Distributed Medical AB: The Future of Medical Information Technology

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Fredrik Jonsson, CEO of Distributed Medical AB, an innovative Swedish medical information technology firm, sat back in his economy class seat waiting for the plane to depart the rainy Copenhagen spring. He smiled to himself thinking that in his former job, he would have never traveled below business class. But, a lot had changed since then and Jonsson was happy to pass the comfort of Business class for the exciting opportunities that lay ahead. While preparing his upcoming negotiations with the University of Sharjah in Dubai, Jonsson reflected upon the last 6 months. In March of 2010, Distributed Medical (DM) was hardly the same company than it had been in 2009, when Jonsson joined. Although he knew that DM had come a long way since its start, Jonsson also knew that there was no time to sit back and enjoy the success. While his mind drifted to how he would promote DM’s VidiView products to the doctors of the upcoming University hospital in Dubai, he knew that many other challenges lay ahead on DM’s quest to provide clients with the opportunity to document and store every image captured during surgery. In fact, Jonsson was about to be confronted with a key question that would decide much of DM’s future success:

- In what way should Jonsson position DM to maximize their competitive capability? Should DM aim at competing on market-specific/customer specific custom service or should it strive to compete based on scale advantage?

- In addition, there were other crucial questions that needed to be addressed, such as:

- Which market(s) should be penetrated next? Europe? India? Arabia? Should DM focus on one or more markets at a time?

- Should DM continue to maintain control of sales by selling directly to end-users or should it shift to a scalable distribution model? And, which distribution should DM use predominantly: Low-, medium-, or high-involvement (full distribution model)?
• What key hires should DM make to execute their growth strategy?

The Road to Distributed Medical: The Story of Perspective Gruppen

Filip Strandqvist and Björn Lundmark knew each other since childhood, both growing up in Lund in Southern Sweden. They discovered their mutual love for computers and programming at an early age. When Strandqvist turned 12, his only birthday wish was the manual to the new Ericsson AXE digital switchboard. After his father went through great efforts to buy it for him, he studied this manual day and night and only shared it with his best friend – Björn Lundmark. Although their lives went separate ways after high school, their paths crossed again during their computing studies at University in Lund. Soon after, they started working together by doing night time projects for the firms of friends’ parents. First, there were only small projects such as database applications. However, as the demand for their services grew, Strandqvist and Lundmark decided that their love for computing was considerably greater than their dedication for academic education and they both dropped out of University and started a consultancy firm in 1998 (‘Morots Media’). They rented a small room of eleven square meters in the IDEON science park in Lund (South of Sweden). Strandqvist remembered:

The IT industry was booming at the time. We started doing consultancy gigs, mostly programming for companies. A lot of the companies that popped up at that time were web agencies. These web agencies back then were much like advertising agencies; they were good at drawing up interesting designs, but they had major difficulties in producing the designs online. We manufactured the web pages that these agencies had dreamed of. Many different projects that we got were from companies also located in the IDEON park, including Ericsson and Gambro, firms needed a lot of work done that was IT-related.

Then the IT crash reached Europe at the end of 2001, and business slowed down for Lundmark and Strandqvist. However, due to the technical orientation of their consultancy business, it survived the IT crisis better than other firms located in the vicinity (including many web agencies). In 2002, they kept working on more advanced application projects, including the project for Tetra Pak (www.tetrapak.com). Tetra Pak back then was located in Lund at three different locations in close vicinity of one another. As there was no telecommunications infrastructure between the locations, Lundmark and Strandqvist took on the project to lay telecommunications cables and managed to create an infrastructure that would link these otherwise isolated Tetra Pak buildings. Since then, an increasing number of firms requested similar projects, but ones where the locations between buildings were much larger. In order to set up such telecommunications infrastructures, Strandqvist and Lundmark had to rent cables from telecommunications firms and soon realized that renting these services was
extremely expensive and would not enable them to earn a long-term profit. Strandqvist explained:

We thought that it cannot be that difficult to lay cables ourselves, we had done it previously for Tetra Pack. And, we were extremely lucky, because although telecommunications equipment was very expensive, due to the earlier ‘dotcom’ crash in the U.S. in 2000, most of the U.S.-based firms that owned these kinds of infrastructure services went bankrupt. So, a lot of the equipment was able to be purchased off bankruptcy brokers from Los Angeles for a fraction of the original price. The bankruptcy brokers back then did not see the value of this equipment. Some of the brokers advertised the telecommunications infrastructure equipment on e-bay at very low prices, as they did not know whether it would ever be usable and all they were thinking of was getting rid of it, because storing the equipment was very expensive.

