PROCESS AUTOMATION FOR SMART ALLOCATION OF HUMAN RESOURCES WITHIN PROJECTS USING SERVICENOW

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Companies emphasize efficiency and profitability to achieve success in today's very competitive business climate. Thus, efficient use of Enterprise Resource Planning systems has become vital for firms to achieve these goals. The Resource Profile process presented in this paper brings a new and innovative approach to resource management by utilizing ServiceNow tools. Its element of novelty lies in creating a comprehensive database of employee skills and experience, which allows organizations to make data-driven decisions when allocating resources. This ensures each project is staffed with the best team possible, optimizing resource use and increasing the likelihood of successful project outcomes. In addition, the process leads to improved customer satisfaction rates, creating a competitive advantage for the company.

Keywords: Resource profile, ServiceNow Solution, Resource smart allocation.

1. Introduction

Automation is regarded as the replacement of manual human operations by electronics and artificial intelligence systems [1]. In an ever-growing and ever-changing market, human resource management is a crucial part of every company, no matter what industry they are from. HR Automation can help companies be more efficient and increase their productivity. Mandatory daily activities, like choosing individuals, presenting information, and generating and extracting information, are efficiently managed by such a system. D. Weihuang and Z.,

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Zijiang [2] outlined the fact that HR departments do not accurately recognize the departure of workers, and this is a growing issue in the current market, due to the difficulty of replacing them with the right workers. For this reason, they proposed a Machine Learning model that could predict employee resignation probabilities, using logistic regression with the cross-entropy formula as the optimization problem and Newton's approach to simplifying the system. By comparative experimentation, they hit a precision of the final prediction model of 85.5 percent, thus demonstrating that using such models to predict employee resignation would be a benefit to any company, giving them time to act accordingly.

Another issue for companies is given by the perceived fairness of making decisions when evaluating staff performance, and for this, using algorithms instead of direct decisions might increase justice among employees, and overcome prejudice. But this might be a double-edged sword because using such algorithms are based on less detailed knowledge than human equivalent choices. This topic, and also the theoretical and practical experiments are explored for organizations by [3].

Accurate information on worker and employee experiences is the single greatest competitive advantage of any company, in the current market of uncertainty and chaos that lead to great shifts in the contemporary workplace, according to [4]. In their paper, they showed how using HR automation can position the Human Resources department to be able to perform predictive and prescriptive analysis, rather than rely on descriptive analytics, allowing them to understand how labor analysis informs businesses and increases efficiency.

Planning HR development is traditionally regarded as a manual process because proposing a development solution is influenced by many subjective factors. To optimize this process, in their paper, [5] proposed a model for process automation, by using the Analytic Hierarchy Process for manipulating the factors influencing the decision process dynamically. Their conclusion stated that by using this method, it is possible to formalize the decision-making processes, which can become the basis for an HR development planning automatic system.

Business Process Modeling is regarded as a highly manual task, which takes time to perfect and is on multiple occasions prone to error. In paper [6], was analyzed the possibility of reusing existing process model assets and adapting them to specific domains, by schematically analyzing available publications, concluding that while there are multiple approaches to reuse models, there is a lack of empirical research to substantiate the positive effects, attributed to the approaches and tools used.

Thus, the study presented in this article focuses on process automation for the efficient allocation of human resources within projects using ServiceNow.

2. Context

Companies have invested much in process automation for different types of processes in trying to make improvements. The competitive market and the opportunities in new markets made economic entities think about enhancing business productivity. Firas and Hemang (2016) [7] present some automation service solutions that were understood and used by clients. One of the conclusions mentioned the removal of the human factor thus reducing the mean time to respond. Information technology (IT) is used to carry out several HR operations with the aid of human resources information systems (HRIS). In large enterprises, such platforms are usually set up as on-premises systems that are part of an Enterprise Resource Planning (ERP) system. Recent advancements in the domain of cloud technology have made Software-as-a-Service (SaaS)- or cloud-based HR systems possible. Despite acceptance levels varying depending on HR activities, their use is emerging to be a competitive alternative to on-premises HR systems.

As many studies say, a company's complexity is different from entity to entity and has high differences. So, to comprehend which is the company's need for an automated process requires more than focusing on just one element. The economic entity support-system needs to be extended to ERP (Enterprise Resource Planning). This is the evolution that took place over time and incorporated all the company's departments. For example, ERP was used in its early beginnings for aerospace, defense sector, and construction industries, unlike now when it is also used in the service [8].

