Article from

Predictive Analytics and Futurism

December 2019

Actuarial Superjobs: Evolving Roles Demand an Integrated Skillset

By James Hardington Dunseth, Tony Johnson and Adam Cloe

Editor's note: As used here, "Deloitte" means Deloitte Consulting LLP, a subsidiary of Deloitte LLP. Please see www.deloitte.com/us/about *for a detailed description of Deloitte's legal structure. Certain services may not be available to attest clients under the rules and regulations of public accounting.*

Rapidly evolving technology, the arrival of artificial intelligence (AI), a tsunami of data, an explosion in contingent work and diversity/generational change are all trends that are rapidly transforming professions and causing organizations to holistically redesign their workforce and how work is executed. The actuarial profession is not immune to this transition. In fact, the actuarial profession has already begun to utilize automation tools to complete a number of tasks historically executed manually by actuaries. Over time, and with some human guidance, those machines have proven reliable, not to mention they *actually* perform some actuarial tasks faster and with fewer errors than humans. More than 40 percent of respondents to the 2019 Deloitte Global Human Capital Trends Survey indicated that their organization has already employed automation "extensively or across multiple functions."[1] Despite these reports, many individuals continue to fear robotics and artificial intelligence as they associate automation with job loss. However, as organizations begin to test these emerging technologies, the fear of the unknown should quickly dissipate once the potential benefits are realized. The result on *our* profession? An impending shift in the way actuaries spend their time, as they are augmented by technology, toward more strategic roles and responsibilities.

This is not the first time the actuarial profession has adapted to a dynamic workplace and disruptive technologies. Writing exams without a calculator, using a physical mortality table to price a product or calculating reserves using nothing but a freshly sharpened pencil, battery-powered TI30 calculator and a grid-lined notebook were once realities of being an actuary. Although the transitions were slow and sometimes difficult, it is clear that artificial intelligence, automation and cognitive technologies are not the profession's first disruption. From the introduction of desktop computers, to laptops and, most recently, cloud computing, actuaries have demonstrated the ability to adapt and to continue providing enterprisewide value in the face of change and uncertainty. Perhaps in 10 years, actuaries will view the professionals of today as archaic for insisting on gathering, preparing and manipulating data themselves.

As organizations search for the next competitive edge, early adapters are poised to become market leaders aided by automation and cognitive technology solutions. These emerging technologies do not pose a threat to the profession; rather, organizations hope to use them to facilitate interactions *with* actuaries, saving employees time and allowing them to maximize the value they contribute to organizational performance. However, the organization is not the only beneficiary. Given that most tasks subject to automation are rules-based, procedural and mundane, actuaries will be able to devote additional time to tasks that cater to their strengths, give them energy and passion and improve job satisfaction. Actuaries should welcome the opportunity to devote their day to cognitive activities, that is, those tasks that are well outside the current scope of most artificial intelligence technology. For instance, many valuation actuaries today spend a majority of the quarter-end production time creating the first draft of earnings results. An actuary aided by artificial intelligence would have results much earlier and could instead spend their time digging into variances, communicating with other business units to explain trends and presenting results to management. With ever-changing regulatory environments, consumer demand for increasingly sophisticated financial products and incessant pressure to evolve from competitors, organizations need their actuaries to ascend into these higher-value roles.

Deloitte's 2019 Global Human Capital Trends report categorizes the jobs of the future as standard jobs, hybrid jobs and

superjobs.[2] With the help of an increasingly diverse skillset and cutting-edge technologies, standard actuarial roles, marked by repeatable tasks, standardized processes and specific skillsets, can transform into hybrid jobs. Emerging hybrid jobs require a diverse portfolio of skills ranging from technical competencies to uniquely human soft skills such as communication, creativity and inquisitiveness; however, hybrid jobs are only a transitional step toward what the report calls superjobs. These roles are increasingly analytic, with a simultaneous focus on integration, opportunity and communication. Actuarial superjobs will consolidate several traditional roles, enter new territories and incorporate lifelong learning, demanding a new breed of actuary. Consider the following examples of possible superjobs for the actuary of the future:

- **Artificial intelligence expert.** Combines deep AI experience and actuarial content knowledge to design and update AI robotics solutions to help with assumption setting, source-of-earning analysis, explaining reserve movements, etc.

- **Machine interpreter.** Reviews and interprets machine output, communicating to nontechnical parties as needed to drive strategic action.