Therefore, they began purchasing large amounts of telecommunications equipment from Cisco and other US firms for a small fraction of the original price and started digging cables. Soon, they realized that it would make sense to divide their software consultancy business from this newly created infrastructure business. Therefore, they split the business into two and placed them under an umbrella organization called ‘Perspective Gruppen’ (see Exhibit 1 for an organizational chart). They remained on the board of the newly formed Internet company (which they called ‘Perspective Broadband’), but spent most of their time in the consultancy business (Morots Media) chasing new, exciting project ideas.

The Start of Distributed Medical

In summer 2004, a man knocked on the door of MorotsMedia office with an interesting and somewhat unusual business proposal. This man turned out to be the chief of the cardiac division at Lund University hospital, Dr. Pelle Jonsson. Strandqvist clearly remembers the first conversation he had with this inspiring surgeon.

Dr. Jonsson seemed very excited. He announced: ‘I have this great idea, I want to document my surgery using cameras. I watch my kids when they download movies and music on their computers and they don’t use tapes or disks anymore, but simply digitally download and store the data onto their computers. This is exactly what I would like to do with surgery in my division at the hospital. I want to record and store surgical procedures in that way.’

Dr. Jonsson wanted cameras to digitally record surgery in an operation room (OR). Back then, Strandqvist and Lundmark were convinced that there must be a product like this on the market and so they agreed to research for Dr. Jonsson whether there was a system that would allow him to digitally record in an OR and
if so, they promised to write a suitable specification that he could bring when he went out to purchase such a camera equipment. So Lundmark and Strandqvist sat down and started searching for an existing product that would record for medical purposes.

After one week of in-depth research, however, they realized to their great surprise that there was no such product in the market and they agreed to work on developing this product for Dr. Jonsson. He had received a generous donation to be spent on promoting education in the medical field and documenting surgery. Using these funds on a project like this seemed suitable. Therefore, Strandqvist and Lundmark eagerly started the project. It took six months for the first software concept. When the first solution was installed in Dr. Jonsson’s ORs at the teaching hospital in Lund, the product consisted of three cameras. One camera would mount on an arm, which was attached to a mobile station. This allowed the surgeon to move the arm and point the camera directly to the area where he/she wanted to record. They used a camera from a large camera manufacturer and simultaneously worked with manufacturers for camera arms and handles that would hold it in the desired position. Therefore, although Dr. Jonsson had ordered a software development project, Strandqvist and Lundmark soon realized that this project also required substantial hardware knowledge. Strandqvist remembered:

A lot of the aspects of the project turned out to be a real hardware installation challenge. Even the lever of the arm camera had to be redesigned numerous times so that a surgeon could easily move and lock it in the desired position. Over ten different handles were tried by Jonsson before we found a usable handle that suited the needs of a surgeon.

The second camera in this first setting was on the surgeon’s head. It was a small camera, much like a webcam that would be mounted on a headpiece. The third camera acted as an overview camera and was mounted in the corner of the OR so that it could capture every activity that took place in the room during surgery.

After the first camera solution was successfully installed, Dr. Jonsson asked Lundmark and Strandqvist whether it would be possible to improve the solution so that it would allow live-broadcast surgery. Watching surgery live was something highly attractive at the hospital, as there were many students and also colleagues that could benefit from watching surgical procedures. However, due to hygiene reasons and space constraints, it was nearly impossible to get a large amount of spectators to watch live surgery. Moreover, for those ORs that were equipped so that outsiders were able to watch surgery through a glass window from a different room, the view was never as clear as if it would be viewed from within the room. Therefore, Dr. Jonsson’s request to view surgery through the eyes of a surgeon, while not being in the OR, seemed like an interesting idea. Lundmark remembered:
Although this seemed like an easy thing to request, in reality this feature was something extremely difficult to program. It required changing the system from just recording for later view to a live broadcast. It was a big task to reach simultaneity between the live surgery and broadcast and it took us another year to program this feature to perfection.

