

## Seven Steps to a More Efficient and Resilient IT Solution

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Efficient patient-centric care models require consolidating mountains of data. Acquisitions and regionalization further compound the challenge. How does an organization capitalize on what could easily become a liability?

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Fredrik Gustavsson, Sectra CTO, sums up the answer simply, “Don’t buy technology. Buy solutions for your clinical pathways.” In this article he develops the concept, addressing the three areas in which IT directly facilitates clinical workflow efficiency: data availability, user experience, and performance. He then provides insight into the four most pressing overarching systems issues: managing growth, uptime, the best-of-suite vs. best-of-breed dilemma, and data privacy and security.

Read on to learn Fredrik’s recommendations for a future-proof healthcare IT strategy for today’s environment of unprecedented data proliferation and integration

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## Three Ways IT Determines Clinical Workflow Efficiency

### Data Availability

Patient-centric care requires a consolidated patient overview. Explains Gustavsson, “That’s the first thing: make sure that you actually have all the data, because if you’re looking at a puzzle and you don’t have all the pieces, how do you actually solve it?” A patient-centric approach often requires cross-departmental collaboration when addressing today’s biggest clinical challenges. Within cancer care for example, having radiology and pathology PACS on the same platform greatly facilitates this collaboration; the growing use of tumor boards and MDTs (multidisciplinary team meetings), with their collaborative decision-making process, only underscores this need. In fact, your PACS/VNA should represent all image-generating departments. Continues Gustavsson, “It’s really about the ability to collect all the images. These could come from radiology, pathology, or cardiology, and could be movies...you need an enterprise-wide solution that allows you to collect, store, manage and access that data. And part of that solution includes image-enabling the EMR. These are the most important aspects of supporting workflow efficiency.”

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The PACS must be completely integrated with the EMR. Referring physicians should be able to log on to the EMR and be able to see complete image- and data-rich reports from radiologists, pathologists, and other specialists; logging on to a separate system to then search again for a particular patient is counterproductive. This is an example of how deploying the “best technology” without an understanding of the clinical pathway, and how the technology fits into the proper context, results in less efficiency instead of more. Explains Gustavsson, “Many users work in the EMR, because, in the grander scheme of things, the EMR drives the clinical pathway in the overarching process.”

Integration with the EMR also benefits the radiologist and pathologist (or other specialist) in two ways. Gustavsson explains that the first benefit is to give them “a more comprehensive picture of patients—problem lists, current medications, the latest medical records, clinical notes, and lab results—to incorporate into the diagnostic process and really create a better report.” The second benefit concerns adding value and increasing efficiency along the patient-care chain. With more actionable, data-rich reports, the referring physician can more easily make the right decisions. Concludes Gustavsson, “If reports are very to-the-point, very structured, it really increases their value, and results in fewer extra exams, fewer extra reads of those images.”

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## User Experience

Efficiency demands a polished user experience (UX) that delivers critical data but avoids information overload. Gustavsson states that, to accomplish this, a vendor must have a thorough understanding of the clinical pathways to help users “efficiently bring up data sets in a really high-performing manner, review them, and intelligently consume the appropriate data for that specific patient at that specific moment.” But what does this look like, and how do we get there?

Picture an intuitive user interface that predicts not only what data the user will look for, but also reflects how that particular user actually works. To produce this, your vendor must have studied each user group to identify their needs, wants, and pain points. And patient-centric care complicates the challenge: the care model revolves around a single patient, but involves widely different professional groups, ranging from the administrator fetching images for a physician to the experienced radiologist creating a diagnostic report. An effective solution will feature a single interface that optimally balances the needs and preferences of each group while considering patient privacy.

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## Performance

While data availability and usability certainly affect speed of use, the speed at which the system operates is paramount to efficiency. Technology plays a strong role in determining performance but is not the only factor. Understanding the clinical pathways reveals where, how, and why speed is important. For example, with the movement towards digitizing pathology, pathology components of the system must be at least as fast and responsive as a microscope to improve efficiency. Without comprehending this from the beginning, pathology features are likely treated as an afterthought and performance suffers accordingly. Says Gustavsson, “A lot of vendors, they never thought about pathology. For us, pathology is a first-class citizen in our infrastructure. We focus on clinical pathways and specifically on the heavy imaging pathways.”

Optimal system performance demands an impressive technical foundation; Sectra leverages the best current web-scale technologies to drive the speed of their applications. But speed without intelligence is just spinning your wheels. Says Gustavsson, “We’re a technology-heavy company, but...it’s in our DNA that we are primed to do what’s right to enable our customers to deliver outstanding healthcare rather than just build technology for technology’s sake.”

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## Four Critical Overarching Systems Issues

### Managing Growth

Whether looking at the increasing prevalence of mergers and acquisitions in the US or regionalization in Europe, healthcare providers around the world are now pursuing economies of scale with their attendant efficiency improvements.

Healthcare providers can be sure that their organizational structure today will not be the same tomorrow. So a strategy to accommodate and manage growth is essential, one that includes scalability as well as an open interface that adheres to current technical standards. Gustavsson sums up Sectra’s perspective: “As a vendor that supports our customers’ growth, we both allow them to scale our solutions and onboard acquisitions in a heterogeneous environment. Both are important.”

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### Scalability

To properly manage growth, the PACS or VNA must be flexible and scalable to accommodate near-term and future growth. Gustavsson notes that “from an IT perspective, you shouldn’t be forced to replace your servers or other investments just because you added another hospital,” but far preferable is to “scale continuously by adding computing resources to the system.” Go with a vendor who can scale up to the high volume of data storage, management, and transfer that the present and future environments demand. And uncomplicated scalability is another benefit of a best-of-suite solution. With a best-of-breed model, “each and every one of those products needs to remain available and scalable, whereas we have an integrated solution that will scale—just add resources and we’ll grow, linearly,” remarks Gustavsson.

