

Sentillion, Inc.

The Anatomy of a Corporate Spin-off

“Do you think it’s really possible to start a company to do this type of thing?”

—Robert Seliger, Co-Founder and CEO, asking a friend
about spinning off technology from HP into a
new company April, 1999, Winchester, Massachusetts

Rob Seliger was sitting across from John Douglass at his kitchen table. Rob Seliger had been an R&D manager in Hewlett Packard’s Medical Products Group. John had been a marketing manager in the same division. Together, the two men were now partners in a new healthcare IT venture and had just raised \$2.7 million in Series A financing. The process of spinning out their new company from HP had been a year-long journey. And with the funding, their work had just begun.

Origins in HP

The Medical Products Group was located in Andover, Massachusetts, an entire continent away from HP’s Silicon Valley headquarters. The Group at that time accounted for roughly \$1.5 billion of HP’s \$40 billion annual revenues. Seliger had arrived at HP 18 years earlier, at the very beginning of his career. An electrical engineering graduate from Cornell, he had added an MIT masters in computer science to his resume, thanks to a fellowship from his new employer.

Over the course of those 18 years, Seliger had risen to become the senior software technologist in the Medical Products Group. Being on the opposite side of the country from HP headquarters, and serving the specialized market of healthcare systems, had given the Group a fair amount of operating independence. It handled nearly all of its own business functions—ranging from R&D, to sales, manufacturing, finance, and customer service. This relative independence had made the Medical Products Group a training ground for up and coming HP executives. Lewis Platt, for example, a prominent CEO of HP during the 1990s had first been the General Manager of the Medical Products Group.

The 1990s had been a decade of transition for HP. Historically the company was a creator and manufacturer of high margin, sophisticated electronics, measuring instruments, and software for niche applications in industrial, scientific, and medical markets. With the advent of client server and home computing, however, management redirected the business to lower-margin, high-volume businesses such as servers, PCs, ink-jet and laser printers, scanners, and so forth. And management wanted more of the same.

The Medical Products Group was not “more of the same.” It was the market leader in patient monitors for adults and infants, and in ultrasound machines for cardiology applications—all complex systems. The Andover facility also had its own automated surface mount manufacturing

machines to fabricate the unique, multi-layered printed circuit boards for its various products. These products departed sharply from the new path that corporate HP was pursuing, and top management was finding it harder and harder to keep these different businesses under the same roof.

Hospital managers at this time were urging their vendors to integrate diverse data sets into electronic medical record systems. Care providers were convinced that such integration would improve the quality of care, reduce medical errors, and lower administrative costs by eliminating redundant processes and databases. As a gifted software architect, Seliger understood their need and believed that well designed software could bridge different types of systems with different specific purposes. His customer visits convinced him that this was what users wanted.

At the time, Seliger was an architect working on a highly advanced clinical information system that gathered data from a patient monitor and displayed computerized flowsheets and reports that in most hospitals were still documented manually by physicians and nursing staff. He wanted to connect the data in his system with other systems produced by the Group but he found no resources to develop such connections. In fact, he saw that different units within the Group were doing just the opposite of what customers wanted. Everything was decentralized. Each product line had its own R&D team building its own applications software to its own self-defined standards, using the tools of their own choice.

Seliger's R&D executive, Mark Halloran, also recognized the problem but was struggling for ways to get the division business managers to allocate resources to the development of common "software platforms." He knew that such platforms—common databases and application programming interfaces—would allow for seamless interconnectivity between the Group's different product lines. The same platform could also be opened to HP's partners. However, division managers were so focused on near term improvements to feature and functions in their own systems that common software for the common good was not an issue of interest. The impact on customers was predictable. Said Seliger:

There was no connectivity. Cardiology had its computers and ran cardiology applications. Obstetrics had its computers, which ran applications for it alone. This did not bode well, for example, for treating pregnant women with mitro valve prolapse, a common heart condition among pregnant women. Customers would complain to us that they had bought a system for the intensive care unit, another for radiology, and another for the OR, but they didn't work together. And they were right. Different departments were using different operating systems, had different standards, and so forth. You couldn't have made these systems less integrated if you had tried.

