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A White Paper by

Quadrate, Inc.
5720 Gateway Boulevard
Suite 101 - 103
Mason, OH 45040
+ 1(888) 558-6409
www.quadrate.com



“91% of organizations’ IT expenses are related to maintenance and operations. That leaves only 9% for innovation.” – Gartner Research

[STREAMLINE SAP DATA TRANSFERS BY ELIMINATING PROGRAMMING]

Much of the data being uploaded into SAP Solutions exists in spreadsheets. Moving data out of these spreadsheets requires either manual data entry or IT programming resources. By eliminating these requirements, IT departments can better focus programming resources toward greater innovation on internal projects and business challenges.

[Introduction]

In today's business environment, IT managers often find themselves on a never-ending search to improve return on IT investment. This search is hampered by the maintenance and management of vast amounts of data. IT departments often find that while they have the ability to manage this data, they simply don't have the capacity. These restrictions on capacity are caused by attempts to manage the data imports through manual data entry or through writing programs.

While manual data entry can accomplish this task, it is only practical for a small number of items. Entering thousands or tens of thousands of records manually is not cost effective and is prone to transcription errors. In many cases, data to be entered already resides in an electronic format.

Using ABAP™ programming to create upload scripts is a valid technical solution. However, the task of changing, maintaining and upgrading these scripts can become a significant resource drain. In general, programming resources can better serve a company's business strategies by focusing on the development of innovative software solutions, instead of data import scripts.

It's a fact of life that business and technical users alike are more familiar and comfortable using spreadsheets when it comes to data management. It's also a fact (according to market researcher NPD) that Microsoft Office tools dominate the office suite market, having nearly 95 percent of unit sales.

Both of these facts bring up a question – why not use the most popular office suite software to accomplish the most common data management tasks?

[The Solution]

The answer to this question is Quadrate's ERP². (Pronounced **E R P Squared**) This unique solution provides an easy, three-step process that allows users to quickly import their data using Microsoft Excel or Access – with no programming required.

ERP² is a powerful and flexible tool for uploading data to SAP Solutions systems. It works with anything from ad-hoc changes to full mass uploads. Built upon industry standard components, it couples ease of use with scalable high-end functionality at a fraction of the usual cost.

ERP² can be installed and used with a minimal amount of training, allowing people directly involved with the business to enter and update data thus saving valuable IT resources.

Using ERP² is as easy as 1-2-3:



1. Record Transaction

The recording step consists of launching an SAP Solutions transaction from within ERP² and marking the transaction fields to create a template.

