Executive Guide to Selecting a Telemedicine Platform

How to Choose Pragmatically for Today and Prepare Strategically for Tomorrow

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Overview

Although the telemedicine objectives and requirements of healthcare providers are often unique, the key components needed to deploy and sustain a successful telemedicine system are usually very similar. A well-designed architecture for your telemedicine platform can accommodate current needs and enable flexibility, growth and expansion as you identify future opportunities. Conversely, a poorly-designed telemedicine platform can harbor hidden walls that limit, or completely impede, your evolving objectives. This whitepaper examines the key considerations for evaluating telemedicine platforms to highlight the features that enable flexibility, as well as common deficiencies that pose limitations.

As a precursor to evaluating the attributes of a telemedicine platform, it is important to clearly map the breadth of the vision for your telemedicine program. By doing so, you will be able to prioritize the importance of specific platform attributes in terms of both current and future requirements. You may be focused on a specific medical specialty in a single setting of care, or may include many specialties spanning settings of care across the healthcare continuum, or something in between. If your vision includes multiple specialties and/or multiple settings of care, you may want to decide if these will be supported using a single telemedicine platform or if multiple platforms will be needed.

Figure 1: Telemedicine Program Requirements Map
To create a map of your requirements, consider using a chart such as the one above, filling in each intersection point with your timeframe objectives such as: TODAY, SHORT-TERM, YEAR-1, YEAR-2, YEAR-3, ... YEAR-N, or N/A.

For an editable copy of this chart, please click here.

In addition to your strategic considerations, it is important to understand that you will also be evaluating and making a technology decision. Because platform architectures vary widely, it is unlikely that you will be able to make a simple apples-to-apples comparison. As such, a thorough understanding of your key requirements is helpful when comparing the pros and cons of dissimilar technologies. To aid in your assessment, each of the platform attributes examined in this paper includes a list of suggested vendor questions that can be used to highlight platform advantages and expose potential hidden weaknesses.

The Executive Guide to Selecting a Telemedicine Platform addresses the following key criteria:

1. Core Technology: Open vs Proprietary
2. Support for Collaboration and Clinical Workflow and Protocols
3. Intuitive Design for all Users
4. Reporting and Analytics (Clinical and Administrative)
5. Supported Integration
6. Support for HIPAA Compliance
7. Vendor Expertise
8. Customer References
Key Considerations

1. **Core Technology: Open vs Proprietary**

   Most technologies evolve at a rapid pace. What is new and cutting-edge today can be antiquated tomorrow. Telemedicine platform technology is evolving quickly and shows no sign of slowing. As a healthcare provider, you should ensure that you can take advantage of the continuing improvements without being locked into a platform that hinders your ability to easily leverage future advancements.

   To fully appreciate the advantages and limitations of differing platform architectures, consider a similar technology evolution that is familiar to all of us: the evolution of mobile phones. In 2007 the first smart phone was introduced. At the time, flip phones with miniature keyboards were considered leading-edge. Less than five years later, flip phones were antiquated and practically nonexistent. Why did this change take place so rapidly? The answer lies within the fundamental platform differences.

   The cell phone is a hardware-centric device and the smart phone is a software-centric device. This evolution from hardware-centric to software-centric devices has been prevalent for many technologies in recent years. In the telemedicine industry, first-generation solutions such as telepresence carts and robots began as single-function, hardware-centric devices. They were designed to facilitate one function effectively, but lack the flexibility needed to support cost-effective upgrades or additional functions, such as support for specialized clinical requirements and workflows that are unique to each medical specialty. As telemedicine technologies have evolved, software-centric platform architectures have become available and offer substantially increased flexibility.

