

CELENT

BECOMING A CELENT MODEL INSURER

A GUIDE TO CELENT'S ANNUAL AWARD PROGRAM

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EXECUTIVE SUMMARY

Beginning in 2007, Celent sought to identify and promote effective use of technology in insurance as a means to foster investment in innovation. Model Insurer is awarded for best practices of technology usage in different areas critical to success in insurance, and is the main award an insurer can win from Celent.¹

Insurers are encouraged to submit their initiatives, which we evaluate on three criteria:

- Demonstrable business benefits.
- Degree of innovation.
- Technology or implementation excellence as seen through the use of best practices.

This year we are accepting nominations in five categories:

- Data mastery and analytics.
- Digital and omnichannel technology.
- Innovation and emerging technologies.
- Legacy transformation.
- Noncore system implementation / IT management.

Being recognized as a Model Insurer has a number of benefits for the insurance company and its executives:

- Prestige of the award.
- PR opportunities to promote the award.
- Further exposure via a Celent case study.
- Complimentary invitation to attend Innovation and Insight Day, Celent's flagship annual event.
- Personal benefits, such as recognition internally and externally.
- Strengthened relationship with the technology vendor.

To optimize your chances of winning the award, select your best initiative(s) that would score highly on all three criteria above and clearly explain to us what you did, why, and how. Get help from your technology vendor to submit the nomination form if you like, but make sure to own the entire process and stay on top of it.

Most importantly, remember: you can only win the competition if you enter it! Please visit www.celent.com/modelinsurer and submit your initiatives by completing the nomination form before November 20, 2015. If you are an Asian insurer, the link to Model Insurer Asia's submission form is www.celent.com/modelinsurerasia.

We look forward to hearing from you. Good luck!

¹ In 2010, Celent introduced Model Insurer Asia, an identical award program geared towards Asian insurance companies. Although not required, most Asian insurers opt to submit nominations to Model Insurer Asia. For more information on Model Insurer Asia please visit <http://www.celent.com/news-and-events/events/2015-model-insurer-asia-awards>.

INTRODUCTION

At Celent, we have been running the Model Insurer program since 2007, but this is the first time we have published a guide to the award program. Why now? A number of reasons:

- Model Insurer has become a truly global program. We want to introduce the concept of Model Insurer to insurance companies that may not be familiar with it and hope this report will help increase awareness.
- There have been changes to the Model Insurer program. We felt it was important to present a guide that explains the changes and their rationale.
- As the number of submissions grows, the quality inevitably becomes more variable. We want to offer tips on how to submit a quality Model Insurer nomination. We provide transparency into what Celent is looking for when judging the nominations. We also look back and consider lessons from the past.

The report addresses the key questions below. In contrast to regular Celent reports, which are only available to institutions subscribing to Celent’s research services, this report is freely available for anyone to download on the web page hosting the 2016 nomination form.

KEY QUESTIONS

1 <i>What is a Celent Model Insurer Award?</i>	2 <i>Why should an insurance company care?</i>	3 <i>What do winning nominations have in common?</i>
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WHAT IS MODEL INSURER, AND WHY SHOULD YOU CARE?

INTRODUCTION TO CELENT MODEL INSURER

Model Insurer is the main award that an insurance company can win from Celent. It is available to property and casualty/general insurers, specialty insurers, life insurers, health insurers, and annuity/pension providers globally. Any insurer can apply, irrespective of whether it has any prior relationship with Celent. Celent does not charge any fees to insurers or vendors to participate in the Model Insurer process.

Celent started Model Insurer research in 2007 and has continued annually since. The program is now in its tenth year. The vision for Celent’s Model Insurer research was to try to answer an apparently simple question:

“What would it look like for an insurance company to do everything right with today’s technology?”

Of course, the question is not nearly as simple as it appears. The terms “everything” and “right” will mean very different things to different insurers depending on their size, the complexity of their operations and product sets, and their technological starting points. While there is no such thing as a “Model Insurer” — every insurer does some things well, and others not as well when it comes to technology — it is possible to conceive of a “Model Insurer” through real world examples of effective usage of technology.

Celent’s approach is to seek examples of best practices in technology usage in different areas critical to success in insurance. We invite insurers to nominate their technology initiatives in one of five technology themes. We review all nominations and recognize a number of them — up to four per theme — with a Model Insurer award. Every year we present 15 to 20 awards. We also recognize one initiative every year as the overall Model Insurer of the Year, the top honor.

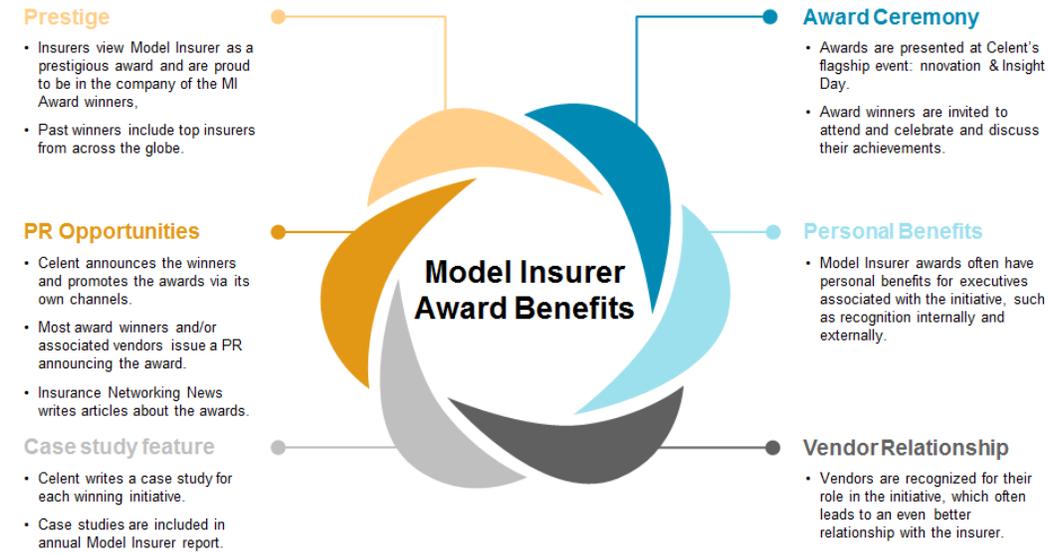
WHY SHOULD YOU CARE?