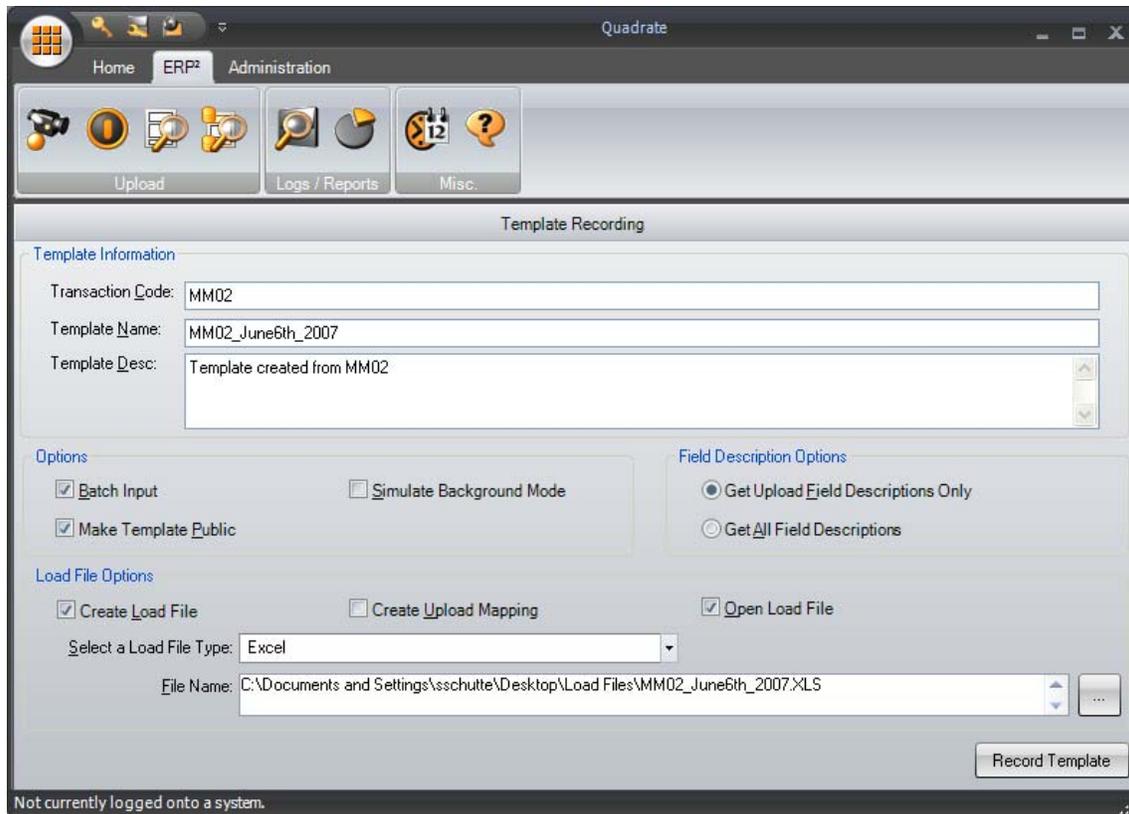
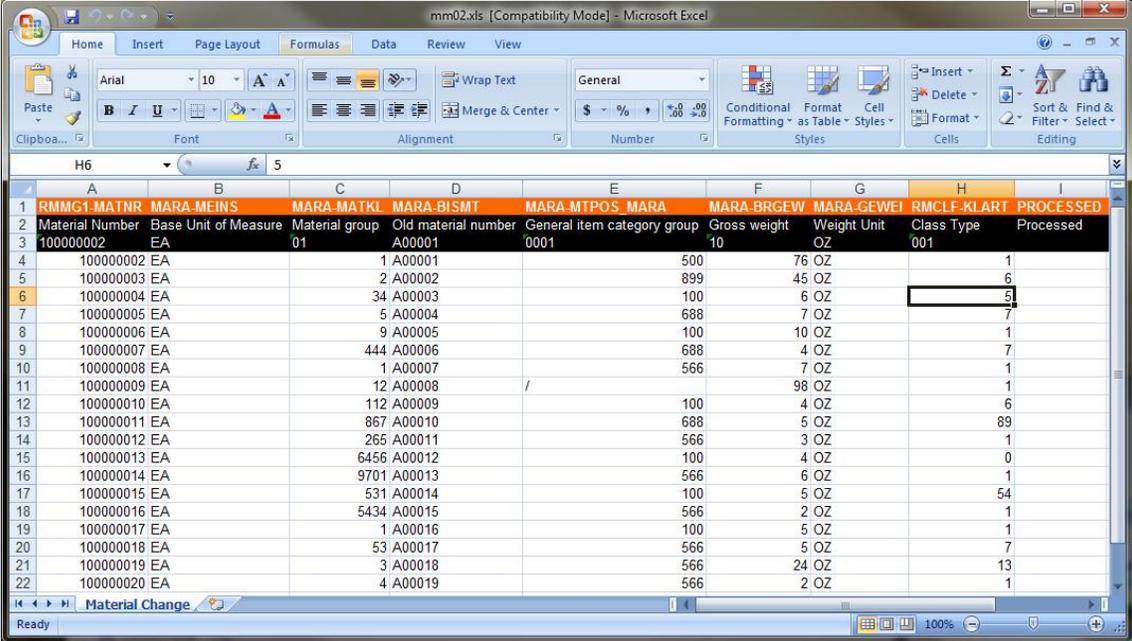


Figure 1 - Recording a Transaction in ERP²

2. Add Data

Adding Data is as easy as placing it into the Excel or Access file that is automatically created as a result of the recording in step 1. This can be accomplished in many different ways, including importing the data from other files and databases, and using macros to create the data.