Doctors and nurses who wanted to use these information systems to get a complete picture of their patients and patient care were frustrated at every turn.

They would first have to find the application of interest—say radiology—then log on and enter their password. But if they were in the radiology application and wanted to check a lab report, they'd have to log into the lab's system, which required a different id and password. Want to order a medication for the patient? Then the doctor would have to log into yet another system. This was so frustrating and time consuming that most care providers stuck to their paper records and manual systems. Using the computer system was just too painful. At best, they would log into the single application most pertinent to their discipline and ignore patient information available elsewhere.

"A company should organize the way it's wants its products to operate," Halloran would say. He believed that the Group needed a small centralized R&D unit to build common components to be used across all divisions.

In 1996, Halloran hired a consultant to size up opportunities to create common parts and pieces across both hardware and software in the Group. Working with senior technologists such as Seliger, the consultant—known as “The Professor” because of his affiliation with a local university—found numerous opportunities for platforming. In software alone, there were different database management systems, programming languages, and even operating systems across the five different divisions. It was during this time that Seliger and Halloran kindled a friendship based on their shared interest in the power of product platforms. Halloran built support among Group executives for the creation of a new, central R&D team to create common software components to connect the five different product lines. He asked Seliger to lead the team.

At the time, being a formal leader at HP was not what most people would expect. HP culture was to give managers lots of responsibility but no real authority, as Seliger quickly discovered. He was charged with bringing the divisions together to build common software components. However, he was given few resources to get the job done. Nor did he have much leverage over the other R&D managers. They all had tight deadlines to meet in their other jobs and these had priority.

Forming an Industry Consortium to Create a New Standard

The opportunity to create common software existed at two primary levels. The first was at the database level, as common formats for identifying and storing information about patients, medications, or clinical procedures. By 1997, various industry standard groups had created fairly well defined database standards to address these needs, and most medical device and software developers had adopted them. Even HP’s medical divisions had begun to incorporate these industry standards.¹

The second opportunity to create common software was at the user interface level. Nothing existed within HP or any other medical systems vendor that standardized how physicians and nurses interacted with clinical software.

- Patient information resided in multiple clinical IT systems
- Doctors, nurses and other caregivers required access to many applications
- Navigating among those applications was cumbersome and time-consuming
- Even if a “single sign-on” for caregivers existed, it would not, by itself, get them into the specific applications they needed to see.
- There was no working technology to synchronize applications to present a single patient’s data across the multiple applications used by caregivers.

As a result, each physician had to maintain a separate log in and password for each software application used over the course of the day—up to a dozen or more in many situations. There was also no way that a single patient’s information could be populated across these myriad applications

¹ HL/7 (which stands for Health Level 7) is an important set of standards for the electronic interchange of clinical, financial, and administrative information among health care oriented computer systems. It specifies a number of flexible standards, guidelines, and methodologies by which various healthcare systems can communicate with each other. Within HL/7, document, data, and messaging formats have been proposed and adopted by the industry. DICOM was a major database standard. It stands for the Digital Imaging and Communications in Medicine (DICOM) standard for distributing and viewing any kind of medical image regardless of the origin.

once the doctor logged on. For each application, s/he would have to look up the patient's ID and wait for the system to access that information. When the doctor changed or added information (which is the whole point of providing care assisted by computers), s/he would have to update each clinical application separately. If the doctor had to race off to answer a page, for example, those systems might never have the correct information. Or, the results of a laboratory analysis shown in one system were not carried over into ordering drugs into another system. Incorrect or missing information could lead to suboptimal care, causing further illness, and sometimes, worse! For example, it was well known that in the United States alone, giving people the incorrect medications in the hospital was the cause of over 100,000 deaths each and every year!

These were the problems—for physicians, nurses, and other care providers—that Seliger wanted to try to solve. In his new position as the head of the Medical Product Group's central R&D team, that became his responsibility. But, as noted earlier, he had no authority to make any of the R&D managers in the five HP divisions help design and use common software infrastructure. None. Frustrated, he began asking for advice—of the political sort. Wes Rishel, a personal friend and industry consultant, offered a potential solution:

Rob, why don't you create an industry standard? Focus on your ideas about patient and user context management. If you get people outside the company to embrace that standard, that might compel HP developers to fall into line with everyone else.