Being recognized as a Model Insurer has a number of benefits for an insurance company (see Figure 1 on page 4).

First of all, insurance companies tell us they view Model Insurer as a distinctly **prestigious award**. The awards are focused on insurance, yet span a full spectrum of technology initiatives rather than being narrowly focused on one (e.g., mobile). Competition is global and fierce, and the selection process is rigorous. Award winners are in great company and are proud of such association. Past winners include insurers of all sizes from all over the world including Allstate, Tokio Marine & Nichido, MetLife, Nationwide, Chubb, Aegon, and XL Group, to name a few.

As a result, a Model Insurer award presents a number of **PR opportunities** for the winning insurers. We, at Celent, announce all the winners and issue a press release. Most winners also tend to issue a press release announcing their award and highlighting why they were recognized as Model Insurer winners.

Figure 1: Benefits of Receiving a Model Insurer Award



Source: Celent

Furthermore, Celent analysts write detailed **case studies** of each winning initiative. These case studies are included in Celent's annual Model Insurer reports, which are consistently among the most popular reports with Celent clients, generating further exposure for the winning insurers and their initiatives.

The actual awards are presented at **Innovation and Insight Day (I&I Day)**, Celent's flagship annual event, typically held on the East Coast in the United States. We celebrate the achievements of Model Insurer and Model Bank² award winners by giving them an opportunity to discuss their initiatives on stage at the I&I Day. The day also features exciting keynote presentations from industry leaders, academics, and Celent analysts. In 2015, the I&I Day was held at Carnegie Hall in New York and was our largest ever with over 400 attendees, representing excellent networking opportunities. All Model Insurer Award winners receive up to five complimentary tickets to attend the event.

² Model Bank is Celent's program recognizing outstanding use of technology in the banking industry.

Figure 2: Model Insurer Awards Are Presented at Innovation and Insight Day



Source: Celent

However, the award has more than institutional benefits. Executives associated with the winning initiatives often speak about Model Insurer award having **personal benefits** for them, such as recognition internally and externally and enhanced career prospects.

Finally, for initiatives that rely on **technology vendor** solutions and expertise, the award often leads to an even stronger relationship between the winning insurer and its vendors. While not explicitly awarding vendors, Celent recognizes their contribution to the initiative. In response, vendors often issue their own PR statements celebrating achievements of their clients.

Figure 3: Technology Vendors Celebrate Their Clients Winning Model Insurer Awards

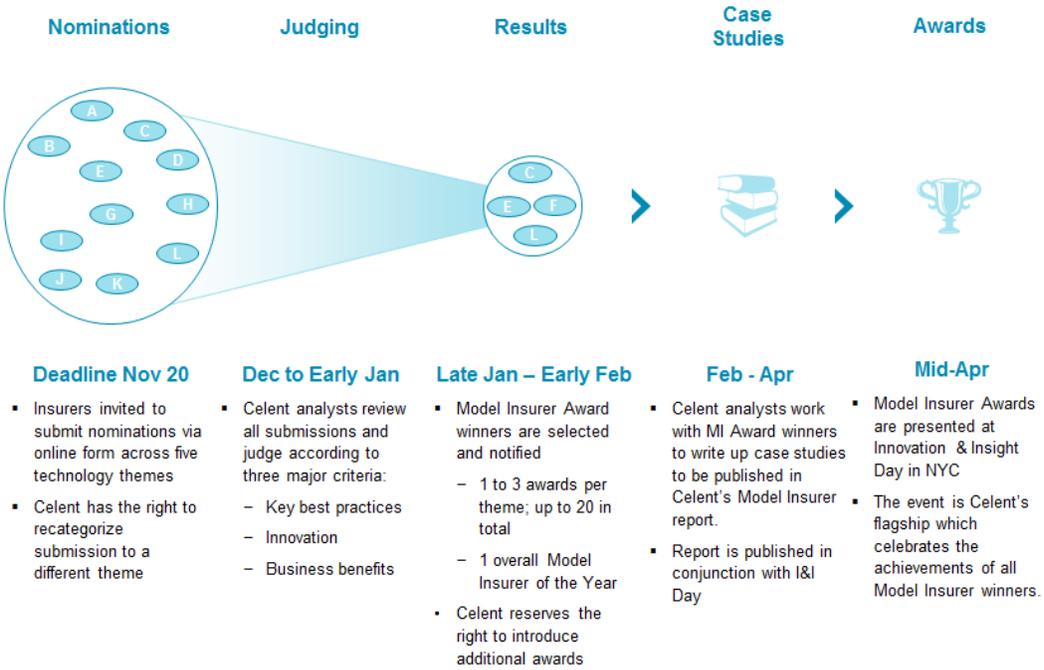
A presentation slide titled 'Sapiens Award Winning Customers'. The slide features a list of insurance companies whose logos are displayed: Achmea, L&T Insurance, Oranta Insurance, Philadelphia Insurance Companies, and Direct Asia. The Sapiens logo is also visible on the right side of the slide. The slide includes a bullet point stating: 'Sapiens customers has been recognized for excellence achieved by deploying Sapiens products'. At the bottom left, there is a small number '1' and the URL 'www.sapiens.com'. At the bottom right, the word 'SAPIENS' is written in a bold, blue font.

Source: Press searches

MODEL INSURER 2016: APPROACH AND KEY DATES

While the overall approach to the Model Insurer process in 2016 is similar to most years (see Figure 4), this section highlights key differences and key dates.

Figure 4: Overall Process and Key Dates for Model Insurer 2016



Source: Celent

NOMINATIONS

Key dates and changes include:

- Award Categories:** in 2016, Celent is accepting nominations in five different theme categories.
- Nomination Form:** slightly revised from previous years (see below).
- Deadline for Submissions:** 20 November 2015.