One year later, the first live broadcast of a surgery at the Lund teaching hospital took place. It enjoyed much public attention and soon surgeons from other hospitals started to be interested in this way to document surgery. Although initially, Dr. Jonsson owned the rights to the project, he saw the great benefits a solution like this could have for the health care systems not only in Sweden but worldwide. He was willing to give up his ownership rights. He only asked in return that the cardiac division at Lund hospital received free upgrades and customer support for life. Hence, it was now up to Lundmark and Strandqvist to decide what to make out of this great opportunity they had been given. Strandqvist remembered the excitement but also the doubtfulness he and Lundmark shared:

This was totally new for us. Filip and I were consultants that supported customized systems and solutions; we did not make commercial products. Our project solutions were not re-sellable; they were custom-made for one-time use only. Changing from project management to product development meant that we had to write standard manuals and installation software; these were things we usually did only manually on a project base. It would be extremely difficult to move these manual processes into standard products.

Lundmark and Strandqvist realized that they were given not only a once-in-a-lifetime business opportunity but also a mission that reached far beyond anything they had ever done before. They decided to build a new company, whose vision would be to fill a missing gap in the world’s health care system, and called it ‘Distributed Medical’. Although the three businesses Perspective Media, Morots Media, and Distributed Medical seemed unrelated at first glance, all three business were based on the same love and interest Strandqvist and Lundmark share: Infrastructure. Strandqvist passionately admitted:

We have a crush on infrastructure – that is the red line that goes through the three businesses and we love each one of them in a different way.

Products

Since the start of Distributed Medical (DM), Strandqvist and Lundmark spent most of their time learning about recording data in ORs and soon moved their product range far beyond the initial camera system. For instance, they realized the potential of capturing other image sources that collected essential information during surgery such as intra-vascular ultra-sounds, heart-rate monitors, blood-
pressure machines, and x-ray image machines. Albeit representing vital information during any kind of surgery, video feeds from these devices were usually not stored and thus were simply lost after surgery. Therefore, Strandqvist and Lundmark invented additional products that would simultaneously store this information during live surgery.

One of these was an ‘on-call’ feature, which enabled remotely located surgeons, given that he/she downloaded the client software and had an Internet connection, to watch and provide advice to performing surgery in a DM-equipped OR. The surgeon in the OR was able to watch and communicate with the remote colleague through a life audio-conference feature, activated through the cameras and a microphone installed in the OR. This on-call feature represented an extraordinary back-up plan for on-call surgeons. Lundmark and Strandqvist decided to program the client software for remote access so that it had unlimited downloads. They believed that the more people using the client software (especially the on-call and off-site expert input) would lead to more feedback about the products’ usefulness and performance, which, in turn would facilitate improvements of the products and increase their awareness to other hospitals.

In 2010, there were four different product groups that DM offered (refer to Table 1 for more information on each product group):

**VidiView.** By 2010, the product range VidiView was the most successfully sold product out of the three product groups and was based on the original camera system. The three VidiView products were called (i) VidiView OR, (ii) VidiView EDU, and (iii) VidiView ENDO respectively. Although each of these products was used in a different setting, they were all used for four common scenarios: Scenario 1: Recording for review, archiving and patient records; Scenario 2: Demonstrative- and/or educational purposes (live or pre-recorded); Scenario 3: Off-site on-call backup; Scenario 4: Off-site expert input.

**VidiView OR** (see Exhibit 2 for a schematic view) was a state-of-the-art solution for recording, viewing, distributing, and storing surgical and clinical video documentation and also featured telematic conferencing functions. Alongside with the VidiView unit, a camera setup was installed in a surgical environment of choice (up to four cameras per OR and VidiView unit) to create an on-the-fly recording solution ready at any moment. VidiView EDU (see Exhibit 3 for a schematic view) was a network based and all digital solution for recording, viewing, distributing and storing medical and clinical video for educational and documentation purposes. VidiView digitally recorded images from cameras or medical equipment (ultrasound, x-ray, vital signs monitors etc.) to ensure full coverage of the examination and deliver the ‘full picture’ in every recording. Once the recording was completed, it was stored in the VidiView- server (located in a data center). VidiView ENDO (see Exhibit 4 for a schematic view) digitally recorded images as well as video sequences from an ongoing endoscopic
examination. The VidiView unit was placed in a trolley and connected up to two images sources.

