Vendor Rating: Cerner — Success Generates Challenges

Cerner continues to win the majority of clinical information system selection processes for enterprise healthcare environments. Care delivery organizations should pay close attention to how Cerner manages growth challenges.

Cerner Overall Rating: Positive

What You Need to Know: Cerner has experienced consistent market success with its enterprise product portfolio during the past three years. Cerner’s market success may create some customer service issues that care delivery organizations (CDOs) should consider when negotiating contracts with Cerner. Required application performance for Millennium products also should be defined in Cerner contracts. CDOs that are considering enterprise applications should evaluate Cerner’s Millennium applications.

The goal of Gartner’s Vendor Ratings methodology is to provide enterprises with a concise summary of Gartner’s view of a vendor’s strengths and challenges. We encourage enterprises to consider our vendor ratings as well as other research as part of an overall evaluation process, which also should include an evaluation of how a vendor’s strengths and challenges match an enterprise’s specific requirements.

Analyst Comments: Market drivers that were created from initiatives generated by The Leapfrog Group and the Institute of Medicine are driving care delivery organizations to evaluate healthcare quality. Cerner is well-positioned to take advantage of these drivers.

Detailed Rating:

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Corporate Viability: The enterprise healthcare IT market heavily focuses on delivering computer-based patient record (CPR) solutions that can support the physician order entry (POE) process that is being driven by The Leapfrog Group (a coalition of Fortune 500 employers). The compliance of vendors with the Health Insurance Portability and Accountability Act (HIPAA) for transaction and privacy regulations also is consuming product development cycles and budgets. No enterprise vendor can demonstrate a complete CPR solution as defined by Gartner, and we do not expect that these enterprise solutions will achieve commercial market acceptance until after 2003. Vendors that have broad product portfolios that contain CPR, revenue cycle, ancillary, ambulatory and supply chain management products are best-positioned to survive and thrive in the market. Vendors that manufacture medical devices, such as Siemens and GE Medical, may challenge the enterprise vendors, such as McKesson, Cerner, IDX Systems, Eclipsys Technologies, Per-Se Technologies and Epic Systems, if they can effectively bundle medical devices with modality-specific software to improve the workflow for clinicians that use the medical devices, and lower the cost of deploying medical devices and software.

Cerner has solid growth and stable financial operations. It has met market expectations for financial performance for 13 consecutive quarters. Cerner reported revenue of $180.6 million and a net profit of $11.9 million in the second quarter of 2002. Its cash position improved with the recent sale of WebMD securities. Cerner’s executive management group is one of the stronger teams in the healthcare market from the perspectives of experience and accomplishment.

Cerner has a broad, deep contingent of physicians to assist in product design and marketing. This has provided the foundation for Cerner’s success in the clinical market. Cerner consistently achieves one of the top-two vendor positions for large-hospital or integrated delivery system prospects that are looking for clinical IT solutions.

Because of its success, Cerner tends to be priced at the top of the market; prospective clients have less leverage in negotiating lower-cost license fees. This pricing position maintains a healthy gross profit margin for Cerner (78.9 percent in the second quarter of 2001). Through 2007, Cerner will continue to be one of the top-five revenue-growth healthcare IT vendors (0.7 probability); it will be acquired (0.2 probability); or it will enter a state of gradual decline (0.1 probability).

Products/Services/Technologies: Cerner has focused on the community hospital market and, in 2001, it developed a remote hosting option. In 2002, Cerner has signed several remote hosting contracts, and we believe that this solution set will be successful for Cerner as more CDOs begin to pursue IT sourcing solutions. Cerner acquired additional clinical content with its most-recent purchase of Zynx Health. Cerner is well-positioned to continue its market growth, even as it experiences the growing pains that are associated with customer support, product implementation and application performance, which come with growing client bases.

Cerner provides a broad portfolio of clinical, financial, patient management, medical content and Web services solutions that cover 80 percent to 85 percent of the business functions needed by an enterprise healthcare organization. Only McKesson and Siemens can match or exceed Cerner’s breadth of healthcare IT solutions.

PowerChart

Gartner Research  
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PowerChart, Cerner’s CPR system, is composed of:

- Open Clinical Foundation, a clinical data repository (CDR)
- Discern, a clinical decision support system (CDSS)
- Knowledge Index, a controlled medical vocabulary (CMV)
- PowerChart Care Documentation, a nursing order entry and documentation system
- PowerOrders, a POE system

The Open Clinical Foundation CDR is one of the most-comprehensive (and complex) in the industry. It has sufficient breadth to support all of Cerner’s applications from a single data model. This is one of the strengths of the Cerner application suite.