Going outside to encourage collaboration inside seemed a strange way to reach the goal, but at this point, Seliger was willing to try any good idea. He invited companies that worked in the healthcare IT space to come to Boston and form a consortium to create tools to identify care providers and synchronize patients across their respective systems. In March, 1997, twenty companies showed up for the first meeting of what became the Clinical Context Object Work Group, or CCOW. Of those, a number were HP's archrivals. Yet, everyone realized that these standards, if well designed and implemented as a new type of healthcare IT "middleware," would significantly improve the productivity of care providers using computers and eliminate a wide range of errors.

Seliger's middleware initiative had, until now, gathered little attention from top HP management. The fact that archrivals were participating in CCOW, however, gave his work greater visibility, and he was given a staff of programmers to get the job done.

Taking the lead within the consortium, the HP team developed an application programming interface (API) that any vendor could use to enable caregivers to sign on only once in order to use any application they are allowed to use. They also began work on a second set of software that would allow different systems to synchronize on a patient across different applications. By the end of 1997, Seliger's team had created the first version a software toolkit that offered the promise of being an industry-wide platform.

What to Do with the New Technology? _____

For Seliger, success bred both more success, and then new challenges.

The HP Medical Products Groups was always one of the major exhibitors at medical device and information systems tradeshows. As word spread about CCOW and HP's implementation of it emerging standards into a working toolkit, competitors quickly began to seek him out at trade shows, asking if they could license HP's new software to enable their own applications.

HP management took notice, and in early spring 1998 asked Seliger to continue his work in Andover *and* take over R&D responsibility for managing the software development of all of Medical Products Group, which had recently been combined into a single business unit. Now, with the top R&D job in the business unit, as well as increasing demand for his new software

toolkit, things appeared to be looking up. Nevertheless, there were so many pressing priorities that transforming MPG's clinical information products into a suite of interoperable solutions continued to be elusive.

Seliger was getting increasingly concerned. He was the top R&D person in the Clinical Information Systems Business Unit and he had never been more on top of his game in terms of architecting software and leading people to build it. Still, he wondered if there was a different way to ignite the interoperability opportunity, especially in the form of clinical context management. During a quiet, reflective moment following a weekend of hiking with his family, he contemplated this challenge—and had an epiphany: maybe the new technology needed a new company to fully develop it and bring it to market. Perhaps he should start his own company! “Once that idea infected me,” Seliger recalls, “I had trouble concentrating on anything else.”

On Monday morning, he called The Professor. Seliger's friend had been a cofounder of a venture capital backed software company several years earlier and been involved in other startups. Seliger asked, “Do you think it's really possible to start a company to do this type of thing? Could we spin the technology out of HP and build it in a separate company?”

Over the next thirty minutes, The Professor fanned the flames, describing how other software entrepreneurs had created corporate spin-offs with the blessing of their former employers. He described what had to be done and ways of doing it. He talked to the software engineer about product strategy, writing a business plan, developing realistic projections of revenue and startup expenses, and the level of financing that might be necessary. He sent his friend various planning templates and financial boilerplates. “But one of the first things you have to do, Rob,” the Professor said, “is have a heart to heart with your boss, Cynthia. You need to sell her on your vision for the technology.”

Cynthia Danaher was the senior executive of the Medical Product Group. Cynthia had risen quickly to become the head of marketing for the company's industry leading ultrasound system division, and then, its General Manager. She had exceptional insight into HP as a company and the Medical Products Group's role within it. She had been a strong supporter of developing the CCOW standard, but knew the company well enough to know that HP corporate had a limited appetite for Seliger's type of project—at least at that time. In fact, corporate was probably in the process of spinning out its entire sensor and industrial systems businesses (which became Agilent), although this was certainly not known to Seliger at the time. The Medical Products Group would be packaged into that new business. Given that the Group's patient monitors, ultrasound machines, and clinical information systems were so different than industrial systems, it was only a matter of time before decision-makers in what would become Agilent would also seek a buyer for the Medical Products Group.²

When Seliger spoke to her about spinning out the CCOW technology into a new venture, Danaher quickly agreed. To her, the idea made sense because it would be good for HP, as the technology would help HP address the interoperability requirements that the market was increasingly demanding. And to Seliger's surprise, she offered to get HP Board approval for it and introduce Seliger to her friends in the venture capital industry. Seliger even wondered if seed funding for the venture might come in the form of licensing payments from HP to use the initial software products from the venture for its own “next generation” clinical information systems.

