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## **The ABC's of ASP's In Health Care: Back To The Future**

January 2001



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## **The ABCs Of Healthcare ASPs**

**Application Service/Solution Providers**

**Business Solution Providers**

**Clinical Solution Providers**

**Clinical Knowledge Management**

**BACK to the FUTURE ...**

**January 2001**

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# **The ABCs Of ASPs In Healthcare: Back To The Future**

## **January 2001**

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# Overview: ASPs In Healthcare—Back To The Future

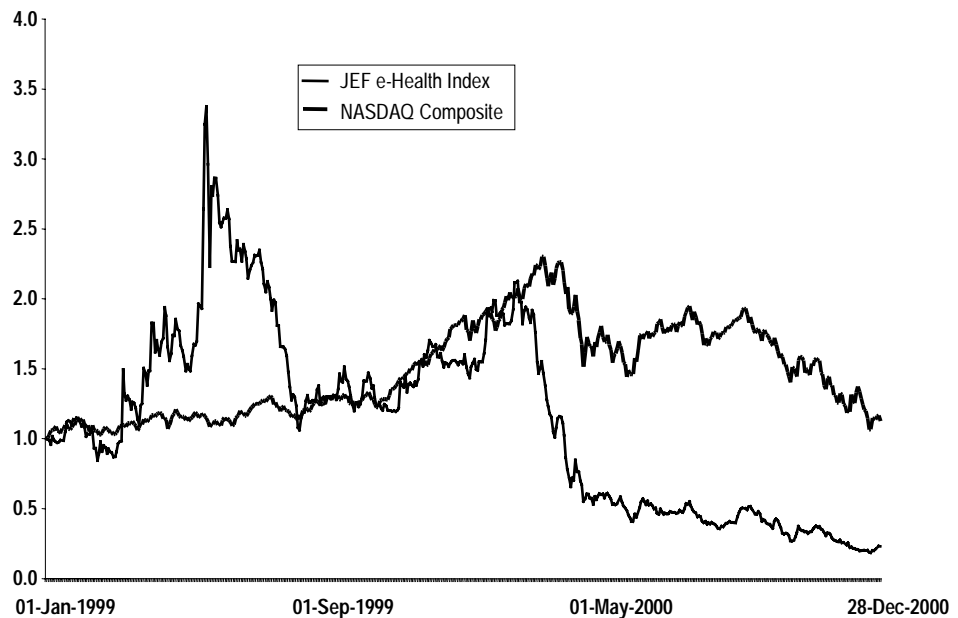
*At its core, healthcare is an information business, but the IT infrastructure necessary to run the healthcare market in anything close to an efficient manner has been grossly lacking.*

It is certainly true that the U.S. healthcare market is the largest vertical market, but also the most dysfunctional market, in the economy today. A large (though certainly not the only) contributor to that fact is the abysmal state of the healthcare information technology (HCIT) marketplace. **At its core, healthcare is an information business, but the IT infrastructure necessary to run the healthcare market in anything close to an efficient manner has been grossly lacking.** Having been under-invested in IT infrastructure and services for the better part of the last two decades, provider institutions, payer organizations, employer groups and patients have been frustrated by sub-optimal care and poor service, all being provided at ever more expensive rates.

As a result, it is little wonder that the Internet-craze of 1999 and early 2000 lit extraordinary expectations of impending radical change in the healthcare market. On the surface, it seemed to make perfect sense that the Internet—the source of extraordinary efficiencies in other vertical markets—stood as the ultimate redeemer of all things wrong with healthcare. Businesses were born, capital was deployed, and the race for the cure that ails healthcare was on. Until ...

Reality set in. Healthcare did not become such a mess overnight, nor would the mess be untangled by a single information technology tool overnight. The hopes and dreams of entrepreneurs and investors soon became missed expectations and sharp disappointments, with the fallout being billions of invested capital and capital gains lost, ill-formed business models destroyed, and an investment market wholly skeptical of all things “e-Health” related.

**Chart 1: Jefferies & Co. e-Health Index Performance (Jan. 1, 1999–Dec. 31, 2000)**



JEF e-Health Index: ADAM, MDRX, KOOP, DSCM, EBNX, HCEN, HLTH, HSTM, LCOR, MDLI, NEOF, PLRX, PILL, TZIX, XCAR  
Source: FactSet

*The Internet WILL, in fact, be a revolutionary change agent in the healthcare market. And the vehicle will be what we today call the Application Service Provider, or ASP, business model.*

It is with great irony, then, that against this disappointing backdrop we forcefully set forth the following investment thesis: **The Internet WILL, in fact, be a major change agent in the healthcare market. And the vehicle will be what we today call the Application Service Provider, or ASP, business model.** Even more ironic is that the ASP model, albeit in a different form on a different technology platform, is not new to the healthcare market. In fact, the ASP concept is one of the oldest and most well established concepts in the world of HCIT. The final irony, therefore is that the beginning of the solution to what ails healthcare and HCIT is exactly the elixir that market participants have known about for so long. **Back to the Future!**

In our view, the reason the e-Health bubble began and then burst lies in the fact that investors ignored and then refocused on the unique and eccentric fundamentals of the HCIT market. It is those fundamentals that dictate which business models and companies can and will be successful in the HCIT market. More important, it is those fundamentals that are screaming out now for what the ASP business model offers to healthcare customers: lower-cost entry points, outsourced software solutions, interactivity, data compatibility. In short, information technology tools that, FINALLY, can bring at least a modicum of efficiency and quality to the healthcare market.

*It is these companies, along with several of the legacy HCIT vendors, that will provide the ASP-based solutions that will change the HCIT and healthcare markets over the long-term.*

While the e-Health landscape has been steamrolled, a handful of companies spawned in the heat of the market are well positioned to (at least) make a run at success. These companies raised sufficient capital to develop solutions, expand market share, and survive the current dismal equity market environment. **It is these companies, along with several of the legacy HCIT vendors, that will provide the ASP-based solutions that will change the HCIT and healthcare markets over the long term.** These are the companies on which investors should focus their attention. These are the opportunities on which we will focus.

The following report will provide investors and entrepreneurs a roadmap, using history as a guide, to what we believe are the tremendous opportunities afforded by the ASPs in healthcare. As usual, we will call it like we see it with a little irreverence and a little fun along the way. As far as healthcare goes, Internet ASPs are one key to the solution of what ails healthcare. The good news is that we have been here before. So, away we go ... Back to the Future!

## The Party—And Hangover—From Hell

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What an amazing two years it has been, eh? February 1999, in the initial stages of the Internet capital markets boom, the fabled Healthcon completes a wildly successful IPO, selling 5 million shares to the public at \$8, only to see them trade almost instantly at more than \$30 a share. That single event spawned the e-Health boom, with billions of dollars of equity capital raised, both publicly and privately, by companies whose business plans *all* promised to change the way healthcare was delivered. Virtually all of the more than two dozen e-Health initial public offerings completed over the next 12 months zoomed in value, making gazillionaires out of entrepreneurs, venture capitalists, and day traders alike. Every company had a grand vision. The money was there for the taking. "Finance or Die" became the battle cry for the market, and the land grab was on.

Or was it? Almost as soon as it began, the raucous e-Health party was over. Big time. It was almost as though when the bible of e-Health investing—*The New New Thing*—was published early last year (with about as much fluff as the market at that time), the curtain came down on the e-Health market with a thunderous crash. The plethora of data content, e-commerce, and business-to-consumer (B2C) companies that came public quickly saw their shares turned into dime-store bargains. Investors who had embraced the Internet as the savior of the most screwed-up market in the world—healthcare—suddenly focused once again on the unique eccentricities of the healthcare market and the hurdles to success that those few well-positioned e-Health companies would face. The capital that flowed into the market with such force in 1999 fled with equal (and more damaging) force throughout 2000.

**As of the end of 2000, the e-Health marketplace was a wasteland with the Jefferies & Co. e-Health index down nearly 90% from its peak in February.** New investment capital for e-Health companies has all but dried up with the public markets providing absolutely no new capital. In the private equity markets, the battered venture capital community is playing the role of Darwin with its funds, sustaining the potential winners in its portfolios with precious (and expensive) capital, while letting the poorly positioned investments wither and die on the vine. Entrepreneurs and investors are all asking the same questions: Will the e-Health sector ever return to favor? If so, when? And who will the winners be?

