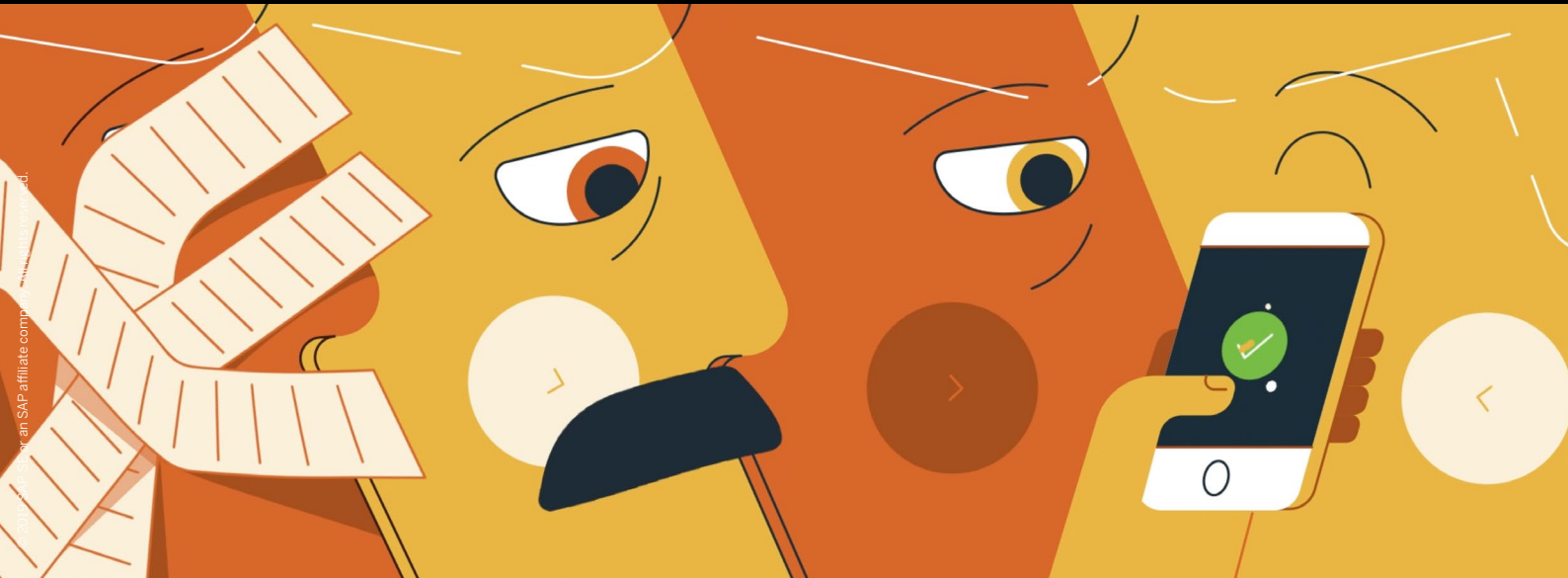


Can A.I. Release Us From the Nightmare of Expense Reports?

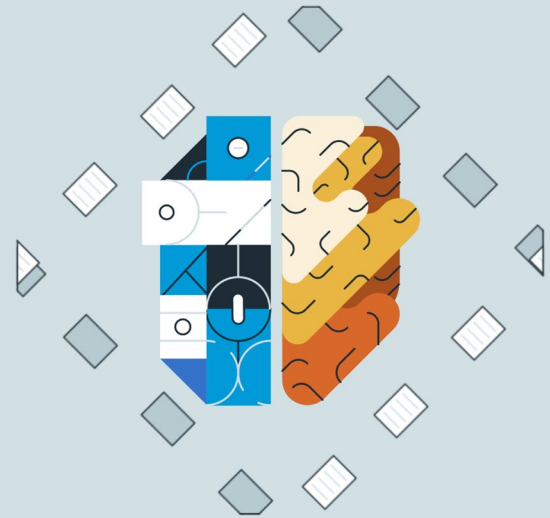


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Introduction

The term “expense report” almost universally makes many people cringe. It evokes feelings of anxiety, frustration and time-wasting grunt work. Managers seldom relish monitoring employees’ spending or reviewing every cab ride. And few workers enjoy keeping track of charges, itemizing costs or being forced to explain why they had to book a plane ticket that cost \$20 more than their company allows. Lost receipt? Don’t even bother.

