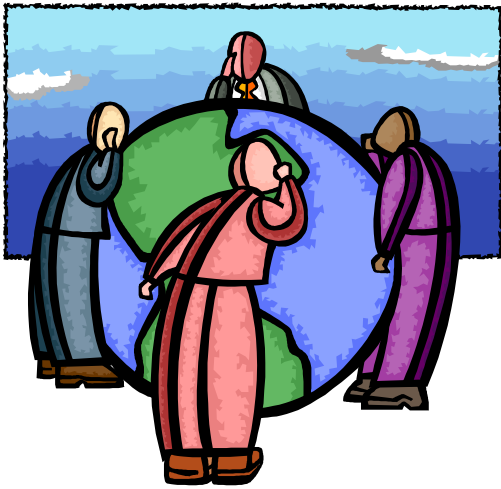


## Listening – One of the Hardest Parts of Healthcare Interoperability Requirements Gathering



For individuals that have had the opportunity to work on healthcare electronic interoperability projects, we know the answer to the question, "Is healthcare interoperability actually hard to do?" The answer is "Yes." Answering this question at the beginning is important, because the reasons interoperability is hard are simple to explain. The number one reason I believe that healthcare interoperability is hard comes down to one thing: people. If you placed achieving healthcare interoperability on a grid with one axis for personal sensitivity and the other axis for information complexity, you would need to place it in the far upper right corner. Take that idea and consider that virtually everyone has medical information about themselves, hence everyone has a personal investment in how healthcare works. Many of the people working on gathering requirements for healthcare interoperability, including myself, see it as a pursuit that has meaning far beyond paying the bills.

Unfortunately, when everyone is personally invested in something, it seems that the ability to listen diminishes. Given the complex information and activities that occur in healthcare, listening is the key to the success of these interoperability efforts. Yes, funding and standards are important, too, but if no one is listening at the ground level of these projects, don't expect success. Listening is fundamental to success in any field; here we are going to focus on one specific instance: listening to healthcare providers by "technologists" (analysts, architects, informaticists, terminologists, developers, integrators, etc.). Before doing that, it's important to understand one premise: this is about the transformation of **how** healthcare can be performed, not **what** is done in healthcare.

### Healthcare Interoperability def.

"the requirement for healthcare computer solutions to say things that are meaningful and retain their meaning when they are shared across systems and used by other systems or healthcare providers"

## Semantic Interoperability - It's Already Here Manually

### *Semantic Interoperability def.*

"It is the ability of computer systems to communicate information and have that information properly interpreted by the receiving system in the same sense as intended by the transmitting system. Proper interpretation" means that the transmitted information will be used appropriately by a receiving computer system because the logical implications derivable from transmitted information will be the same as those that the sending system would derive.

[From Wikipedia, Semantic interoperability](#)

**Healthcare interoperability is about semantic interoperability for medical data, not just structural interoperability (how a message or document is parsed by the receiving system).**

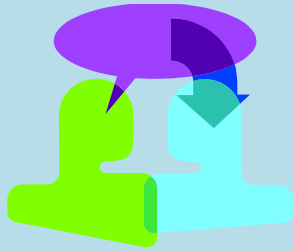
When we say **healthcare interoperability**, we mean the requirement for healthcare computer solutions to say things that are meaningful and retain their meaning when they are shared across systems and used by other systems or healthcare providers - that is semantic interoperability.



**Ontology** - *def.* 'a "specification of a conceptualization" in the context of knowledge and data sharing'

(Gruber). ' See [openclinical.org/ontologies](http://openclinical.org/ontologies)

[Definitions of Ontologies](#)



Healthcare involves a very robust **ontology** that involves a lot of science, but also quite a bit of subjectivity. Just think of all of the different parts of the human body, the vast variety of clinical tests one can perform on a person, various observations, the different diseases, injuries, and conditions, and the multitude of surgeries, medications, and other therapies that can be used to care for patients. Add to that the administrative information necessary to make healthcare record storage, billing, and payments work. Numerous individuals, organizations, and jurisdictions are contributing time and energy through standards development organizations such as HL7, ISO, IHTSDO, HIMSS, and IHE to encapsulate all of this vast healthcare information into structured formats that can be captured, exchanged, and displayed from one place to another and retain the same intended meaning among healthcare providers. In turn, healthcare interoperability projects attempt to merge the clinical and administrative processes people perform with computerized solutions that facilitate or enhance those processes by capturing, maintaining, analyzing and rendering healthcare information wherever it is needed.