	A	B	C	D	E	F	G	H	I
1	RMMG1-MATNR	MARA-MEINS	MARA-MATKL	MARA-BISMT	MARA-MTPOS_MARA	MARA-BRGEW	MARA-GEWEI	RMCLF-KLART	PROCESSED
2	Material Number	Base Unit of Measure	Material group	Old material number	General item category group	Gross weight	Weight Unit	Class Type	Processed
3	100000002	EA	01	A00001	0001	10		001	
4	100000002	EA		1 A00001		500	76 OZ		1
5	100000003	EA		2 A00002		899	45 OZ		6
6	100000004	EA		34 A00003		100	6 OZ		5
7	100000005	EA		5 A00004		688	7 OZ		7
8	100000006	EA		9 A00005		100	10 OZ		1
9	100000007	EA		444 A00006		688	4 OZ		7
10	100000008	EA		1 A00007		566	7 OZ		1
11	100000009	EA		12 A00008	/		98 OZ		1
12	100000010	EA		112 A00009		100	4 OZ		6
13	100000011	EA		867 A00010		688	5 OZ		89
14	100000012	EA		265 A00011		566	3 OZ		1
15	100000013	EA		6456 A00012		100	4 OZ		0
16	100000014	EA		9701 A00013		566	6 OZ		1
17	100000015	EA		531 A00014		100	5 OZ		54
18	100000016	EA		5434 A00015		566	2 OZ		1
19	100000017	EA		1 A00016		100	5 OZ		1
20	100000018	EA		53 A00017		566	5 OZ		7
21	100000019	EA		3 A00018		566	24 OZ		13
22	100000020	EA		4 A00019		566	2 OZ		1

Figure 2 - Adding Data to an Excel Load File

3. Upload Data

Uploading your data simply requires selecting the load file you wish to upload, and clicking “Upload”:

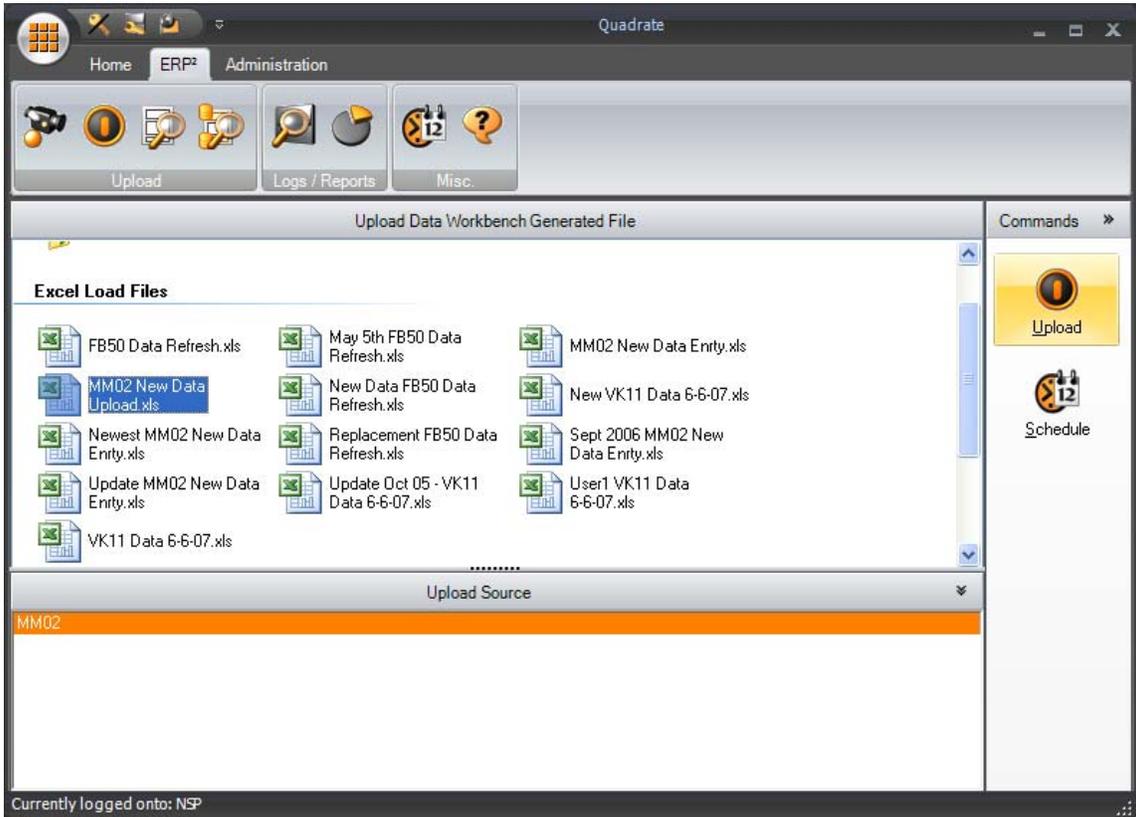


Figure 3 - Uploading the Data into SAP Solutions

[Product Features]