There are several software providers that offer ERP applications for improving human resources processes, some are used in SMEs some are used in bigger companies all offering a variety of tools and functions like: personnel information management, payroll management, employee benefits information, workforce process analytics and measurement, recruitment, etc. [9]. In paper [10], the authors expressed in their research twenty-two crucial success indicators for implementing ERP systems at different stages of execution while Ward J. and J. Peppard mention the organization's culture, the economy, and regulatory requirements that provide difficulties for the application of ERP systems [11]. Even with all these various studies mention the advantages and the better output inside the company when using an ERP system [12-14].

The most popular used is Software-as-a-Service (SaaS) which can increase the processes of the company at lower costs. Even though there are still some concerns regarding data processing and protection, SaaS is still gaining a lot of attention [15, 16]. One of the advantages mentioned through research refers to the fact that without requiring to store the software on their own infrastructure, it enables enterprises to obtain the applications they require. Also, another advantage relates to the reduction of the need for businesses to invest in

infrastructure and other resources and to keep support staff on the payroll [16]. Regarding the SaaS services for the optimization of HR activities, to locate suitable applicants, recruiting organizations started using cloud SAAS. In this manner, artificial intelligence has effectively taken the place of humans in the hiring process for some companies [17].

According to forecast, and trends highlights done to see how SaaS market relates to the human resources market, a revenue higher than 13% is expected in 2031 compared to 2022, which implies that growth in the usage of SaaS-based Human Resource Management software is happening. Also, the forecasts mention that the efficiency of the process will increase by more than 75% [18].

Considering this trend and the fact that now technological and cloud-based tools are used for the process of human resources, the present paper focuses on process automation for the efficient allocation of human resources within projects using ServiceNow.

3. Materials and Methods

Consulting businesses offer their customers various specialized services, such as strategy consulting, operations consulting, IT consulting, and human resources consulting. These services involve extensive knowledge, skill, and experience in the field or the business model. To properly provide these services, consulting companies must guarantee that their personnel have the necessary skills, expertise, and credentials.

Consulting businesses may guarantee they have the appropriate personnel by maintaining up-to-date CVs of their staff. This may be helpful when determining who is most suited for a particular project or activity and engaging new customers. Employees are encouraged to increase their skills and knowledge over time, which may help foster a culture of continuous growth and development inside the organization.

The Resource Profile approach is a procedure designed primarily for use by medium-sized or large consulting firms whose core activity is resource management. This concept assists firms in gaining a better understanding of their available resources in terms of their employees' abilities, expertise, and experience. By examining the available resources, firms may more effectively manage their workforce and assign individuals to projects that match their abilities and expertise. This approach is particularly effective for consulting firms that rely mainly on the abilities and knowledge of their staff to provide customers with high-quality services.

From a business point of view, the resource profile process will contain three dimensions based on the user-responsible perspective: employee, manager (department and resource), and human resource employee.

1.   Resource perspective - Receive an email notification with general and task information, a deadline, and a direct link to the CV upload location. A confirmation email must be sent upon the activity's conclusion to ensure the profile has been correctly updated.

2.   HR resource - Receive a notification from the system notifying that a quality check of a re-source profile is required. The notification should provide specific information about the individual whose resource profile must be checked, the file that must be reviewed, and a direct link to the workspace view of the individual record.

3.   Resource Manager - Receive a notification if one of the assigned employees misses a deadline for uploading. This will enable the resource manager to follow up with the employee, provide support and ensure that they will update the resource profile.

4.   Department Manager - Receive a notification if an employee misses the second deadline for uploading or re-uploading their profile.

From a process structure view, while developing a new process, it is necessary to examine both the business needs and any technological constraints that may impact the process's execution. This procedure ensures that the final product satisfies all business needs while adhering to technological constraints. As a result, the resource profile development procedure will consist of two tightly interconnected phases: CV check and quality check.