The 2016 categories and example initiatives are listed in Table 1. Example initiatives are offered as a way to broadly describe what we expect in a particular category; they are by no means exhaustive. Also, while most nominations involve technology-related initiatives, not all do; examples of organizational or cultural transformation to accompany technology change or creative ways to foster innovation are also welcome.

Table 1: Model Insurer Award Categories for 2016

CATEGORY	EXAMPLE INITIATIVES (NOT EXHAUSTIVE)
Data mastery and analytics	Data analytics / big data applications Predictive analytics Gamification
Digital and omnichannel technologies	Mobile and online insurance innovations Straight-through processing Telematics eLearning initiatives
Innovation and emerging technologies	New product design/development Innovation programs Breakthrough technology use (e.g., drones, quantified self, etc.)
Legacy transformation	Core insurance system replatforming/transformation Deployment of cloud technologies
Noncore system implementation best practices / IT Management	DevOps Document and content management Financial system overhauls

Source: Celent

Celent reserves the right to revisit the categories after all nominations are submitted and may decide not to award any initiatives in a particular category. We also reserve the right to categorize an initiative differently from what was submitted.

The nomination form is designed to capture the key data points needed for Celent analysts to be effective when judging the initiative. The importance of the quality of the nomination itself, and of the supporting information, cannot be overemphasized. The nomination should be as specific, accurate, and complete as possible. It is imperative that the true merits of the initiative be conveyed through this information. Keep in mind that in most cases those involved in the selection process will have no personal knowledge of the nominated initiative and will lean heavily on the information provided to make reasonable judgments. In some cases, Celent will check publicly available information to augment or substantiate the information provided. Table 2 describes the slightly revised nomination form for 2016.

Table 2: Nomination Form for 2016 Model Insurer Awards

TYPE OF INFORMATION	DATA FIELD	COMMENT/DESCRIPTION
CONTACT DETAILS	Financial Institution Name	Self-explanatory.
	Contact Name, Position, Email and Phone	
	Vendor Name	Optional field for insurer nominations, but required for vendors that are nominating on behalf of FI clients.
	Vendor Contact Name, Position, Email and Phone	Same as above.
NOMINATION CATEGORY	Theme of Technology Initiative	Select one of five theme categories, which is the best fit for your initiative. You may only choose ONE theme. If you are unsure of which theme to choose, please read the descriptions carefully and select the one that you feel best describes the project's intent. Celent reserves the right to reassign the initiative to a different category.
	Insurance Products / Lines of Business Involved	List the lines of business affected by this initiative. Examples, include personal auto, commercial property, annuities, long-term care, or life protection products,
INITIATIVE DESCRIPTION	Brief Description of Initiative	1-2 sentence high level summary of the initiative.
	Elevator Pitch (Why X?)	A few bullet points why you think this initiative deserves a Model Insurer award in your chosen category. Limit 100 words.
	Project Background and Rationale	Describe the business need for the initiative. What problems were being experienced? What were the drivers and targets or desired outcomes? Who was the Executive Sponsor?
EVIDENCE APPLIED TO SELECTION CRITERIA	Technology Used and Description	Detailed description of the initiative. What was the solution you designed to achieve the desired outcomes? What technology did you use? What process or organisational changes did you implement?
	Delivery Team	Internal team: size of the core team, key departments involved External resources: technology vendors, professional services firms, FinTech partners
	Timelines	Project duration (approximate) Go-live date (only live initiatives will be accepted)
	Quantitative Success Metrics	Revenue or productivity enhancement, cost reduction, end user feedback, social media buzz, etc.
	Qualitative Business Benefits	Other business benefits that might be too hard to quantify
	Technology or Implementation Excellence	What were the biggest challenges and how did you overcome those?
	VENDOR DETAILS	Vendor Details, If Applicable

Source: Celent

The deadline for nominations is Friday, November 20, 2015, just before Thanksgiving week in the United States. Once a nomination is received, Celent will acknowledge the receipt of the submission with the insurer and, if applicable, the vendor partner. Subsequently, Celent will communicate directly with the insurer.

JUDGING

While the Model Insurer process has evolved somewhat, one thing has remained constant through all nine years: the selection criteria. We continue to judge the initiatives on three criteria.

- **Measurable business benefits.** Celent seeks to recognise initiatives that have a clear and sustainable impact on the business — those that most clearly advance your insurance company’s business objectives. Therefore, this category is weighted most heavily. Project size and scope matter, and we pay particular attention to quantitative success measures.
- **Degree of innovation.** This measure draws attention to initiatives deemed particularly innovative for their use of technology in improving sales or service results, reducing risks or costs, or improving business processes.
- **Technology or implementation excellence.** Celent uses nine different key IT best practice criteria to evaluate the nominations. Each best practice is considered important to the success of a technology project. Initiatives are evaluated for their IT/business coordination, expansion and effective use of distribution channels, and implementation and integration excellence, to name a few. Celent recognises initiatives that effectively demonstrate the use of best practices throughout the initiative.

Table 3: Key IT Best Practices and Measurable Business Results

KEY IT BEST PRACTICES	MEASURABLE BUSINESS RESULTS
Use of industry standards	Higher productivity, lower staff expenses.
Optimization of infrastructure	Increased revenue or market share.
Positioning for future reuse	Faster cycle times and more consistent processes.
Automation, STP, and system integration	Better decisions, more accurate pricing, and reduced losses.
Improved financial risk management, data transparency, and compliance	Decreased time to market.
Improved use of channels	More efficient document and content management.
Project risk management through proper development, testing, and project management	Green organization.
Use of metrics	Improved compliance and reduction in market conduct penalties.
Solicitation of end user review and feedback	Improved customer/agent satisfaction.

Source: Celent

The majority of Celent Insurance analysts are involved in the judging process. The Celent Asian team conducts a similar exercise for Celent’s Model Insurer Asia program. While the above describes Celent’s process at a high level, the exact process remains within Celent’s intellectual capital and shall remain our “secret sauce.”

RESULTS

In 2016, we expect to recognize three to four initiatives in each of the five theme categories, with the total number of winners reaching 15 to 19. We also will select one initiative as the Model Insurer of the Year, the overall winner. We expect to be able to notify all winners in late January or early February.