In the words of the great Sgt. Hulka, "Lighten up, Francis." Of course the stocks in the sector will show signs of life again—or, at least some of them will. As to when, it all comes down to execution and deliverables. And who will win will be determined by positioning, business model, and market opportunity. **But our favorites are the Application Service Providers, or ASPs.**

While we are at it, however, let us take this opportunity to *bury* the e-Health sector once and for all. We said it in the heat of the market and we will say it again: e-Health companies, as they were originally conceived, could not survive. Period. Success in the healthcare information technology (HCIT) market is not governed by computing or communication platform, it is determined on the basis of *solutions*, and selling those solutions to customers that can *pay* for them. The moniker of "e-Health" was always a flawed concept with its foundation set in the superior nature of the *platform*, rather than the *solution*. **Companies that hope to be successful IT companies in the healthcare market must focus on providing value-added *solutions* to their clients, utilizing the *platform* that allows them to best serve their clients. This is why we are so excited about HCIT companies utilizing the Internet to provide *solutions* on an ASP basis. The fad of e-Health is gone. The dawn of ASPs in healthcare is here—and it is here to stay.**

*The fad of e-Health is gone. The dawn of ASPs in healthcare is here, and it is here to stay.*

# How Could So Many Have Been So Stupid?

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*...investors and entrepreneurs lost focus of the basic fundamentals of the HCIT market.*

*... healthcare is the only market in which individual consumers of healthcare products and services bear virtually no economic pain or incentive to limit their use of resources.*

With so many smart people led down the same dark alley, the question of how we got here in the first place needs to be answered so that investors can use history as a guide in picking the winners of the future. The answer to “What went wrong?” is not complex, but is actually very simple. How so? **The simple answer is that investors and entrepreneurs lost focus of the basic fundamentals of the HCIT market.**

There are a few simple, core truths about the healthcare and HCIT markets that investors should never, ever forget. First, healthcare *is* the largest vertical market in the U.S., representing well over \$1 trillion of annual spending. Second, healthcare is, by far, the most backward, screwed up market in the entire world (short of the Russian economy), with waste and abuse representing anywhere from \$250 billion to \$350 billion of the total annual spend. On top of these, the federal government, largely through Medicare and Medicaid, control roughly one-quarter of the healthcare dollars spent annually, and the reimbursement rules are constantly changing. Finally, **healthcare is the only market in which individual consumers of healthcare products and services bear virtually no economic pain or incentive to limit their use of resources** (that’s what insurance companies are for!). In these four facts lies the siren song of vast potential profits to be made by bringing even a modicum of efficiency to the healthcare market.

The HCIT market is as backward and screwed up as the overall healthcare market. The reasons are manifold. First, hospitals and insurance companies, the largest customers of HCIT products and services, are cash strapped and do not have unlimited resources for capital investment. Second, the computing infrastructure across the healthcare market is far behind that of other industries as market participants have generally spent only 2% to 3% of their annual budgets on HCIT investments. Third, there are no language standards or communications standards across the healthcare market that allow for seamless and frictionless communication of basic financial or clinical data. Not insignificantly, the “data model” in healthcare is exponentially more complex than in other industries as individual patients have unique financial *and* clinical characteristics, dictating unique database requirements. In addition, the portability of the nation’s workforce and ability to change insurance carriers creates little incentive for trading partners to invest in a centralized database of individuals’ medical histories. In all, it is clear to see the morass that successful HCIT companies must navigate to be successful in the market.

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**Table 1: Unique Problems Facing HCIT Solution Providers**

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- Underfunded/Undercapitalized Customers
- Inadequate/Underinvested Computing Infrastructure
- Lack of Language/Communication Standards
- Complex Data Model
- Portability of Employees/Insurance

Source: Jefferies & Company, Inc.

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*The incumbent position with a customer typically is the most valuable asset that a company can have ...*

The unique eccentricities of the healthcare and HCIT markets dictate that investors focus on market fundamentals that differ widely from other markets. Purchasers of HCIT products are typically more technologically naive than in other vertical markets and are highly risk averse. As a result, the “better mousetrap” does not usually win the day. **The incumbent position with a customer typically is the most valuable asset that a company can have as the customer prefers to continue to do business with a trusted partner than take a chance on something “new.”** The costs to a customer of changing vendor relationships can be large in terms beyond the basic costs of software and hardware, but also in the organizational changes inherent in interacting with new systems.

As a result, we insist that investors focus on the “Four Fundamentals of HCIT Investing” that have proven time and again to be the guide by which leading HCIT companies are judged. If investors focus on these fundamentals, the likelihood of success (or at least avoiding the dogs) in picking winners in the HCIT market is enhanced greatly. The fundamentals are simple, but reflect the unique eccentricities of the HCIT market.

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**Table 2: Jefferies & Co. Four Fundamentals Of HCIT Investing**

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Breadth/Depth of Solution Offering

Strong Service Organization

Large Installed Base of Clients

Capable Management

Source: Jefferies & Company, Inc.

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In short, the fundamentals fully reflect these facts: (1) clients prefer to select partners with whom they are familiar, making an incumbent position critical to success; (2) clients prefer to work with fewer, rather than several partners, making single-solution providers disadvantaged in the market; (3) software-based *solutions*, rather than simply software *technology* itself, are required to be successful; and (4) strong management teams in the HCIT marketplace are hard to come by. If investors keep a sharp focus on these facts, they will be in a strong position to navigate the HCIT market over the long term.

So how did the e-Health bubble ever come about in the first place? Easy. The sirens sang, the fundamentals were forgotten, and capital was deployed foolishly. Data aggregators and consumer-oriented e-Health companies focused on empowering patients, forgetting about barriers to entry or that consumers typically do not pay for health-related products and services. e-Commerce specific companies formed also without thinking about barriers to entry, the extreme forces of market efficiency driven by the Internet, or the value-added need of the customer to integrate procurement with materials management on the back-end. Entrepreneurs focused on the Internet *platform* rather than the Internet-based *solution*, largely ignoring the needs of the paying customer in the process. In the end, the substance of having a portfolio of value-added solutions and an entrenched customer base was ignored; the lure of a magical Internet-based elixir for what ails healthcare captured the investment capital—for a time. **The great party of 1999 turned into the tremendous hangover of 2000 with no “e-Health” company escaping the bloodbath.**

**In the end, healthcare is an information business. Plain and simple.** While the e-Health bubble was, in hindsight, a foolhardy occurrence, it is also easy to see how so many people could have been sucked in. Specifically, the Internet *does*, in fact, promise to launch the healthcare market toward efficiency in a way that was heretofore not possible: the promise of language and communication standards, a virtually free communications infrastructure, distributed computing enterprises, one-to-one and one-to-many interactivity. The list goes on and on, but **at its core is the ability of the Internet to join healthcare market participants in an efficient manner that they have never been joined before. The key is to deliver integrated clinical and financial IT solutions to these different constituencies, and the Internet-based ASP business model is the foundation for this computing revolution in healthcare.**

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## **Just What Is An Application *Service* Provider, Anyway?**

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The concept of ASPs and selling software as a service has been popularized only in the last two to three years as the Internet has enabled the development of the ASP business model on a broad basis. With the virtually free communication aspects of the Internet and the explosion of relatively cheap, and getting cheaper, bandwidth (more on this subject later), the ability of companies to "host" applications remotely and charge for use on a subscription or "per click" basis has revolutionized the way vendors and customers view the application software business.

However, putting one's finger on the exact characteristics of an "ASP" is a bit difficult as many different companies purport to be ASPs while providing only certain pieces of the "software as a service" puzzle. In other industries, companies providing application software products, implementation and integration services, application hosting services, or simply network management services tend to bless themselves with the "ASP" moniker. The ASP is the "hot" marketing phrase of the day, and companies of all types are jumping on the bandwagon.

