

The Re-processing of Film Companies to Digital

For over a century, film companies have contributed to the magic of modern medicine. Film chemical science culminated by providing accessible and cost effective medical imaging to all care givers, while offering unparalleled image quality.

Recent Nobel prizes heralding the introduction of digital modalities, such as MRI, signify the apparent demise of film. But forecasters highly exaggerated the early predicted death of film and erred greatly regarding the transition to digital, since the “re-processing” of film companies has already started.

In this issue, we look at the future of companies historically successful in the projection film industry and the evolution path they must follow to leverage their natural strengths and embrace the digital era.

LAWS AND REGULATIONS: The Stark Laws

The “Stark Laws,” named after key proponent Congressman Fortney “Pete” Stark (D-California), address conflict of interest surrounding physician self-referral. The Stark I Law, enacted in 1989, covered only laboratory services; in 1993 Stark II expanded regulation to other ancillary services including diagnostic imaging.

Legislation Specifics:

- **Stark Laws:** apply ONLY to Medicare and Medicaid patients.
- **Stark I:** enacted as part of the Omnibus Budget Reconciliation Act of 1989.
 - Prohibits physicians from having a financial interest in a diagnostic laboratory to which they refer patients.
 - Financial interest: an ownership interest or compensation arrangement.
- **Stark II:** enacted as part of the Omnibus Budget Reconciliation Act of 1993.
 - Prohibits physicians from self-referring to “designated health services” such as: clinical laboratory, physical and occupational therapy, radiology or other diagnostic services (XR, U/S, CT, MR, nuclear medicine and mammography - but not screening mammography services), radiation therapy, inpatient/outpatient hospital services.
 - Officially published in January 1998, Stark II took effect January 2002.
- **Exceptions:**
 - In-office ancillary services: the practice must directly provide and bill the service.
 - Services associated with a prepaid plan or hospital affiliation; office space/equipment rental; employment service arrangements; specific physician incentive plans; physician recruitment; specific group practice arrangements with a hospital.
- **Penalties:**
 - A fine up to \$15,000 per prohibited referral, \$100,000 for participation in a “circumvention scheme,” reimbursement of fees and exclusion from the federal payment programs.

- Subject to Stark: referrals by physicians (and physician/practice staff with physician controlled referrals), dentists, chiropractors, nurse practitioners, physician assistants.

Upcoming Legislation:

Still pending, Congressmen Stark and Kleczka (D-WI) authored the Hospital Investment Act of 2003 to regulate physician referral to specialty hospitals (heart, orthopedic, etc.) in which the physician has an interest.

Sources: Norbut, M., AMA, January 2003; www.house.gov/stark/welcome.html; GAO-03-683R Specialty Hospitals, April 2003; www.house.gov/stark/; Manning, J. the Milwaukee Journal Sentinel, May 2003.

CASE STUDY:

Census Survey in DNA Testing

- **The Company:** A Multinational Medical Diagnostics Leader.
- **The Challenge:** To assess current genetic disease testing volumes (e.g., cystic fibrosis); to quantify DNA testing use versus the use of other testing techniques; to evaluate client versus competitor market share.
- **The Solution:** Conduct a census survey of the entire market. Develop a highly specific skip logic questionnaire to profile customer segments per test type. Build a searchable database to compare profile type to response data. Identify decision criteria for choosing one test method versus another.
- **The Impact:** With a clear understanding of the genetic testing market the client chose the segment on which it successfully launched new testing products.



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of the Quarter: The Future of Film Companies

Dan Kerpelman, President, Health Imaging, and Senior Vice President, Eastman Kodak Company

Q: Ten years ago, computer geeks forecasted the death of paper. Now we use more paper than ever. Any parallels with film? In what areas of medicine does film still provide value and continue to grow?

A: The morbidity forecasted for paper was more extreme than the morbidity forecasted for medical film when digital imaging started to grow. Film use has diminished, but not as fast as predicted. X-ray film media has declined at a very slow rate, replaced by digital print film for hardcopy and archival. Overall, film as a media is growing.

Two growth areas for film exist: the traditional film market and the print film market. Traditional film provides the acquisition and output functions. Print film serves as an output media. Traditional film use overall has declined but certain subsets continue to grow. For example, mammography continues to grow due to strict requirements for image quality. Reading mammography images is difficult, so many physicians still feel more comfortable with film. Print film (laser or inkjet film) has multiple areas for growth. The rapid increase in digital acquisition modalities, such as CT and MR, has far exceeded the growth in the associated IT infrastructure. Print film has fulfilled the "bridging need" for reading and archival. Liability also dictates the need to print hardcopy images.