The Discern CDSS is layered on top of the CDR. It is triggered when there is an update to the CDR and can perform a variety of checks on the data, depending on the particular rules that have been implemented by the client.

The combination of Discern and the Knowledge Index, Cerner’s proprietary CMV, enable a powerful and complex set of logical checks to be made to ensure data integrity, clinical appropriateness and consistency with institutional policy. Cerner recently announced an agreement with Health Language that will strengthen this capability by permitting Knowledge Index terms to be cross-mapped to the SNOMED-CT and other industry-standard terms that use Health Language’s product set’s capabilities. This eventually will permit an easier exchange of clinical information between Cerner and non-Cerner sites because of the support for a common clinical terminology, which will provide Cerner with another competitive advantage.

**IQ Health**

Cerner continues to execute on its vision of community Web links between consumers, physicians, hospitals and employers. IQ Health’s success in linking together the community stakeholders of Winona, Minnesota, to provide collaborative healthcare information exchanges is impressive, considering that Cerner linked disparate, non-Cerner applications to the Web to share healthcare data with the stakeholders.

IQ Health mainly focuses on linking the consumer to the healthcare delivery environment. The recent implementation of IQ Health at Eastern Maine Medical Center for community Web services will include Cerner clinical applications. IQ Health continues to mature in its functionality, and Cerner has created an effective Web extension for many of its Millennium clinical applications. IQ Health demonstrates the far-reaching community vision that Cerner has for healthcare delivery.

**ProFit**

Cerner’s ProFit patient financial system is “live” at eight sites, and Cerner expects that it will be live at 12 sites by year-end 2002. ProFit represents a next-generation patient financial system that shares the same database with Cerner clinical applications. This tight coupling of data flows provides advantages for being able to tie clinical charges back to the patient statement or bill, and will provide a platform for digital
claims attachments in the future. ProFit will create HIPAA-compliant 837 claims formats, and Cerner is building the payer claims edits into ProFit using payer rule content supplied by Info-X.

Cerner is providing complete contract management functionality via a third party, Innovative Managed Care Systems, but it has built simple contract management features into the current version of ProFit to manage prorations. ProFit delivers a foundation for revenue cycle management improvement through its tightly coupled data flows with registration and clinical systems. ProFit’s addition to the Cerner Millennium product line gives Cerner a robust portfolio of integrated applications that address the majority of enterprise IT environments.

**Ancillary Products**

*PathNet*

This laboratory information system, which launched Cerner, remains one of the best-designed and functional laboratory IT solutions in the market. Representative competitors include Misys Healthcare Systems, Soft Computer and Triple G Systems Group. Cerner’s recent acquisition of Dynamic Technologies includes, arguably, the best anatomical pathology solution on the market — CoPath Plus. With a saturated laboratory IT market, Cerner continues to increase market share by replacing stand-alone laboratory systems at client sites that prescribe to a totally integrated clinical IT environment.

*PharmNet*

Cerner struggled with the initial release of Millennium PharmNet. Cerner has stabilized this product, which is crucial for successfully migrating its Classic PharmNet client base to the Millennium PharmNet. Cerner acquired a large pharmacy system client base with the purchase of MegaSource (185 client sites), and it has stated that it will support the MegaSource product through 2007. Cerner has 82 Millennium PharmNet clients in operation.

Next-generation pharmacy applications will require tightly coupled data flows with the CPR because of the effect that the POE process will have on the medication administration process. Therefore, Cerner is well-positioned for success in the pharmacy application market. Representative pharmacy application competitors include B.D.M. Information Systems, Mediware Information Systems and McKesson’s Horizon Meds Manager.

*RadNet*

Cerner struggled to stabilize the RadNet Millennium product during its initial launch in 1997-1999; it since has experienced good growth. Cerner acquired the radiology information systems of ADAC Healthcare information Systems in November 2000, and Image Devices in August 2002, to improve RadNet's clinical imaging capabilities. Representative competitive radiology information systems include IDX's IDXRad and Siemens’ Novius Radiology.

Cerner also provides clinical solutions for the ambulatory clinic, emergency department, intensive-care, operating room and cardiology modalities.

**Technology**

The Millennium architecture, the basis for the clinical and patient accounting products, uses an n-tier approach with business logic encapsulated in middle tiers that include the CMV server and rules engine.
The middle tiers and the database management system (DBMS — Oracle8i or IBM DB2) run on OpenVMS, AIX or Windows NT servers. A separate component tier provides client-side application logic encapsulation and caching of selected data. This distribution of application logic and data across the client and servers is consistent with other highly scalable CPR products. Cerner cites clients that are running with more than 3,500 concurrent, active users.