# The Real Deal: In Healthcare, It's An Application *Solution* Provider

*Quite simply, HCIT customers are looking for an IT partner that can provide them with a solution to their business problems.*

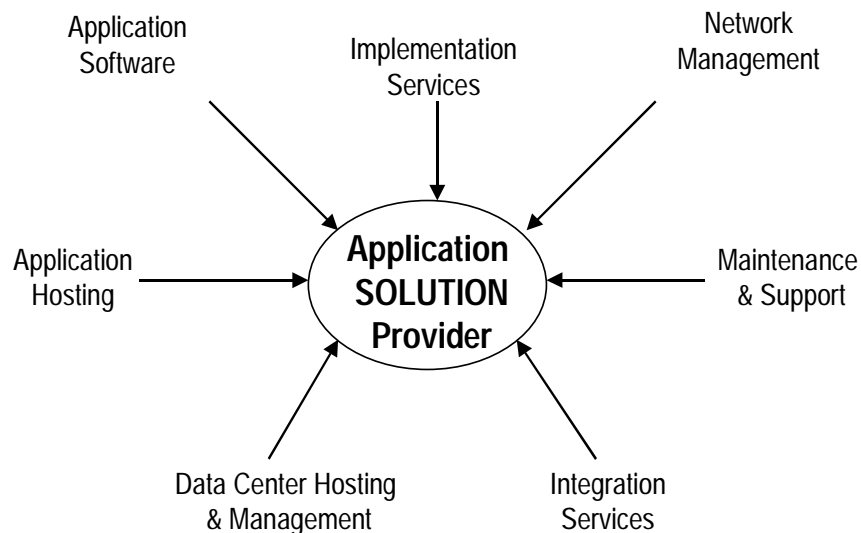
The HCIT market has never been a pure technology-driven market. Customers, because of their risk-averse nature and technological naivete, typically have gone with (and will continue to go with) that which is proven to work. More important, HCIT customers are not looking to invest in the latest and greatest technology just for the sake of being on the bleeding edge. **Quite simply, they are looking for an IT partner that can provide them with a *solution* to their business problems.** Can the technology improve cash flow, increase productivity or reduce medical errors? Great! If not, fuggitaboutit.

**In short, healthcare customers demand IT solutions from their vendors.** And they do not like to deal with multiple vendors in creating a solution—in the customer's mind, the vendor should be prepared to provide the entire solution by themselves. A single point of contact for problems, new product purchases, and the like. The leading legacy HCIT vendors have known this and practiced this for some time. And it is for that reason that they are well positioned for success as the market moves to Internet-based software products and solutions.

*... we believe that the term "ASP" in healthcare will refer NOT to application service providers, but rather to application solution providers ...*

**As a result, we believe that the term "ASP" in healthcare will refer NOT to application service providers, but rather to application *solution* providers—those vendors capable of providing ALL of the IT product and service needs in a particular application area to any given customer.** This is not to say that each company competing in this arena will have to provide for every single application need of the customer, but a reasonably well-rounded suite of applications, with all of the necessary services to support the remotely hosted application, will be integral to the success of the healthcare ASP vendor.

**Chart 2: Anatomy Of A Healthcare Application *Solution* Provider**



Source: Jefferies & Company, Inc.

*... the complexity of the inner-workings of healthcare organizations coupled with the poorly developed IT infrastructure of most organizations dictates that IT providers with significant domain expertise offer the whole IT solution to a customer.*

A large reason for this discrimination between service and solution providers in the HCIT market is this: **the complexity of the inner workings of healthcare organizations coupled with the poorly developed IT infrastructure of most organizations dictates that IT providers with significant domain expertise offer the whole IT solution to a customer.** While the spending levels of HCIT purchasers (estimated at over \$20 billion annually) on products and services has drawn the attention of a multitude of broad-based IT companies, the vast majority of these companies have failed in the healthcare arena. Why? They have never brought the domain expertise and full suite of solutions necessary to compete effectively. And guess what? For the foreseeable future, this fact will remain.

What is it about the healthcare market that makes it so difficult for mainstream IT and ASP companies to compete for business? Furthermore, why is it that ASPs focused on the healthcare market need to be focused almost exclusively on healthcare to be successful?

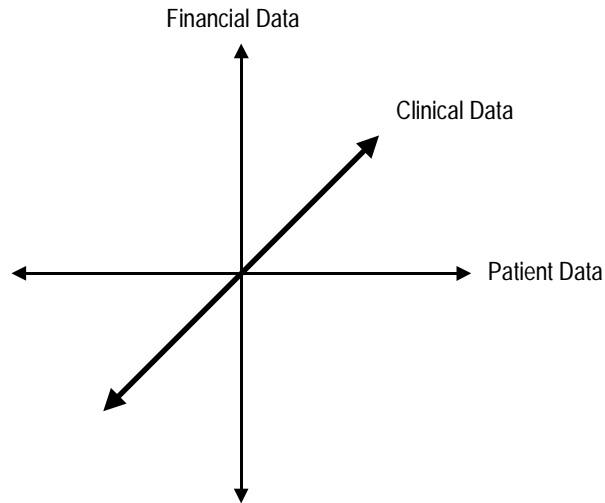
*The data structure for healthcare is three-dimensional (individual information, financial information, clinical information) rather than two-dimensional, making systems requirements exponentially more complex.*

The reasons are several. As mentioned earlier, the healthcare market does not follow the normal economic models and laws of businesses in other vertical markets. Government participation in funding is high, so basic market-based economic rules do not fully apply. **The data structure for healthcare is three-dimensional (individual information, financial information, clinical information) rather than two-dimensional, making systems requirements exponentially more complex.** The aforementioned lack of IT infrastructure. The lack of data standards or standardized, pre-packaged software applications across the market. Closed information systems. The list goes on and on.

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**Chart 3: Complexity Of Healthcare Data Model**

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Source: Jefferies & Company, Inc.

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*... the healthcare ASPs focus on providing entire solutions that meet the application and service needs of the customer sets the healthcare market apart from ASPs in other vertical markets that attempt to provide parts of the ASP solution to clients.*

As a result, **the healthcare ASPs focus on providing entire solutions that meet the application and service needs of the customer sets the healthcare market apart from ASPs in other vertical markets that attempt to provide parts of the ASP solution to clients.** While we believe that this dynamic may change in the future as the healthcare market becomes more efficient from both an economic and an IT perspective, we do not see any major change any time in the near future. Domain expertise and complete solutions will rule the healthcare ASP market for quite some time.

# ASPs In Healthcare: An Idea Whose Time Has Come And Gone ... And Come Back Again!

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*The good news for healthcare ASP vendors is that we've been doing business in an ASP-like way for the last two decades, only under a different name.*

The good news for healthcare ASP vendors is that we've been doing business in an ASP-like way for the last two decades, only under a different name. Remote processing or the "remote computing option" (RCO) has been a mainstay of the HCIT market for quite some time. Typically used by smaller hospitals and payer groups that do not have the operational need or capital resources to host and staff their own applications, the RCO has been a great business for most of the legacy HCIT vendors. In fact, of the "big five" public HCIT vendors, only Cerner does not have a long history of providing applications on a remote basis.

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## Chart 4: RCO Versus ASP

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<u>Old Legacy RCO</u>	<u>New Legacy ASP</u>
HBO & Company	McKesson/HBOC
Shared Medical Systems	Siemens AG
TDS	Eclipsys
IDX Systems	IDX Systems
----	Cerner

Source: Jefferies & Company, Inc.

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The fact that HCIT customers have been purchasing and using IT products and services for several years hosted remotely is a significant positive for the development of Internet-based ASPs in the healthcare market. Given the inertia in the HCIT market to do *anything* that is considered to be at the cutting edge of information technology, the relative familiarity of remotely hosted IT services will help grease the adoption of healthcare ASPs.

# “I’m Not Gonna Try It, YOU Try It.”

Just as with the “Life” cereal commercials of some 20 years ago, a large question remains to be answered that strikes at the heart of the long-term size and ultimate viability of ASPs in the healthcare market. *Will they like it?* At the end of the day, will the majority of hospitals and payer organizations opt to outsource mission-critical IT functions on an ASP basis? Or, conversely, will large healthcare organizations demand that they retain full control of major information resources ad infinitum?

