

A network diagram with white nodes and lines on an orange background, positioned at the top of the page.

HULFT

White Paper

Why Does Introducing RPA Not Bring About the Expected Benefits?

Tips for Preventing Problems During the Introduction of RPA, and Efforts Leading to the Successful Automation of Operations

Introduction

Recently, many companies have been making efforts to reform working styles and improve productivity. In this business environment, robotic process automation (RPA) has drawn a lot of attention as a means for improving the efficiency of operations and for advancing work style reforms.

Many people have high expectations of RPA. For example, they might expect to be able to automate operations that are currently performed manually by operators on PCs, or they might expect to be able to efficiently perform simple PC operations in a batch. Unfortunately, however, automation by using RPA does not always go as expected.

But why is automation by using RPA so difficult? First, let's take a look at some things to be aware of in order to avoid problems during the introduction of RPA, as well as the kinds of efforts that should ideally be taken in order to successfully automate operations.

Problem: Why is Automation by Using RPA So Difficult?

Although there is no official definition for the term "RPA," many people consider it to be labor-saving technology that automates business tasks previously performed by human workers by way of operations using a keyboard, a mouse, or some other peripheral device.

This technology also allows software robots to automatically operate PCs, thereby automating PC tasks associated with so-called "white collar" jobs and office work, and making those tasks more efficient. Because this technology can be used to help robots take the place of human workers, it is also said that RPA can be used to realize the concept of "digital labor."

Expectations of RPA and the Current Situation

RPA demonstrations can leave a profound impression. Many RPA demonstrations give the oversimplified and startling impression that, although no one is operating a PC, the PC behaves as though someone is using the keyboard and mouse.

Based on this impression, many people think that, little by little, they can entrust PC operations to RPA, and that tasks performed by human workers will decrease. This favorable impression is likely the reason that many people have high expectations of RPA.

Unfortunately, however, actual RPA operations differ from the almost magical impression that demonstrations can leave. Actual RPA operations require effort, involve many restrictions, and are limited in their effectiveness.

■ **Benefits and Drawbacks of Automation by Using RPA (Automation of UI Tasks)**

The benefits of RPA are similar to what you might expect after watching a demonstration. In order to automate operations typically performed by a human worker, RPA technology can be used to automate a variety of PC functions that can be performed by using a UI. In this sense, RPA is a very versatile means of automation.

Many RPA tools can actually be used to automate most fixed tasks that can be completed on-screen in Windows. There are very few situations in which RPA tools can be used to automate one application but cannot be used to automate another application. Compared to other methods of automation, this is one of the strengths of RPA technology.

On the other hand, one of the major drawbacks of RPA is that it is ill-equipped to handle unusual or exceptional situations. For this reason, it is difficult to create an automated robot that operates stably and reliably. As a result of this drawback, problems can occur during automation. For example, automation might result in

unexpected costs and labor hours, the automation of tasks might not go according to plan, or maintenance of the automated robot might be difficult.

■ Why is Automation by Using RPA So Difficult?

The following example explains why automation by using RPA can be difficult.

In this example, users would periodically log in to a ledger system, extract member information that had been newly added to the ledger, and then manually re-enter the information into a different system. The company wanted to automate these manual tasks by using RPA.

First, they automated the tasks.

Development of the Robot

The company developed a robot that could automatically log in to the ledger system, display a list of all members, extract the member information from the screen, and transfer it to another system.

The development of the robot required a great deal of effort, but the company thought that the tasks had been successfully automated. However, a problem occurred. Data was discovered in which only part of a person's name had been registered to the transfer-destination system.

The company investigated the cause of this issue, and discovered that, in the case of registered members who have long names (for example, "Mr. Motochika Chosokabe"), these names were displayed on two lines, and the robot was unable to process them correctly. As a result, the names were truncated in the middle.

Modification

The robot was modified to include processing for cases in which a person's name was displayed in two lines. The processing became more complicated, and it took time to incorporate the changes.

Despite this modification, however, another problem occurred. The company realized that some of their customers' information was not being transferred, and as a result, these customers were omitted from the member ledger.