As mentioned above, Celent reserves the right to revisit the categories during the judging process and may decide not to award any initiatives in a particular category. However, we also reserve the right to introduce *additional awards*. For example, in 2013, our partner program, Model Bank, found a small number of initiatives noteworthy not only for their innovation but also for their simplicity. The banking team asked, “*Why isn’t everyone doing this?*” and decided to introduce a new award category that year, Celent’s Impact Award, honoring projects that are comparatively easy and low-cost yet offer a considerable boon to business outcomes. Although Model Insurer has not introduced a similar award to our program, it may happen in 2016.

CASE STUDIES AND AWARD PRESENTATION

The Model Insurer process culminates with Celent’s Innovation and Insight Day (I&I Day), during which we publicly announce the winners and celebrate their achievements. Like last year, we expect to host the 2016 I&I Day in New York in the spring. The exact date and venue will be confirmed in early 2016.

We will have a small number of I&I Day sponsorship opportunities available again this year. Vendors wishing to sponsor the event should contact their Celent account manager or write to info@celent.com.

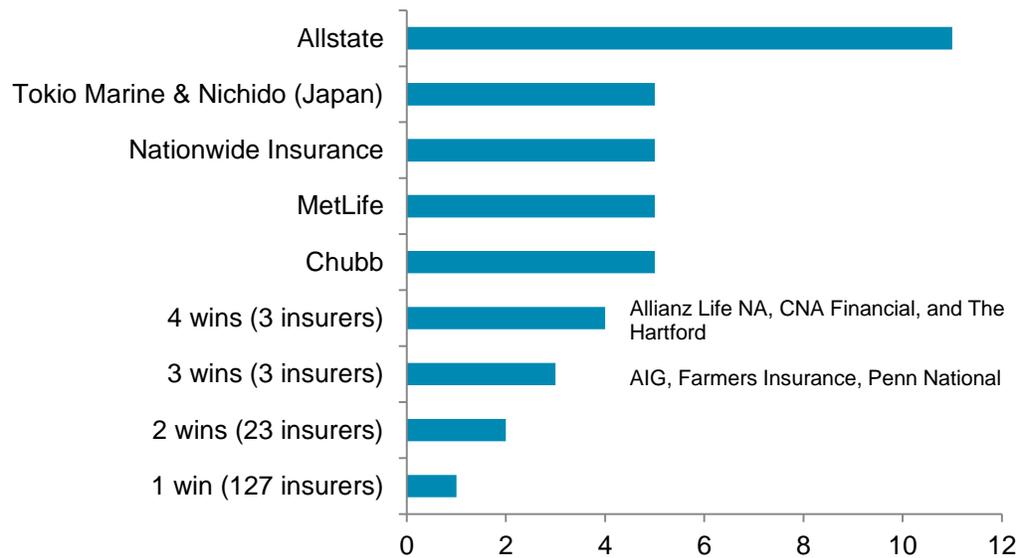
Concurrent with the I&I Day, Celent publishes the annual Model Insurer report, which includes the case studies of winning initiatives. A case study example is provided in Appendix 1.

HOW DOES ONE WIN A MODEL INSURER AWARD?

ANALYSIS OF WINNERS TO DATE

We have been recognizing on average 18 initiatives each year with Model Insurer awards since the program's inception in 2007. In the last eight years, 161 different insurance companies received a Model Insurer award; of those, 34 managed to win it more than once. Allstate has won 11 awards across several business units, while Tokio Marine and Nichido, Nationwide, MetLife, and Chubb have all won 5. See Figure 5.

Figure 5: Number of Awards Won by Different Insurers and Multiple Award Winners, 2007 to 2015

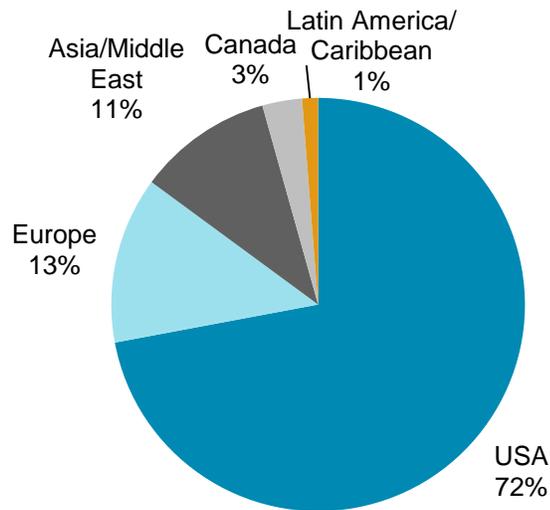


Source: Celent

The analysis suggests that insurer size and geography are not the factors determining a winner. While multiple award winners, such as Allstate, Nationwide, and Tokio Marine are very large insurers, other Tier 1 insurers have received a more modest number of awards. For example, household names such as Allianz, CNA Financial, and The Hartford received four awards each so far, while Allstate, Farmers Insurance, and Penn National have won three times. Twenty-three insurers have won twice and many others managed to win only once. Of course, this data does not prove that Allstate or MetLife, for example, are more effective users of technology than other large insurers. As with all the awards, you have to enter first in order to win; others may simply have submitted fewer nominations. It is also important to note that there are many small insurers among the 161 Model Insurer winners.

The winners are also not limited to any single geography; they come from all over the world. While 75% of the distinct winners come from North America (72% from the US and 3% from Canada), Europe represents 13%, and Asia and Middle Eastern countries are home to 11% of winners (see Figure 6 on page 12). One winning insurer was from the Caribbean, and one was from Latin America.

