



## Intelligent Data Capture and OCR Give a Better View of Business Operations

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### Management Summary

In business, you base your decisions on your organizational self-knowledge. These days, this knowledge rests not just in the minds of a few key executives, but also in the databases and documents that support and document day-to-day operations. Analysis of this data has spread beyond those with advanced degrees in statistics to operations folk of all sorts, from retail salespeople to logistics coordinators. **Information has become the new currency of business.**

However, if you run your business based only on the documentation that you *produce*, and not also on the documentation that you *receive*, you're not just "not thinking outside the box," you're thinking in a box lined with mirrors. Critically important information also comes as annotations on bills and letters of complaint. Information valuable to product development comes from exceptions and improvements your customers ask you to make. While some of this information comes electronically in familiar formats, not all of it does. If you do not capture non-electronic information, you lose the ability to include it in your analysis. And, if all you capture in a scan is an image, you don't have the metadata that endows the image with the context and meaning to make it findable and valuable.

Think of the matter in ornithological terms. Teddy Roosevelt slew birds by the thousand in the name of science. Stuffed specimens were mounted with care in dioramas. Unless you were a specialist, or had a good interpreter, this presentation did not tell you much. By mid-century, microphones added audio, and you could learn to recognize birds you could not see. But *naming* is not the same as *knowledge*. Now, cameras and wireless communications and embeddable sensors enable us to know far more about what birds actually do – and, in the case of nesting peregrine falcons, how they do it.

First generation data capture is a bit like the Roosevelt Era. Scanning produced bitmap corpses that needed significant human participation to produce business value. Now, when data capture has the intelligence to index text, and to recognize format elements like headers and interesting features like signatures, the process of data capture – intelligent data capture – can do far more for your business than previously. It is time for a rethink.

This kind of OCR intelligence has been used in check processing for decades. Now, it belongs in every business. A company named ABBYY, based in Moscow, Russia, provides the intelligence behind intelligent capture that turns paperwork and video feeds into actionable business intelligence. What ABBYY can now do is important to anyone who must leverage a complete documentation of business operations for strategic advantage. For more details, read on.

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## What This Means to Business

Paperwork, in the form of invoices, proposals and contracts, capture that part of business where optimization matters most. Streamlining workflows helps the cadence of business process – and is, of course, a very good thing. But it is the cadence of invoices, contracts, and proposals that determines the cadence of revenue. It is the irregularities of documentation – the post-its and annotations that indicate the contentions and demurrals that should inform business strategy. A smooth velocity of business process soothes – but it does not inform.

**This paperwork cannot be useful in today's business context unless it is in a digital form that can be searched and analyzed electronically.** Use of intelligent data capture provides the following critical business capabilities.

- **Full documentation of transactions** – the detailed and consistent metrics that shipping companies get with their hand-held devices, but many companies do not. The ability to analyze the details of these transactions can pinpoint operational difficulties that are slowing the realization of revenue.
- **A better understanding of how customers see your business** – Complete documentation of complaints is a critical part of business risk mitigation. Automating the capture circumvents the human tendency to hide unpleasantness.
- **A better view of your markets** – The more one can know the better – but the value is in the details. For many physical businesses, market-basket analysis depends on paper assets.
- **A more comprehensive view of your business** – If paper-based information is not part of the solution, its part of the problem.

## ABBYY Benefits and Products

### *FineReader OCR for More Usable Information*

#### Better Recognition

Based on decades of research in artificial intelligence and linguistics, **ABBYY's Adaptive Document Recognition Technology**

**(ADRT) makes paper documentation more usable with less human intervention. ADRT recognizes the logical structure of a document.** It captures not just a bitmap image, but also the document's format, layout and metadata.

Significantly, *FineReader* supports “document-level OCR” – treating a multi-page document as a single entity, rather than a litany of pages.<sup>1</sup> *FineReader* can recreate, in the captured output, fully-editable headers, footers, and footnotes for *Microsoft Office* applications. It recognizes the internal links of footnotes for what they are. It can recreate tables and nested tables.

*FineReader* allows you to scan and re-edit an existing document for easy reuse, instead of re-entering it. If you add a long paragraph to a scanned document with header fields, the headers will stay in place. This intelligence in layout analysis allows people to extract and reuse information efficiently.

*FineReader* can detect a book image and automatically split the two pages scanned into separate images. *FineReader* will rotate to a landscape orientation as needed. **Therefore, with *FineReader*, digitizing the information you longed to use in longitudinal studies might be do-able.**

*FineReader* can output as editable copy, using DOCX, XLSX, PDF or PDF/A (for archiving). In legal documents, it can treat pleading line as a header/footer independent of body text. It retains signatures as graphics.

#### Format Conversion

*FineReader* also does file conversion. Today, this conversion is to PDFs, which are what people most often want – but the intelligence behind this capability is not limited to a single format. Who among us has not been stymied by our end-users' devices' inability to do anything but print the information someone has sent us? Thus, this capability is immediately compelling – but think more broadly.

**Format conversion – that is, intelligent format conversion – is an erstwhile mun-**

<sup>1</sup> This approach uses multi-level analysis. First, it goes through the whole multi-page document for layout analysis of similarities, like footers and headers. Then it goes through again for element recognition. Then it combines and relates the two layers.