They investigated the cause of the issue, and discovered that, for example, during membership campaigns when many new members were added at once, only the first 20 records were displayed on the first page. Because the 21st and subsequent records were displayed on a second page, only the data from the first 20 records was extracted.

Modification

Additional processing was added to handle other exceptions, and the robot was now able to automatically go to the next page and obtain all of the information in cases where the information was spread over more than one page.

Problems, however, continued. An incident occurred in which the robot stopped in the middle of the night, and an alert email was issued.

The ledger system was designed so that, if a user attempted to access the list of ledgers when batch processing was in progress, a message would be displayed informing the user that the data was being updated and asking the user to wait for about five minutes. By coincidence, the robot attempted to view the ledger while this batch processing was in progress, and as a result, the robot stopped in the middle of the night, causing an alert email to be sent.

Modification

The robot was further modified to handle exceptions. With this modification, it would no longer return an error if the batch processing screen was displayed, but would instead wait a while before accessing the system again.

Then, however, the robot's processing began to stop sometimes while it was still in progress. Although the ledger system was operating normally, Windows dialog boxes overlapped with the ledger system window on the screen. When this happened, the robot became unable to read the ledger, and stopped.

Modification

To enable the robot to handle this type of situation, the automation script was entirely rewritten.

Furthermore, when Windows and the ledger system were updated, the robot's overall operations stopped working well. The design of the on-screen UI had changed, and no longer matched the images that the robot used for screen identification. This led to problems with the robot's operations.

Modification

Based on the new screen display, all of the prior modifications were checked, and the settings were re-specified.

Although the tasks that were automated were simple, the automation script was modified to handle exceptions, and as a result, quickly became complex and hard to work with. As a result, it became difficult to expand the robot's functions or to perform maintenance. To top it all off, the designers were put in a difficult position when they were told to double-check to make sure that no other problems would occur.

Solution: Preventing Problems During the Introduction of RPA

Although problems like this do not always occur, it is important to understand that cases like this example are not unusual.

To **prevent problems during the introduction of RPA**, it is crucial to be aware of the strengths and weaknesses of RPA, and to avoid introducing the kind of automation that typically leads to problems.

■ Strength and Weakness of RPA

Why do problems like those in the above example occur? These problems occur because the user interfaces that are used for RPA automation are designed with the assumption that they will be operated by a human being.

While RPA demonstrations show that these robots have operational capabilities that are similar to those of a human operator, they do not have near-human judgment capabilities. As a result, they are unable to effectively handle the kinds of minor exceptions and changes that a person could deal with easily.

In addition, to automate tasks that need to be processed without fail, it is necessary to identify in advance the kinds of exceptions that the robot might encounter, and to create an automation robot that is capable of handling those exceptions. This can be expensive, and because the resulting robot has a more complicated construction, additional costs will be incurred if it later becomes necessary to change the robot's operations.

■ Tips for Preventing Problems During the Introduction of RPA

To prevent problems during the introduction of RPA, you must understand the characteristics of RPA, and begin by automating the kinds of tasks for which RPA is suited. It is also essential that your efforts match the skills of the personnel who will be implementing RPA.

First, consider whether a given task can be automated effectively. Next, consider whether it would cause a problem if the robot stopped while performing the task. If so, consider whether the task needs to be fully automated, even if the cost required to do so is high.

Technological skill is also necessary to construct a robot that can handle exceptions. To develop an automation script that operates reliably, it might be necessary to secure the help of a sufficiently skilled RPA engineer. If the personnel who are to automate your operations do not have the necessary skills, you must avoid incorporating any of the weak points of RPA into the robot.

On the other hand, if you plan to operate the robot under the assumption that it will sometimes stop, you must think about how to manage the stoppage of the robot and consider alternative means by which the tasks are to be performed when the robot stops.

Solution: Working Toward the Successful Automation of Operations (Thinking About Methods Other than RPA)

RPA is a means, and not an end. The purposes of RPA are to automate and improve the efficiency of operations. These goals have been a constant theme in IT for many years.