*It is our view that the healthcare market will, on a large scale, shift to ASPs to provide the vast majority of its IT needs.*

**It is our view that the healthcare market will, on a large scale, shift to ASPs to provide the vast majority of its IT needs. This transition is likely to be moderate in its ramp as infrastructure, application, and concern hurdles are addressed over time. However, the economic and strategic benefits of moving virtually all IT functions to an Internet-based ASP platform are huge and very compelling.**

One of the most comprehensive industry surveys we have encountered to date on market attitudes and use of ASPs by healthcare organizations was published in October 2000 by Porter & Associates, an Alpharetta, Georgia-based specialty HCIT research and consulting firm. Having interviewed senior executives at over 150 large and small payer and provider organizations, Porter & Associates has compiled an extensive database covering current and expected use of ASP products and services in the healthcare industry. This data confirms many of our thoughts about the direction and trajectory of Internet-based ASPs in the HCIT market.

The Porter & Associates numbers are quite telling in many respects. First and foremost is the apparent willingness of large payer and provider organizations to use or strongly consider using Internet-based ASPs for many of their application needs—today. Charts 5 and 6 show these numbers clearly with **nearly 85% of large payer organizations and provider organizations alike either using ASPs today for certain applications or indicating a serious intention to consider such use.**

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**Chart 5: Payers’ ASP Use And Consideration, By Respondent Company Revenue**

	\$5-50 million	\$51-500 million	>\$501 million
Yes, using	50.0%	41.7%	46.2%
Considering	38.9%	33.3%	38.5%
Not using, not considering	11.1%	25.0%	15.4%

Source: Porter & Associates, October 2000 ASPs In Healthcare Industry Report: Payers & Providers

**Chart 6: Providers’ ASP Use And Consideration, By Respondent Company Revenue**

	\$5-50 million	\$51-500 million	>\$501 million
Yes, using	28.6%	21.7%	38.5%
Considering	23.9%	43.5%	46.2%
Not using, not considering	47.6%	34.8%	15.4%

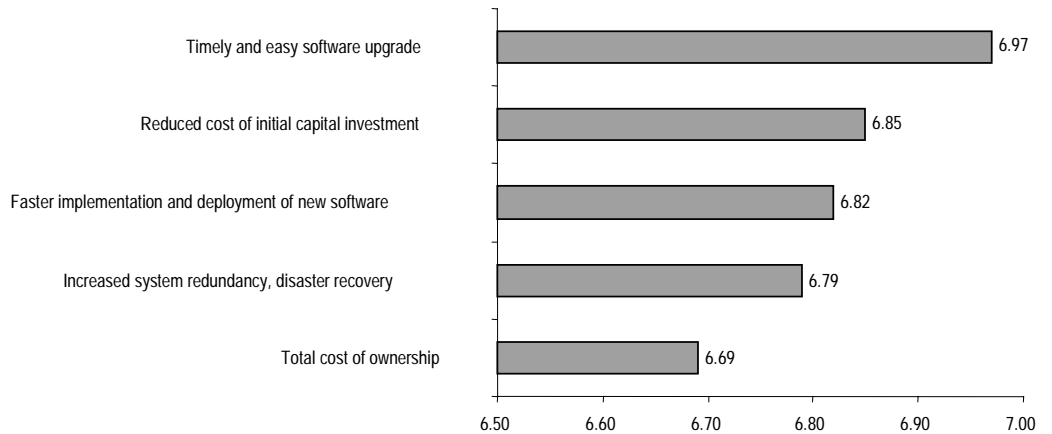
Source: Porter & Associates, October 2000 ASPs In Healthcare Industry Report: Payers & Providers

*The general rule of thumb is that the healthcare market is a full generation behind the rest of the world in adoption of new IT products and services.*

This data is striking in that HCIT purchasers are generally loath to give the “new new thing” in information technology a shot. **The general rule of thumb is that the healthcare market is a full generation behind the rest of the world in adoption of new IT products and services.** The fact that so many potential users, particularly at the high end of the market, are using or seriously considering purchasing solutions from ASPs is, in our minds, remarkable.

How can this be?!?! Healthcare is *notorious* for being perpetually behind the times in IT spending. This is true. But a quick peek at *why* these purchasers are so serious about ASPs provides all the answers.

**Chart 7: Average Ratings Of Importance For Top 5 Benefits Of Contracting An ASP**



Source: Porter & Associates, October 2000 ASPs In Healthcare Industry Report: Payers & Providers

*If a new way of purchasing systems and services that minimizes both the up-front dollar outlay and the cost of purchase over the life of the solution exists, that solution is obviously preferable. ASP solutions offer both.*

The two driving concepts are actually quite simple. Cost and ease. It makes perfect sense given where the healthcare and HCIT markets have come from over the last three to five years. First, the cost issue has always been paramount in purchasers' minds. Given the fact that hospital and payer organizations are only now beginning to recover financially from the dark days of the federal balanced budget act, the availability of capital investment dollars has been scarce, particularly for major IT investments. **If a new way of purchasing systems and services that minimizes both the up-front dollar outlay and the cost of purchase over the life of the solution exists, that solution is obviously preferable. ASP solutions offer both.**

*... it becomes pretty clear that as Internet-based ASPs round out their solutions, the market is ready, willing, and able to step up and begin contracting for and implementing solutions.*

Second, the perceived ease of use, implementation, and maintenance simplicity are almost as important as cost to the purchaser. Again, over the last half decade, HCIT customers have struggled with the implementation and maintenance of enterprise-wide client/server systems from the leading vendors. While recent releases have all been much easier to implement and maintain, the general feeling around the industry is that client/server has been a bear of a problem. If ASPs can minimize this hassle for customers as well, more power to them. **Thus, it becomes pretty clear that as Internet-based ASPs round out their solutions, the market is ready, willing and able to step up and begin contracting for and implementing solutions.**

# Show Me The Money—Where And How Fast Will The Spending Go?

*... the question as to what exactly they will be spending money on becomes paramount in deciding where investment capital should be deployed.*

If investors can be convinced of the fact that ASPs will be embraced by healthcare purchasers, the question as to what exactly they will be spending money on becomes paramount in deciding where investment capital should be deployed. Again, the Porter & Associates survey provides some interesting guidance.

Charts 8 and 9 detail the near-term intentions of HCIT customers as it relates to financial/administrative solutions and clinical solutions offered on an ASP basis. There are several important messages to take away from these two charts.

**Chart 8: ASP Purchase Plans For Financial & Administrative Applications**

	Currently ASP or Installing	Planning 1 to 12 Months	Planning > 12 Months	Sum
Claims management	18.0%	7.0%	6.0%	31.0%
Credentialing	11.0%	6.0%	4.0%	21.0%
CRM	6.0%	4.0%	6.0%	16.0%
Data warehouse	9.0%	6.0%	5.0%	20.0%
Document imaging	4.0%	3.0%	9.0%	16.0%
E-commerce/EDI	12.0%	11.0%	6.0%	29.0%
Financial management (AP/AR/GL)	11.0%	3.0%	5.0%	19.0%
Patient accounting	13.0%	0.0%	4.0%	17.0%
HR/employee benefits	9.0%	4.0%	8.0%	21.0%
Managed care information systems	12.0%	5.0%	8.0%	25.0%
Materials management	8.0%	4.0%	6.0%	18.0%
Intranet	14.0%	6.0%	6.0%	26.0%
Patient/consumer education	8.0%	5.0%	5.0%	18.0%
Corporate portal	8.0%	5.0%	2.0%	15.0%
Physician practice management	8.0%	4.0%	3.0%	15.0%
Security/firewalls/encryption	4.0%	6.0%	1.0%	11.0%

Source: Porter & Associates, October 2000 ASPs In Healthcare Industry Report: Payers & Providers

**Chart 9: Providers' ASP Purchase Plans For Specific Clinical Applications**

	Currently ASP or Installing	Planning 1 to 12 Months	Planning > 12 Months	Sum
Computer-based patient record (CPR/EMR)	6.0%	4.0%	6.0%	16.0%
Case management	5.0%	4.0%	8.0%	17.0%
Decision support	3.0%	4.0%	5.0%	12.0%
Disease management/outcome support	2.0%	3.0%	5.0%	10.0%
Laboratory	2.0%	5.0%	3.0%	10.0%
Medical records (coding/dictation)	5.0%	3.0%	3.0%	11.0%
Pharmacy	0.0%	2.0%	3.0%	5.0%
Radiology	3.0%	3.0%	6.0%	12.0%
Scheduling	2.0%	8.0%	9.0%	19.0%
Patient care (orders, results, etc.)	2.0%	5.0%	9.0%	16.0%
Clinical data repository	0.0%	3.0%	6.0%	9.0%

Source: Porter & Associates, October 2000 ASPs In Healthcare Industry Report: Payers & Providers

First, it is important to note that the financial side of the ASP equation clearly has more early interest among customers than the clinical side. This is perfectly understandable given the nascent commercial status of most clinical applications and the fact that many clinical applications have yet to prove any benefit from an ROI perspective. Conversely, the financial and administrative side of the coin has been the bread and butter of the HCIT market for the last three decades—it is logical, therefore, as a normal transition that customers would entertain more potential ASP purchases of these applications.

