes. It is the caregiver, in fact, who is most important in these cases, as we distill patient preferences into their own, as the caregiver ultimately makes the decisions.

Thus, this special constituent class can be extremely important from a messaging and delivery perspective with regard to inpatient, ambulatory as well as home care services. But what do we know about them, how can we tap into what makes them
tick, and how can we, especially in the service provision side leverage their influence to optimize the delivery and net impact of the health care we provide?

While only a top-level view of this population, a picture is being revealed. Their role is clearly important in the care decision-making process, and they not only spend time, but also money to provide that care.

For many organizations, this may already be part of their existing strategy considerations. An additional part of these strategic implications, often overlooked, is that not all caregivers (or consumers) are the same. This “segment” that we call “caregivers” are not really a single “picture.”

Caregiving Population

Earlier this month (March 12, 2014), at the American Society of Aging Conference, two of my colleagues (Thomas Richardson, PhD and Jessica Spilman, MPH) shed light on this topic, with their presentation entitled Caregiving in the USA. Leveraging the results of a study with more than 5,000 completed interviews, there are some key statistics about the caregiving population that are especially important:

- More likely to be women
- Most often providing care to a parent
- They are the primary caregiver in about half of the cases
- Other children or grandchildren are also providing care in more than half of the cases
- Decision making: 31% say that they make the final decision about health insurance
- More than half spent as much as $1,000 in caring for the adult in past year
- 83% do not receive caregiving support services

They, like any other group, can be further segmented into homogenous and maximally different groups. Treating them all the same is not the optimal way to impart information, and drive behavior.

In developing appropriate offerings and messages to address the Aging of America, and to the degree that organizational budgets and strategies allow, caregivers, like all consumers, must be differentially defined and reached. Doing so will be the most cost-effective approach to “doing more with less” and put those organizations that do so in the best position to thrive in the future.

There is at least one additional trend and opportunity for organizations, especially, ACOs, IDNs, and others with vested interest in ensuring that there is efficient and optimized care planning and delivery that can transcend the caregiver market. There are substantial knowledge gap as to system navigation across caregivers.

While some caregivers may not seek this kind of information, most certainly do, and the awareness of where to receive information is sorely lacking. By extension, we might expect the actual information to be lacking as well. A previous public opinion poll (2013) we conducted in New York State asked caregivers which agencies they were aware of that provided support to caregivers. We prompted respondents with the name of actual NY State and National agencies, as well as “made-up” or fake agency names, as a means to determine any biases in response (false positives, if you will). What we found is that the awareness levels of the actual state agency (New York State Office of Aging) was at only 19% and the fictitious agency name (“NY Cares A Lot”) was at 9%. This suggests that helpful information may not be known by 80% or more of caregivers. It also suggests that there is a massive opportunity to fill these gaps.

In summary, we all know that an aging population will spell big changes. As such, we should be cognizant that caregivers will be a big part of these changes, especially in the delivery of health care. Determining unmet needs and tailoring information and services to this constituent group is a major opportunity in the near term.

1 http://www.aoa.gov/Aging_Statistics/
2 http://news.medill.northwestern.edu/chicago/news.aspx?id=163717
3 http://asaging.org/aia12
About GE Healthcare

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our “healthymagination” vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality and efficiency around the world.