The key to successfully improving the efficiency of operations is to reevaluate the operations that are to be automated, to effectively combine RPA with other means of improving the efficiency of operations, and to take advantage of the combined strengths of all these means.

■ Developing New Business Systems

If you have sufficient funds to spend on improving the efficiency of your operations, it is also possible to develop a new system, rather than simply taking superficial measures. For example, if you want to migrate business systems to cloud systems, or to be able to support new mobile, IoT, and AI technologies, you can solve all of your problems at once through new development.

This would be an ideal solution, but it takes a lot of time and money. To accomplish something similar, you can use new development to reform only the critical parts of your systems and improve the efficiency of your existing systems through a combination of means, including RPA.

■ Automation Functions Provided by Applications (Such as VBA)

You can also implement automation by using automation functions provided by applications. For example, you can use Visual Basic for Applications (VBA) in Excel. These functions, including VBA, have traditionally been used to automate and improve the efficiency of business operations, and as such, have a proven track record.

However, because these automation functions are provided by a specific application, they are ill-suited for automation that involves multiple applications, or for automation related to applications other than the one by which they are provided.

■ Developing Integration Processing: Implementing Integration Processing by Using Interfaces Such as a Web API

Recently, many systems have begun using APIs as an interface to call external data and functions.

- Upon investigating the ledger system, it was discovered that the system had a REST API.
- The system into which the data was to be transferred also had an API.
- A program was developed that used these APIs to implement data integration. The program allowed for stable and problem-free operation, and processing was conducted at an extremely high speed.

APIs are created to serve as means by which to implement automatic processing and are intended to be called from external systems. Therefore, issues such as those that proved so problematic during RPA implementation did not occur.

However, in order to create such a program, you would need someone who had the necessary programming skills, and you would not be able to use functions for which an API was not already provided.

■ Methods of Developing Integration Processing by Using a GUI: Data Integration Tools

There are also ways to use only a GUI to implement integration processing equivalent or superior to that which can be accomplished through development. These applications, which can be used to integrate a variety of data and systems, are called EAI, ETL, or data integration tools.

For example, let's assume that you want to receive emails, and then write the contents and any file attachments of such emails to the cloud service kintone. If you were to use RPA to create a robot to perform these tasks, a large number of development hours would be required, and you would have to accept the fact that stable operations cannot be guaranteed.

By using a data integration tool, however, you can easily create integration processing by using only GUI operations, as shown below.

[Temporary image]



For details, see [I Want to Receive Emails and Write the Contents and Any File Attachments to kintone](#)

Summary: Avoiding Problems During the Introduction of RPA, and Working Toward the Successful Automation of Operations

RPA tools have their strengths and weaknesses and cannot be expected to serve as a means for automating all manual business operations. To prevent problems during the introduction of RPA, it is important to differentiate those tasks for which RPA is

suiting and those for which RPA is not suited, and to determine whether a given task is worth automating by using RPA, even if doing so takes a lot of time and money.

Furthermore, if we return to the original goal of improving the efficiency of business operations, we find that there are a variety of methods available for automating these operations. Take another look at your business operations, and consider which of these methods are likely to produce the most effective results in terms of improving each operation based on that operation's needs. By effectively combining the automation methods that are best suited to each operation, you can successfully improve operational efficiency.

Here is an example, for your reference, of how you can automate business operations without using RPA tools.

Case study: Automation of accounting processing by using a data integration tool (EAI)

Saison Information Systems Co., Ltd.