Advances in artificial intelligence, however, are rapidly improving the processes surrounding expense management. And as humans and A.I. models work together toward greater efficiencies, expense reports could soon evoke an entirely different emotion: relief.



An A.I. Apprenticeship: Teach Your Computers Well

MACHINE LEARNING is a branch of artificial intelligence in which computers automatically “learn” and improve from experience. A.I. systems such as these do not start out perfect. Rather, they rely on collaboration between people and computers: Humans make machines more intelligent, and A.I. makes humans more efficient.

When applied to expense management, machine learning can accurately evaluate reports by observing patterns in what human reviewers approve or reject over time. “You could think of it like an apprenticeship,” says Thomas W. Malone, founding director of the MIT Center for Collective Intelligence. “Sometimes the apprentice may ask some explicit questions or the expert may make an explicit comment, but the apprentice learns a lot just by watching. I call it a cyber-human learning loop.”

Already, with A.I.-enhanced tools, expense reports are far less burdensome than they were even five years ago. Employees can now scan and upload receipts with their phones, and their travel information is pulled into reports from booking sites, corporate cards and email messages. Managers can review reports by mobile device, then approve them with one button click. But as humans continue to work with machine learning over the next year or two, expense management systems will advance at an even faster pace — and transform how we do business.

“We expect that many companies will transition to A.I. expense reporting within the next five to 10 years, because it’s so efficient.”

- A.G. Lambert, Senior Vice President of Product Management at SAP Concur

Expense Reports Will Write Themselves

“BY THE END OF 2019, we will start seeing the automatic creation of full expense reports,” says A.G. Lambert, senior vice president of product management at SAP Concur. Machine learning algorithms will draw from myriad external data sources to quickly fill in missing details such as vendor location and expense type.

“If an employee takes a picture of a receipt or uses a corporate card, that data can be automatically assembled into an expense report,” Lambert says. “It could even be submitted on behalf of the employee, if they choose.” As humans and A.I. work jointly, employees will likely be reimbursed faster, and finance managers will benefit from near real-time logs of expenditures.

To help enhance the process, expense management systems will soon apply A.I. algorithms to bypass 20-year-old optical character recognition tools, says Tim MacDonald, chief product officer for SAP Concur. This technology can actually read handwritten receipts, which accounts for 20 to 30 percent of all U.S. receipts and cannot be read by traditional OCR. “We’re excited because it’s incredibly accurate,” MacDonald says. “You take a picture and, bam, it can tell you exactly what was captured.”



The amount by which the Concur Detect auditing tool can reduce expense reporting errors.

Intuitive Tools Blend into the Background

USING A.I. TO LEARN from human actions, new business tools will seamlessly complement our lives. Employees could get instant feedback about their company's travel policy on the platforms they use naturally — a bot could pop up, for example, to alert them if they are trying to book a hotel room that exceeds what company policy allows. "It becomes more of a dialogue," Lambert says.

Concur Labs, a research and development arm of SAP Concur that designs and tests prototypes, is currently beta-testing an expense bot developed for the group-messaging service Slack that lets users upload receipts, add to expense reports and check on corporate expense policies without leaving the app. Also in the works? An Alexa add-on that functions like a travel booking assistant, an Apple Watch add-on that sends expenses to reports

via verbal command and a smartphone app that pulls mileage from a car's odometer into an expense report.