   As you weigh the pros and cons of varied platform options for your telemedicine program, consider the following:

<table>
<thead>
<tr>
<th>Considerations</th>
<th>Hardware-Centric Proprietary Platform</th>
<th>Software-Centric Open Platform</th>
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</thead>
<tbody>
<tr>
<td>Cost and Scalability</td>
<td>Due to the use of proprietary hardware, the cost is likely to be substantially higher, especially for providers participating in a telemedicine network. This can limit appeal and constrict the ability to grow the network.</td>
<td>Because a software solution can be hardware-agnostic, hospitals can choose from a wide variety of hardware options.</td>
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<tr>
<td>Extensibility</td>
<td>A hardware-centric solution may not be capable of supporting specialized clinical requirements and workflows without using separate software applications running on a separate computer.</td>
<td>A software solution should be capable of supporting a wide variety of specialized clinical requirements, and continually adding more as the solution evolves – much like adding apps to a smartphone.</td>
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<td>Flexibility and Portability</td>
<td>A hardware-centric solution is inherently device dependent. The ability to support a wide range of devices and provide a common, familiar user interface across those devices may be limited.</td>
<td>A software solution should support multiple devices and provide a consistent, familiar user experience across all the supported devices. This leads to high efficiencies and satisfaction for the physicians and reduced training and support burdens for administrators.</td>
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<tr>
<td>Integration</td>
<td>Generally, proprietary hardware is not designed to integrate with other systems or devices. Achieving desired integration with your existing systems may be difficult or impossible with a hardware-centric solution. If integration is achieved, keeping it working as you implement version upgrades may also be difficult.</td>
<td>A software solution should provide integration with systems such as the EMR. This can streamline many functions, enabling physicians to be much more focused and effective during consultations while minimizing redundant tasks and the potential for errors.</td>
</tr>
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**Vendor Questions**
To help discern between hardware-centric and software-centric platforms, consider posing the following questions to your potential vendors:

- How are version upgrades facilitated?
  - If we have invested in a robot or cart that has become antiquated and we want to upgrade to the latest version, what is the cost?
- If we desire modifications to the application interface on the robot, cart or the device used by the consulting specialist, how is that facilitated?
- As your solution evolves and expands to support a growing number of devices, will the interface look and function substantially the same across all devices?
- Are multiple devices or applications needed to support all the requirements of a single encounter (such as access to patient records and images, access to clinical workflows and documentation, and capturing a record of the clinical encounter)?
2. **Support for Collaboration, Clinical Workflow and Treatment Protocols**

In clinician-assisted settings such as acute care, long-term care, clinics and others, collaboration between bedside clinicians and remote specialists has been documented to improve the effectiveness of telemedicine consultations and ultimately, patient outcomes. A well-designed telemedicine platform should facilitate collaboration among the entire care team, both bedside and remote.

Additionally, the telemedicine platform should support the unique clinical workflows and documentation of each specialty and setting of care. Clinical workflows should help guide patient evaluation, diagnosis and treatment decisions, adhering to established treatment protocols, evidence-based clinical guidelines and best practices.

To ensure efficient consultations and help to maximize reimbursements, the consulting physician and bedside clinicians should be able to capture all relevant data directly in the telemedicine system during the consult.

**Vendor Questions**

Consider asking the following questions of your potential vendors:

- Does the system enable real-time, simultaneous, clinical documentation by both the remote physicians and bedside caregivers during the consultation?
  - As changes are entered by each member of the care team, how are the other members of the care team alerted to the changes?
- Does the system provide alerts or warnings if vital signs or other indicators exceed thresholds for specific treatment protocols?
- Does the system include clinical workflows for the specialties we plan to support in our telemedicine program?
  - Can the workflows be customized to our unique needs?
  - Do the workflows require the use of an additional computer or a separate software application?
3. Intuitive Design for all Users

For any system to succeed in a clinical setting, the physicians must embrace it. This requirement applies to telemedicine solutions as much as any other. The system should never be intrusive to the physician/patient encounter. With the ultimate goal of recreating the bedside experience for both doctor and patient, physicians must be able to access information from many sources without having to think about how to do it, or where to go to find it. The technology must be transparent to the physician so they can focus exclusively on the patient.

