

A Novel Approach

Turning your imaging practice outside in

By Jon Mertz

This article, submitted by Jon Mertz, won second place in the Professional category of the 2006 RT Image Writer's Competition.

Schools around the country host Red Ribbon Week, which encourages kids to remain drug-free. During the week, the kids are encouraged to participate in creative activities to get them to think about the choices they make. One of the days is spent wearing their clothes inside out, signifying living healthy from the inside out. Simple activities drive the vital message.

Imagine a day at an imaging center where all radiologists, technologists, PACS administrators, etc. wear their clothes inside out to signify their focus on patients and referring physicians. Would this spark more creative thinking about how to change processes and technologies to better support their community? Would it drive home the point that customer focus comes from the outside in?

Diagnostic imaging practices have literally purchased tons of technology to support their important work; however, is the primary focus on the internal operations or the external interactions?

By focusing on external interactions, imaging centers can map technology and processes to ensure proper alignment with delivering quality care to their patients and building stronger relationships with physicians. The following two questions illustrate this approach:

- ▶ What is the best method to accept orders and deliver patient reports from the referring community?
- ▶ What are the underlying technology requirements to support delivering higher quality care to patients?

Answering each question from the outside in may change the way technology and processes are implemented.

The Outside-In Approach

Figure 1 illustrates the Outside-In Model for a radiology practice. Simply stated, it is balancing an intense focus on your customers with operational processes and supporting technology. The focus is on aligning processes with external requirements.

Without this approach, focus can be unproductive, misaligned or frustrating for customers and for internal imaging professionals. The outside-in approach delivers a seamless interactive referring community. The clients become an integral part of your operations, not an extension.

With this model, there is a framework for making decisions on how to work with the referring community and how to properly align operational processes. It provides a different way to analyze the requirements and make productive decisions.

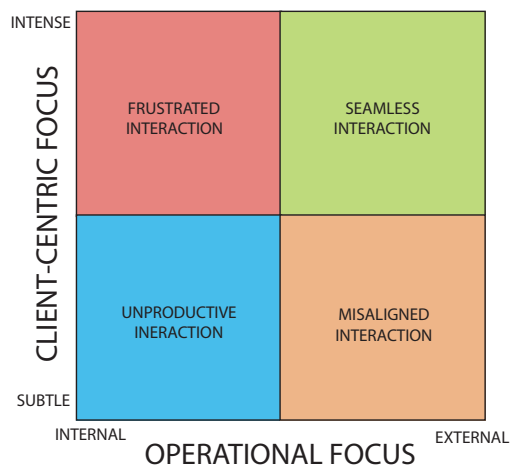


Figure 1: The Outside-In Model

Referring Community

Depending on whether your radiology practice is a freestanding imaging center or a department within a hospital, the referring community may differ slightly. Understanding your key constituencies is critical to grasping their requirements.

A key trend in the referring community is the adoption of electronic medical record (EMR) systems. Depending on the source, EMR adoption by physicians is now nearly 25 percent and growing. This trend cannot be ignored.

To adapt to this trend, imaging centers have three possible options to consider:

- 1.) Status quo: Accept paper orders and deliver paper patient reports
- 2.) Offer a Web portal for order submission and patient report posting
- 3.) Directly integrate with an EMR to accept orders and send patient reports

Status Quo

Keeping the paper flowing between the referring entity and your imaging operations works, but there is little focus on the outside's requirements. Paper orders and results translate into added cost, slower service and weakened quality.

The added cost is the result of re-keying patient data as it is received; the slower service is the result of depending on faxes or delivery services for the orders and results; and the weakened quality is the result of the possibility of human error when re-keying patient information.

And the true result: an internally focused radiology practice.

Web Portal Interaction

Some imaging centers are taking the Web portal approach to their referring community. The Web portal approach is a step in the right direction with clear advantages.

A Web portal gives a physician access to submit orders from any computer with Internet access.

Similarly, it is also able to receive the patient report from the imaging center. One technology solution that supports this approach is a combination of Web-based PACS to display images and a Health Level 7 (HL7)-enabled radiology information system (RIS), which can accept and send patient clinical data. Electronic exchanges are occurring, which consequently speed the process of receiving orders and delivering patient reports. However, this approach still requires manual effort within the process, especially with the referring community.

During the order submission, the referring community will need to take information from their system, EMR or practice management system, and re-enter it into the imaging center's portal. To accept the patient report, the referring community again will need to re-key the patient report into their systems.

Implementing a Web portal is an acceptable approach, especially with low-volume clients. And, evaluating the client requirements, volume and relationship will help determine if this is the right approach.

