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Robotic Process Automation: These ARE the droids you're looking for

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I'm sure I'm not alone in saying that it seems like for my entire career, actuarial departments have had "improve automation" on their short lists of future goals. Improving automation is, of course, a very reasonable goal for every department. After all, if a computer or machine can do a job just as well or better than a human, why would we want to pay a human to do it?

WHAT IS AUTOMATION?

At its core, automation is the act of programming jobs to be done by computers or machines. These jobs are generally repetitive, manual, rules-based or computational, or they just have low cognitive requirements. These range from assembly lines at automobile plants to complex machines learning algorithms and writing their own code. From an insurance company's viewpoint, the best jobs to automate are repetitive, manual jobs. Computers greatly outmatch humans on these tasks in speed and likelihood of error. Plus, forcing humans to perform these types of tasks lowers focus and inhibits productivity.

Automation has indeed become an integral part of many other departments. Automated voice answering systems have improved call center efficiency, automated claims filing systems have greatly enhanced the claims process, and even underwriting is beginning the first stages of being upgraded to a more automated system. Actuarial departments, however, have been slow in the push toward automation. This is largely due to the complex nature of actuarial work and the relative inability of automation software to perform more complex tasks. As automation software continues to rapidly evolve, the marginal value of implementing that software starts to become more apparent. The opportunity cost to not finding jobs to automate is getting steeper. Having actuaries—whose time is not cheap—focus on automatable jobs takes valuable time away from the work they do that provides more value to the company.

It is at this point in the article where one might begin to ask, "What exactly does automation mean in the context of an actuarial department?" My answer to that question is a type of automation called robotic process automation. A search for "robotic process automation" on Investopedia yields the following definition: "Robotic process automation (RPA) refers to software that can be easily programmed to do basic tasks across applications just as human workers do." This isn't so different from writing a macro in Excel to move data across different tabs or even different workbooks. A major difference between RPA and an Excel macro is that RPA generally exists outside of any one program and is used to coordinate and interact with and across all systems. These automation tools can be integrated easily within an existing framework without impacting the other applications. Because of the ease of integration, companies are observing relatively low upfront investments and low break-even years with RPA.

WHY DOES AUTOMATION MATTER TO ACTUARIES?

OK, so now that RPA has been introduced, it only makes sense to explain the reason to finally incorporate them into actuarial departments. Current and upcoming regulations have made the quarterly close cycle more complicated than ever. The transition from rules-based, formulaic accounting has begun. Whether it be principle-based reserves, long-duration targeted improvements for GAAP, IFRS 17 or another regulatory update, the actuarial close cycle now requires more arduous computing from the actuaries than it previously did. Even with these complex changes, the length of time until close has not increased along with these updates. Actuaries now have less margin for error to close their books every quarter. RPA programs can seamlessly create inputs, kick off runs and format results all at the click of a button. These programs can also alert the user if an input is not available, a process has been stalled for too long or results are outside reasonability parameters. Instead of staying up until 3 a.m. (and risk sleeping under your desk at work that night) just to make sure a model has run and to click some buttons to kick off a new run, actuaries should be looking to employ RPA for these processes.

There have been major regulatory changes before, though, right? Why do these changes make automation more necessary than previous regulatory changes? Good question! These regulatory changes are a catalyst to introduce the next wave of automation to actuarial departments because they are fundamentally changing some major processes. The new GAAP standard, for instance, introduces a new data management challenge, where output from the previous period's run must be used as an input for the current model run. This regulatory change may cause companies to drastically update their valuation systems. Once these systems are in place, actuarial departments can add automation to the process, which will

streamline it further. A hot topic in the industry now is end-to-end automation—having a tool automate the entire manual model run process from inputs to outputs—which will allow the actuary to click a button, let the machine run and have results to analyze when the run is finished. Tools exist now that can accomplish these automation goals.