Q: How can film avoid becoming a commodity differentiated only by price?

A: Significant differences still exist between film companies regarding film image quality such as in mammography where image quality represents a very significant differentiator. Image quality has a direct impact on clinical value. With computer-aided diagnosis products film plays a key role in a system: workflow, QA, processing, etc. Significant differences from one film product to the next include cost, film degradation and performance.

Q: It would appear that film companies struggle to offer digital imaging without cannibalizing film revenues whereas device companies benefit by selling digital devices. Do film companies need to adjust their business model from a recurring to a capital revenue stream?

A: In addition to Kodak, the other major film companies such as Fuji, Agfa and Konica, offer a great number of digital products attached to printers. Many customers want CR and DR and lack the IT infrastructure to manage the images digitally. So they print, which explains the new growing business of laser film. In areas where new digital imaging products may cannibalize film products, we create new revenue through services, training, and even image storage.

Q: What is the future of the historical film companies?

A: Film companies will not become niche players! Healthcare and imaging represent a sizeable marketplace, with room for more than one kind of player: experts in cross-sectional imaging, molecular imaging, functional imaging and projection imaging across specialties. The many broad applications will allow multiple companies to prosper even though the healthcare market is ultimately a zero-sum game.

For a long version of this interview: www.themarketechgroup.com/news/minute/tmtg-min11-kerpelman.pdf

For a profile of Dan Kerpelman please visit: <http://kodak.com/US/en/corp/pressCenter/bios/kerpelmanDan.shtml>

ON THE HORIZON: Converting to Digital Imaging

HIGHLIGHTS

- Worldwide, 1.8 billion conventional x-ray imaging procedures are performed annually, or more than 80% of diagnostic imaging exams.
- Throughout the late 1990's, US radiologist caseload increased at a 12% annual rate.
- Chest x-rays represent approximately 1/3 of all imaging in the hospital setting.
- Two million diagnosticians read eight billion films per year.
- In 2000, the world market for x-ray film was \$3.5 billion, with the US representing \$1.4 billion.
- The average radiographic, digital x-ray image requires 8 megabytes of memory. The typical exam requires 10-20 MB. Storing all of the world's annual x-ray images would require 17 petabytes.
- Mammography procedures are expected to double worldwide over the next decade. They represent the most expensive modality to convert from film to digital.
- The estimated average cost in 1999 of converting a hospital to filmless operation was \$5-6 million.

AT STAKE!

- Film company revenue models will change. Film sales produce commodity-based, recurring revenue streams. Digital products represent capital investments with relatively low recurring revenue.
- With the expected continued growth of film sales worldwide, film companies face a timing conundrum of when to reduce investment in revenue generating film production and subsequently build offsetting sales revenues through digital products or services.
- Film sales will continue to appeal to low-tech organizations with minimal access to IT expertise or capital equipment, including smaller hospitals, physician offices, and institutions in developing countries.

SO WHAT?

- Their long-established culture and stockholder expectations may force film companies to develop digital divisions, possibly even renaming them for brand differentiation.
- Film companies can target existing film customers, providing a transition path to becoming digital or by leveraging their expertise as 'imaging experts,' developing niche products to help organizations leapfrog their local competitors to become digital.

THE ASSOCIATE CORNER: Sun Setting on Film Use

In the US heartland, radiographic film usage continues. Conversion from x-ray film to digital x-ray imaging will take as long as 25 years, so film sales will continue to grow at a slow rate. As a bridge to becoming digital, Computed Radiography (CR) will likely thrive for the next five years, at which time, digital capture devices will enjoy widespread demand. Film digitizer sales will continue declining.

Several inertial forces will contribute to the long-term decline of film use: increasing affordability of digital devices, the retirement of radiologists and image-using physicians who prefer film, the development of computer-aided diagnosis tools and of better imaging displays. (LCDs still lack the dynamic range of light boxes and film.) These forces combine to drive the irreversible acceptance of digital imaging.

Film companies have claimed a transition to digital for years. While three main players now dominate the worldwide industry, no one has walked away from film's attractive revenue stream. No company has shelved or sold their film business to exclusively offer digital solutions. The US steel industry provides insight into companies that fail to adapt to changing market conditions. For years it vacillated on restructuring plans and established a myriad of pilot programs. U.S. companies cited high labor costs as the problem, but Japan and Germany transformed their steel industry to compete worldwide. Hopefully film companies will change direction in time to succeed.

Steve Weiss, former CEO of Lumysis, is a successful entrepreneur in medical imaging. For more information, please visit: www.themarketechgroup.com/news/main.htm