

## White Paper

# THE DIGITAL EMPLOYEE

New Automation Technology is Handling Compliance Processes, Data Breach Recovery, Core Migrations, and More, to Help Financial Institutions Rethink Productivity.

## **INTRODUCTION**

The first man to create a machine run on data input by a human operator was arguably French silk weaver Joseph Jacquard.<sup>1</sup> He built an automatic loom in which the instructions for weaving a given pattern were put on punch cards that controlled the actions of the rods carrying the threads into the machine.

In 1886, Herman Hollerith built a machine that automatically counted the results of the U.S. Census. Data entry operators punched survey information from the census onto cards which were fed into the machine.

Ever since then and right up until today, computers have depended on human operators' manual efforts as the first critical step in performing their functions. But in the 21st century, such manual unstructured processes are being automated to speed data-related tasks and reduce errors virtually to zero.

In this context, automation is the linking of disparate systems, applications and software so that they become self-acting and self-regulating. To replace slow human operators with fast software-driven performance, the IT functions that must be automated are data entry and data maintenance.<sup>2</sup> In automating these two processes, financial institutions can begin to automate not only the routine, but complex processes like core migrations and compliance procedures that used to take days, or weeks to complete.

## **THE PROBLEM WITH HUMANS**

The problem with the traditional methods of data entry and maintenance (usually manual efforts, programming, or outsourcing) by human operators is fourfold.

First, humans work slowly. Even for a fast typist, top speed is around 1,000 characters per minute. Our own limitations are the bottleneck to maximum productivity in virtually every data-related task. Worse, humans generally work in 8-hour shifts. Even if you employ two shifts, one-third of a 24-hour-day will go unused for manual data entry and maintenance.

And the speed of humans' ability to change and enter data is variable. Most workers have peaks and valleys of productivity during their shifts. They don't work at top speed all or even most of the day. They take coffee, meal, and bathroom breaks as well as vacation and sick days.

Second, humans make mistakes. The error rate for human data entry is 0.5%.<sup>3</sup> Customer service representatives updating credit card information for 10,000 customer records will probably make at least 50 errors – which to your business, and certainly for those 50 customers, is problematic.

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1 Robert Bly, *Computers: Pascal, Pong, and Pac-Man*, Banbury Books, 1984, p. 36.

2 <http://searchcio.techtarget.com/definition/IT-automation>

3 <http://panko.shidler.hawaii.edu/HumanErr/Basic.htm> Ray Panko, professor of IT Management at Shilder College of Business, University of Hawaii, Honolulu: Basic Error Rates, 2008,

In practice, data entry and maintenance error rates are often higher. In one data center, there were 2,584 changes required for 41,568 pages entered into a database. Of these changes, 71.1% were necessitated because of errors in the initial data entry.<sup>4</sup> In financial services, and many other industries, even small data errors can have dire consequences if not caught.

Third, data errors are expensive. For example, a data-entry error in a loan applications may make it impossible to process the document automatically. Incorrect loan documents may be created, and the cost for reprocessing can be many times higher than the initial pass. The customer may become irate and complain. And there might be soft costs as well—like the customer service issues that unhappy customers can generate. Interviews with more than 50 financial services firms showed that if the data entry associated with one document costs \$1, the downstream costs incurred for one document with a data entry error can easily add up to \$300.<sup>5</sup>

In one white paper, an analyst looked at a scenario in which professionals performing data entry and maintenance updates made 200,000 keystrokes per day entering data into five systems. The operators therefore made 40,000 daily keystrokes per system. The error rate was 0.5% resulting in 1,000 total daily errors. The analysis assumes that 90% of the errors are discovered during data entry at a cost of a dollar per error found. Only 5% of errors are discovered during operation of business at a cost of ten dollars per error found. The remaining 5% of errors are discovered through customer complains at a cost of \$100 per error. For the above scenario, the total cost of the 1,000 errors is \$6,400 a day!<sup>6</sup>

Fourth, traditional options for entering and changing data, like manual effort or macros, cause us to miss opportunities. Businesses pay employees to build value – through planning, serving customers, or execution – not change and enter data. Banks who enlist employees to update the overdraft protection status on accounts risk missing customers. Paying a third party to handle a data conversion means less capital for other projects. Data creates the need for tradeoffs.

### **THE SEARCH FOR SOLUTIONS TO DATA ENTRY ERRORS AND BOTTLENECKS**

Various solutions have been attempted to reduce error rate in human data entry, with varying results. One common technique for improving accuracy is called double data entry (DDE). In a North Carolina clinical study of 609 participants at 4 organizations, DDE was partially credited for a reduction in errors, improving data integrity, and identifying difficult forms.<sup>7</sup>

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4 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3777611/> NIH, Drug Information Journal, July 2011, vol. 45, no. 4, pp. 421-430: Evaluation of Data Entry Errors and Data Changes to an Electronic Data Capture Clinical Trial Database

5 <https://sites.google.com/a/totalcostoferrors.com/www/> (www.totalcostoferrors.com), a “forum for discussing the costs associated with Business Process errors and their impact on the Total Cost of Ownership of Business Process Outsourcing.”