Because of the above requirements, physicians seek solutions that facilitate their workflow processes and fit in seamlessly. A solution that requires them to adapt to a rigidly defined process – rather than the solution adapting to a standard process already in place – will likely fail. Similarly, a solution that is confusing or imposes redundant steps will likely fail as well.

Some telemedicine solutions are essentially adaptations of existing technology initially developed for completely different purposes, such as web-based teleconference systems with added features added to accommodate clinical needs. This approach often requires several logins and multiple steps to activate the different components.

Vendor Questions

Consider asking the following questions of your potential vendors:

- Does the telemedicine system require physicians to document consultations directly into the EMR system?
- Please describe any situation in which bedside clinicians or remote physicians are required to use more than one computer or device to access or update data that is relevant to the consultation.
- Demonstrate how clinical workflows can be adjusted to match individual physician preferences.
- If the system will be used to support multiple care settings such as acute, rehab, clinic, or others, explain and demonstrate how the screens and workflows are optimized for each setting.
- Please provide a demonstration of your solution on all supported devices.
  - Are the screens substantially consistent from one device to the next?
4. Reporting and Analytics (Clinical and Administrative)

In addition to addressing the primary purpose of recreating the bedside experience for both the patient and doctor, your telemedicine platform should also provide clinical and administrative benefits. These include features such as the ability to monitor system usage, trends and outcomes across supported specialties, facilities and settings of care, primary and consulting physicians, etc. These analytics and reporting capabilities should be available at the program, hospital and individual provider levels. Ideally, the analytics and reporting capabilities also allow baseline comparisons with general metrics (such as ED throughput) and specialty-specific benchmarks (such as door-to-needle and ED Psych Boarding times) so that the program performance can be evaluated against widely-accepted practices and the appropriate standard of care.

With information gathered and provided in an effective manner, telemedicine program coordinators can monitor trends, implement quality initiatives and promote best practices to drive improvements in terms of efficiency, utilization, reimbursement, patient experience and outcomes.

Vendor Questions
Consider asking the following questions of your potential vendors:

- Describe and demonstrate the key performance indicators (KPIs) that can be monitored using a real-time dashboard.
  - Describe and demonstrate proactive alerts provided by your system.
- Please describe and demonstrate your standard clinical and administrative reports.
  - Please provide a list of all standard reports.
  - How are reports customized for unique requirements?
  - Can reports be filtered to focus on individual facilities, physicians, clinical specialties, diseases, treatment protocols and other criteria?
  - Can I create my own reports?
  - How can we export data into Excel for ad hoc analysis?
- How will the reports provided by your system help us gather CMS core measures data for reimbursement and quality improvement initiatives for our telemedicine services?
- Does the system provide audit log reporting for all facilities, participants, devices and actions?
5. **Supported Integration**

Closely related to the experience for the physician noted earlier, integration with other systems is an important requirement. With the ability to integrate with other systems, an enterprise telemedicine platform can streamline many functions, enabling physicians to be much more focused and effective during consultations while minimizing redundant data entry and potential for errors.

**Vendor Questions**
Consider asking the following questions of your potential vendors:

- Please demonstrate the inclusion of PACS images such as CT Scans and relevant patient data from other sources.
- Does EMR integration require extensive consulting services or do you provide software that facilitates the integration?
- Please demonstrate the inclusion of patient data such as vital signs, treatment history and lab results from the EMR system at the beginning of a telemedicine consultation.
- Please demonstrate the transfer of patient data from the telemedicine consultation to the patient’s record in the EMR system.
  - Does the transfer map the data to and from individual fields in the system or does it attach a PDF document to the patient’s record in the EMR?
  - How does the data transfer update multiple EMR systems in a heterogeneous telemedicine network?
- Please explain and demonstrate how the telemedicine system supports our ability to demonstrate Meaningful Use of our EMR to submit clinical quality measures.

