

Finding the Way to Knowledge Management

by Denny Chrismer

Information is everywhere and growing fast. That's hardly news, yet most companies are only just beginning to struggle with the problem of how to transform mere information into profitable knowledge.



Denny Chrismer

Knowledge management—It's the subject of countless magazine articles, the hot topic of the Fortune 500. And most experts agree that it's the next great challenge for any business enterprise that wants to remain—or to become—successful.

But curiously, despite our high-tech age, legacy documents are on the rise. In fact, the use of paper checks and paper forms – and all the information contained by them – grows with every year.

Bringing knowledge management to the ever-expanding volume of legacy data would require an exacting system. For example, you'd need accurate capture of the data, as well as a reliable means to search and retrieve it. In addition, the system should be able to handle cursive handwriting, hand print and machine print with equal precision and ease. With these capabilities in place, knowledge management becomes reality. Sound implausible? Well, I've just described some of the

basic functions of NHR™ technology.

In fact, contending with burgeoning legacy data demands NHR. Through its high functionality and low cost, NHR offers a bridge between a disarray of paper records and an orderly structure of online data. That's why NHR continues to prove itself a perfect vehicle for true knowledge management. That's also why NHR now processes more than 45 million forms every day. Small wonder so many businesses that use NHR will see higher productivity and profits—both this year and in years to come.

If you'd like to learn more about how NHR technology can enable knowledge management, contact Denny Chrismer at (303) 381-3115.

How Are We Doing? Let Us Know.

If you have a comment about doing business with Parascript, please let us know. We continually strive to be the best business partner possible but, to reach that goal, we need your input.

We'll publish your remarks in this newsletter and also inform you of how we're addressing your concerns.

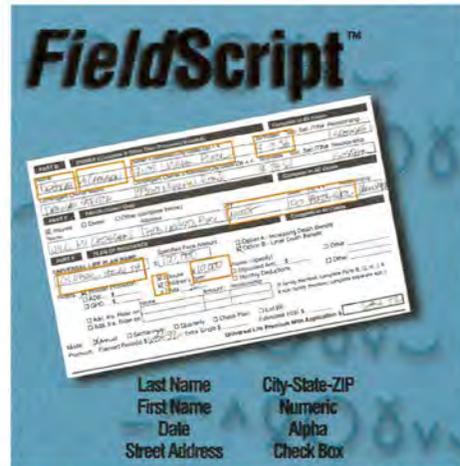
So—send a quick E-mail to deborah@parascript.com.

Thanks. We always look forward to hearing from you.

Parascript Announces New Product at AIIM

FieldScript™ 3.0 Doubles Reco Accuracy

Like its predecessor, *FieldScript* 3.0 eliminates the need for form redesign. It still recognizes form fields just as they are filled out, with or without combs or constraining boxes, and in the writer's natural style. But now, thanks to Parascript's patented cross-validation techniques, *FieldScript* 3.0 recognizes machine print, too.



In addition, new features and key enhancements found in *FieldScript* 3.0 more than double the accuracy of specific field recognition.

Pavel Zelinsky, Parascript's senior vice president of R&D, observed that, "We designed *FieldScript* 3.0 with both integrator partners and their customers in mind.

Based on customer needs, we added an OCX interface and machine print recognition. We also widened the range of supported fields, improved recognition quality and augmented cross-validation functionality."

In the News

NCR Corporation has joined forces with Check Solutions in a global marketing alliance. The companies plan to provide a suite of check processing solutions to the banking industry worldwide. NCR, a Parascript partner, uses CheckScript in its acclaimed ImageMark POD (proof of deposit) system. (See related article on CheckScript and banking in this issue.)

Recognizing the growing demand for natural handwriting recognition in forms processing, San Diego-based Captiva Software Corporation now integrates Parascript's NHR technology. Captiva, the world's largest provider of information capture software, recently announced the integration of FieldScript into Captiva's Formware 2.0. "Our users will see improved accuracy and increased

productivity," said Jim Woodruff, Captiva's vice president of marketing.