Figure 6: Geographic Distribution of Model Insurer Award Winners, 2007-2015



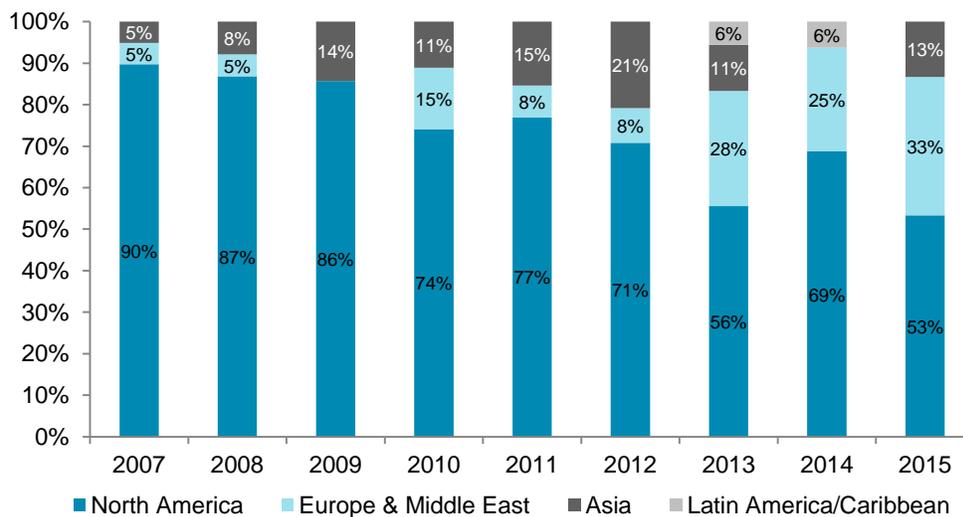
Source: Celent

Over time the program has become more international. In the first year of the program, of the 39 winners, only 5 were not from the US or Canada; in last year's program, 8 of the 15 cases were initiatives from the US. The others were from five other countries including the United Kingdom, Italy, the Netherlands, India, and Australia.

The introduction of Model Insurer Asia in 2011 reduced the number of Asian insurance company winners in the global program, but increased the number of Asian submissions and winners in total. In the last four years in both the global and Asian Model Insurer programs, 45% of submissions were from the US and Canada, 39% from Asia, 13% were from Europe, and 4% was spread across the Middle East, Africa, Caribbean, and Latin America.

Of the seven Model Insurer of the Year winners so far, five have come from the United States, one from England, and one from Ireland.

Figure 7: Model Insurer Has Become a Truly Global Program over the Years



Source: Celent; Model Insurer Asia introduced in 2011

WINNING TIPS: KEY SUCCESS FACTORS

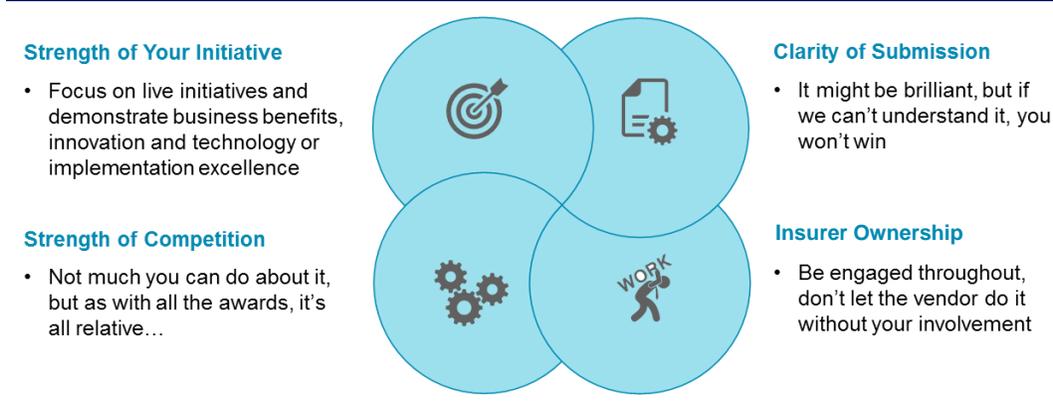
So, what does it take to win a Celent Model Insurer award? Well, a key prerequisite is to enter the competition by completing a nomination form. If you downloaded this report from the nomination page, you already know where it is. Otherwise, please visit: www.celent.com/modelinsurer or if you are an Asian insurer please visit: www.celent.com/modelinsurerasia.

Naturally, the main factor determining a nomination's success is the **strength of your own initiative** (see Figure 8). Remember, we will only award "live" initiatives which are already delivering *business benefits*, although we also accept advanced stage pilots, as long as they have measurable results. Make sure to include quantifiable business benefits, as we will devalue any initiatives without them. We appreciate that some benefits are hard to quantify, but vague statements about expected benefits from the business case will not be sufficient. We also appreciate that you don't want to divulge potentially sensitive information. If you are not comfortable sharing absolute figures with us, feel free to talk about relative performance, for example, percentage revenue increase or cost saving.

We are also looking for genuine *innovation*. It doesn't have to be the "world's first," although that obviously helps. We are interested in how you experiment with emerging technologies to drive your business. However, innovation doesn't only mean "bleeding edge" technology; often it is about how you apply technology to enhance your customer experience or to transform the ways of working.

Our final assessment criterion is "*technology or implementation excellence*." Have you just done a "heart transplant on a plane?" Was it an integration nightmare? Did you roll it out around the world? Did you find a really interesting way to collaborate with a FinTech player or another third party? Have you woven a complex ecosystem to deliver the solution? If so, we want to hear about it. And we want to understand how key IT project best practices were effectively used.

Figure 8: Key Success Factors for Winning a Model Insurer Award



Source: Celent

If you are considering entering your initiative for a Model Insurer award, you must be proud of what you achieved. This pride should be evident in your submission form. Clearly tell us what you did and why, and why you think what you did is unique and deserves recognition. Focus on essential points, but don't skim on detail. It is surprising how many entries suffer from lack of clarity. Please do not expect us to understand internal acronyms or team names. Your initiative might be brilliant, but if we can't understand it, you won't win. **Clarity of your submission** is crucial!

Consider some examples in Table 4, which are real (but sanitized) data fields from submissions we received over the years. Submissions A and B barely tell us anything about the initiatives, while C and D are much clearer with specific data points.