Applications that are transactional in nature and relatively easy to move over to the Web (i.e., EDI, claims management) are likely to be the first to be available broadly on an ASP basis. With a beachhead established and more Internet infrastructure in place, we would expect to see more complex applications (i.e., materials management, data warehousing) to be at the latter end of the ASP-enabled curve.

While the Porter data is encouraging in the broad base of general support for ASP solutions among healthcare payers and providers, it is also important to note the relatively measured plans for adoption by these users. While 85% of respondents indicated some level of general interest in ASP solutions, those with near-term plans to begin implementation is a small fraction of that. We actually view this as very positive for the long-term development and viability of healthcare ASPs.

*While the Internet has become a very important part of the IT and business fabric, it is still not ubiquitous in the healthcare market.*

The reason is this. **While the Internet has become a very important part of the IT and business fabric, it is still not ubiquitous in the healthcare market.** Furthermore, the broad availability of Internet-based applications and the ability to adequately service customers is still at least a couple of years out. As a result, if the market demand in healthcare for ASP offerings were exploding today, the level of disappointment among users would be tremendous, thus setting the market's development back significantly. The relatively measured pace of near-term interest and implementation of ASP solutions, therefore, is a very healthy development for the HCIT market.

# The Siren Song Of Clinical Efficiency—*Finally To Be Realized*

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*The Holy Grail of clinical systems that, at the point of care, guide the caregiver in the proper clinical direction given the unique characteristics of each patient's condition has been frustratingly elusive.*

*... the Internet brings to healthcare virtually all of the technological underpinnings that have been missing heretofore from a basic IT perspective.*

*For investors, the exciting aspect of this phenomenon is that the dollar opportunities inherent in these Internet-based businesses is phenomenal—and incremental!*

The promise of clinical systems that enable healthcare market participants to control costs while actually *improving* patient care has truly been the siren song that has ruined many an entrepreneur and investor alike. **The Holy Grail of clinical systems that, at the point of care, guide the caregiver in the proper clinical direction given the unique characteristics of each patient's condition has been frustratingly elusive.** And the reasons are evident.

As we stated before, without the computing infrastructure in place to collect the required clinical information as it is generated at the point of care—and without proper IT standards by which to compare clinical data and events, the Holy Grail of HCIT can never be achieved. But this is not to say that we will never get there—it is our firm belief that we will. And in this, the promise of the Internet in healthcare can and will be achieved.

**To our point, the Internet brings to healthcare virtually all of the technological underpinnings that have been missing heretofore from a basic IT perspective.** As the infrastructure continues to be built out, a virtually cost-free, standards-based communications network will be in place. Language standards that allow trading partners in other vertical markets to share data and drive powerful market efficiencies can now be developed and accepted in healthcare. Wireless, palm-based, and other data capture and communication devices can be widely deployed on a cost-effective basis to collect and deliver valuable information that will enable caregivers to both improve the quality of care while reducing costs. It is not here today, but the Internet will prove to be the deliverer of the elusive Holy Grail.

It gets even better than this, however. The power of collecting and managing clinical and financial data on both a patient-specific and population basis is not simply building electronic medical records, but rather lies in the ability to do more exotic things and develop truly value-added services for the market. For example, HCIT products and services that have been talked about for years finally have a technological basis for being with the Internet. Telemedicine, including teleradiology (perhaps we should call them “Web”-medicine and “Web”-radiology) becomes not a dream, but a reality. Truly interactive disease management is enabled by the case manager's ability to manage several hundred patients at a time using the Internet. The list goes on.

**For investors, the exciting aspect of this phenomenon is that the dollar opportunities inherent in these Internet-based businesses is phenomenal—and incremental!** The Internet actually will be the driver of new growth opportunities in the HCIT sector with significant areas of expansion throughout the sector. While it is difficult to assess just how large the market opportunity may be for some of these new services, the dollar savings inherent in managing the clinical issues involved run in the billions. Suffice it to say, the market opportunities are staggering.

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## Chart 10: Selected New Clinical Businesses Enabled By Healthcare ASPs

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<u>Sector</u>	<u>Companies to Watch</u>
“Web”-medicine	Accordant
“Web”-radiology	inPhact; eMed
Clinical Trial Management	PhaseForward; Domain
Wellness Management	Wellmed; Health Connections

Source: Jefferies & Company, Inc.

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## Pricing: Will They Figure Out That A Billion Nickels ...

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... is a whole lot of dough? It is actually quite funny thinking about some of the early business plans we saw from entrepreneurs who believed that they could replace license fees with limitless transaction fees in selling their software on an ASP basis. It was remarkable just how stupid they thought their likely customers were. The concept that replacing the high up-front costs of licenses with the low, low cost of “a nickel per click” would be so compelling that the customer wouldn’t even think of just how many clicks they would transact over the life of the contract. Presto! A money machine!

*...“per click” fees will not end up being the pricing model of choice for most ASPs in healthcare. What will prevail is the subscription model.*

Wrong-o. While not very technologically savvy, HCIT customers are cheap, and they get the joke of “present value” and “life of the contract.” As a result, **“per click” fees will not end up being the pricing model of choice for most ASPs in healthcare. What will prevail is the subscription model.**

Here, again, we are in familiar territory in the HCIT market. Just as the ASP concept has been around for some time in healthcare (recall the “RCO”), subscription pricing has also been around—only it has been called the “term license agreement.” Most commonly used by Shared Medical Systems, term licenses allowed the customer to “rent” the software from the vendor for a fixed period of time, reducing the up-front costs of a “perpetual license” in which the customer actually bought the software from the vendor. It is our belief that as ASPs become more and more prevalent in the market, subscription pricing will become the predominant form in the market.

This transition will actually have significant revenue and cash flow implications for vendors in the near and intermediate term, most specifically on the legacy vendors. The majority of the large legacy system vendors sign perpetual contracts with their customers, recognizing revenue on a “percent of completion” basis. As business moves to a subscription revenue model, this will have the effect during the transition period of reducing apparent near-term revenue growth, though visibility on forward revenues will improve. The net effect will be for those vendors moving through the transition to show slower revenue growth than bookings activity (on a steady state basis) would indicate. To date, only one vendor (Eclipsys) has indicated that they are moving all new business signed to a subscription model, lowering financial guidance in the early part of last year as a result. We believe that this activity will become more prevalent over time.

Not to say that this is a bad thing. Not in the slightest. Percent of completion accounting carries with it quite a bit of negative baggage: lower long-term visibility on revenues, *very* soft revenue recognition milestones (and when we say *very*, we mean *VERY*), and uneven matches between recognized revenue and cash flows. In short, we believe that the move to subscription-based services will improve the quality of financials on a going-forward basis for most vendors from a visibility, accounts receivable, and cash flow perspective.