ERP² has the following core features:

- **Respects SAP Security**
a user is restricted to transactions they have been given security to in SAP Solutions.
- **Broad Transaction support**
works with transactions in all functional areas, including custom transactions.
- **Quadrate Message Center**
allows for easy software updates, maintenance, and support.
- **Upload Mapping**
allows users to upload data for multiple templates and multiple spreadsheets. For instance, if a user needs to upload data from two separate spreadsheet files into one transaction, he or she can create an Upload mapping that maps items from each file to a specific field in the transaction.
- **Multiple File Format Support**
in addition to supporting Microsoft Excel and Access file formats, ERP² is designed so that other data formats – such as MS SQL Server, Oracle, or Lotus Notes – can be easily added.
- **Template Database**
allows for sharing of transaction templates, upload mappings, and other items that are useful for users to share.
- **Header/Detail uploads**
provides support for “multi-line” transactions. For instance, when creating an invoice, a user can upload one row of header data (customer name) with multiple nested detail rows (individual invoice items).
- **Data Validation**
before uploading into the SAP Solution, the data can be pre-validated to eliminate incorrect data from being used.
- **Template Editing**
allows users to edit the BDC for a recorded template, create header/detail templates, or create a new template from scratch.
- **Read Values**
allows users to read back data values from fields after an upload, and have them written back to the original spreadsheet.
- **Scheduled Background execution**
allows for uploads to take place at a set or recurring time, even if the machine is switched off (in a shared multi-tier configuration). Also includes error threshold settings and scheduled upload status emails.
- **Flexible License Model**
because we recognize customers have different needs, we have created several types of licenses: Roaming, Floating, and Fixed User Licenses. These licenses allow users to run ERP² on one or multiple PCs, and allow costs to be better spread out between users.
- **Flexible Cost Distribution Model**
budgeting for software purchases is easy with our flexible model of Purchased, Leased, or “Upload Blocks”. These purchasing methods allow the customer to fully purchase the product, lease a license for 3, 6, or 12 months, or just buy blocks of uploads (e.g. 100 uploads at a time).
- **User Ability Settings**
all organizations have users with different skill levels. ERP² includes an administration tool that allows administrators to configure each user’s profile according to their specific abilities.
- **User Ability Groups**
allows an administrator to create groups of users who share user ability settings.

- **ROI Report**
it is our belief that all our customers will see a fantastic return on investment by using ERP². We are so confident in this that we show it right within our application, in a real-time report.
- **Error Logging**
a drill-down log of all successful and error transactions, including a step-through feature to rapidly identify the cause of any errors. These logs are in addition to the audit logs within SAP Solutions, so there is a fully auditable trail of all data changes, in compliance with Sarbanes-Oxley legislation.
- **Proven solution**
currently in 9th production version, with an 11-year history.
- **Advanced Uploading Features:**
 - Multi-transaction uploads.
 - Multi-spreadsheet uploads – e.g. multiple Excel files for one transaction.
 - Multi-transaction uploads where data returned from one upload is used in subsequent transactions (e.g. transaction stringing).
 - Conditional execution of fields in transactions (e.g. only execute a given field if its value is greater than 100).
 - Formatting of field data before it is uploaded (e.g. removing trailing spaces or leading zeros).

[System Architecture]

Quadrate's lightweight architecture is built using standard Microsoft .NET technologies and open standards for maximum flexibility and compatibility with existing enterprise frameworks and networks. Our unique system is made up of several core applications and services, which are described below:

- **ERP² Client Application**
this is the main client GUI application, which is used to record templates, create upload mappings, and utilize the main features of the application.
- **Template Database**
this component is used to store templates, upload mappings, log entries, and other items that can be shared between users.
- **Execution Engine**
this engine is responsible for running immediate and scheduled uploads.