High Anxiety

Word of the possible spin-out quickly leaked out within the Medical Products Group. Some of Seliger's peers resented the idea of HP's technology working to his personal advantage and

² Phillips acquired the Group a few years later.

went out of their ways to create stumbling blocks. One individual even circulated misinformation about an outsider's interest in purchasing the technology from HP—which would have left Seliger high and dry! None of the rumors were true, but the turmoil they caused left Seliger anxious and somewhat disoriented. The idea of leaving HP was also disconcerting.

I had only had one job interview in my entire career—with HP. I'd been with the company at that point for 18 years. It had been my whole world. I was well-known within the company and had access to people and resources. I knew nothing about the world outside of HP, and even less about starting a company or about venture financing. And here I was about to take this huge leap.

During the period when the spin out was being negotiated (May through November 1998), Seliger experienced a level of anxiety he'd never felt before. "I'd wake up in the morning with shortness of breath—hyperventilating. I'd tell my wife that I couldn't get out of bed and go to work." Seliger had climbed every rung on the technical career ladder within HP Medical and had a big, talented team working for him. He was earning a very good income and had a company car and stock options.

"All that was about to go away because of my crazy idea. I'd ask my wife, 'What will I do if this doesn't work out?' and she'd tell me 'Don't worry—you can get another job.' But I didn't want another job. I liked working at HP. "

It wasn't until several months into this period that he realized that leaving HP wasn't the source of his anxiety—it was the fear of his spin-out plan falling through and *not* getting to create this company. "I was so excited about the idea and fixated on starting the company that every rumor and stumbling block triggered anxiety. Once I recognized that, my anxiety evaporated, and I never looked back."

Writing the Business Plan

Seliger called his friend The Professor, inquiring about the form and structure of a business plan. They reviewed some templates and Seliger went to work. With coaching from his friends and advisors, Seliger wrote the plan over the course of a month. A dozen improved iterations would follow over the next six months as the entrepreneur sharpened his strategy and secured funding.

The first question that Seliger confronted was "What products am I going to sell?" The CCOW software he had developed in HP was a toolkit to implement the CCOW standard. As good as this new "platform" was technically, Seliger was skeptical that his new company could produce substantial revenue by selling a software toolkit kit to other medical software companies. "People don't buy platforms; they buy solutions. Good solutions, however, need to be built on strong platforms," he remarked. "We had the platform, but now we needed to create solutions that could be sold as products."

He focused on an initial product for end-users and on a software developer's kit (SDK) for software developers. The initial end-user product, *Vergence*, provided a single sign-on product that would allow care providers to sign-on just once, and be securely logged onto all the applications to which they were entitled. *Vergence* also provided patient context sharing, so that a user need only select the patient of interest once in order for every open application to "tune" to and display that patient's data. The software toolkit was comprised on a set of reusable components and an API that other medical software developers would use to simply if the process of "CCOW enabling" their applications for single sign-on and patient context management.

Armed with this basic product strategy, Seliger turned his attention to building a projection of revenue over the first three years that he could defend with confidence. Countless hours were spent in discussion with his advisors on the assumptions behind the revenue projections. These included:

- The number of hospitals buying these software products over the first five years
- The number of users in each hospital
- The price per user per year for the various software products
- The number of medical software companies buying the SDK a year, and what if anything, he should charge them for it

Given the pressing need among health care providers for this capability and strong interest by the dozens of companies who had attended the CCOW meetings, Seliger felt confident in the following assumptions:

- A dozen hospitals would adopt the single sign-on product during the first year of its release, with several dozen following in the year after.

- There were over 5,000 hospitals in the United States alone. The new venture's primary target market would be large health care providers which had, on average, approximately 1,000 physicians and 4,000 nursing and related support staff. Also, certain key accounts represented dozens and dozens of facilities in different geographic locations, the Veterans Administration and Kaiser Permanente being two prime examples. Getting those accounts would anchor Seliger's position in the medical IT market.