**dane capability that becomes dramatically more important as businesses keep and use information longer.** If you look at the direction business analysis is heading, it is getting more specifically targeted and more sophisticated. It can analyze multiple aspects of a situation and now has the visualization breadth to portray the results in a form we humans can understand. As analysis with more historical information brings in a fuller picture (and companies are keeping this information anyway, because of government regulations), the ability to import information with all its metadata trimmings of business logic and contextual specifics becomes the difference between the cheese (nourishing) and chalk (not). **Differentiation in business, as in war,<sup>2</sup> becomes more the matter of good business analysis, the quality of information (not just its availability) and searchability becomes a critical value.**

ABBYY FineReader can scan information directly to Word, Email, Excel, and other destination formats. In capturing tables and images from digital cameras, its accuracy is improved. ABBYY feels that image analysis will be a huge source of market growth and differentiation in years to come.

### ***FlexiCapture for Information from More Sources***

ABBYY's *FlexiCapture* allows more kinds of materials – and multiple kinds of materials – to be captured without pre-processing or human assistance. It has the intelligence to recognize common elements, like dates, no matter where they are placed. FlexiCapture supports not just OCR but ICR<sup>3</sup> and OMR<sup>4</sup> Barcodes, etc.

FlexiCapture can capture structured, semi-structured, and unstructured data. It can do it in a single workstream – you don't have to segregate out one type of form at a time, or separate them with blank pages and templates. It is much less labor intensive. It allows you to specify the format to which it is being

<sup>2</sup> For a fuller explanation of this metaphor, see **The Clipper Group Navigator** entitled *When Your Life Depends of In – Inxight Federal Systrems Enhances Military Intelligence*, dated August 17, 2007 and available at <http://www.clipper.com/research/TCG2007082.pdf>.

<sup>3</sup> Intelligent Character Recognition (fonts and handwriting).

<sup>4</sup> Optical Mark Recognition (logos, etc).

scanned. FlexiCapture can do fax, archives, books and digital images as well as laser print. Medical offices use FlexiCapture to capture the labels. It can capture patient information as an XML Schema and also export it as ODBC.

FlexiCapture customers choose what to extract. FlexiCapture can tag invoices today. It can recognize nested tables. It can do some normalization. The next version will tag a signature with metadata

Any organization – stymied by foreign language documents, or flummoxed by paper contracts that they need to analyze quickly – will see the need for these kinds of intelligence. Legal, government, and academic organizations have the most obvious needs – but few businesses, these days, are devoid of the challenges ABBYY helps them face.

Customers tend to start with a specific need, like the need to capture timecard data to send top payrolls. Then they will move to invoice management and then accounts payable.

### ***Many Ways to Buy***

As a supplier, ABBYY licenses its software to many of the scanners available today. This provides an admirable revenue stream, but does not give it much chance to spread the word of what intelligent data capture can do – and, more significantly, what it can do when built into an enterprise business strategy.

It offers the following products, as well as a number of electronic dictionaries for several languages.

- **ABBYY ScanTo Office** is their entry-level product for small and medium businesses who simply want to scan to *Word*, *Excel*, and *email*.
- **FineReader Professional Edition** (\$399, \$179 for upgrade) has more functionality is sold with per seat licensing, and provides a stand-alone capability for individual users. It is installed on a PC.
- **PDF Transformer** is what you need if your main pain is transformation of documents between Word, Excel, PDF, HTTP, and TXT formats. It can also create searchable PDFs from *PowerPoint* and *Visio* to be saved or sent with a click.
- ABBYY also sells **Recognition Server**, a server-based product for automating the

conversion of files in a larger enterprise. It can be deployed as part of a workflow or used opportunistically as a standalone appliance.

- ***FineReader Corporate Edition*** supports a network of users with concurrent licensing. One can also get a site license. It supports distribution to hot folders or email inboxes. More licenses can be bought to support wider use. It is installed on a server and comes with a license manager.
- ABBYY's Data Capture Products include ***FlexiCapture 8.0 Professional Edition*** and ***Form Reader 6.5 Enterprise Edition***. The typical price of FlexiCapture runs \$6,000-\$30,000.
- Developer and OEM offerings
  - For corporate developers who want to add special features, ABBYY offers toolkits for both *Windows* and *Linux*. ***FineReader Engine***, ***FineReader Scripting Edition***, and ***Form Reader Developer Edition*** give developers the ability to develop special capabilities in both FineReader and FlexiCapture. *FineReader Engine* has been licensed and used in various solutions including reading solutions, text collection, document management solutions, video services, automated archiving and COLD, and even identity fraud services.
  - A new ***ABBYY Mobile OCR SDK*** (software development kit) is a lightweight, OS-independent way for device, hardware, and software manufacturers to add OCR functionality to solutions, mobile devices, and digital cameras.

### ***Future Capabilities***

**By bridging the gap between data and metadata, ABBYY can help coordinate the unstructured data of content with the structured data found in databases.** In the future, it will work on starting to extract the semantic meaning of documents.

Its *Mobile OCR* and *FineReader Engine* will capture full text mode that can recognize

every character and leave a stream of them intact as a unit – useful for recognizing street signs and license plates.

It will continue to enhance its digital image OCR. As one might guess by the tales of people using cell phones to document everything from rashes to automobile accidents, ABBYY feels that image OCR is going to drive a huge wave of usage.

As enterprises archive more information and seek to reuse it in new ways, ABBYY's metadata capture, its breadth of capture, and its ability to transform data for use by applications with format expectations all will be valuable capabilities.

### **Conclusion**

ABBYY's tag line, *Defining Recognition*, is a vehicle for stimulating re-thinking. Many organizations don't recognize the true extent of the opportunities that come from knowing more about their business. The ability to capture information from paper intelligently saves a lot of labor. The ability to move quickly to the next step in a process saves a lot of time. Think of how to leverage data capture to enhance your view of your business.



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