The ERP² System can be deployed in several different ways, either as a stand-alone application, or as a multi-tiered system for more enterprise-oriented environments. Diagrams of these deployment models are below:

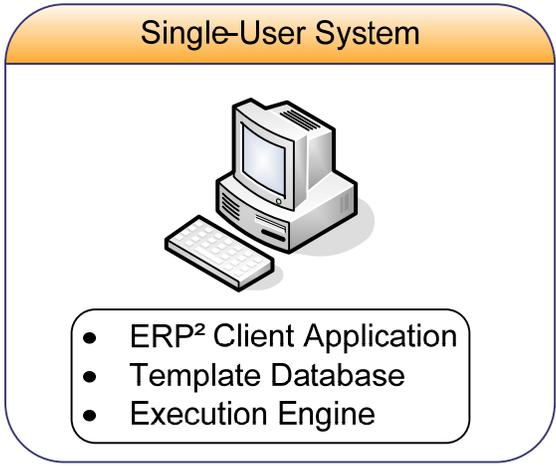


Figure 4 - Stand-Alone, Single User System

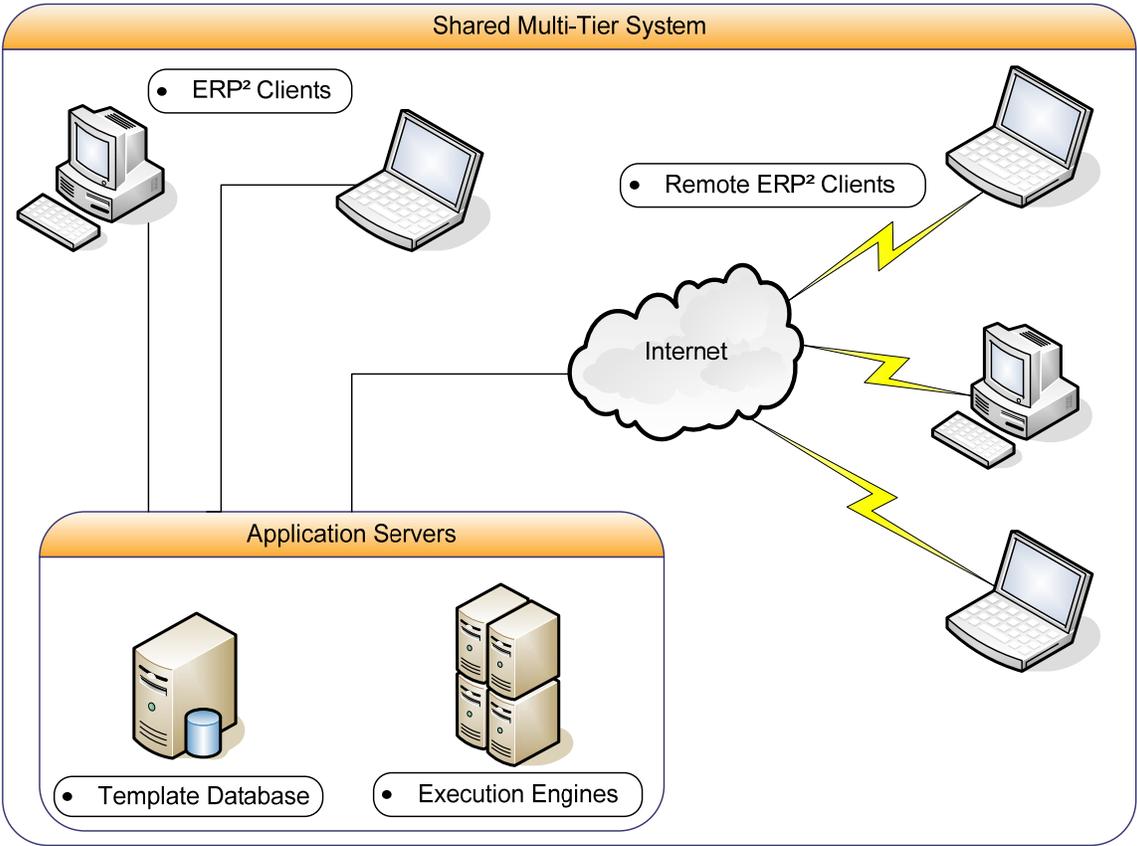


Figure 5 - Enterprise System Layout

- **Stand-Alone System**

The most basic deployment option, all three components of the system are installed on a single machine.