The new GAAP standard is just one example of a regulatory change, but many more major changes are coming. We all know about principle-based reserves and the challenges that brings. Company-specific assumptions can now be selected. The deterministic and stochastic runs must be run now in addition to the formulaic NPR floor calculation. The process is more complicated and simply takes more time to complete. The VM21 withdrawal delay cohort method—a modeling approach that splits an annuity contract into several copies called "cohorts" and models them as separate contracts—will require massive overhauls in inputs to create the cohorts and outputs to manage and integrate results. RPA applications are here to help with these issues. Since RPA has a lower cost of implementation, it makes sense to include it as part of larger valuation-system updates caused by these new regulatory mandates.

WHAT ARE THE CHALLENGES WITH AUTOMATION?

RPA is not perfect and will not be able to be introduced to the industry overnight. Management may have a difficult time becoming comfortable with robots performing all the work for quarterly reporting. To counter this hesitancy, most RPA programs have the functionality to build in manual checkpoints. These checkpoints have many different functions, including the ability to see interim results and approve, the ability to make sure all preceding processes have completed before continuing, and the ability to simply approve that the inputs are correct in the model before running the model. Another issue many in the industry have brought forward is that less-seasoned actuaries may not understand how the models work without running them. There is the potential for a "black box" scenario, where newer actuaries do not understand the inner workings of the models. However, as automation evolves over time, there will be less need for this skill and newer actuaries will likely be learning more critical skills like data analysis and communication.

Actuaries do not have to fear that they will lose their jobs due to these new automation practices, though. The core value of actuaries—interpreting the models and communicating the results of the models—will remain unchanged with this new technology. As technology evolves, so will actuaries. A focus must be placed on skills that computers will never learn (at least computers not named HAL), like critical thinking and communication to nontechnical audiences. This will allow actuaries to work smarter, not harder.

WHERE CAN ACTUARIES GET STARTED?

Two basic methods for implementing RPA within an actuarial department: Build a homegrown RPA tool or purchase RPA software from a vendor. Naturally, there are positives and negatives to both methods. A big advantage for vendor RPA software is that it is oftentimes specifically designed to work with other software an actuarial department might use. For example, the RPA tool we use for Prophet, Prophet Control Center, is specifically designed to work with Prophet and other applications within the Prophet suite. However, a drawback to vendor RPA software—subsequently an advantage to homegrown software—is the lack of control a department has over the system's elements. If a company has a very specific or unique need, homegrown RPA software built to meet this need may be more appropriate.

Other challenges may arise with building and developing homegrown software. Sure, actuaries generally have coding experience, but they are not experts in automation software development. IT departments may have more specific expertise to build and maintain the RPA software, but that has an opportunity cost associated with it as well. Another factor to consider is the time it would take any department to build a fully functioning RPA tool. Insurance companies are already slow in the automation space, and taking the time to build out a homegrown application from scratch may exacerbate that problem. When it comes to total cost of ownership, some companies may prefer to use already-developed vendor software. Each company's actuarial department will have to decide what it values most and act accordingly.

Whatever the specific choice for each department, one idea remains clear: Time is of the essence. The insurance industry already is slow compared with other industries in automation technology. Insurance companies do not have much time before they get lapped by early adopters of automation. Automation

technology newer than RPA is fast approaching, and the metaphorical automation "hill to climb" will get steeper if this step is not taken.

WHAT IS THE FUTURE OF AUTOMATION?

This is not the final step for automation in the actuarial workspace, just the next step. After many companies get on board with RPA, the logical next steps are toward intelligent automation. New techniques like machine learning, predictive analytics and natural language processing exist on the horizon for insurance companies. This technology will help bring to light new analysis methods that humans could not formulate on their own.

Regulatory changes can seem burdensome to actuaries. It's natural for everybody to resist change, especially when the change requires so much work. However, these upcoming regulatory changes represent an opportunity—an opportunity to take the next step with automation and maybe make life easier in the long run for the entire department. After RPA becomes standard among all insurance companies, it's all eyes toward intelligent automation. I don't think "improve automation" will ever come off actuarial departments' short lists for future goals, and there's probably a good reason for that. ■

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