- Seliger knew that pricing was a great challenge for new products. However, he had now spent several years talking to hospital administrators, doctors, and nursing staff. Hospitals were already buying identity management products from vendors such as RSA on a per user license model. And many were spending millions on enterprise software for electronic medical records and clinical information systems. Based on all this, Seliger felt that he could charge a per user fee for the single sign on, and an additional fee for the patient context management.

- To seed the market, Seliger also felt early on his new company was probably going to have to give the CCOW software development kit away for just a nominal fee. He also suspected that he would have to allocate his own programming staff to help other medical software companies enable their own applications. This came to be called the "immersion program" in which Seliger's team helped vendors perform "software surgery" on their applications.

Working Toward the Spin-out ---

Once he had a business plan, Seliger began pitching it to venture capitalists, some of whom were acquaintances of Danaher. In this process, he had a phone conversation with Bruce Bauer, a Silicon Valley financier with Newbury Ventures. Bauer had been tipped off by a key HP R&D executive that Seliger was working on something important. This piqued Bauer's interest, as he had wanted to do a deal with HP for a long time. The two agreed to meet at an industry trade-show at which HP would profile CCOW to the medical technology community.

The two met and got into deep conversation. At the end of it, Bauer gave Seliger some advice: Rob had too many jobs to do. If he wanted to launch a company, he had to make it his only priority. Seliger reflected, "That was the best advice I could have received. Besides being an early investor, Bruce and I became and remain close personal friends."

Two days later he was in Cynthia's office, explaining what Bruce had told him. As he recalls, "She was in total agreement, and to my amazement, gave me the next four months to work on nothing but the spin off." Moreover, Danaher teamed Seliger up with one of her staff who was experienced in structuring agreements with VCs. Her one caveat was that if Seliger couldn't make the deal work—i.e., failed to gain external financing—he had to reassume his operating responsibilities as a full time head of R&D.

It took three months, but by November 1998, the HP Board or Directors approved the spin out and agreed to an intellectual property agreement with the venture.

Building a Team

Seliger knew that he had to quickly assemble a skilled and knowledgeable team, a task that proved easier than anticipated. As word of the spin-out leaked, he was approached by a senior product manager for one of the large medical device divisions, John Douglass. Douglass came up to Seliger in the cafeteria line and said a bit too loudly, "Tell me all about this!" Seliger quickly shuttled Douglass off to a vacant section of the cafeteria where he could talk about the project without being overheard. Douglass listened and liked what he heard. He joined as co-founder, and later took a lead role in defining and launching the company's first wave of products.³

Staff on the technical side of the business was also needed. Once the HP Board approved the spin-out in November, things could be out in the open. A standard exit agreement restricted Seliger from soliciting HP personnel for the new business. However, MPG was considering a downsizing due to challenging business conditions. To his surprise, the Group's HR manager presented Seliger with a list of people he could hire without violating the "non-solicit" agreement. "I couldn't believe the names I saw on that list—these were some of the very best," he said later. Several people were hired directly from that list, and others later joined on their own volition, including a brilliant software engineer from Germany—Ralf—who later became Seliger's head of R&D in the new company and led many of its most important projects. When the spin-out became a live company, in March 1999, Seliger had a total staff of 10 employees, 6 of whom were former HP colleagues.

Series A Funding, Key Milestones, and Important Decisions!

Bauer became the lead investor and brought along two other VC firms in a syndicated Series A financing. The \$2.7 million round closed in March 1999, almost a year to the day after Seliger had returned from his fateful hiking trip. (Subsequent B and C rounds are also provided in Exhibit 1). His exit from HP was a *fait accompli*. In February, after considering many potential names, Seliger decided to call his new company Sentillion. The name satisfied Seliger's desire for a "cool" and unique name for which the Web domain name was also available.

With help from Bauer and other investors, he and John Douglass had to establish key milestones for:

- R&D, including the beta test and first commercial release for the Vergence, i.e. the single sign-on service.
- A program to get 3rd party software companies to incorporate Vergence into their own software according to the CCOW standard.