Direct EMR Interaction

The turn-your-imaging-center-outside-in approach is designed to provide the ability to accept patient demographic

data and orders electronically directly from a hospital information system (HIS), EMR or practice management system. After the orders are completed, radiology practices return the favor by electronically sending the patient's report to the designated HIS, EMR or practice management system.

The direct EMR interaction approach streamlines the process; information does not need to be re-keyed, thus reducing operational costs and the chance for errors. Similar to the Web portal approach, the technology supporting this approach is a combination of Web-based PACS to display images and an HL7-enabled RIS, which can accept and send patient clinical data. The key difference is that no data re-entry is required; the information is directly and electronically exchanged between systems.

Depending on individual requirements, the referring entities may need access to the stored images, which is where a Web-based PACS is utilized. Another option is to convert the image into a PDF file and send the file as part of the patient report (within an HL7 message). If the EMR can accept this type of message, then this is another viable option.

Furthermore, the enabling technology requirement is a healthcare integration engine that can flexibly adapt to the different HL7 versions and implementations. Although HL7 is a standard for exchanging clinical data, the standard is a flexible one.

Also, referring entities may use different versions of the HL7 standard. For instance, one entity could use version 2.3.1, while another could use version 2.4. The two standards can be used effectively, especially with an integration solution that can map and handle the inherent flexibility.

Just as the versions used can differ, the various applications in diverse locations may define a data-field one way, while another application defines it differently. For example, one application may accept a person's birthdate and another may require age. Again, the electronic exchange of differing data can occur with an integration solution that can map the differences and transform the data to the required format.

The good news is that the client-centric mindset can be implemented. Technology, such as Web-based PACS, integration engines and more, exists to enable the client-centric processes and electronic, streamlined communication. The direct EMR interaction aligns operational processes with an intense client focus to deliver a higher quality relationship.

Although any of the options outlined will work, the choice depends on the referring entity's requirements and the radiology practice's decision on how to best serve those needs. It is a balance of requirements, costs and opportunities.

Patient Care

Radiology practices should also focus outwardly on the patient. Patients expect timely, accurate service. In most cases today, the patient is also the delivery mechanism between two facilities.

It's a sample scenario: A patient's physician states that a radiological exam is needed, so the physician checks the appropriate boxes on the paper requisition and hands it to the patient. The patient goes to the imaging facility and hands the request to the front desk. While waiting for the exam, the patient completes a form with demographic and medical information.

After the exam is completed, the imaging center may produce a copy of the images for the patient to deliver back to the physician. The patient report also may be delivered through another method, such as a fax.

Turn this process outside in. Imagine: The patient's physician states that a radiological exam is needed, so the physician enters the order into an EMR system and electronically sends the patient information and order to a selected imaging center. The imaging center calls the patient to schedule a time for the exam. The patient arrives.

After the exam is completed, the patient report, radiologist interpretation and corresponding images (via PDF or Web-based PACS) are sent electronically to the referring physician's EMR. The physician reviews the patient's report in their EMR system and calls the patient for consultation.

The latter process delivers a better experience for the patient as well as increases the patient's confidence in the accuracy of the information being exchanged. Manual steps are removed from the process, and the overall experience exceeds the patient's expectations.

Today, that experience is possible. Illustrated below is a seamless, technology-enabled workflow. The primary technology enablers include a healthcare integration engine for HL7 clinical data exchanges, PACS and DICOM broker.

Together, the patient experience flows easily through the process. With the internal workflow aligned to the patient, another element can be added – the intense client focus. Figure 2 illustrates the complete interaction model that delivers the most ideal patient experience. Incidentally, by focusing on the patient, the referring physician experience also becomes

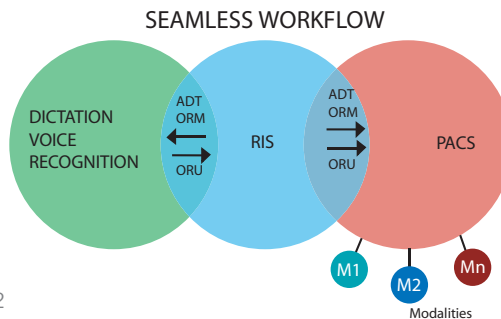


Figure 2

exceptional. And, both entities reap benefits.

Finally, the Outside-In Model works. Understand your client requirements; align key workflows to meet the client requirements; enable the workflow with the right mix of technology; and experience the benefits of the Outside-In Model. Patients will be more confident in the services received; physicians will appreciate the ease of the relationship; costs will decrease; and referrals will increase.

Putting It in Practice

Are you ready? If so, show up tomorrow with your shirt inside out. When people quietly tell you that you are not dressed properly, tell them you know and that you want to look at things differently ... with an intense focus on patients and the referring community. With the right attention and approach, the processes can be properly aligned to client requirements, and technology can be added to better enable the interactions.

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