## The Hoopla Over HIPAA—Heroic Or Hogwash?

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There has been so much discussion over HIPAA, the Health Insurance Portability and Accountability Act that our heads are spinning. For those three people who have even a remote interest in HCIT who are not yet aware, HIPAA involves (among many other things) federal mandates dealing with the security and communication of patient information. In short, the federal Department of Health and Human Services has issued and is in the process of issuing mandates covering standards, processes, and procedures to safeguard the privacy of individuals' medical information that all healthcare market participants will have to abide by within the next two to three years.

Here's the rub: the current HCIT infrastructure is not at all ready for what the government is likely to hand down from on high. What does that mean for HCIT vendors? MONEY!!! And lots of it!

Or so the thinking goes. The general thinking is that as the HIPAA guidelines are published and providers and payers realize how widely they currently deviate from the mandates, they will be forced to spend gazillions of dollars just to come into compliance. Simple, right?

Maybe not. For starters, the dollar numbers being thrown around for healthcare players to come into compliance with HIPAA run well into the billions. Some pundits believe that HIPAA will dwarf the billions of dollars spent on Y2K remediation over the last several years. And Y2K was supposed to be the "end of the world" as we knew it. Most striking, however, is that HIPAA remains this amorphous cloud off on the horizon with precious little about all of the specific mandates actually known. As many others have put it, HIPAA promises to turn into the "full employment act" for HCIT consultants over the next several years.

*In our minds, HIPAA could turn out to be our worst nightmare, or puff of imagination.*

**In our minds, HIPAA could turn out to be our worst nightmare, or puff of imagination** (or somewhere in between). For starters, as there has been precious little actually known about the specifics, there has been little more than handwringing done by payer and provider organizations. If the mandates are finally published and the cost of solutions too onerous, you can bet your bottom dollar that the lobbying machine will be turned on full blast against HIPAA. With a new, free-markets oriented administration in place, all bets are off as to the final outcome.

*... the drive toward standards and security is on, with or without HIPAA. And this is nothing but good news for the developing ASP market in healthcare.*

**However, the drive toward standards and security is on, with or without HIPAA. And this is nothing but good news for the developing ASP market in healthcare.** The need for IT infrastructure, standards, and security is humongous in healthcare—more so than in any other market. If HIPAA turns out to be the driver, no problem. If it only turns out to be the spark that lights the fire, we have no problem with that, either.

HIPAA or not, the healthcare market is on its way to being Internet-enabled and ASP driven. Our only caution is to not hang one's hat completely on HIPAA driving billions of new spending. That day may come, but it is a little too early to start counting all of those dollars.

## The Homestretch—Littered With Hurdles

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... there are several major barriers to ASPs rolling in to save the day. None of these hurdles threatens the inevitable evolution into remotely hosted Internet-based IT solutions, but they are several and will take time to knock over.

It all seems so simple. Internet enable market participants—develop the applications—let the ASPs roll! Unfortunately, it's not all so simple. As with everything in the HCIT market, **there are several major barriers to ASPs rolling in to save the day. None of these hurdles threatens the inevitable evolution into remotely hosted Internet-based IT solutions, but they are several and will take time to knock over.** That's why they call it "evolution" instead of "revolution." We outline several of them here.

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### Chart 11: Hurdles To Full Deployment Of Healthcare ASPs

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Infrastructure  
Bandwidth  
Security  
Application Development  
Reliance on Paper  
Inertia

Source: Jefferies & Company, Inc.

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**Infrastructure.** The Internet needs to become ubiquitous throughout the entire healthcare market. For example, less than 20% of physician practices have basic dial-up Internet access, let alone access to high-speed Internet connections. Hospitals and payer organizations are better developed, but for Internet-based ASPs to flourish, access to the basic platform is crucial. We believe that this hurdle will be overcome fairly quickly, but in HCIT, fairly quickly means 18 to 24 months. Several opportunities abound for wireless Internet technologies to hurry this process along.

**Bandwidth.** To illustrate the bandwidth needs of healthcare ASPs, we often draw an analogy between forwarding a medical record to a specialist and buying a book on Amazon. When one compares the bandwidth needs of these single transactions and the need of healthcare providers to have near instantaneous responses, the bandwidth needs of healthcare ASPs becomes pretty evident. Moving vast amounts of clinical data, financial data, medical images, and the like takes a *really fat pipe*. Those pipes need to be laid, need to be widely available, and need to be cheap.

**Security.** Whether driven by HIPAA or not, security is a paramount issue in healthcare. More so than in virtually any other industry, the security of individual patients' information is vital to the healthcare market. Public key infrastructure, digital certificates, and a host of other technologies are beginning to get attention from customers. Certain of the leading healthcare-specific Internet security firms (i.e., Phylve, Presideo) are leading the drive.

**Application Development.** We have said it before, but slapping a Web browser on the front of a klugey client/server application does not a Web-enabled solution make. Web-native applications must be delivered by the leading ASPs to efficiently take advantage of the technological advantages of the Internet. These applications are feverishly being developed right now, but it will take time before pure Web-based solutions are widely available in the market.

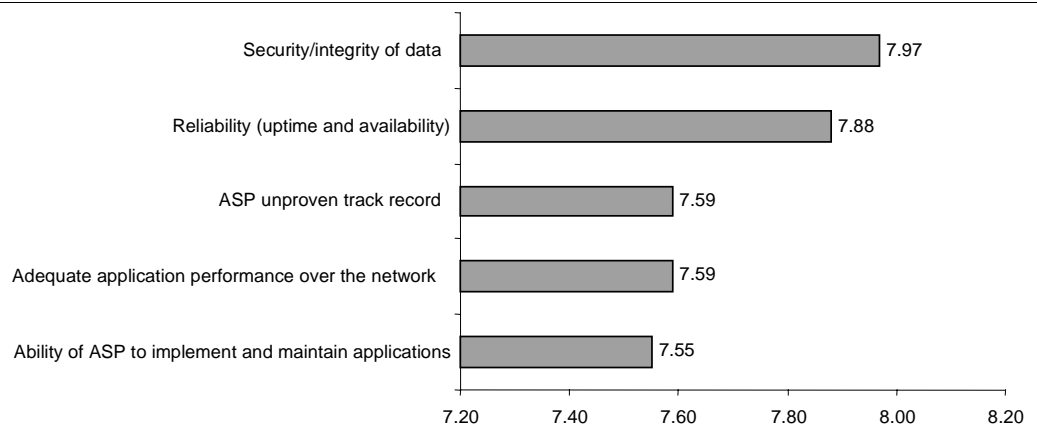
**Reliance On Paper.** Everything about healthcare continues to revolve around paper: paper records, prescriptions, claims, faxes. The entire workflow of the healthcare industry, though making progress, revolves around paper. As the tools and applications to move to a digital world become more prevalent and their clear benefits are seen, this paper-centric workflow will change. But again, that change will not come overnight.

**Inertia.** Maybe it is because the government is so involved, but the only industry more averse to change than healthcare is the government. The decentralized nature of the business, the fiefdoms controlled by caregivers and bureaucrats and the initial instinct to "do no harm" makes change all the more difficult in healthcare. While it will not quite take a generation of technologically aware participants to move the Internet ball forward, ASPs will be hindered by an overall inertia to change the way of doing business in HCIT.

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**Chart 12: Hurdles To Full Deployment Of Healthcare ASPs**

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Source: Porter & Associates, October 2000 ASPs In Healthcare Industry Report: Payers & Providers

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The Porter & Associates numbers bear all these issues out. Again, none of these issues threatens the inevitable move of healthcare into the 21<sup>st</sup> century. But for entrepreneurs and investors to expect a sudden transformation of HCIT to an ASP model is foolhardy. The race is a marathon, and we have only finished the first mile. The sprinters are toast. The leaders will survive—and thrive.

# Driving The ASP Steamroller Ever Forward

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*It is the value provided by ASPs and the customer recognition thereof that we believe will be the drivers to plow through the market development hurdles for ASPs ...*

As the Porter & Associates data in Chart 7 noted, the recognition of providers and payers of the benefits they can derive from healthcare ASPs is very high. **It is the value provided by ASPs and the customer recognition thereof that we believe will be the drivers to plow through the market development hurdles for ASPs** and launch them into the forefront of the HCIT market.