■ Background

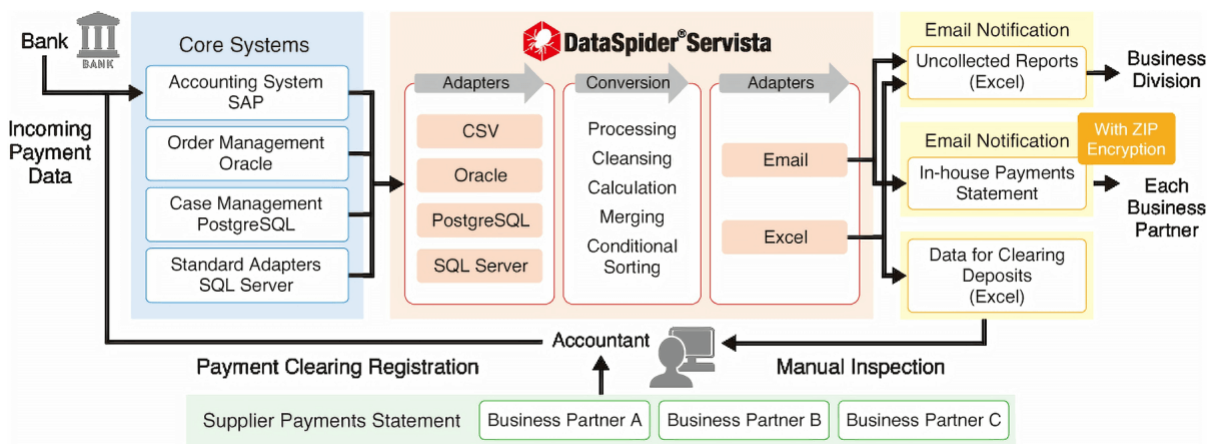
Since March 2017, the Information Systems Department of Saison Information Systems Co., Ltd., as part of its optimization of business processes and cost structures, has been advancing its efforts related to IT infrastructure system reforms and a Business Process Re-engineering (BPR) Project intended to lead to work style reforms. As part of these efforts, in order to drastically optimize costs and improve profitability throughout the company, the Information Systems Department looked into streamlining and improving the payment reconciliation operations associated with receivables management. By using Saison Information Systems' DataSpider Servista (hereinafter, DataSpider), they were able to automate the accounting processing associated with tasks that had previously been performed manually, such as data comparison and the creation of reports.

■ **Introductory Period**

The Information Systems Department was able to implement basic payment reconciliation operations in only two weeks, and it only took two months to complete the entire implementation, including the processing of reports and payment statements, and to migrate the new functions to the production environment.

■ **Results**

The Information Systems Department was able to use DataSpider to automate processing related to payment reconciliation, such as the acquisition of data from multiple databases (such as Oracle and PostgreSQL databases) and csv files, the execution of data comparison processing, and the automatic generation, according to prescribed rules, of email notifications and reports of uncollected payments. This enabled the automation of three types of business operations that had previously been performed manually, and resulted in a 300-hour-per-year decrease in processing time.



For details, see the case study here: <https://www.hulft.com/en/case-studies/saison-information-systems-dataspider-accounting-automation-ap-ar>

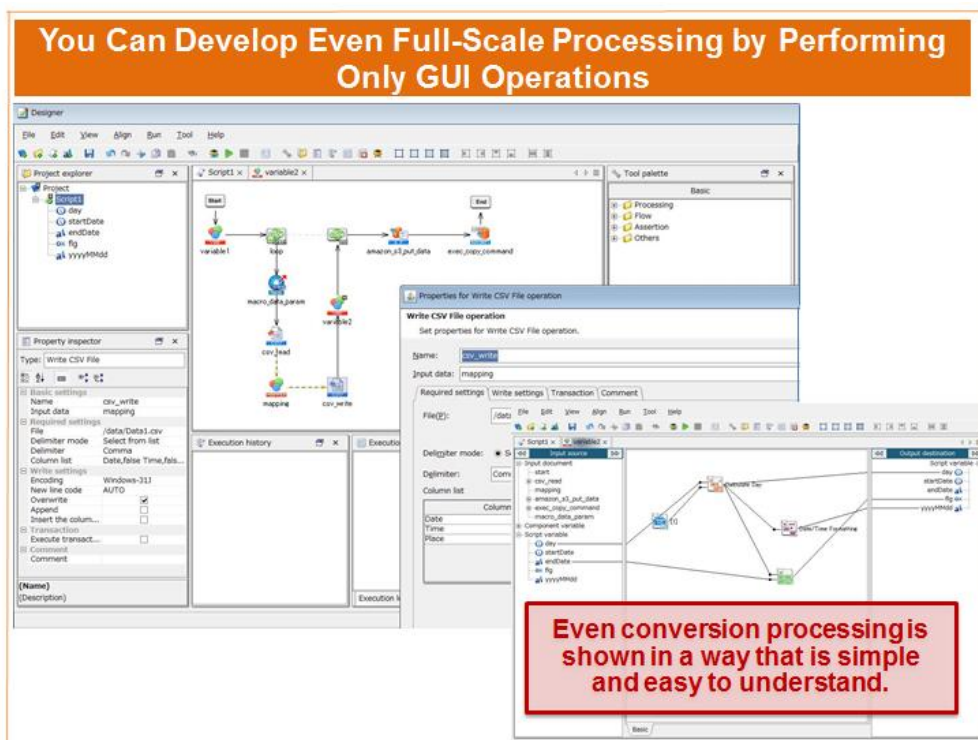
DataSpider Servista: The Data Integration Platform with the No. 1 Overall Customer Satisfaction Rating for Five Consecutive Years