All this automation greatly diminishes the sea of user errors employees once generated by manually typing expenses into a spreadsheet, says John Dietz, vice president of Concur Labs. The Concur Detect auditing tool, in fact, can reduce expense reporting errors by up to 66 percent. "From an administrative point of view," Dietz says, "this technology is reducing network load."

**"We're putting time back in our employees' hands.
That's our home run story."**

- Debbie Reinhart, a Senior Analyst in Financial Operations at Cardinal Health

More Time To Innovate

AUTOMATING EXPENSES is a smart move for businesses. “Not only do you free the manager from the drudgery of having to approve the expense report, you actually get much better results for the company,” Lambert says.

Sixty-two percent of accounts payable costs stems from labor, according to a recent report by the American Productivity and Quality Center. “With machine learning, we’re approaching a period where you bring the human into the process only when you need to,” Lambert says, “as opposed to making that person review everything.”

Managers can stay as involved as they want. For instance, a supervisor wondering whether the department has the budget to send an employee to a particular conference may confer with a bot that pulls conference costs and quarterly spend predictions to expedite a decision. With real-time reporting and faster reimbursements, employees will likely be more content, and financial decision makers will have increased control and knowledge.

Free from the burden of creating and approving expense reports, companies can focus on propelling their businesses forward. Case in point: Cardinal Health, a global healthcare organization that processes 20,000 expense reports in an array of languages every month. Since automating its process in 2011, the company has reduced the hours its employees spend on expense reports by more than 90 percent.

“The human hours we’re saving could be upward of 10,000 per month,” says Debbie Reinhart, a senior analyst in financial operations at Cardinal Health. “We’re putting time back in our employees’ hands. That’s our home run story.”

~10,000

The amount of human hours saved per month by Cardinal Health, after automating expense reports in 2011.

Humans and Machines: Better Together

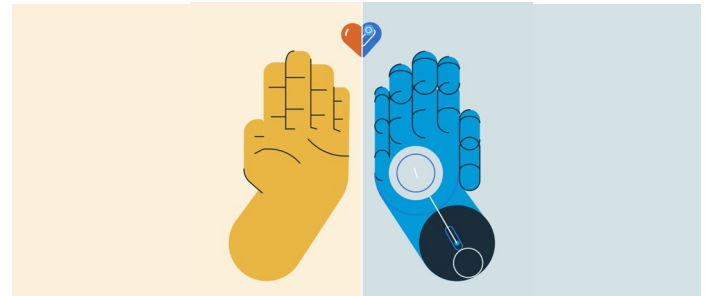
MUCH OF THE MACHINE-LEARNING technology necessary to completely automate expense reporting already exists. “One of the biggest obstacles for A.I.-based expense reports may be the need to change corporate policies and procedures to take advantage of these technological capabilities,” says Malone, who is the author of “Superminds: The Surprising Power of People and Computers Thinking Together.”

For some people, the idea of artificial intelligence can sound threatening. Should humans be worried about losing jobs to robots? “Machines will certainly do some of the tasks in the future that people do today,” Malone says. “But it is extremely unlikely that this will lead to long-term unemployment. It has never happened with any of the past generations of automation.”

A McKinsey & Company report backs Malone’s assertion: Although automation will affect 49 percent of current jobs, the report predicts, robots will subsume less than 5 percent of these positions. “When machines can do the routine things that people do today, we’ll find new things that people and computers can do together,” Malone says. “Those areas will provide new kinds of value and create new jobs.”

In today’s tech-centric business environment, adoption rates can suddenly accelerate. “We expect that many companies will transition to A.I. expense reporting within the next five to 10 years, because it’s so efficient.” Lambert says. “SAP Concur is experienced in partnering with businesses to help them adapt to these rapidly changing times.”

When machine learning is utilized to its full potential, Malone says, expense reports will essentially become invisible: “People involved will rarely even think about them.” And what was once a collective nightmare will quickly fade away into a blurry past.



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