RAF Technology, Inc. recently announced a strategic agreement with Parascript. RAF will integrate NHR technology into Cartouche™ data capture and perfection software and into its commercial mail routing software as well. "After extensive evaluation of other options, Parascript's NHR technology won hands-down," said David Justin Ross, RAF's CEO. Based in Redmond, Washington, RAF is a leader in automated reading, validation and interpretation of hand print, machine print and electronic data streams.

Mitek Systems, Inc. has become a supplier to IBM. IBM will license the CheckScript recognition engine from Mitek for use in the IBM ImagePlus

Intelligent Forms Processing (IFP) Solution for Windows NT. The IFP Solution, IBM's most advanced forms processing system, is designed to reduce the cost of data capture from documents. Scott McDonnell of IBM noted, "Our customers will receive a real boost in accuracy with the CheckScript solution." Located in San Diego, Mitek is known for its leadership in ICR technology.

AQURIT remittance imaging technology, a product of AQURACY.COM, now incorporates the CheckScript software development kit. "Community banks and other organizations involved with remittance processing can benefit from a creative recognition solution that's affordably priced," said Parascript's senior vice president of sales and marketing, Denny Chrismer. Headquartered in Chicago, AQURACY.COM is dedicated to providing image-based, quality, check and remittance processing software for a wide variety of markets.

Parascript Partnership Solutions

CheckScript Wins Over Banking Industry

An integral part of the NCR ImageMark POD (proof of deposit) system, CheckScript is now installed at major banks throughout the country. The reason? Ask Terry Duffy, a product manager at NCR. "Institutions including Wachovia Bank, Frost Bank, National City Corp, Union Bank of California and Bank of New York—all enjoy the benefits of Parascript's exclusive NHR technology. CheckScript brings higher read rates and a reduction of manual keying, both of which yield direct savings to our banking partners."

CheckScript identifies the amount written on a personal check. Recognizing cursive handwriting as well as unconstrained hand print, CheckScript cross-validates legal and courtesy amounts during the reco process. It also assigns a confidence level to each processed check.

According to Bill Boersing of Mitek Systems, Inc., "We have CheckScript installations through BancTec, Scan Optics and TRW—just to name a few.

And we expect even greater adoption rates as the year unfolds."

Denny Chrismer, Parascript's senior vice president of sales and marketing, commented, "We're extremely pleased by CheckScript's success in America's banks. And we anticipate future versions of CheckScript to be even more impressive, with higher read rates and error rates below 1 percent."

Site-Seeing?

Make a point of visiting Parascript's new website at www.parascript.com. New design, faster performance and easier file access are just a few good reasons to stop by. So far, response has been excellent. Drop us an E-mail and let us know what you think.

Parascript Tradeshow and Event Schedule

TAWPI — Denver, Colorado
August 1, 1999

IMC 99 — Amsterdam, The Netherlands
June 8, 1999

Washington Navy Yard Imaging Conf. —
Washington D.C., June 16, 1999

Quick Notes

Parascript literature is available now, along with the *Rheimmer Guides* on NHR Technology. Contact Pam McCallum at (303) 381-3118 or E-mail:

pmccallum@parascript.com

Web highlight:

www.techinfocenter.com features Parascript's online trade show exhibit plus an audio presentation—

"Taking Forms Processing to a New Level of Performance."

Parascript People

Welcome to Alan Williamson, Parascript's new chief financial officer. Alan, who holds BS and MBA degrees, is also a CPA and has an extensive financial management background with companies such as Storage Technology Corporation and Quark, Inc.



PARASCRIPT CLASSROOM

FIELD VS. CHARACTER RECOGNITION

To better understand the scope and power of NHR technology, it's helpful to take a look at two older reco technologies: OCR (Optical Character Recognition) and ICR (Intelligent Character Recognition). OCR and ICR are typically used for reco of machine print and hand print, respectively. The technologies can perform satisfactorily, but they exhibit the limitations and problems summarized in Table 1.

Compare these limitations and problems with the features and benefits of NHR technology shown in Table 2.

Character-Based vs. Field-Based Approaches to Recognition

As indicated in the tables above, OCR and ICR use a character-based approach to recognition. Both technologies segment a word into a sequence of characters. Then they reference the lines and curves found in each character to "guess" what letter a character probably represents. The process is slow, labor-intensive and often inaccurate.