Table 4: Comparing Clarity of Submissions

	INITIATIVE DESCRIPTION	COMMENTS
Submission A	The SYSTEM is accessed by public user, registered customers, Financial Advisors, Brokers and internal operation users. The systems includes online, agency and customer portal includes content management, agency hierarchy, policy & fund price, etc.	Tells nothing about the initiative itself.
Submission B	Customers applying for PRODUCT cover are offered, dependent on their occupation, one of two definitions of disability, either 'own occupation' or 'working tasks'. The purpose of this initiative was to enhance the heavily criticized 'working tasks' definition and improve the claims paid statistics in line with the better 'own occupation' definition and the overall BRAND promise. Another key driver was to halt declining market share that has been seen due to a lack of product development. As well as improvements to the product it was also required that we deliver a change in the pricing of the product and the commission paid to the advisers who sell it to our customers.	Barely comprehensible.
Submission C	<p>INSURANCE COMPANY has implemented one of the first truly global claims systems, based on a modern, highly scalable and flexible platform that enables us to:</p> <ul style="list-style-type: none"> >Address the needs of local market requirements via a single system, allowing us to produce operating efficiencies, local and enterprise wide competitive advantage for all 11 LOBs in all of our 27 business groups. >Benefit from emerging trends and opportunities, such as digital technologies, since the system is "multi-channel ready," allowing us to address customer evolving needs. <p>SYSTEM was designed by COMPANY claims professionals based on fundamentally reengineered business processes. Key users include the approximately 400 claim handlers for COMPANY insurance operations, as well as underwriting, finance, actuarial, risk engineering, and senior management personnel with ready access to claims data.</p> <p>The SYSTEM Customer Portal provides participating customers with access to information on their claims via the COMPANY website at and through mobile devices and applications like the iPhone.</p> <p>Project's initial total budget was \$86M, with a final landing point of \$78M with more than the initially agreed scope, resulting in an under-budget amount of \$8M. At peak times, the project employed 120 full time project members, including twelve senior claims adjusters and managers with a variety of international backgrounds, to match the extensive breath of our international operations.</p>	Clear description, has specific numbers to appreciate the scale of the project.
Submission D	<p>INSURANCE COMPANY was seeking a straight-through processing (STP) solution to streamline the marketing, selling and processing of insurance. Creating 100% In Good Order Applications and integrating this information into their underwriting system were two key objectives for this STP initiative.</p> <p>In July 2011, VENDOR A, VENDOR B and INSURANCE COMPANY launched a collaborative process to support seamless electronic submission of SYSTEM A life insurance applications into the SYSTEM B life insurance administration platform. INSURANCE COMPANY'S independent agent force are the key users, and the submission process provides fully transparent status updates within INSURANCE COMPANY'S agent web portal to show agents the benefits of electronic submission.</p>	Clear description, particularly of what the initiative is trying to achieve and who will benefit from the project.

Source: Celent

Consider including internal documentation that you may have used to socialize the initiative internally. Celent welcomes additional materials to supplement a well-written application.

If applicable, don't hesitate to involve the vendor when submitting your nomination form; however, make sure that you (the insurer) are actively engaged in and **own the Model Insurer process**. Occasionally, we have a technology vendor that wants to share the work they did with an insurer and submits the nomination form on insurer's behalf. We are OK with this, as long as it is done with the insurer's approval and the insurer is aware of and committed to the overall process. In the extreme scenario (and this has happened), we select the initiative as a winner, but the insurer shows no interest in it — does not engage when we are trying to write a case study or respond to an email congratulating them on winning the award. Over the years we only had a couple of such instances, and we had to disqualify those initiatives. Remember, the winners are not publicly announced until I&I Day, when the case studies are published.

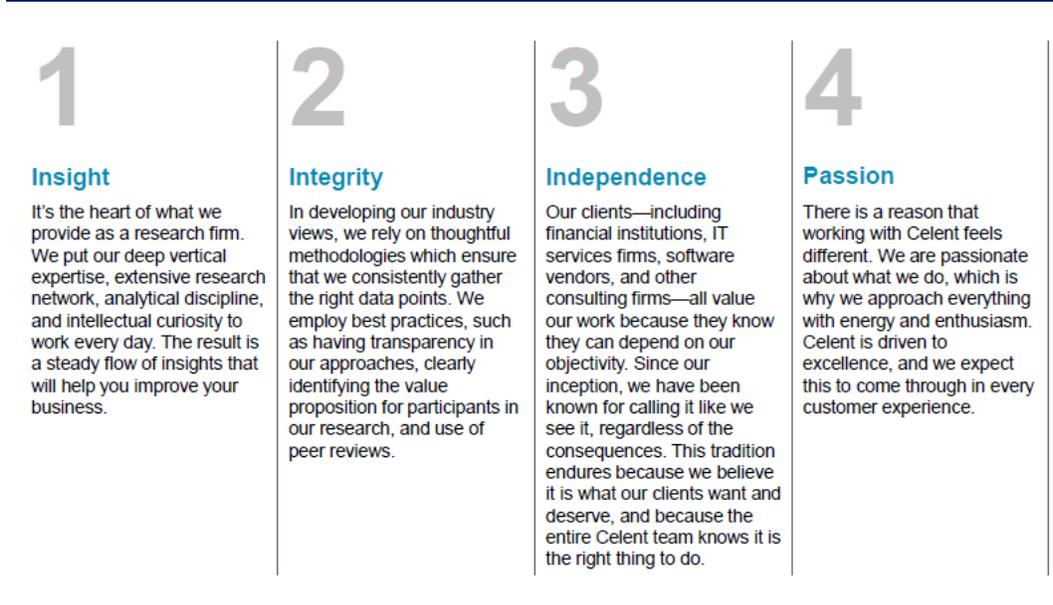
The final success factor is the **strength of competition**. As with all the awards, it's all relative, and we appreciate that it's not something you can do much about. It can be the case that we have many entries in one theme category and yet be starved of quality entries in others. Incidentally, this is why we reserve the right not to award any initiatives in a particular category; we want to ensure that all winners truly deserve the award rather than get it by default for lack of competition. Also, don't despair if your entry does not win. If it is a genuinely interesting initiative, we might approach you about writing a separate case study about it anyway.

CELENT VALUES

Whatever we do at Celent, we are guided by our values described in Figure 9 and below. You can expect us to apply the same values to the Model Insurer program.