- **Shared Multi-Tier System** – In this deployment option, the three system components are installed separately from one another. This configuration allows:
 - Users to share templates (because the template database will be shared).
 - Upload executions to take place on a separate, potentially higher-speed machine.
 - Scheduled upload jobs to be executed when all of the client machines are powered off.

(Additionally, it is possible to mix and match these deployment options. For instance, you could install the execution engine on each machine that has the client application installed, but still use the shared template database.)

[Common Applications of ERP²]

ERP² may be used for both Master and Transactional Data. While there are almost endless applications for ERP², here are some of the most common, as identified by our customers:

- Mass updates and changes for employees, prices, projects etc.
- Repetitive transaction, Material price changes
- Replaces electronic data interchange for small vendors/customers
- Planning updates, Customer services
- Master Data creation, changes or deletions of vendor, customer, material and equipment master as well as fixed asset or functional location data
- Create or change purchase requests/orders, sales orders and vendor invoices with multiple line items
- Post journal voucher documents into the GL with many line items
- Payroll / Human Resources, Timesheets, expense claims
- Automate Daily Cash Reconciliation and Monthly Investment Activity entries
- Master Data Upload
 - Material Master
 - Customer Master
 - Vendor Master
- Transactional Data
 - Sales Orders
 - Delivery Notes
 - Invoices
 - Purchase Orders
 - Bill of materials
 - Budgeting
 - Expense Claims
- Create, Change, Validate, Sync and Report Data
 - Business Support (Production)
 - Mass changes to material pricing
 - Material extensions
 - Periodical upload of data
 - Adding new master data
 - Ad-hoc reporting
 - Testing
 - Upgrades
 - Creation of master data for testing business scenarios
 - Support packs and OSS notes
 - New enhancements
 - Changes in business processes
 - Problem Solving
 - Reproduce data from one system to another
 - Training
 - Build data for training sessions

*This is not an exhaustive list,
since ERP² can upload data to
any transaction in SAP
Solutions whether it is
standard or modified.*

[Conclusion]

Quadrade's ERP² is a powerful yet easy-to-use application that allows users to manipulate data within SAP Solutions through a host of advanced features. By equipping these users to accomplish data manipulation tasks on their own, valuable IT resources will be free to work on other important tasks and innovative projects, thereby increasing your firm's return on IT investment.

[Case Studies]

Driving Bentley Motors More Smoothly

[Situation:]

Think of luxury, and you think of Bentley Motors - globally recognized for manufacturing beautiful and exhilarating Grand Tourers since 1919.

In the 1920s Bentley dominated the Le Mans 24 Hour race, winning five times in an eight-year period. This created a reputation for fast, powerful and enduring cars with dominating performance that still exists. Today, Bentley is embarking on an ambitious and exciting new car development program, focused on designing and building Bentleys that are true to the marquee.

Bentley uses SAP Solutions to support their business. There is a permanent need to add and change data held in SAP Solutions. In car assembly there are many different components and changes. An assembly could require changes in excess of 6,000 records. Uploading these records required ABAP programming, or was done manually.

The ability for employees to react quickly to changes was impaired by the complexities and time needed to change data stored in SAP Solutions. Also, there was a real financial loss in terms of time and resource expenditure required to meet project deadlines.

[Solution:]

Bentley required a toolset that would allow them to manipulate their SAP Solutions data quickly, securely and in a controlled manner. They needed a solution that would give them the flexibility to work freely with a variety of transactions and would reduce the technical skills needed to work with their data.

By deploying ERP², Bentley enabled both IT staff members and end-users alike to perform required data updates to their SAP Solutions system in a timely and cost efficient manner. Bentley uses ERP² in many different business areas for a number of different SAP Solutions transactions.

ERP² has allowed Bentley to apply changes to SAP Solutions component assemblies in a fraction of the time that it used to take, saving them a considerable amount of money.

At the moment you probably can identify with at least 2-3 of the same challenges. We encourage you to think through the following question: Why waste time and money to employ expensive resources when there's a toolset available that can do it so quickly and easily?