Phase 1. CV check - this process will focus on a reliable check that is made for each user to determine if an approved CV was uploaded no longer than six months ago. Furthermore, if this check is negative, the employees and managers will be informed about their tasks. An overview of the entire process is presented in Figure 1.
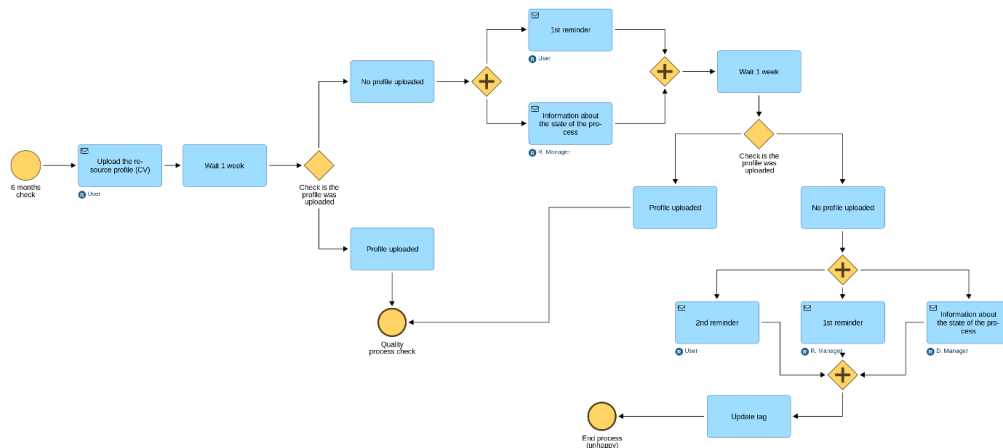

Fig. 1. CV check workflow

Phase 2. Quality check - this phase consists in a systematic and objective evaluation of the resource profile quality and ensures the accuracy of the information provided. A quality check process guarantees that the result meets or exceeds the company's quality standards, needs, and expectations. The entire process is illustrated in Figure 2.
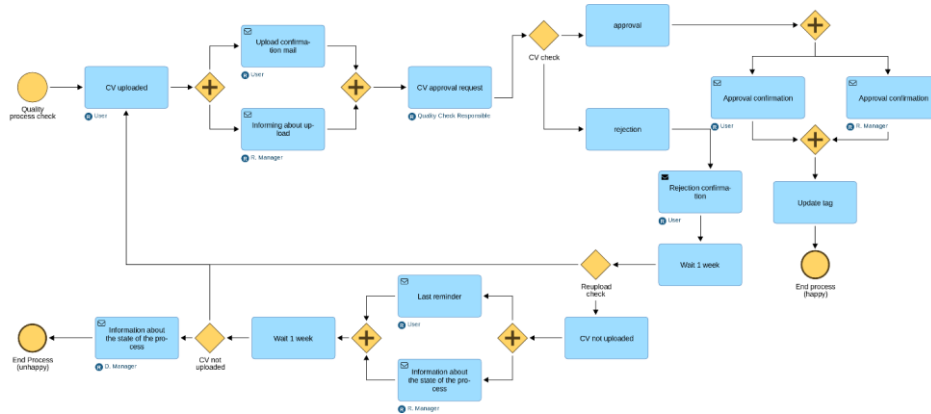

Fig. 2. Quality check workflow

4. Results

At a backend level it is developed a workflow logic for the entire process that implies four directions of action, is listed below:

Action 1. A new table CV (u cv) is created in ServiceNow to store all process-related information and records for the Resource Profile process. The data is maintained distinct from other business operations by utilizing a separate database for the Resource Profile procedure. A limited number of customized fields in the CV table have been created, which has been tailored to fit the process's specifications. By restricting the number of customizable fields, the table becomes more straightforward for individuals to understand and browse.

Action 2. The process aims to guarantee that each employee submits an updated resource profile every six months (Figures 3, 4, 5). Consequently, it is required to develop a logic that can track each employee's most recent submission date and compare it to the current date. Once the initial notification is sent, the process will be scheduled to retrigger after seven days. Throughout this procedure, it will be determined if a new resource profile has been uploaded. If the check fails and no profile has been uploaded, the employee and resource manager will receive reminders. If the employee submits the CV, the procedure will stop notifying them and go to the next phase, which is the quality check. Flow Designer application was used to develop the logic.

Action 3. The notification logic is the project's backbone; its performance strongly depends on the notification logic, which acts as a critical component to remind and urge employees to accomplish a required activity. To achieve this, it is essential to send clear and concise notifications to the appropriate persons at the appropriate time.