- **Insight and Passion:** We are passionate about application of technology to drive success in financial services. We get excited when we see something genuinely impressive. And because of our personal and institutional experience, we recognise “good” when we see it.
- **Integrity and Independence.** Some of the nominating insurance companies or vendors, and many of the eventual winners, are or have been Celent research or retained advisory service clients. However, we never give preference to clients in the selection process, and we always ensure that Celent was not directly involved in the creation or deployment of any of the initiatives that have been recognized. To do otherwise would mean compromising our values and risking the reputation that we have taken such great care to build.

Figure 9: Celent Values



Source: Celent

In other words, you can be assured that if you win the award, you deserve it. We hope you do by submitting your initiative(s) into the Model Insurer 2016 programs. Good luck!

Was this report useful to you? Please send any comments, questions, or suggestions for upcoming research topics to info@celent.com.

APPENDIX 1



CELINA MUTUAL INSURANCE COMPANY: MASTERING MACHINE LEARNING FOR PREDICTIVE ANALYTICS

The Celina Insurance Group is an American mutual insurance enterprise headquartered in Celina, Ohio. The group operates in six US states through its four entities: The Celina Mutual Insurance Company, The National Mutual Insurance Company, Miami Mutual Insurance Company, and West Virginia Farmers Mutual Insurance Association. The four entities write different lines in different states, but in total they write personal property and liability lines and commercial, farm, property, and auto lines in Ohio, Indiana, Iowa, Kentucky, Tennessee, and West Virginia.

Table 5: Celina Insurance Group Financial Snapshot

YEAR FOUNDED	1914
COMPANY SIZE	Employees: 172 Assets: US\$179.8 million (2013) GWP:US\$118 million
HQ LOCATION	Celina, Ohio
DISTRIBUTION CHANNELS	~500 independent agents

Source: Celina Mutual Insurance Company

Opportunity

Celina Insurance wanted to improve the fundamentals of their business. They had been using an internal Excel-based system to develop models in underwriting and pricing. The spreadsheet solution had been developed by actuaries and it did not require IT support to maintain. Celina's in-house tool was evaluated as weaker when compared against vendors' systems, particularly in terms of ease of use, modeling capabilities, and scorecard development. Celina recognized the need to advance their analytics when the Chief Actuary felt that the company was losing ground in risk pricing after viewing insurance peers in the US market. In May 2010, Celina conducted a round of interviews with various business managers as well as the company's Chief Operating Officer to determine the corporate priorities for the business application which included underwriting profit, premium growth, and expense reduction. Expense reduction was the most commonly listed priority; however, refined pricing was considered the most urgent.

Solution

Celina decided to pursue predictive analytics with machine learning through a vendor solution (since Celina did not have the necessary internal IT resources, expertise, or desire to develop and maintain such a system). Predictive analytics is a form of statistical analysis that analyzes large volumes of data to identify interrelationships between various risk attributes. Common uses include rating plan redesign, refined pricing, refined underwriting and risk selection, expanded criteria for defining territories, and more sophisticated catastrophe modeling. Machine learning leverages algorithms that learn how to improve a model through experiences in performing data observations without human intervention. Automation is key to machine learning since the objective is to define

algorithms that are able to learn without human assistance. Insurance-based machine learning is a technique that leverages the uniqueness of insurance data.

Celina started with 14 predictive analytics vendors and narrowed it down to 7 vendors. They based their vendor evaluation on initial interviews with marketing managers of the 7 predictive analytics vendors (rather than a traditional RFI approach) and then a specific demonstration / proof of concept. Celina emphasized the importance of functionality and features more than the cost of the predictive analytics solution and gave a strong importance to the consultant support availability. Of the 7 vendors interviewed, three finalists were selected for the demonstration / proof of concept exercise, which included a nontechnical evaluation (from non-IT employees) and a technical evaluation (including the Chief Information Officer, actuarial staff, and management as well as members of the IT staff). The goal of this phase was to understand differences between vendors' tools.

Celina focused on three aspects of the tools. One aspect was the ability of the system to efficiently address the top four business domain priorities and identify areas that would need more attention on the Celina Insurance side. The predictive analytics modeling flexibility and functionality of the system to address specific Celina Insurance business needs was another focus of Celina. The pricing structure and delivery model were important to Celina as well. After the demonstration phase, Celina eliminated one vendor and gathered information about the remaining two in order to compare their solutions to their in-house solution. They then defined priority elements to take into consideration and ended up selecting the EagleEye Analytics Talon Software Suite.

Celina chose to implement their own expense reduction program and used EagleEye Analytics Talon Software Suite to accomplish their objective. In September 2011, Celina completed an expense reduction project for their personal auto business using Talon. This was important to Senior Management because it showed a quick return on investment. They then chose to use EagleEye Talon to address homeowner rate inadequacy, the company's greatest pricing need, through a trial project. By overlaying Talon on the existing rate plan the profitability of risk groups could be identified. The machine learning approach of identifying inaccurately priced risk classes could then be addressed through an addition of a scorecard on the rating scheme. The machine learning approach would give Celina better insight into pricing. Since then Celina has expanded the use of their predictive analytics solution.

Implementation

The predictive analytics applications were developed using company data to identify segments of Celina's business that were overpriced or underpriced by the existing rating structure. The first application included developing rating factors that addressed these pricing deficiencies; they were put into effect in each state's homeowners and standard personal auto programs. These programs make up 63% of the company's premium volume. After that, the vendor made a more sophisticated and effective risk scoring model available. The risk scoring model has the ability to find more refined correlations in data, which makes for more accurate pricing. They incorporated third party census data into analyses to expand beyond total reliance on company data. With this model, they implemented pricing risk score factors in each of their state's homeowner programs. They also introduced underwriting risk scores (based on a risk's propensity to submit a claim, which helps the underwriter gauge the quality of the risk) to the underwriting side of the business. Pricing and underwriting risk scores are provided "real time" in their new business quoting system. They used risk scoring to develop a policy list to help underwriting management more effectively determine which insured homes should be inspected, when driver reports should be ordered, and when an auto policy should be re-underwritten.