³ Douglass left the company in 2003 to sail around the world with his wife and two children.

- First key hospital accounts.
- Intellectual property, including a patent and clarity on ownership of the IP relative to HP.
- Key hires for major functions inside the new company.

Driving all this planning for the question on the ongoing relationship to be formed with HP now that startup funding was secure. Should HP own Sentillion stock? What would that mean for Sentillion’s position as the “Switzerland” in the industry? How else might HP gain from Sentillion’s success? Seliger knew that this question was the elephant in the room.

The race was on. The team needed to achieve these goals in order to raise the next round of financing. Bauer and other advisors thought two to three times the Series A financing should get the company to operating profitability.

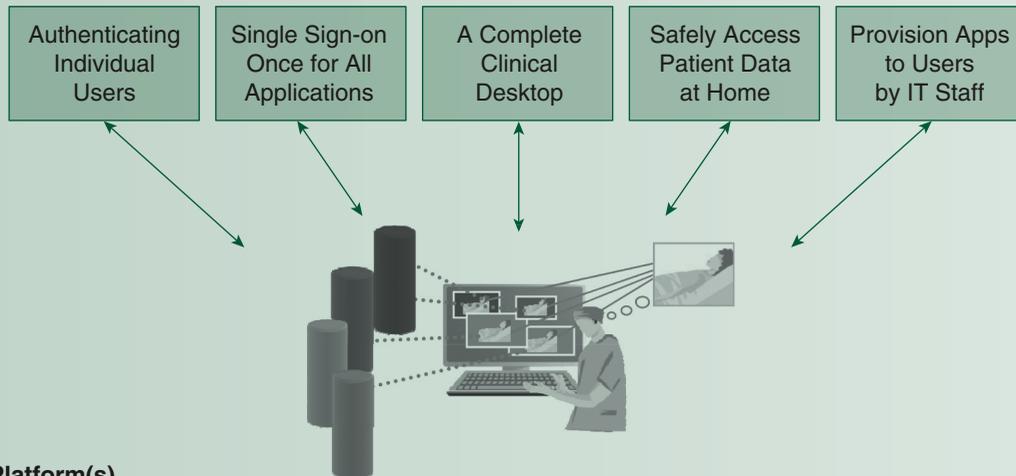
Questions

1. What is a corporate spin-out?
2. How should Seliger try to structure the deal with Hewlett Packard, including the handling of equity and intellectual property?
3. What is the market opportunity facing Seliger and his team?
4. What is Sentillion’s core IP and what types of products do you see based on that IP?
5. What should be Seliger’s key milestones with the Series A funding?

Series A:	March	1999	\$2.7 million
Series B:	March	2000	\$9 million
Series C:	August	2001	\$18 million

Exhibit 1 Sentillion’s Equity Financing

The Applications



The Platform(s)

- A context manager that enables caregivers to select the patient of interest once in any application and all other applications immediately tune to the patient
- An API that tracks sign-on keystrokes for automated integration into legacy applications.

Exhibit 2 Developing a Product Strategy Focused on Major Use Cases

The screenshot shows the Sentillion website in a Windows Internet Explorer browser window. The address bar displays <http://www.sentillion.com/customers/customers.html>. The website features a navigation menu with links for Solutions, Services, Customers, Partners, Media, Company, and a UK flag. The main content area is titled "Customers A Shared Journey" and includes a photograph of a boat labeled "LAUNCH" on a body of water. Below the photo, the text reads: "Sentillion is deeply committed to our customers and strives to be their most trusted and responsive technology partner. With fixed implementation fees and proven methodologies for deploying within a wide variety of complex healthcare environments, including remote hosted and Citrix® solutions, Sentillion brings healthcare organizations live quickly and within budget." To the right, a "Customers in the News" sidebar lists several articles, including "Microsoft Completes Acquisition of Healthcare Software Provider Sentillion (02/02/10)" and "Sentillion's Verence® Solution Named #1 Single Sign-On Product in 2009 Best in KLAS Report (12/22/09)". The browser's taskbar at the bottom shows the Start button, several open windows, and the system clock displaying 11:01 AM on 11/16/09.

Exhibit 3 Sentillion's Website 12 Years After Startup