In a sense, healthcare providers already perform semantic interoperability today. They achieve it by phone, fax, hardcopy, email, and in quite a few cases, via electronic exchange. Clearly healthcare providers do this today, or no one could ever get referred to a specialist or get an x-ray. Healthcare providers are always communicating. However, the semantic interoperability solutions commonly in use today are considered too time consuming, not fast enough, or prone to more errors than are acceptable. There are too many ways it has to be done to be able to work with the entire healthcare community. Why? Some trading partners can handle electronic, others only faxes, others need hardcopy couriered to them. The same information has to be recreated numerous times. One additional problem is that healthcare providers don't always know what they don't know. There may be important information missing about a patient that they need to make the best clinical decision. Traditional manual healthcare interoperability does not facilitate such discovery.



## Is There Really a Problem?



There are perceptions from within and outside the community developing healthcare interoperability solutions that it is taking too long to make significant progress and that many times the resulting products are not adopted by healthcare providers. I said at the beginning that listening to the users of the solutions is a real challenge. The diversity of perspectives around how to achieve healthcare interoperability "correctly" can be deafening if you are listening at the right level. There is a cliché that you have two ears and one mouth so that you can listen twice as much as you talk; I like to add in two eyes so that we look and listen four times as much as we talk. However, in the healthcare interoperability space, it often seems the talkers outnumber the listeners in proportions that hinder both the development of solutions but, most importantly, adoption of those solutions.

## Listening to Healthcare Providers

Healthcare is a complicated arena just by itself. Yes, the science and practice of medicine is hard, and the individuals that are healthcare providers handle very large amounts of information and make decisions that have qualitative and quantitative aspects to them. The practice of healthcare continues to evolve through discoveries in clinical trials and other research. Healthcare providers are problem solvers; when there is a gap between what they think they need to treat patients and what is made



available to them, you will frequently find that they will come up with alternatives to meet their needs. If I ask just one clinician if they order drugs one way or the other, the answer can often be "both" or "it depends." It seems that flexibility is a very desirable trait for individuals that provide healthcare because no two patients are exactly the same and every situation can bring up something unexpected. They make the best clinical decisions they can with the information available to them. On the other hand, that flexibility does not need to be all encompassing. Providers develop or adopt best practice patterns of care to address what they see under normal circumstances and do not want to take actions that unnecessarily jeopardize the well-being of their patients. Providers definitely appreciate tools that help support what they do to be faster and more efficient (you'll get differences of opinion around catching errors and the degree to which they appreciate it).

## Flexibility is Key



The key is to listen to healthcare providers and understand that they are looking for the same flexibility that they expect of themselves and other providers in the way that electronic healthcare interoperability solutions work. If some clinicians think ten pieces of information are necessary for a referral, and other clinicians think only five pieces of information are needed, aim for the flexibility to include all ten. If they are able to flip through pages in a hardcopy chart, figure out how to provide an equivalent effect in the system. If the system is going to provide warnings or alerts, make sure they can be easily configured and activated/deactivated as appropriate. Sure

there will be diminishing returns on some of the flexibility, and maybe you'll find you can't do it all at once, but these solutions are supposed to remove barriers, not create more. Listen carefully for which things the healthcare providers believe are deal breakers; if they believe it, then those really are deal breakers. For example, if you are going to buy your dream car and you know exactly what you want: a convertible hard-top with cherry red exterior and leather seats. If the closest car at the dealership is a blue soft-top convertible, are you going to buy it? The salesman will try to convince you that it's what you want or that it's good enough, but it's not, so you'll go somewhere else or wait. Similarly, if you do not listen to healthcare providers and put a solution in front of them they do not believe meets their needs, they will find ways to work around it rather than adopt it.