Of course, humans do not read just one character at a time. Instead we read complete words – often entire phrases – as whole and intelligible units. NHR takes the same holistic, field-based approach. The technology uses a special description language that now includes over 64 elements and a set of rules to regulate their interpretation. NHR provides a reco result for a whole field, not for each character.

NHR: A Principle of Motion

Let's take a closer look at the principles behind field-based recognition. In its most basic form, cursive handwriting can be viewed as a series of movements



Figure 1: XR elements

OCR or ICR Limitation

Does not accept cursive handwriting
Reco is character-based
Demands high-quality image
Uses static look-up tables
Requires combs or boxes

Problem

Limited applications
Inaccurate and slow
More manual processing
Inaccurate and slow
Increased error margin; slow processing

Table 1

NHR Feature

Reco of hand print, machine print and cursive handwriting
Field-based reco
Accommodates low-quality images
Dynamic, in-context vocabularies
Does not require contraining boses or combs

Benefit

"One-stop" reco
Accurate and fast
Cuts manual processing
Accurate and fast
Higher accuracy, greater versatility and faster processing

Table 2

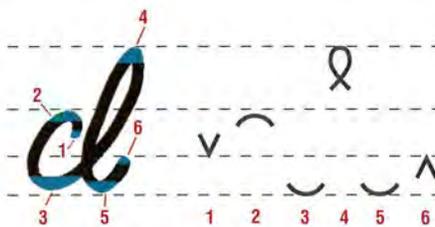


Figure 2: XR elements found in the letter "d"

made by a writing instrument. That idea underlies NHR technology. The movements are represented by eight fundamental elements (Figure 1) that describe the trajectories found in all cursive letters. The elements (called XR elements) form the basis for a hieroglyphic alphabet and special description language.

XR Elements at Work

Figure 2 shows XR elements in an image of the cursive letter "d."

Because cursive handwriting exhibits so many variations, the same character

can often be represented by different sets of XR elements. Figure 3 shows four versions of the cursive letter "a" and the XR elements that correspond to them.

Similarly, entire words and even phrases can be reduced to XR elements, thus enabling true field-based recognition. And NHR field-based recognition is the most accurate, fast and economical reco technology available today.

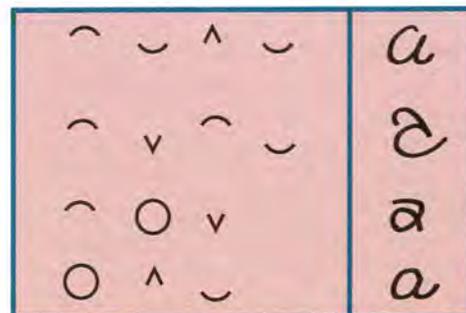


Figure 3: XR elements found in the letter "a"



PARASCRIPT

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NOVA and *FieldScript*

NOVA Information Systems, Inc. is the nation's fifth largest processor of bank card transactions, and it maintains a nationwide network designed specifically for electronic funds transfer. On average, the company receives 200 to 300 handwritten applications daily from merchants who wish to use the NOVA network for processing credit card transactions. In the past, each application typically took from 10 to 15 minutes to hand-process.

New system reduces forms processing time by 80% and more

Today NOVA uses the NovaOCR system which incorporates *FieldScript*. Through NHR technology, *FieldScript* recognizes handwritten characters (both alpha and numeric) and converts them to digital data. The software also assigns confidence levels. The average processing time per handwritten application now averages only two to five minutes.

In addition to the time savings, NOVA reports improved data quality, the elimination of duplicate data-entry efforts and the ability to perform automated credit checks. The days of tedious hand-processing behind them, NOVA personnel can concentrate on the more challenging aspects of the bank card transaction business.

*You can learn more about NOVA at
www.novainfo.com.*

Parascript Partnership Program

The Parascript Partnership Program offers a select number of qualified resellers and integrators the opportunity to profit from NHR technology. The program includes a comprehensive set of sales, marketing and support strategies. Parascript Partners also receive benefits such as tech support and tech support training, plus co-op marketing funds, sales leads, merchandising items and much more. For further information, visit our website at www.parascript.com or contact deborah@parascript.com.

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