BY ABINASH SATAPATHY, ZEUS PARAGUAS
AND INGE LODDER

Challenges in adopting new digital systems and how to overcome them

Technological advancements in data and advanced analytical methods play a crucial role in the future of the actuarial profession. Organisations accelerating automation and data-driven decision-making, partner with quantitative professionals, such as actuaries, to achieve strategic and operational goals. While the aim is to increase business productivity, adoption of new techniques requires awareness of certain risk factors. In this article, we touch upon the risks involved in adopting new data-driven technologies, potential consequences and ways to mitigate these risks.

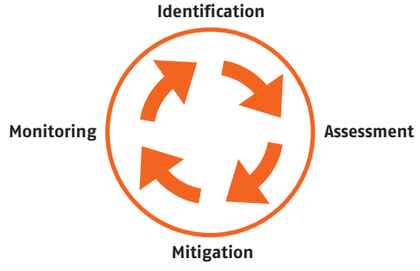
Changing regulatory frameworks, evolving business models and shortage of talent are some of the challenges many organisations face. To prepare for future developments and remain competitive in a dynamic environment, organisations face these challenges by embracing innovative tools and solutions.

Additionally, gains in accuracy, efficiency, and scalability incentivise organisations to invest in new technological solutions. Whether it be the automation of repetitive and tedious reports, or the development of a pricing model built upon machine learning, modern technologies have always supported actuaries with their day-to-day job.

Nevertheless, successful implementation or migration to new digital systems requires diligent planning, careful execution and demands collaboration across various stakeholders. As with many aspects of the actuarial profession, change and novelty involves uncertainties (risks) which may or may not require further attention and actions.

As such, thorough risk evaluations and governance structures promote early identification of potential issues to mitigate unwelcome operational and financial outcomes. To quote the famous Dutch philosopher Desiderius Erasmus who once said, "Prevention is better than cure".

In order to cope with these risks, applying the operational cycle of the *identification*, *assessment*, *mitigation*, *and monitoring* of risks, will allow for comprehensive support during and after implementation of new technological projects.



A. Satapathy (left) is consultant at ELAVV.
Z.X.S. Paraguas MSc (middle) is consultant at ELAVV.
I.Lodder MSc AAG is founder and consultant at ELAVV.

THE RISKS

Resource constraints, adaptability, effectivity, and security can be seen as some of the most significant challenges in developing modern technologies. In the following paragraphs, each of these challenges will be addressed and described (*identification*), ordered in terms of likeliness and impact (*assessment*) and management practices are introduced to resolve potential issues (*mitigation*).

Here, we would like to stress that the exact likelihood and impact of the risks materialising strongly depends on the scope of a project and its intended use-case. The following evaluation therefore serves as global indications and generalisations of common themes when introducing new digital solutions.

1. **Resource constraints**: Changing or adopting new digital tools in the workplace may turn into a burden to an organisation financial and human resources if projects are left unmonitored. Therefore, having clearly defined business requirements, feasible timelines and tangible milestones are universal necessities prior to commencing on new projects. With extensive and complete working arrangements, expectations are managed, deadlines are met and the path towards a seamless transition is paved.

2. **Adaptability**: Successful change implementation of systems and processes may face resistance from internal team members who would prefer to stick with traditional familiar tools and methods. Generally, these team members can be divided into end-users and reviewers. For end-users, it may be the case that they are reluctant or have difficulty in using new systems, while reviewers may be wary when assessing the quality of a newly implemented tool and its outputs. Both parties' hesitancy stems from a lack of knowledge and training in the newly applied model and its user-interface.

   For end-users, it is essential that new systems are designed with adaptability and user-friendliness in mind. New tools are there to help human employees to use and thus require a 'human touch'. Through involvement of direct team members in developing innovative business technology, a higher level of support and motivation from employees is attained.

   Furthermore, technical documentation with functional specifications and user manuals enhances accessibility of new digital tools. It benefits internal team members with quick access to the theoretic background and eases training in operating newly implemented digital systems.

3. **Effectivity**: Actuarial calculations run complex models using inputs from various data sources. Inaccurate calculations may lead to improper strategic or operational outcomes, which in turn can have unwelcome financial implications for the business and its clients. Hence, for technological advancements to be effective, solutions ought to produce meaningful results.

   In addition, streamlining processes and data pipelines increases effectiveness by eliminating inefficiencies in handling larger data sets and reducing human error. Next to this, periodic maintenance by testing, validating, and documenting the model mitigates the risk of inaccurate numerical outcomes.

4. **Security**: In today's digital age, privacy and data protection are important topics, especially in professional environments where sensitive data is handled. Information systems put in place require to be secure and protect sensitive data from unauthorized access, as damages, both financial and reputational, may follow from large scale data leaks. Additionally, (mis)using open-source solutions can introduce security risks and system vulnerabilities.

   Nevertheless, mitigating these risks is feasible through active awareness, use of trusted and tested software, and incorporating (cyber)security measures into the system architecture.

CONCLUSION

Whilst embracing innovative data and advanced analytic solutions brings along uncountable benefits and added value to organisations and their stakeholders, preparation and consideration are initial steps towards transitioning into a more digital and modern industry. Rosy pictures and fields of gold aside, robust risk and business awareness immensely aid in reducing complexities and bottlenecks when adopting new digital processes and systems. As technologies in the quantitative domain evolve, quantitative professionals are called to co-evolve and ponder on how this affects their role and added value to the industry. Only then can technological innovation flourish and support (new generations of) actuaries to shape our future. ■