Action 4. This procedure involves a maximum of four people simultaneously, including the employee, resource manager, HR professionals, and department manager. ServiceNow simplifies this procedure by providing two pre-built tables for the organization of human resources: Users and Departments. It was created a user table to include vital personnel data such as name, email address, unique code, and status. In this table, an account will be established for every corporate employee.
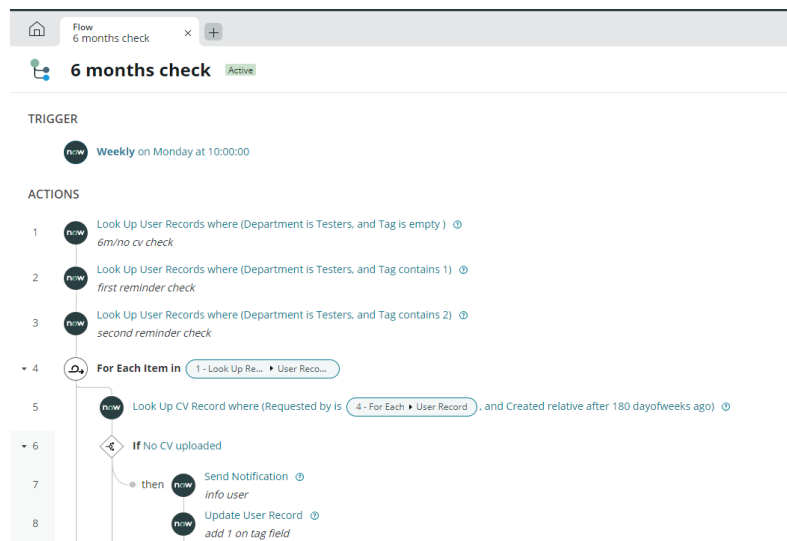

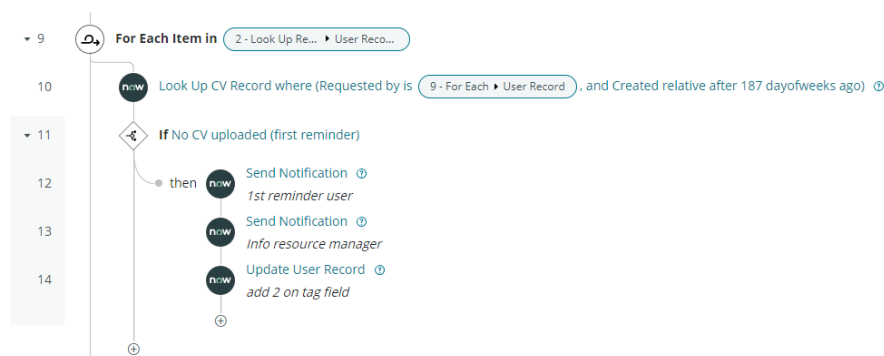Fig. 3. System check for CVs uploaded more than 6 months ago - 1

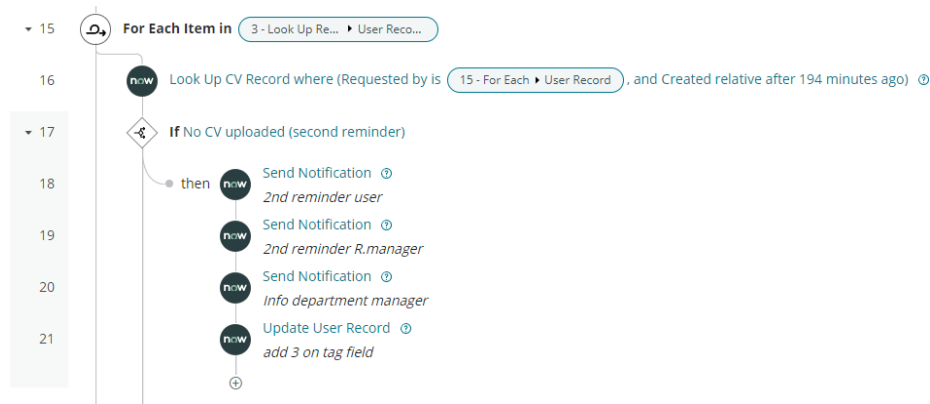Fig. 4. System check for CVs uploaded more than 6 months ago – 2

Fig. 5. System check for CVs uploaded more than 6 months ago – 3

The Frontend level represents the interface for the end user. Here, individuals will submit their work and receive comments. Using Record Producer, a landing page for the front end can be created. The functionality section emphasizes the features and capabilities of the landing page, such as the ability to submit work and view feedback.