- **Superforecaster.** Combines big data and AI technologies with human oversight and actuarial judgment to forecast scenarios across business functions that may impact organizational performance.

- **In-force management influencer.** Works with psychologists to combine data analysis, predictive analytics and behavioral science to positively influence healthy policyholder behavior, reduce unintended actions from insureds and optimize profits for the organization.

- **Algorithm auditor.** Combines strategic thinking, professional judgment and machine learning methods to validate current actuarial models and future AI-based actuarial calculation engines.

Consider an actuary in the role of an algorithm auditor. Armed with a thorough understanding of AI technologies, specifically as they relate to the intersection of machine algorithms, human ethics and actuarial professionalism, the algorithm auditor transcends departments to ensure the organizations' solutions are free of unintentional biases and in compliance with regulation. This superjob requires strategic thinking, professional judgment and knowledge of machine learning methods to validate actuarial models and the design and output of AI algorithms. The algorithm auditor will have an important voice in decisions regarding automation as it impacts the enterprise risk profile. As a result, this role requires organizationwide relationships and is marked by increased visibility in the insurance and risk management industry. Moreover, as more of the work traditionally given to entry-level actuaries is transferred to machines, the role of algorithm auditor will help junior staff learn the ins and outs of the business.

Superjobs are an example of how automation and cognitive solutions offer immense value, not in eliminating actuarial jobs, but augmenting them.

Superjobs are an example of how automation and cognitive solutions offer immense value, not in eliminating actuarial jobs, but augmenting them. Further, with organizations' use of robotics and cognitive technologies, today's enterprises are more machine-powered and data-driven than ever. In addition, enduring interpersonal skills such as problem solving, communication, interpretation and design skills will likely become more valuable. As the profession searches for ways to define actuaries as much more than data scientists specializing in insurance, the gap between outcome-driven superjobs and the fixed-task roles of today will likely become increasingly evident. Thus, the question becomes, how can actuaries bridge the gap between current roles and hybrid jobs, and eventually hybrid jobs and superjobs?

Today's actuary already possesses a breadth of expertise encompassing a deep understanding of risk management, predictive analytics and various financial products, but these skills alone will not be sufficient to stay competitive in a rapidly evolving workforce. The half-life of professional skills has shrunk considerably, indicating the actuary of the future will need to participate in lifelong learning, outside the world of credentialing exams.[3] To further muddy the waters, traditional actuarial skills have become more common, creating the need for a professional with highly integrated quantitative knowledge and the soft skills that undeniably benefit actuarial work, such as creativity, inquisitiveness, fellowship and other skills not replicated by machines. To facilitate the transition to superjobs, it is important for organizations to invest in resources that support their employees. This should include investing in robust training programs and continued learning curriculums and the implementation of a flexible actuarial talent model, which will vary significantly from the rigid, hierarchal structure many organizations have traditionally used.

Actuaries need to change, evolve and disrupt themselves to be able to create the superjobs that will inevitably help separate the actuary of today from the actuary of tomorrow. Those that do not risk being disrupted by other workforce segments that are pushing the envelope of what outcomes they can achieve. Organizations and individuals both have a critical responsibility to drive this transition so that, together, they may both enter the future of work as leaders creating unprecedented value. ■

Tony Johnson, ASA, MAAA, is a senior manager with experience in the financial services industry, including the life insurance industry. He can be reached at *tojohnson@deloitte.com*.

James Dunseth, ASA, is a consulting actuary with experience in the life and health insurance industries. He can be reached at *jdunseth@deloitte.com*.

Adam Cloe is an actuarial analyst with experience in the life insurance industry. He can be reached at *acloe@deloitte.com*.

ENDNOTES

1 Volini, Erica, Indranil Roy, Jeff Schwartz, Mauren Hauptmann, Yves Van Durme, Brad Denny and Josh Bersin. 2019. From Jobs to Superjobs. In *Leading the Social Enterprise: Reinvent With a Human Focus*. 2019 Deloitte Global Human Capital Trends. *https://www2.deloitte.com/content/dam/insights/us/collections/HC-Trends2019/DI_HC-Trends-2019.pdf*.

2 Ibid.

3 Deloitte. Meet Your Future Workforce. Quartz, Jan. 8, 2019. *https://qz.com/1123158/meet-your-future-workforce/*. (Accessed Sept. 13, 2019).