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## Chart 13: Drivers Of ASPs In Healthcare

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Cost of Implementation/Ownership  
Standardization  
Integration/Implementation  
Offload Personnel  
Interactivity  
New Solutions

Source: Jefferies & Company, Inc.

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**Cost Of Implementation/Ownership.** In healthcare, it seems that everything important comes down to the almighty dollar. It is no wonder given the extremely difficult financial environment in which most healthcare payers and providers have been operating for much of the last decade. The IT sector is no different. With enterprise systems running north of \$10 million for even a moderately sized hospital, the cost of acquisition is high on all purchasers' lists. Add to that the ongoing maintenance costs, and the total cost of ownership of these large client/server systems borders on onerous. With ASPs, the up-front acquisition costs will be significantly lower due to subscription based pricing and the remote nature of application hosting should also reduce ongoing maintenance fees. This will free up more capital for value-added solutions in the future.

**Standardization.** While most HCIT vendors have moved considerably with their latest releases to more standardized software packages, a large reason for the lack of language and data standards in healthcare has been the degree of customization of enterprise systems throughout the market. With a remotely hosted suite of applications and solutions, the move toward mass standardization will take a giant leap forward. Here again, the cost of ownership for the customer will be reduced as fewer system issues will be client specific and can be addressed en masse. With standardization comes the ability to pool data and deliver additional products and services.

**Integration/Implementation.** As stated earlier, among the benefits of remote hosting and standardization is the ability to implement and integrate disparate solutions in a much simpler, more cost-effective environment. HCIT is notorious for closed-system architectures making it extraordinarily difficult for systems from different vendors to share data and interact. ASPs will take the market one giant leap forward in breaking down these barriers, improving efficiency throughout the market.

**Offload Personnel.** One of the most difficult tasks for providers and payers alike has been the cost and difficulty of attracting and maintaining a staff of talented IT professionals to manage their in-house systems. ASPs, being remotely hosted, will largely mitigate the need for hospitals and insurers to hire large IT staffs, unloading significant costs and other managerial headaches.

**Interactivity.** One of the inherent values generated by the Internet is the ability for trading partners to interact in real time on a virtually "free" basis. As more means for caregivers and patients become available to interact, the cost of providing care and managing a patient's care status will drop considerably while significantly improving the quality of the care being provided.

***New Solutions.*** Perhaps among the most exciting areas of development in healthcare ASPs, the ability to leverage the capabilities of Internet technology to bring new products and services to market will explode. As more data is available on a standardized basis and technological attributes such as XML allow clinical and financial data to “come alive,” the Holy Grail of HCIT—clinical solutions—will finally be delivered to customers.

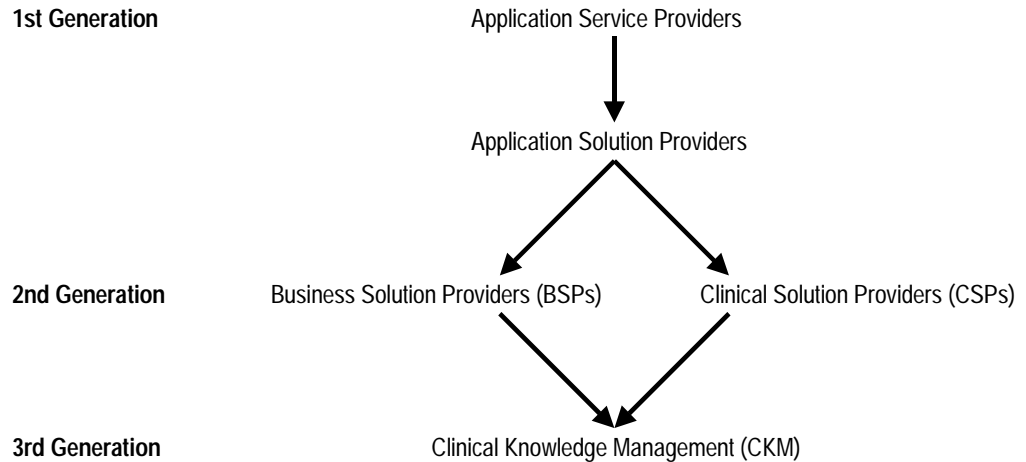
These points only begin to scratch the surface, but suffice it to say that the benefits of ASPs in healthcare will undoubtedly overcome the many hurdles currently standing in the way of broad market development. The question is when, not if. Thankfully, the “when” will be sooner rather than later.

# The ABCs Of Healthcare ASPs' Evolution

*We believe that we are in the first phase ... of the development of the ASP market in healthcare as legacy and new Internet-focused vendors begin to plow the green field of healthcare ASP*

It is only natural that the development of the ASP model in healthcare should go through several different phases as the hurdles to development are overcome and the benefits become more tangible. **We believe that we are in the first phase, or generation, of the development of the ASP market in healthcare as legacy and new Internet-focused vendors begin to plow the green field of healthcare ASP market development.** The next two generations are where the real value will be delivered.

**Chart 14: The ABCs Of ASP Evolution In Healthcare**



Source: Jefferies & Company, Inc.

*... we believe the most successful ASPs will focus on two broad segments: business solutions (BSPs) and clinical solutions (CSPs). Hence, we have the "ABCs" of healthcare ASPs: Application, Business and Clinical solution providers.*

For healthcare ASPs to be successful, we believe that they will have to take their industry domain expertise to a more focused level. While the current legacy HCIT vendors may be in a position to leverage their current market positions in financial/administrative solutions and early clinical solutions to play both sides of the fence, **we believe the most successful ASPs will focus on two broad segments: business solutions (BSPs) and clinical solutions (CSPs).** Hence, we have the "ABCs" of healthcare ASPs: Application, Business and Clinical solution providers.

The need for early bifurcation in the market is simple: **the task of developing and deploying ASP services that meet all of the needs of the healthcare market is simply too large to be taken on in a single bite.** Different players will have to focus on different functions in the market. BSPs will emerge first simply because the majority of solution needs currently being met are financial and administrative in nature. As the Internet infrastructure becomes more mature, however, and the benefits of technological ubiquity, data standards, and large pools of clinical information are apparent, CSPs will emerge with even higher value-add solutions for the market. This stage of market development is likely to take several years as the Internet matures and the application solutions are developed and deployed.

We are already seeing some of this bifurcation in the ASP market today. For example, companies such as The Trizetto Group, HealthStream, eBenX, and Third Millennium Healthcare have taken steps to focus specifically on payer, education, benefits administration, or provider back-office functions to get a meaningful piece of real estate in the healthcare ASP market from which to grow. We believe that these BSPs, among several others, will be major players in the development of the overall ASP market in healthcare.

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**Chart 15: Early Second Generation ASPs**

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**BSPs**

The Trizetto Group  
HealthStream  
WebMD  
Third Millennium Healthcare  
Scheduling.com  
eBenX  
MedCenterDirect  
W3 Health  
athenahealth  
Employease

**CSPs**

AllScripts  
InPhact  
MedScape  
LandaCorp  
MedFusion  
Accordant  
Phase Forward  
A4 Health  
drgoodwell  
WellMed

Source: Jefferies & Company, Inc.

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While it will take longer to develop, we believe that the CSP market will be even more important to the healthcare ASP market as it is the development of new clinical services that will bring the most benefit to the healthcare industry. Here, again, is where the Holy Grail of merging electronic medical records with clinical knowledge and financial statistics to develop for each individual the highest-quality, most cost-effective care plan can be delivered. But it's a long way off. Early leaders in the CSP space are focused on medical records, pharmacy, medical imaging, virtual care, and "Web"-medicine.

## The Holy Grail: Clinical Knowledge Management (CKM)

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The third generation of healthcare ASPs, Clinical Knowledge Management (CKM), represents the Holy Grail that we have mentioned so frequently throughout this report. CKM represents the merging of all available information (patient specific, population-wide, clinical, financial, pharmacoeconomic, etc.) on a standardized basis to manage a given individual's care status in the most productive, clinically robust way. We stated in our introduction that "Healthcare is an information business". But it really is more than that—it is a *knowledge* business.