**SynchroView.** SyncroView offered a flexible, customizable and versatile communications platform for x-ray, other monochromatic medical imaging or imaging modalities with dynamic sequences. In ‘sync mode’ the workstations were running fully synchronized when viewing sequences or single images. Data communication during viewing in a conference session was limited to simple sync-pulses allowing real time synchronized display on all connected workstations (see Exhibit 5 for a schematic view).

**EasyGrab.** EasyGrab was a fully integrated and automated X-ray imaging solution for combining patient data measured during the X-ray session, into actual X-ray images. The insertion of certain types of images with patient data in between the dynamic sequences gave an external viewer a third dimension of information when making decisions for further treatment (see Exhibit 6 for a schematic view). EasyGrab was designed to work with all major image sources available from the X-ray equipment industry. Typically the raw X-ray image was captured from an analog, high resolution image source and the patient data was captured from a digital screen display.

**Digilink.** DigiLink was a fully integrated, digital X-ray conferencing solution for OR-environments that depended on x-ray and radiologist diagnostics and the radiologist department where the X-ray expertise was located (see Exhibit 7 for a schematic view). Once DigiLink OR was installed, it was "keyless" and operated by a single (on/off) button only. It was typically mounted on a mobile equipment wagon and interconnected with any mobile C-arm using a single, integrated cable. The session was automatically activated as X-ray video was produced on the OR and feedback from the X-ray examination (including the radiologists remarks and notes, i.e. highlighted areas, pointers and arrows etc.) was displayed. Among other ongoing product improvements was a partnership with the firm ‘Medical’. While previously, DM installed the product software into ordinary computers, the partnership with ‘Medical’ computers as a standard product shell had many benefits. Medical was the most used computer provider for ORs within Europe. Lundmark stressed the importance behind choosing this manufacturer as the shell for their products:

One of the many great things about ‘Medical’ is that we provide them instructions for the shell and Medical builds the computer with DM graphics on it. Then, they measure it and provide certification papers that the computer is certified with all relevant specifications. Normally as soon as you do any change within your control unit, you need to re-certify it so that it is acknowledged as being a safe device in an OR and that usually costs around EURO 45,000.
Medical does that for us. The computer is more expensive than an ordinary alternative, but certification and re-certification is for free.

**Competition**

In 2010, competition for DM products was limited. Among a few others, the main competitors to DM were products by firms like Olympus and Karl Storz. Olympus – ENDO Alpha, a comparably closed system, with few options outside Olympus equipment, provided a similar system solution as VidiView ENDO. Karl Storz- OR1 was similar to the solution offered by Olympus, but with a limitation in merely providing storage solutions. The material recorded by this solution stayed in the operating room with a singular possibility of burning it on a disk or using USB. It could not be linked to a network access and did not provide access to recorded data. Another major drawback for solutions offered by existing competition was price: In 2010, their product solutions were approximately four times the price of those offered by DM (for approximate prices of DM products in 2010, see Table 2). Other larger firms offering recording options also represented general competition to DM (i.e. Siemens, Maquet, Wolf), but all were facing similar disadvantages.

In 2010, the only immediate competition to DM was robotic surgery. In robotic surgery, a video link was established between the robot’s camera and the monitor in the control room where the surgeon was located in order to enable live broadcasting. However, remote robotic surgery was not commonly used, because of the costs involved. Typically, a satellite transmission company needed to be hired who brought one satellite over the location where the robot was located and another satellite where the surgeon in control was located. This setup for a single live broadcast could cost up to EURO 110,000.

In summary, although competition existed, the vast majority of DM’s competitors offered products that were either not vendor independent, represented incomplete solutions, or were much more expensive than DM’s products. DM’s core competency was a product range that was unique and, so far, not imitable by any other firm’s product offerings. Strandqvist and Lundmark knew that eventually, DM could have competitors.

**A new CEO and his plan to grow via distribution**

Fredrik Jonsson joined Distributed Medical in June 2009, after working for several years in the Medical technology business including in the Marketing and Sales unit at Pentax Life Care (whose core competency lies in flexible endoscopy). Companies like Pentax produced many images, which was one reason why Jonsson saw immediate potential in Distributed Medical’s products in general and for endoscopy specifically. Jonsson remembered:
When I first joined Distributed Medical, it was all about customer-based solutions for individual clients in Sweden. Products could not be resold, because at that stage, they were extremely customized. In addition, when I started, the financial crisis had just hit the world market. It was therefore crucial to save money right from the beginning.