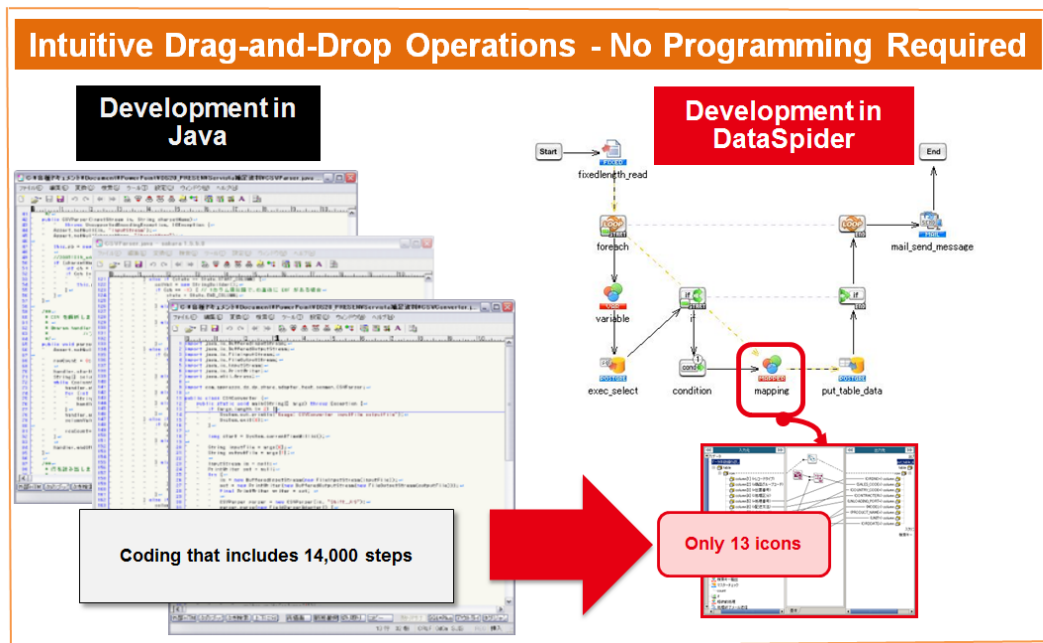
(According to a 2018 survey by Nikkei BP Consulting, Inc.)

■ Full-Scale Automation of Operations and System Integration Can Be Developed by Using Only a GUI

By using a data integration tool, automatic integration processing that combines a variety of systems and data can be developed by using only the GUI.

Functions for connecting with various data and systems are abstracted as “adapters” to meet your integration processing needs. For this reason, you can develop integration processing simply by being aware of what is necessary to implement the processing you want to perform and then specifying the necessary settings. You don't need to worry about technical details such as detailed connection procedures or internal exception processing.