*CKM also represents a vast market opportunity in its own right that we will take up in a separate report in the future.*

The information we collect can be managed to create clinical knowledge about an individual, his or her care status, potential clinical needs, and ways to avoid a decrease in wellness status. It is with CKM that the healthcare industry finally becomes a more efficient market in which all available knowledge is used to the clinical benefit of the patient and the financial benefit of the market participants. **CKM also represents a vast market opportunity in its own right that we will take up in a separate report in the future.**

## Are We There Yet?—ASPs In Healthcare: Concluding Thoughts

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If it's not yet clear, we are big fans of the opportunities inherent in the healthcare ASP sector. **While the Internet has thus far been a bust for HCIT investors, we have only run the first mile of the marathon.** The veterans (legacy players) are all smartly in the lead pack, while the fresh blood (well-positioned, well-financed new market entrants) are all right behind. The rookies (e-commerce, content aggregators, B2C e-Health companies) are sucking wind, left in the dust. For those that continue on, the race promises to be fruitful and lucrative.

**ASPs are the next natural evolution of the HCIT market, finally bringing the computing and communications infrastructure that has been so lacking in the healthcare market.** Industry data indicates, and history demonstrates, that the market will embrace remotely hosted IT solutions as they become proven in the marketplace. In our view, the vast majority of the \$20-plus billion HCIT market will move to an ASP model over time.

The drivers are several: lower cost, ease of use, and emergence of standards. The ASP model is compelling in virtually every technical and economic aspect. But significant hurdles remain: lack of bandwidth and infrastructure, general market inertia, and a fear of virtually all things new in HCIT. In all, the hurdles will slow the broad rollout of ASPs in healthcare, but then again, steamrollers are rarely found with a turbo boost attached.



As the infrastructure is built and the Internet becomes ubiquitous and more mature in the healthcare industry, **we believe that the ASP market will go through at least two generations of change.** The first will involve a bifurcation of the market into BSPs and CSPs as vendors focus their resources and energies on tackling specific market needs. Later, BSPs and CSPs will converge into the third generation of ASPs in healthcare Clinical Knowledge Management companies. It is the CKM providers that will deliver the Holy Grail of fully integrated clinical and financial solutions to payer and provider organizations.

This is the power of ASPs in healthcare. **With the ability to collect and manage clinical and financial data on a standardized basis within the complex, three-dimensional healthcare data model, the ability to deliver new, high-value-added solutions that truly drive efficiency in healthcare becomes real.** It is these CKM solutions that will finally allow us to grab the healthcare tiger by the tail and manage the healthcare industry in ways that other vertical markets are managed. Clinical resources will be used and deployed more efficiently—costs will go down—quality will improve dramatically.

It is a pie-in-the-sky view, and one that is not likely to come to fruition for many years. However, the Internet-based healthcare ASP pioneers are on the right track. Along the way are many opportunities for entrepreneurs and investors alike.

What follows is a summary of early players in the healthcare ASP game, with information culled from discussions with and/or materials provided by each company listed. For those companies not included, we apologize and look forward to getting to know you soon.

**Table 3: ASP Report Profiles (Continued)**

The Company	The Sizzle	The People	The Partners	The Money
 <p><b>Private</b></p> <p>PhDx e-Systems, Inc. 2309 Renard Place, SE Suite 204 Albuquerque, NM 87106 <b>Phone:</b> 505-764-0174 <b>Fax:</b> 505-764-0074 <b>Email:</b> sales@phdx.com <b>Web site:</b> www.phdx.com</p> <p>PhDx e-Systems, Inc. delivers tailored, integrated software applications, data collection services and data repository products for supporting disease management and medical products outcomes. An ASP, PhDx gives providers, payers, medical product companies, and physician groups the ability to measure the effectiveness of disease management programs or track the effectiveness of a drug or device.</p>	<ul style="list-style-type: none"> <li>• <b>As an Application Service Provider</b>, PhDx provides software applications over the Internet to demonstrate improvements inpatient care and create efficiencies within an organization.</li> <li>• <b>The information technology cornerstone for both software and services is the PhDx Health Information Platform</b>, a proprietary, comprehensive, scalable platform.</li> <li>• <b>PhDx gives healthcare providers the technology to support population health management and medical products outcomes</b>, with integrated functionality for risk assessment, health program planning and tracking, and outcomes measurement to improve clinical and financial outcomes.</li> <li>• <b>PhDx gives medical product companies, payers, and employers the technology to track the effectiveness of health management programs or products</b>, demonstrating improved quality of care for individuals and populations over time.</li> <li>• <b>PhDx Data Services Center</b> is available to handle reminder notices, survey data collection and data input, and report generation necessary to support the health management program.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Waneta Tuttle, PhD</b>, Chairman</li> <li>• <b>Geoffrey Mather</b>, President &amp; CEO</li> <li>• <b>Dee Brescia</b>, CFO</li> <li>• <b>Rosemary Berg</b>, VP Product Management</li> <li>• <b>William Lentz</b>, VP Information Technology</li> <li>• <b>Leila Nelson, PhD</b>, Biostatistician</li> </ul>	<ul style="list-style-type: none"> <li>• Banner Health Arizona (fka Samaritan Health Systems)</li> <li>• Greenville Hospital System</li> <li>• John Deere Health Plan</li> <li>• Medtronic Sofamor Danek</li> <li>• Sleep Solutions, Inc.</li> <li>• South Carolina Heart Center</li> <li>• Tucson Medical Center</li> <li>• Well Call</li> </ul>	<ul style="list-style-type: none"> <li>• Johnson &amp; Johnson Development</li> <li>• Vanguard Venture Partners</li> </ul>
 <p><b>Private</b></p> <p>Phycom Corporation 11241 Slater Avenue NE, Suite 200 Kirkland, WA 98033 <b>Phone:</b> 425-576-8600 <b>Fax:</b> 425-893-8222 <b>Email:</b> info@phycom.com <b>Web site:</b> www.phycom.com</p> <p>Phycom is a leading provider of advanced medical management and e-health solutions for the managed-care industry.</p>	<ul style="list-style-type: none"> <li>• Phycom ePartner is a suite of connectivity solutions utilizing the Internet, interactive voice response, and fax technology to <b>exchange utilization and case management information among healthcare constituents</b>.</li> <li>• With ePartner's fully edited real-time transactions, providers can <b>confirm a patient's eligibility, process referrals, submit claims or check claims status</b> in seconds, by telephone or over the Internet.</li> <li>• Phycom CarePartner <b>integrates utilization management, case management and contract management</b> to help ensure patients receive the right care at the right time. From acute care to long-term disease management, CarePartner collects patient information wherever care is given, helping deliver integrated quality care.</li> <li>• CarePartner Case Management is a customized, comprehensive case management and concurrent review solution that <b>allows professionals to manage care plans</b> using clinical guidelines and protocols.</li> <li>• CarePartner Utilization Management <b>manages data for referrals, authorizations, pre-certifications and reviews</b> to support the best allocation of resources.</li> <li>• CarePartner Contracts <b>associates contract information with individual patients to streamline medical management</b>. With CarePartner Contracts, the proper information (implemented automatically) eliminates unnecessary phone calls and authorizations, saving time and reducing administrative costs.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Frederick Dunlap</b>, CEO</li> <li>• <b>Julie Klapstein</b>, President</li> <li>• <b>Ellen Boyer</b>, EVP &amp; CFO</li> <li>• <b>Laura Ciavola</b>, EVP Development &amp; Operations</li> <li>• <b>Arie Van den Akker</b>, EVP Sales &amp; Marketing</li> <li>• <b>William Gazda</b>, VP Client Services</li> <li>• <b>Mary Kelley</b>, VP Product Consulting</li> </ul>	<ul style="list-style-type: none"> <li>• Covation</li> <li>• CSC Healthcare Group</li> <li>• Envoy Corporation</li> <li>• Health Systems Design</li> <li>• InterQual</li> <li>• Milliman &amp; Robertson</li> </ul>	<ul style="list-style-type: none"> <li>• Acacia Venture Partners</li> <li>• E.M. Warburg Pincus &amp; Co., LLC</li> <li>• J.P. Morgan Capital Investments</li> </ul>