Jonsson realized quickly that Distributed Medical’s core competency was to create imaging solutions. At the same time, he realized that selling and supporting the products was something that the company was lacking due to missing Marketing and Sales expertise and the small number of employees. Jonsson therefore considered a distribution model as one of the major opportunities for DM’s future success. He explained:

Distributors are much better in selling to the end user than we are. They have trained staff to do that and they can target many more customers than us at any point in time.

There were several other obvious advantages involved in having a distribution business model for DM’s future strategy. For instance, using distributors would lower cost in sales and marketing and allow for faster product penetration both in Europe and internationally. In addition, local distributors knew their markets and potential clients and were aware of relevant exhibitions in the respective local areas where DM’s products could be promoted. Most importantly, local distributors were the ones hospitals and clinics turned to when they required new products. Jonsson also speculated that local distributors were able to provide better local support for end users. DM staff would not be able to regularly assist all its clients on-site in different countries or even continents if their products would be sold there.

However, there were also noticeable disadvantages involved with the possibility of using distribution as the DM’s preferred business strategy. For instance, one major concern was that by leaving the entire sale as well as the after-sale service to the distributors, this meant that DM would not be able to provide customized solutions anymore that allowed close interaction with its customers. DM would have to rely on distributors to obtain feedback about its products. In addition, the initial educational needs of distributors would be extremely high considering the complexity and technicalities of DM’s products. Jonsson knew from his professional experience that it would take at least nine months from signing a distribution contract to actual sales of products. Lastly, he calculated that the actual product training of distributors would take at least two full days.

In case DM would decide for distributorship, there were also several different possibilities as to which distribution model would be most suitable. Jonsson had drafted three different models in mind that had different levels of involvement for the distributor and in return different service features that DM would provide the distributor with (see Table 3 for further details on the three possible distribution models). The first possibility (step 1) involved the distributor in the activities...
before the product sale and the initial stages after the sale. This meant that all remaining service activities would be performed by DM. The second category of involvement (step 2) involved the distributor in additional sales activities, but also meant that DM would provide the distributor with ongoing customer service during the first two years of warranty (DM products in 2010 had a two-year warranty standard). The third category (step 3) resembled what Jonsson termed as the ‘sales contract’ and resembled a significantly higher commitment from the distributor to the sale of the product. At the same time, it guaranteed an extended insurance for the distributor on the products purchased. By purchasing this sales contract, the distributor continued to receive ongoing, full product support by DM for the period after the two-year standard product warranty expired.

Depending on whether the distributor agreed to a low, medium, or high involvement distributorship, there were increasing discounts on the fixed price that DM charged the distributor for its products. For instance, DM would discount its products sold to the distributor by 10% in the low involvement distributorship, 15% in the medium distributorship, and 25% in the full distributorship. Where the distributor chose the last option, for instance, the distributor would receive a substantial discount on the fixed price, however, the sales and after-sales involvement would be significantly higher.

Distributed Medical in the United Arab Emirates

Although in 2010, DM was still contemplating how to penetrate Northern Europe, it was already selling its products successfully in the United Arab Emirates (UAE). The initial reason for DM to expand into UAE in general and the Dubai area in specific was that the former CEO of DM had established good business networks in Dubai. And, DM’s former CEO had compelling reasons for wanting to penetrate this market: The Dubai area was special. There were over eight million expatriates (foremost from India, Pakistan, and Filipines) working in this area. However, until early 2000, no public health care system existed. For instance, if an Arabian citizen needed surgery, he/she had to travel into neighboring countries or further, depending on the severity of the patient’s illness, which was extremely costly. Due to this lack of public health care, the government realized that it was increasingly hard to attract skilled foreign expatriates to work in the area. In order to stimulate the economy and attract foreign workers back into the UAE, the ruler of Sharjah, His Highness Sheikh Dr. Sultan Bin Mohammed Al Qassimi decided to build a world-class health care system for Dubai that would also insure expatriates. In order to serve potential patients, medical doctors were in demand, and thus new world-class Universities were starting to be built throughout the Dubai region. And, with one of these Universities, DM launched its first big product order. Jonsson proudly explained:
The University of Sharjah bought four VidiView EDU units in 2010 and they have just received approval to purchase four more for 2011. This is our biggest order so far. We try to secure the order before June 2011. I have been in Dubai six times during the last six months.