[Benefits:]***Time Saved***

Immediate ROI (Return of Investment) is documented and displayed in a report indicating how much time has been saved by using ERP². The initial view of the report displays total time saved by transaction code, total records loaded, total time it took to upload all the records into SAP Solutions as well as the time saved for each record loaded. In addition, technical resources are freed up to work on other core activities. Simple data changes or uploads now take a few minutes rather than a few hours. Complex changes take a few minutes as opposed to a few days!

Improved Decision Making

With ERP² the data in SAP Solutions is up-to-date and accurate. Decisions made on data held within SAP Solutions are made with complete control per scheduling of information. An upload to SAP Solutions can be immediate or scheduled to run unattended at any time and date in the future. When you click on the Schedule button to schedule the upload, ERP² tests to ensure that it can connect to your SAP Solutions system with the details provided. This method gives the user an easy and quick way to input data into SAP Solutions when they are busy or away from the office.

Imagine the effect ERP² will have on improving your business processes and decisions.

Unipart - ERP² is a vital component

[Situation:]

Established in 1987, The Unipart Group of Companies is a leading independent logistics, automotive parts and Accessories Company. During this time it has become a name respected worldwide for its progressive policies and forward-looking approach to business.

Unipart uses SAP Solutions to support their business processes spanning a range of business areas including materials management, classifications, transport groups, weights and dimensions, plants, stock and purchasing to name but a few. All data was uploaded either manually or using other toolsets.

The data entry requirements for each transaction are subject to frequent change. Unipart's data was all uploaded either manually or using other toolsets that required a technical background. This methodical approach led to a backlog of work in the range of 20,000 new transactions on the system every week.

Unipart's data input mechanism resulted in real financial loss in terms of time taken to get the job done, and their ability to react to mass data changing needs was severely impaired. Another immeasurable side effect of manual data input is data cleanliness, since manual input is prone to error and this can have a disastrous and expensive effect on any business.

[Solution:]

What Unipart needed was a non-technical and versatile data integration tool that would enable them to upload many unique transactions into SAP Solutions quickly and accurately. ERP² from Quadrate has allowed them to do just that.

Before ERP², getting data into SAP Solutions was a very time-consuming job for Unipart. Today, it's extremely easy and requires no programming skills at all. ERP² has allowed Unipart to drastically cut down the time required to get data into their system, providing the power to adjust quickly to ever-changing requirements.

[Benefits:]

Increased data accuracy

If your data is entered inaccurately at the start of the process it impacts every single person involved in that process. It's too important to get wrong and ERP² ensures accuracy. Users have stated that they wouldn't like to do their job without ERP².

As Unipart has a SAP Solutions system for each of their customers, they are responsible for all the data input. One of their customers requires the creation of thousands of new material masters on a regular basis. Using ERP², they are now able to quickly and easily perform an otherwise arduous and lengthy task.

Data Quality

Data quality improves dramatically by using ERP2 because all manual errors are eliminated. Furthermore, the simple ability to see your data in one spreadsheet makes it easier to spot erroneous data, allowing for quick correction before uploading into SAP Solutions.

Flexibility

Unipart's needs in terms of data upload change continually. With ERP2, they are able to cater to entirely new requirements within minutes.

Resource Re-allocation

With business users being able to perform their own data uploads, Unipart's information technology team has been able to focus their expensive resources on other important jobs.

[About Quadrate]

Quadrate is a software development company specializing in software tools that enable both end users and IT staff to work with their ERP systems more efficiently. Quadrate's current product suite facilitates Data Loading, Data Extraction and Reporting for SAP Solutions R/3®. All of our products are unique in that they provide end-users with the ability to perform tasks normally left to highly skilled IT staff.

Quadrate as a company has the goal of taking the best innovations of the major software manufacturers and making them faster and more effective for non-technical users. We draw on superior technology, deep industry experience, proven methodologies and strategic partnerships to increase the return on investment and competitive advantage of our clients.

Headquartered in Cincinnati, Ohio, with a presence in Germany, France and the UK, we will be expanding soon into other European countries, Australia and South Africa.

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Suite 102

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+ 1(888) 558-6409

www.quadrate.com

sales@quadrate.com