6. **Support for HIPAA Compliance**

It goes without saying that any platform used to support a clinical telemedicine program must support compliance with all relevant HIPAA regulations. Although this seems obvious, a poorly-designed telemedicine platform can give rise to potential privacy risks and regulatory sanctions.

**Vendor Questions**
Consider asking the following questions of your potential vendors:

- Is your system architecture based on a tele/videoconferencing platform such as Skype?
- Was the architecture of your system originally designed for telemedicine with the necessary protections of PHI?
Specifically, was your system architecture originally designed for non-healthcare functions such as video conference calls and then retrofit for telemedicine?

- List all system exit points that may require physicians or other clinicians to perform critical functions outside of the telemedicine solution.
- When was your most recent HIPAA audit completed?
  - What were the findings of your most recent HIPAA audit?
- Explain your security protocols related to data transmissions, at-rest data, servers and back-end facilities.

7. Vendor Expertise

Designing, building and maintaining an enterprise telemedicine platform that addresses the requirements outlined in this paper requires close collaboration across multiple disciplines with clinical expertise, healthcare administrative expertise and enterprise technology expertise.

Technology companies that lack full-time, on-staff clinical experts may struggle to design solutions that fully address the subtle but critical requirements of your physicians and other clinicians. Because your telemedicine platform should do much more than facilitate doctor/patient encounters, your platform vendor should also have healthcare administrative experts on staff. Support of your business and financial requirements represents a significant benefit to your healthcare organization and your telemedicine platform vendor should be fully adept at envisioning those opportunities and delivering pragmatic business solutions.

Additionally, vendors that lack enterprise technology expertise may create solutions that cannot cost-effectively scale or may quickly fall prey to obsolescence as core technologies evolve.

**Vendor Questions**

Consider asking the following questions of your potential vendors:

- Do you have clinical experts on staff?
  - How do they participate in your design and testing processes?
  - How do they participate in your customer deployment, training and support processes?
- Do you have healthcare administrative experts on staff?
  - How do they participate in your design and testing processes?
  - How do they participate in your customer deployment, training and support processes?
• Which portions of your system did you build and which did you buy or obtain through acquisition?
• Which portions of your system were developed by a third-party outsource firm?
• Describe the enterprise software expertise of your key designers and engineers.
• If you change the architecture of an application in the future, will you guarantee:
  o No loss of current features or functionality?
  o A full migration to the new architecture at no additional cost?

8. Customer References

Beyond the myriad of technical and functional considerations, the true test of the quality of a telemedicine platform occurs when it is put in the hands of clinicians and administrators. Most vendors are quite adept at providing compelling demonstrations, espousing key features and masking potential limitations of their solutions. When meeting with your vendor’s reference customers, it is important to learn about their deployment and initial usage, acceptance among specialty physicians, other clinicians and administrators, and the flexibility that has been experienced over multiple years of use. In addition to other considerations outlined in this paper, you should consider using many of the recommended vendor questions with your vendor’s reference customers as well.

Conclusion

A well-designed architecture for your telemedicine platform can accommodate your specific needs and enable flexibility, growth and expansion as you identify future opportunities. Conversely, a poorly-designed telemedicine platform architecture can harbor hidden walls that limit or completely impede your evolving objectives. Because platform architectures vary widely, it is unlikely that you will be able to make a simple apples-to-apples comparison. Because of this, we suggest that you first develop a thorough understanding of your key requirements as the foundation for platform evaluations. With your key requirements in hand, you can use this document as a guide to comparing the pros and cons of dissimilar technologies and identifying the best solution for your organization.

Defining your specific needs, establishing key requirements, and then reviewing your telemedicine options against those will help in identifying the best solution for your organization. Taking this kind of a systematic and well mapped out approach to selecting your telemedicine platform means you are more likely to end up with technology that will truly meet the need of your program. We hope this white paper helps you effectively evaluate telemedicine platforms to highlight the features that enable flexibility, as well as common deficiencies that pose limitations.