In 2010, the University of Sharjah, established by the ruler of Sharjah, was at the frontier of medical studies in the region. The medical faculty of this University had an extensive academic learning center (ALC), which took up the entire basement of the University’s new building. The ALC was built so that it represented a real hospital unit. It had ORs, examination rooms, and pathology rooms. In 2010, the only difference to a ‘real’ hospital unit was that surgical procedures were not performed on live patients. DM delivered the VidiView EDU on a mobile setup where the units could be rolled into the desired rooms. The assessing University teachers were able to sit in control rooms examining medical students performing surgery in the examination rooms. The students received feedback directly through the audio conference system while performing the surgery. In addition, all examinations were recorded so that students and teachers could review the surgery afterwards. As this University had large expansion plans, Jonsson estimated that they would require 12 VidiView EDU units by 2014. Even more excitingly, on the other side of the street, the building of a University hospital (University hospital Sharjah) had been approved (in 2006). Jonsson assumed that in the future, if the University hospital would purchase VidiViewOR, there would be the possibility to live broadcast surgeries from the University hospital directly to the lecture rooms in the University. Jonsson excitedly elucidated:

This is a golden opportunity for us both in terms of sales and also for a reference because having this kind of setup is unique and high-end. It seems that whenever they were building something in this region, they are going for the best in terms of standard and this is exactly where we fit in. Initially, in Sharjah, VidiView Edu may be our best selling product, but, in the future, when these medical students will graduate and work as doctors at the University hospital and many other hospitals in the world. We hope that they will promote our products, as they will be used to document everything they are doing and sharing surgery with their peers, colleagues, and maybe even their patients.

In order to legally operate in UAE, DM established ‘Distributed Medical Middle East’ in 2009. Jonsson was the managing director. For the coming years, Jonsson also considered growing in this region through distributorships. However, distributorships worked differently in UAE than in Europe. Usually, distributors competed in order to sell a firm’s products for a particular project (for instance if a new hospital required ORs to be equipped). DM would have to offer the distributorship of its products to the highest bidding distributors for the particular project. Similar to the European distributorships, there were some up and downsides to this system. Jonsson argued:
At the moment, we are taking part in these bidding wars, but if we find a good distributor to partner with in Saudi we might stay with them in order to save time and increase steadiness for DM in this region. Saudi Arabia is planning to build 70 new hospitals in the next two years, so this market has immense potential for DM. The challenge, however, is to partner with the right players at the right time.

**Other Opportunities for DM**

Early 2010, DM was also in negotiations with one of the major manufacturers of OR equipment in Northern Europe. The products DM considered making for this firm would not compete with DM’s existing products, as it was in an area that DM was, at the time, not serving - intensive care. Jonsson elaborated:

> We are talking about doing some software development for this firm. We would make a product that is not labeled Distributed Medical but is labeled XYZ instead. This product would be tailored specifically for that firm’s needs. This firm is selling extremely advanced X-Ray machines that are able to do everything except for one thing: record images; and that is exactly what DM is good at.

With DM’s knowledge in software programming, it would be possible to monitor and store everything that happened inside an intensive care unit, including information about blood pressure, heart rate, details on the drugs each patient was getting from each drip, and any other information that can possibly be recorded. Compared to its existing products, DM would have to change how it programmed the software in order to be able to work inside another firm’s machine. Jonsson argued:

> Although there is always a risk to lose our core product to competition by engaging in a contract like this, we are not too worried about this risk. Although this firm might be able to innovate a product on its own, this firm knows that we are quite good at what we do and it would take them a long time and many resources to come up with a similar product we can provide them with.