1. To guarantee that the front-end operation of the system is smooth, the record producer's logic must be defined through a set of rules and procedures to guarantee that user information is extracted accurately, and attachments are received and stored correctly. Records are generated in the CV table for each resource profile added to the system.

2. After creating a record in the platform, it is essential to construct a sorting variable to guarantee that every CV gets reviewed. To achieve this, the team has opted to utilize the "state" field as the sorting variable. With the state field, the system can monitor the progress of each resource profile and guarantee that it is assessed and handled effectively without data loss.

3. To successfully utilize the state field as the sorting variable, it is necessary to specify the various states it will include. This project's status field will be of the "choice" type and will have just three values: open, work in progress, and closed complete.

4. Implement business rules to guarantee that the sorting variable performs and that each resource profile is examined and handled efficiently. These business rules will be intended to dynamically modify the state of each record based on the previously specified circumstances, such as whether the record is open, in progress, or closed. This will enable the system to automatically monitor the status of each resource profile and guarantee that it is handled within the specified timeframe. In addition to ensuring that each resource profile is assessed and processed effectively, these business rules will automate system operations,

decreasing the strain on HR personnel and allowing them to focus on other essential responsibilities.

The implemented portal (Figure 6) will act as the primary interface for workers to upload their resource profiles and submit to HR officials for approval.

The process remains clean and clear by creating a separate workspace (Figure 7) for HR employees in charge of analyzing the profiles, with more roles and authority. The data is structured and organized for each party involved to help them improve their results.
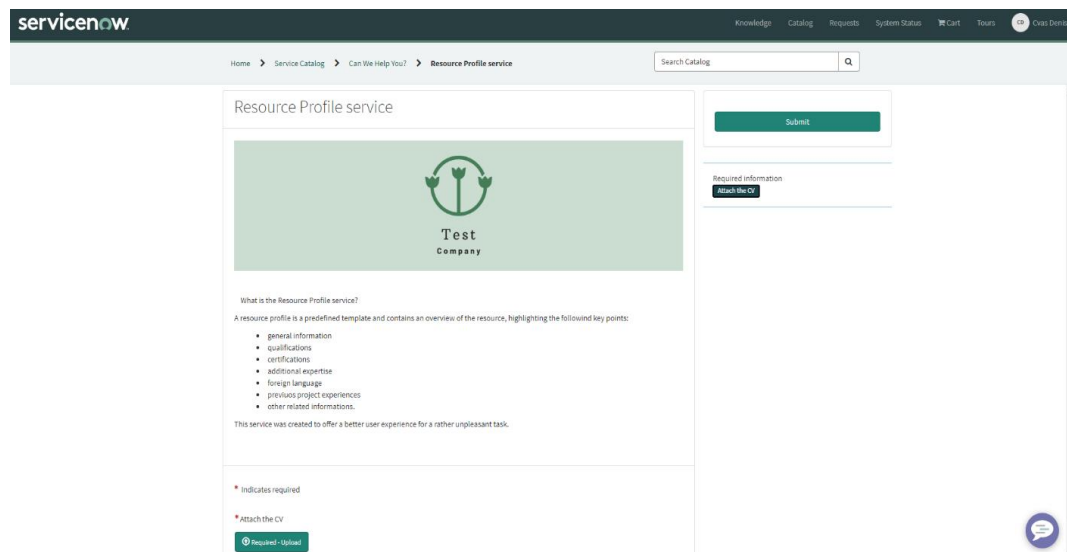