Communication among the clients on the other tiers operates over Cerner’s proprietary message-oriented middleware, the Cerner Message Bus.

Cerner integrates IQ Health and other portal capabilities through Millennium Objects, a set of Java and HTTP/XML interfaces to the Cerner Message Bus, and from there to the server-based, middle-tier components. The XML interfaces are not based on SOAP. Cerner has made a substantial investment in packaging Millennium Objects to support third-party integration projects with other vendors and, ultimately, with clients. Gartner refers to this approach as a service-oriented integration architecture (see “Service-Oriented Integration Architectures for Healthcare”).

Using a single relational DBMS schema for this breadth of functionality enables the kind of tight integration among Cerner products that is a hallmark of its offering. However, the complexity of the schema (3,000 tables and 24,000 database access scripts) presents some challenges for optimizing database access across a diverse set of users. Cerner has an ongoing program of tuning the access scripts to improve scalability, and it is considering a conversion to Oracle9i to physically segment its database, which would continue to be logically unified. Gartner recommends that CDOs that are acquiring Cerner for high numbers of concurrent users should establish service-level agreements on application performance, and include pre-deployment benchmarking based on their configurations and user combinations.

The Millennium architecture does not support externally configured workflow, although Cerner plans to do so. Integrating externally configured workflow into an established architecture is a challenge (see “Workflow Requirements to Support the CPR System”). CDOs should examine how workflow will integrate with Discern to provide flexible client support for patient-care protocols, error reduction efforts, revision of clinical processes, quality assurance efforts and similar initiatives. If the interaction between Discern and Cerner’s eventual workflow technology is not adequate, then CDOs may be limited in achieving the anticipated benefits of advanced CPR systems.

Customer Service/Product Support: Cerner has improved its customer service and product support during the past year, but its market success in selling systems is beginning to tax its implementation resources. The company employs more than 1,700 implementation resources with an average Cerner tenure of three years and average professional experience of 14 years. Gartner advises CDOs to add a contractual clause that specifies the experience level of implementation resources. The Cerner implementation/project manager should have at least five years of experience in managing complex application installations to mitigate the risk of failed or extended system installations.


“Patient Accounting Magic Quadrant 2002”

“Cerner’s PowerChart Office: Millennium for Physician PM”

“Next-Generation Patient Financial System Requirements”
**Rating Definition:**

<table>
<thead>
<tr>
<th>Rating Definition</th>
<th>Description</th>
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| **Strong Positive**                   | Solid provider of strategic products, services or solutions.  
  - Customers: Continue investments.  
  - Potential customers: Consider this vendor a strong strategic choice. |
| **Positive**                          | Demonstrates strength in specific areas, but is largely opportunistic.  
  - Customers: Continue incremental investments.  
  - Potential customers: Put this vendor on a short list of tactical alternatives. |
| **Promising**                         | Shows potential in specific areas; however, initiative or vendor has not fully evolved or matured.  
  - Customers: Watch for a change in status and consider scenarios for short- and long-term impact.  
  - Potential customers: Plan for and be aware of issues and opportunities related to the evolution and maturity of this initiative or vendor. |
| **Caution**                           | Faces challenges in one or more areas.  
  - Customers: Understand challenges in relevant areas and begin to assemble contingency exit plans as needed.  
  - Potential customers: Note the vendor’s challenges as part of due diligence. |
| **Strong Negative**                   | Difficulty responding to problems in multiple areas.  
  - Customers: Exit immediately.  
  - Potential customers: Consider this vendor only if there are no alternatives. |

**Acronym Key**

<table>
<thead>
<tr>
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<tr>
<td>CDO</td>
<td>Care delivery organization</td>
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<td>CDR</td>
<td>Clinical data repository</td>
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<td>CDSS</td>
<td>Clinical decision support system</td>
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<td>CMV</td>
<td>Controlled medical vocabulary</td>
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<tr>
<td>CPR</td>
<td>Computer-based patient record</td>
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<tr>
<td>DBMS</td>
<td>Database management system</td>
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<td>HIPAA</td>
<td>Healthcare Information Portability and Accountability Act</td>
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<td>POE</td>
<td>Physician order entry</td>
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| **SNOME**  
| **D-CT**  |
| Systematized Nomenclature of Human and Veterinary Medicine-Clinical Terminology |

| **SOAP**  |
| Simple Object Access Protocol |

| **XML**  |
| Extensible Markup Language |

**Core Topic**
Critical Healthcare Applications and Business Processes ~ Healthcare

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