Although VidiView seemed to be the best selling product so far, Jonsson also saw great potential in DM’s other products. He pondered:

> EasyGrab is also a very attractive product that could be applied in many different product markets, some for which we do not even know the specific needs yet. For instance, in different types of surgery like cosmetic or plastic surgery, we might find a need for which we can package new solutions from our existing product. The core product could stay more or less the same.
Looking into the Future

Jonsson knew that DM’s products carried extraordinary potential: Those hospitals and practitioners that would buy DM’s products would be able to life-document, review, and store every possible image. Moreover, the potential of DM’s product reached beyond those of traditional surgery. For instance, DM’s imaging solutions could be vital for insurance claims in relation to mal-practice suspicion in surgery. In sum, the educational potential and image sharing as well as storing benefits that DM’s products would bring to the field of medicine could have a global impact. However, while thinking about the vast opportunities of DM, Jonsson nevertheless knew that their next strategic decisions would be some of the most important ones since the inception of DM. There was an increasing interest in DM’s products from European markets including Denmark, Finland, Holland, and Germany. In addition, DM had recently participated in the ‘Arab Health’ exhibition, one of the largest Middle Eastern health science exhibitions, where interests for DM’s products were voiced from distributors located in India and Pakistan.

But, should DM standardize its products and aim for global penetration, or would the best option be to sell its products through customized, direct sales in the next years? Was a distribution model really the best option for DM? And, if so, which level of involvement would be the most suitable distribution model? And, was there a one-fits-all strategies, or should different sales strategies be used for different countries and regions? While Jonsson leaned back in his seat, he calculated:

Within the next two years, my goal is to sell DM products in at least ten new markets and at least triple our current profit. However, to be able to support new markets, we would need more staff both in sales support as well as product development.

Although there were many exciting opportunities, Jonsson knew that by growing too fast, DM could risk becoming more vulnerable to competition. So far, Distributed Medical had been small and unknown to most competitors in the industry and Jonsson wondered how he should prepare DM for these competitive threats. Many decisions had to be made and Jonsson knew that if he would make the right decisions, a bright future lay ahead of DM.
Exhibit 1: Perspective Gruppen Organization

Exhibit 2: VidiView OR

Exhibit 3: VidiView EDU

Exhibit 4: VidiView ENDO

Exhibit 5: SynchroView

Exhibit 6: EasyGrab

Exhibit 7: DigiLink

### Table 1: DM Product groups in 2010

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<tr>
<th>Product</th>
<th>Description</th>
<th>Key features</th>
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| VidiView OR | VidiView is a state-of-the-art solution for recording, viewing, distributing and storing surgical and clinical video documentation. It also features the telemedic conferencing functions. | • Standardized video documentation of surgical and clinic sessions in their natural context  
• Documentation of scheduled as well as ad-hoc sessions possible  
• Pre-recording for later review and editing  
• DVD-quality (25 fps) with standard setup  
• Live broadcast with no delay  
• Synchronized two-way audio communication for conference and education setups  
• Accepts analog and digital video sources  
• Robust security model to ensure patient data safety at all times  
• Central 'PACS-style' database driven storage solution  
• Standard based hardware and software  |
| VidiView EDU| VidiView is a network based and all digital solution for recording, viewing, distributing and storing medical and clinical video for educational and documentative purposes. | • Standardized video documentation of surgical and clinic sessions in their natural context  
• Documentation of scheduled as well as ad-hoc sessions possible  
• Pre-recording for later review and editing  
• DVD-quality (25 fps) with standard setup  
• Live broadcast with no delay  
• Synchronized two-way audio communication for conferencing and educational setups  
• Accepts analog and digital video sources  
• Robust security model to ensure patient data safety at all times  
• Central database driven storage solution included  
• Standard based hardware and software  |
| VidiView ENDO| VidiView ENDO is a state-of-the-art solution specialized in recording, viewing, distributing and storing endoscopic image documentation. It also features the telemedic conferencing functions of tomorrow. | • Endoscopic image documentation integrated in its natural context and workflow  
• Pre-recording of video as well as still images for later review  
• Documentation of scheduled as well as ad-hoc sessions possible  
• DVD-quality (25 fps) with standard setup  
• Live broadcast with no delay  
• Synchronized two-way audio communication for conferencing and educational setups  
• Accepts analog and digital video sources  
• Robust security model to ensure patient data safety at all times  
• Database driven internal storage solution included  
• Standard based hardware and software  |
| SynchroView| SynchroView is a comprehensive viewing-, demonstration-, distribution- and conferencing system for cardiac X-ray imaging, angiography and other monochromatic medical imaging. | • Single image viewing  
• Dynamic sequence viewing (0-50/60 fps)  
• Live and synchronized multi-user viewing  
• Synchronized cursors in conferencing mode  
• Monochromatic and full color compliance  
• Background non-compressed data transfers  
• Analog as well as digital video sources  
• Full DICOM 3 compliance and DICOM Worklist compatible  
• Open standard RIS compliance  
• Local and remote video streaming  
• Local, short term, storage and remote, long term, archiving  
• CD- and DVD-writer incl. viewer  
• Eye-to-eye conferencing features in application  |
| EasyGrab   | A fully automated system for ensuring vital measurement data by combining it into X-ray images (called multi-images) that is directly and timewise correctly inserted into the PACS. | • Single multi-image grabbing  
• Control box or foot pedal operation  
• Monochromatic and full color compliance  
• Multiple analog image sources (compatible with various formats and resolutions)  
• Multiple digital image sources (compatible with both VGA- and DVI-standards)  
• Full DICOM v3 compliance  
• Open standard RIS compliance  
• Full MPPS compliance for patient security and ease-of-use |
DigiLink | A fully integrated, digital system for day-to-day live conferencing between X-ray dependent surgery and your X-ray examination environment