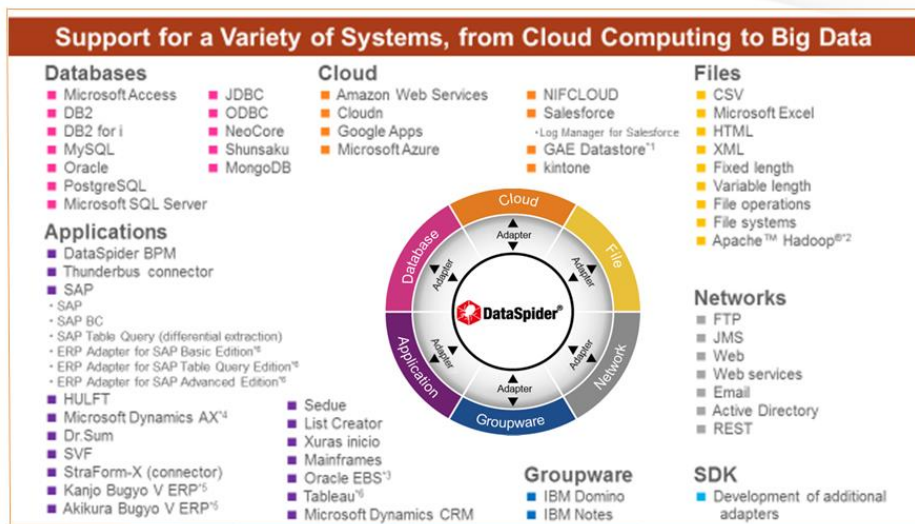
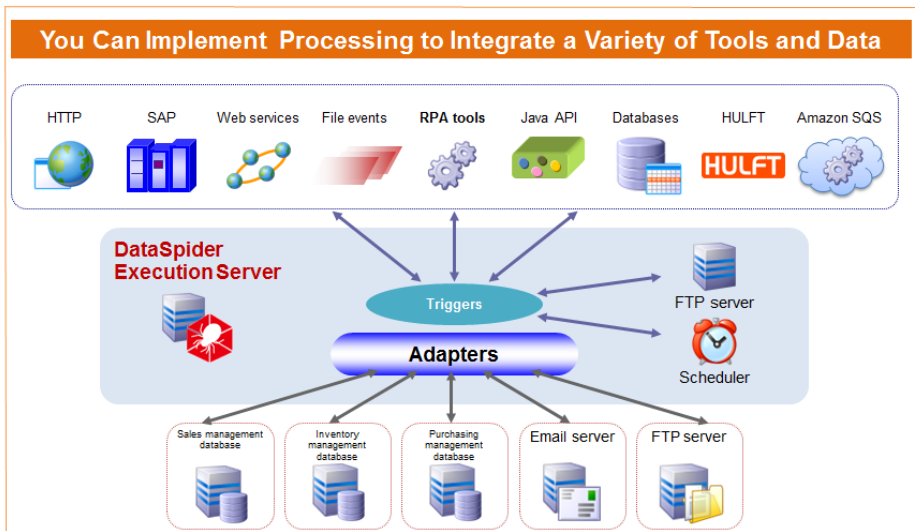
■ Data Integration Tools Serve as a Control Tower to Combine a Variety of Methods for Automating Operations

Data integration tools can be further utilized to combine a variety of methods for automating operations, in a way that takes advantage of each method’s strengths. In the same way, you can efficiently carry out development by placing connection adapter icons and specifying settings.

For example, you can combine a variety of methods for automating operations as follows.

- DataSpider’s RPA adapter is used to launch an RPA tool and start processing.
- The RPA tool extracts the operation results data for the current month from the self-developed business system.
- The extracted data is uploaded to a cloud-based analytics service by using a DataSpider adapter.
- In the same way, the data that is necessary for monthly aggregation work is extracted by using the adapter and then uploaded to the cloud service.

- An aggregated report is generated and acquired from the cloud service, and the Excel adapter is used to write the data to Excel and to automatically generate a report.
- The email adapter is used to attach the Excel file to an email, and the email is distributed within the company as a monthly report.



Note: Some of the contents described above are not applied outside Japan.

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