6 [http://www.pcr.com/files/PCR-360\\_White\\_Paper\\_12.pdf](http://www.pcr.com/files/PCR-360_White_Paper_12.pdf) PCR-360 Enterprise-level Communications and Technology Management, white paper: Integrated versus Independent Operational Support System (OSS) p. 6-7

7 DOUBLE DATA ENTRY QUALITY CONTROL IN URECA ... - Rho

In one 12-month study applying Six Sigma quality control methods to data entry and maintenance, a clinical laboratory achieved a reduction of an average 166 errors per month. The average cost of identifying and fixing these data entry mistakes was about \$16.25 per error, yielding a cost savings of \$2,698 per month.<sup>8</sup>

But the biggest benefit of applying Six Sigma or any other methodology to data entry error reduction is the human factor. To overcome that limitation and achieve an order of magnitude improvement in data entry accuracy and speed, a new solution is required – one that eliminates the human operator altogether.

Enablesoft, has introduced a pioneering software solution proven to improve the accuracy and speed of data-related task performance in financial services and hundreds of other industries.

This software, called Foxtrot, can intelligently automate the routine and repetitive tasks of data entry, maintenance, integration, migration, aggregation, and testing – essentially any manual unstructured data process.

The software can perform these tasks in a wide range of platforms and applications including spreadsheets, Windows-based programs, green screens (legacy systems), and web-based applications. This means that banks and credit unions can update account data, board loans, execute hot card processes, and more, automatically, regardless of the core system they use.

Because Foxtrot punches keys and clicks a mouse, and makes real-time decisions in much the same way as a human being, the software has been called a “digital employee.™” Digital employees automatically perform repetitive time-consuming data-related tasks faster than human operators and with 100% accuracy. After a simple training and scripting process, this digital employee can move data between disparate systems seamlessly, with little-to-no help from IT, vendors, or temps. Though Foxtrot can be used by both IT and business users alike, it empowers the business users in particular to solve their own problems today, eliminating dependence on IT to get the job done.

The two keys to making automation of data entry and related tasks practical are (1) software that allows the application to perform the data-related tasks now done by human operators and (2) the ease with which the knowledge workers or their supervisors can “teach” the software to do their jobs correctly. Foxtrot meets both requirements with flying colors.

### **CREATING YOUR DIGITAL EMPLOYEES**

The first requirement for making digital employees practical was empowering financial operations personnel to teach the software how to perform a task, without help from IT or doing any custom

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<sup>8</sup> [http://ajcp.ascpjournals.org/content/138/Supplement\\_1/A195.full.pdf](http://ajcp.ascpjournals.org/content/138/Supplement_1/A195.full.pdf) American Journal of Clinical Pathology, October 2011, vol. 136, pp. A195-A199: Reducing Data Entry Errors and Costs in a Clinical Laboratory in Uganda: Utilizing Six Sigma Quality Improvement Tools

programming.

This is accomplished via a scripting center. It provides a drag-and-drop tool with intuitive wizards that enable non-technical users to write and run custom scripts. These scripts change, integrate, and enter data automatically by following the same routine as the human operator, thereby automating the task. Unlike a macro, which enters and changes data based on its position on the screen, digital employees look for specific objects. So no matter how a button, field, or screen might change, data is always entered in the right place and Foxtrot always performs the right action. Plus, there is no coding with a digital employee. All jobs are performed through the presentation layer (i.e. the user interface), so business rules and audit trails are maintained.

By scripting their tasks just one time, workers “teach” their digital employee to do the job. When the scripts run, the data is automatically entered into the database or other system. It replicates precisely the keying in of data and pulling up of records the operators do one by one. Only the digital employee does it infinitely faster and virtually 100% error-free.

#### **PUTTING YOUR DIGITAL EMPLOYEES TO WORK**

With Foxtrot, an organization can rapidly teach the solution how to perform data entry and other routine tasks once, and then have their digital workforce take over these tedious chores from human operators from that point on. The advantages include significant cost savings and improvements in data quality.

People’s Bank & Trust was faced with having to change the ratings codes in 120,000 customer records to help become BSA compliant. Using Foxtrot to automate data entry for the ratings code changes, all 120,000 records were updated in less than 6 hours.

StonehamBank used digital employees to cancel and reissue debit cards that were compromised in a mass data breach of a major retailer in December of 2013. Rather than have their employees spend a weekend manually updating accounts, a pre-written Foxtrot script executed the process in a matter of hours for roughly 900 card holders.

Mississippi-based BankPlus uses Foxtrot digital employees to automate debit card issuance and spend more time with customers. Rather than having their employees spend several minutes copying and pasting data from their core to their card issuance application, BankPlus created a one-click integration that automatically pulls and places the data just like the employee would, but it’s done in seconds with total accuracy.

#### **IS A DIGITAL EMPLOYEE IN YOUR FUTURE?**

With Foxtrot, nearly 500 organizations in financial services, healthcare, manufacturing, and eleven other

industries are using digital employees to automate laborious, repetitive, time-consuming data entry, maintenance and related tasks.

These digital employees never take sick or vacation days. They don't get bored or tired. They don't make mistakes, so data quality improves geometrically. And, they perform the data-related task longer and faster than any human employee can, enabling the work to get done in a fraction of the time it used to take doing the work by hand – freeing your IT personnel to concentrate on other tasks with greater value.

Take a look at your data centers. What processes are bottlenecked by slow data entry or handling? For which applications is the highest accuracy in data entry mission critical? Enormous gains in productivity, efficiency, cost savings, and data quality can be gained by enlisting the help of Foxtrot to take over the task from your team, allowing them to serve customers, not data. To see Foxtrot for yourself, click here: <http://www.enablesoft.com/latestversion>

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