- Multiple analog input formats available (VGA, composit video, component video, etc.).
- Digital input via DVI-standard available
- Clean and fast installation
- Monochromatic and full color compliance
- Framerate of 15 fps and better (dep. on source of input)
- Advanced, digital pointer toolbox
- Standard ethernet network connectivity for all communications
- Full DICOM and RIS compliance for central storage
- Multi language available (Swe, Eng, De, Dan, Nor)
- Full CE-, and MDD-compliance


Table 2: Price comparison for Distributed Medical products in 2010

<table>
<thead>
<tr>
<th>Product type</th>
<th>Price in Euro*</th>
</tr>
</thead>
<tbody>
<tr>
<td>VidiView OR</td>
<td>From 49.000</td>
</tr>
<tr>
<td>VidiView EDU (Academic discount)</td>
<td>From 40.000</td>
</tr>
<tr>
<td>VidiView ENDO</td>
<td>From 10.000</td>
</tr>
<tr>
<td>SynchroView</td>
<td>From 56.000</td>
</tr>
<tr>
<td>Digilink</td>
<td>From 40.000</td>
</tr>
<tr>
<td>EasyGrab</td>
<td>From 22.000</td>
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</table>

*Note: Prices are approximations only
Source: Distributed Medical
Table 3: Distribution models

<table>
<thead>
<tr>
<th>Step 1 (10% discount of fixed price)</th>
<th>Distributor</th>
<th>DM support to Dist.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probing and marketing</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Designing customer based offer</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Delivery and Installation</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Education on site during D&amp;I</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Final inspection, first line</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Final inspection, second line</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>After sales and customer care</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Warranty - first line action on site</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Warranty - remote access</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Warranty - updates of software</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Warranty - on site urgent failure</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Service Contract - on site</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Service Contract - remote access</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Service Contract - updates of software</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Service Contract - first line, on site severe failure</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Service Contract - second line, on site severe failure</td>
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<td></td>
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<table>
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<tr>
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</tr>
<tr>
<td>Final inspection, first line</td>
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</tr>
<tr>
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<td>x</td>
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<tr>
<td>After sales and customer care</td>
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<tr>
<td>Warranty - first line action on site</td>
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<td>Warranty - remote access</td>
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<tr>
<td>Warranty - on site urgent failure</td>
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<tr>
<td>Service Contract - on site</td>
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<table>
<thead>
<tr>
<th>Step 3 (25% discount of fixed price)</th>
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<th>DM support to Dist.</th>
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</thead>
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<tr>
<td>Designing customer based offer</td>
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<tr>
<td>Delivery and Installation</td>
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<td>x</td>
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<tr>
<td>Education on site during D&amp;I</td>
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<tr>
<td>Final inspection, first line</td>
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<td></td>
</tr>
<tr>
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<td>Action Type</td>
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<td>After sales and customer care</td>
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<td>Warranty - remote access</td>
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<td>Warranty - updates of software</td>
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<tr>
<td>Warranty - on site urgent failure</td>
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<tr>
<td>Service Contract - on site</td>
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Source: Distributed Medical