## Listening For Technologists – Real-life Examples

I gave some example of “technologists” at the beginning of this article, but I'm really using the term as an umbrella term for all of the people involved in making electronic healthcare interoperability a reality serving in roles that are not providers or patients. A lot of bright and capable people work on healthcare interoperability projects, and some have years of experience advancing the cause; some are even practicing or former clinicians. The big challenge I have seen for this group of people are the same things that can challenge any IT project; listening to the experts (in this specific instance, healthcare providers) and listening to each other. Technologists are generally pretty smart people, which means they are pretty accustomed to being right. Some technologists also spend a lot of time thinking about how to make things work correctly, often based on assumptions. Put these two ingredients together, and people begin purporting assumptions as facts that must be unequivocally proven wrong in order to change them. Sometimes it seems those assumptions about how a solution will be built creep too much back into the process of listening to providers.

**Example 1:** In one project, an analyst was showing mock-ups for a user interface for making referrals to other providers. One of the clinicians asked where the information was if you needed to fax the referral instead of sending it electronically. The analyst's response? "I don't think that's in scope." Words of advice: Don't ever say those words while you are trying to listen, whether it is for gathering requirements or validating work products. That statement and subsequent attempt to defend the statement completely derailed the meeting.



**Lessons Learned:** Scope management is definitely important, and scope creep can kill a project, but that phrase always puts people on the defensive and will either trigger arguments or possibly stop contributing content that clearly is in scope. Listen to what the customers or experts have to say and treat it with importance, and note anything that may have scope implications for internal review and disposition. In the example above, the analyst was not even



correct about the assumption faxing was out of scope. If you are both the person listening to the customer and expert and the person that determines if something is out of scope (perhaps it's a small internal project), I would still defer that determination until sometime after that session.

Even when one technologist does take expert feedback forward for use, another technologist may choose to challenge that feedback based on previous experience, solution bias, or personal perspective. This gets particularly interesting in healthcare IT projects when the challenger is a clinician. It is great to get that additional clinical input, but if it conflicts with the customer or expert feedback, there's a problem.

**Example 2:** In another project, an analyst worked with subject matter experts for nearly two months on treatment planning processes and functions as one of their top priorities. It was also identified as a pain point for partnering sites that might use the software supporting those processes. However, when the material began to be discussed with the architects, one who was also a clinician began insisting treatment planning as a service offering would never work in the near-term because it required too many supporting functions, such as clinical decision support. The architect then began citing a use case and queried how it could be performed. The analyst responded that the majority of the use case was addressed by the information captured from the subject matter experts, and the portion that was not addressed was also functionality that the subject matter experts did not consider important for their work. It became apparent that the architect had not even looked at the information collected and documented by the analyst and remained convinced that his original premise was correct.

**Lessons Learned:** Recognize where the information you are working with comes from and be ready to throw away assumptions if feedback from the subject matter experts indicates they are not true. This is especially true for the technologists with extensive experience or a clinical background. Healthcare interoperability projects should satisfy the healthcare providers that are supposed to use the system, not anyone's vision of how it should work. Never let the feedback from the people participating as experts disappear based on internal discussions among the technologists.



The truly productive projects form a synergy that is based on a common willingness to place an emphasis on listening to user requests. The ultimate proof that a project listened is when the final product reflects the customer's needs and they actually use it.

We are left with a few questions about determining functional requirements. Are business analysts only there to translate between the users and the technicians or to make decisions? Who makes the final determination of the system requirements: the users, the managers with budgeting authority, the business analysts who are documenting the requirements or all? Someone has to have the final say of what will be implemented for the given budget.

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