Is a cloud-based solution always optimal? “It really depends on the capabilities and preferences of the customer,” Gustavsson answers. A cloud-based or SaaS model offers the benefits of “elasticity,” which can accommodate both an increasing and decreasing data volume at different periods. He points out that “it’s easier for a vendor with really large-scale operations such as Sectra to balance that increased workload and allow customers to buy only what they need.” But perhaps a customer has a very well-developed IT department and wishes to develop this aspect of

their business, or is more geared towards capital investment than operational expenditures. No matter the route chosen, Gustavsson believes that customers should choose a vendor that helps them improve healthcare workflows.

## **A Truly Cross-Enterprise Solution**

While the PACS of different departments within a healthcare organization should be integrated into the same platform, the EMR, and the VNA, this concept travels a step further to accommodate the growth and specialization seen in the industry today. In addition to being cross-organizational within a single healthcare system, a thoroughly robust and efficient solution must also be cross enterprise.

New acquisitions and partner organizations outside of the healthcare group may operate on IT systems provided by different vendors. Yet maximum clinical efficiency requires seamless data communication between the disparate systems.

Gustavsson simplifies Sectra's answer to this challenge: "Now, what we're supplying them with is a solution that allows them to bridge all of this, so when we deploy a solution for a healthcare system, we have to overcome these barriers to information sharing between different healthcare systems, to really remove them to ensure a smooth clinical pathway." In order to interface with other data systems, the PACS/VNA must be open—interoperable and compliant with all leading technology standards, including DICOM, HL7, IEG, and FHIR.

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## **Uptime**

Minimizing system downtime is vital to overall efficiency. Employing first-class technology and system design is necessary to guarantee continuity of operation, but is not by itself sufficient. Even the best technology faces unexpected challenges; the answer is to have a vendor with a proactive service team who will address any potential problems before they become real problems as well as disaster recovery plans in place.

Gustavsson describes Sectra's view on the interrelation of technology and support: "architectural design principles" that ensure that "a single point of failure won't take down the system" must be backed by "excellent customer service—proactive support." He continues, "We have a control room where we monitor all customer sites across the world. If something starts to look out of the ordinary, we act. We do something about it, proactively. We don't wait until the customer calls; we call the customer." The people supporting the solution, and how they support it, represent the cornerstone of intelligent PACS and VNA management. Ask to see a potential vendor's verifiable uptime history—with large customers—to ensure that their PACS or VNA will be stable enough for your organization.

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## **Best-of-Suite or Best-of-Breed? Both, Actually**

A debate within the industry currently rages, arguing the merits of best-of-suite against those of best-of-breed, a-la-carte solutions. Cost, uptime, and functionality considerations strongly weigh in favor of an integrated, but customizable, best-of-suite solution.

The open compatibility of a VNA theoretically allows it to interface with other systems, hence the nature of vendor neutrality. But the reality of attempting to integrate products from different vendors is, unfortunately, more complicated. Gustavsson reminds us that the ultimate goal is improved workflow efficiency: "It's having the right information throughout the whole process. Now that implies that you need to integrate many systems with each other to have access to that information at the different points in the care process." Each new integration requires establishing and maintaining integrations with various other components, significantly increasing the difficulty and cost. By contrast, a best-of-suite solution features fewer integration points, leading to greater system stability. And the additional purchasing power that comes with buying a more-complete system results in cost savings.

Responsibility for new integrations is an associated concern. Systems upgrades, new versions of third-party products, and new standards can all cause integrations to fail; when this happens and data availability is compromised, where does the responsibility lie? Will the various vendors each rise to the occasion and negotiate a solution in a sufficiently timely manner? The right best-of-suite solution vendor will take full responsibility for the integration of third-party products. And this is crucial, as every best-of-suite solution comes with the understanding that it may not satisfy every desire of an individual customer. Supplementing a best-of-suite core platform with best-of-breed components allows a healthcare organization to tailor their system as desired while still enjoying vital cost, availability, and uptime benefits.

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## **Patient Data Privacy and Security**

A patient-centric solution is best for both providers and patients, but this brings new challenges in maintaining both privacy and security for patient data. When systems were unique not only to each enterprise, but to individual departments, one person could not log on to a system that spanned an entire organization. But times have changed.

Patients are understandably concerned about who sees their private medical information. Understanding clinical pathways enables a flexible and customizable solution that provides all necessary information while incorporating privacy limitations. "The key here is making sure that our solutions allow customers to set up rules and restrictions that comply with legislation as well as patient privacy preferences," notes Gustavsson.

The health sector has seen the highest percentage of data hackings of any industry over the past three years. And in 2014 the top cause of these hacks was an organized criminal attack.\* "Gone are the days when merely incorporating a firewall would protect you," comments Gustavsson. He outlines how connectivity increases exposure:

You increase connectivity through cross-enterprise growth and open up your IT infrastructure to more use cases. You allow patients to log on to read their medical records, perhaps to review images; you allow physicians to read radiology or pathology reports from home.

Threats can also come from inside an organization, unfortunately, and previous network security methods provide limited protection. Explains Gustavsson, "The networks can't protect the system on their own—the systems need to architect security into themselves." Your vendor should therefore possess a thorough understanding of data security and the technical know-how to keep the wolves at bay.

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#### **Follow patient pathways. Abolish healthcare barriers.**

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