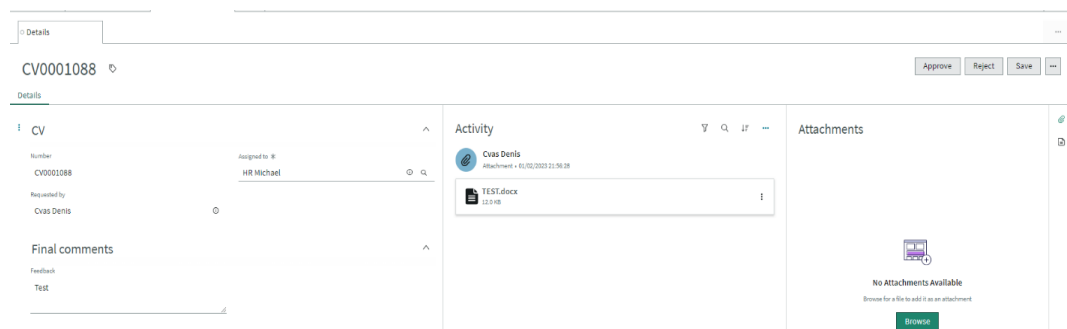
Fig. 6. Employee portal to upload CV

Fig. 7. HR Employee portal

5. Discussions

Consulting companies can employ the Resource Profile method and the automation service solutions described by [7] as two distinct but related techniques to improve their resource management. Consulting companies may better identify the knowledge and capabilities of their staff members and match them to projects by adopting the Resource Profile technique. On the other hand, automation service solutions may be utilized to automate HR procedures and eliminate the need for human intervention, hence lowering the mean response time. HR information solutions that are either on-premises or cloud-based can be used to do this. Consulting businesses may efficiently manage their employees, deliver high-quality services to their clients, and boost their competitiveness in the market by integrating both tactics.

According to [19] the Resource Profile technique may help consulting businesses manage their staff efficiently and assign people to projects based on their skills and knowledge. The company can make sure that its most important resource, their personnel, is being used properly and efficiently by doing this. As related to the research conducted by [9] for consulting organizations that depend on the skills and knowledge of their team to offer customers high-quality services, the Resource Profile method is very pertinent. Consulting businesses may better manage their staff and place people on projects that play to their strengths by assessing their workers' skills, knowledge, and experience. Some of the problems with deploying ERP systems can be solved by using the Resource Profile technique [10, 11]. Consulting businesses may better manage their workforce and place employees on projects that fit their skills and experience by having a better awareness of their available resources. As a result, implementing ERP in tandem with the Resource Profile method might be a useful tactic for overcoming some of these difficulties and increasing the likelihood of success.

The Resource Profile method and the usage of SaaS in human resources management may be related in that the latter can make the former's installation and administration easier [15, 16]. Consulting businesses may rapidly and easily access the software and tools required to establish and maintain their resource profiles by using a cloud-based SaaS solution without having to make costly on-premises infrastructure investments. Consulting businesses can gain from the Resource Profile method by getting a better grasp of the skills and knowledge of their staff members, which can then be utilized to assign them to projects that meet those competencies. By utilizing cloud-based SaaS services for human resources, such as employing artificial intelligence for hiring and recruitment, this may be further streamlined [17]. The Resource Profile strategy and the use of SaaS-based HR management software [18] have the same objective, which is to boost an organization's ability to manage its workforce and human resources.

6. Conclusions

An outsourcing company needs to have the CVs of their resources up to date for several reasons.

I. Allocation on projects - according to a study by Deloitte (2019) [20], effective talent management, including tracking and utilizing employee skills and expertise, is a key factor in driving overall business performance. The study found that companies that effectively manage their talent are more likely to outperform their peers in terms of revenue growth and profitability. Moreover, a survey by the Society for Human Resource Management (2017) [21] found that companies with formal talent management processes, including regular updates to employee skills and experience, were more likely to achieve their business goals and have higher levels of employee engagement and retention.

II. Track resource development - according to a report by the Association for Talent Development (ATD), companies that invest in employee development have higher revenue per employee, higher profit margins, and higher employee retention rates. Furthermore, a study by LinkedIn (2018) [22] found that 94% of employees would stay at a company longer if it invested in their career development. Additionally, the same study found that lack of career development opportunities was the number one reason employees left their jobs. By maintaining up-to-date CVs for employees, companies can identify areas where additional training or certifications may be needed and provide employees with opportunities to develop and enhance their skills [23]. This can lead to increased employee satisfaction and retention, as well as improved performance on projects.

III. Attract potential clients - a report by Deloitte (2022) [24] found that clients are increasingly looking for out-sourcing partners who have a deep understanding of their industry and can offer specialized skills and expertise.

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