In 2014, Celina provided agency risk scores related to pricing and underwriting risk to its marketing management to help them in their biannual review of agency performance. The

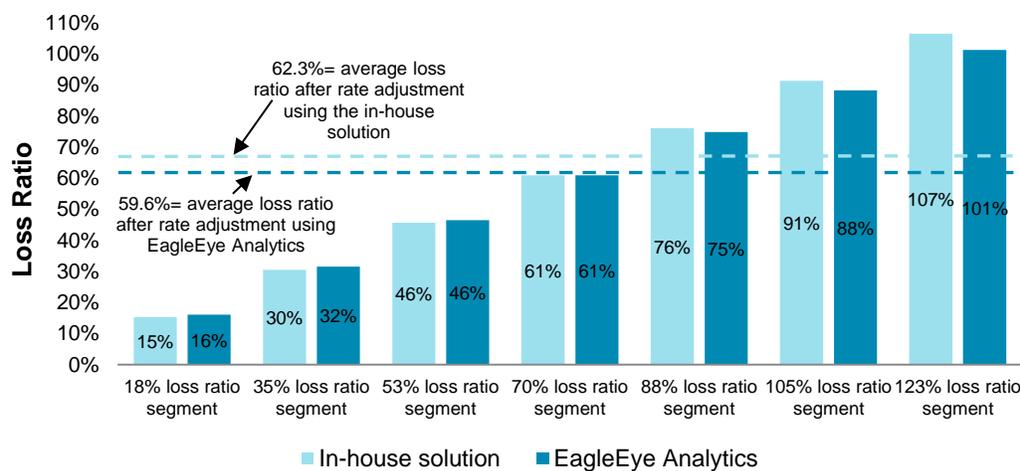
insurer also developed new risk scoring for its standard and preferred auto policies. Like homeowners, scores are provided “real time” on the quoting system. Celina also completed a similar real time risk scoring for its non-standard personal auto program.

The lessons that Celina learned from its predictive modeling and machine learning project were a better understanding of products (leveraging data more efficiently), getting more intentional in utilizing the value of modern predictive analytics techniques, and learning from others’ mistakes (proper and transparent communications and involvement of C-level sponsors are key success factors). The initial implementation started in the last quarter of 2010 and was completed in the first quarter of 2011. Celina started to use its predictive analysis system at the beginning of the second quarter of 2011 and filed its first products in August 2011. Since then eight different projects have been completed.

Simulated Results

The simulation run on machine-based learning showed the first phase of implementation with rate adjustments up to +/-6% off the average 15% rate increase. It is expected that similar differentials would be implemented in future rate adjustments until all segment loss ratios approached the overall average loss ratio. Figure 1 shows the impact on loss ratios for each segment of the 15% linear rate increase using Celina’s in-house solution and the differentiated rate increases suggested after segmentation.

Figure 10: Comparison of Impact on Loss Ratios



Source: Celina Insurance Group

The simulation results in a positive impact on the whole portfolio loss ratio, whatever the tool used. All defined segments also improve their loss ratio whatever the system used. For instance, the initially defined lowest loss ratio segment (18% loss ratio segment) sees its loss ratio decrease to 15% with the in-house solution and to 16% with EagleEye Analytics, and the loss ratio of the worst segment (123% loss ratio segment) drops to 107% with the in-house solution and to 101% with EagleEye Analytics.

The three key benefits derived from the use of machine learning are

- Loss ratio improvement: the impact on the loss ratio is stronger, with an improvement pushing the total loss ratio of the portfolio below 60%. The gain with the loss ratio obtained using machine learning in comparison with the model performed using Celina Insurance in-house solution is 2.7% (62.3% to 59.6%), which represents a big improvement in terms of the contribution it brings to the overall combined ratio of the insurer’s homeowner insurance portfolio.

- Enhanced risk adversity selection: retention rates improve for segments with lower loss ratios, despite the rate increase. On the other side, segments which represent higher risks for Celina Insurance, since they have a loss ratio higher than the average loss ratio of the portfolio, decrease more than they do in the in-house solution model.
- Prompted model adjustments: machine learning algorithms provide inputs to improve the model tested to perform simulations. In our Celina Insurance homeowner model example, the obvious example on how machine learning can help actuaries improve the model is on the data source side. Indeed, machine learning has the capability to provide useful inputs on the influence of specific data sets also called predictors on the model as well as their interactions.

Prior to the predictive analytics project, Celina's agents told the management team that the company's pricing was not competitive on risks with lower insurance scores (credit scores). One of Celina's hopes was that a predictive analytics solution would help it to identify more profitable risks in the lower insurance score market segment. Celina's homeowner risk score analysis helped them to identify lower insurance score risks with other favorable attributes that were deserving of a more competitive pricing factor.

Additionally, Celina wants to maintain stability in its renewal book of business. To do this, they slowly moved toward the indicated pricing risk score factors rather than all at once. They adjusted the homeowners rating algorithm to help alleviate premium swings. This adjustment will extend the time period to reach the indicated pricing risk score factors and better ensure retention.

The one exception to the retention objective is in the previously unprofitable non-standard personal auto program where they wanted to get to the indicated pricing risk score factors immediately. However, when Celina introduced the underwriting risk scores as a determinant for eligibility, believing it would make a more concrete impact on writing new business, agent and marketing staff feedback said that the impact was too drastic. Celina, therefore, removed the underwriting risk score from the eligibility requirements and now include them as an underwriting tool similar to their other auto programs.

One challenge Celina faced was how to explain the predictive analytics results. The correlations between hundreds of risk characteristics that are found by the machine learning technology are difficult, if not impossible, to explain. They continue to strive to find ways to explain to product, marketing, and underwriting management which factors are driving the results, as it is not always intuitive. They are finding success.

LEVERAGING CELENT'S EXPERTISE

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Typical projects we support include:

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Business practice evaluations. We spend time evaluating your various business processes. Based on our knowledge of the market, we identify potential process or technology constraints and provide clear insights that will help you implement industry best practices.

IT and business strategy creation. We collect perspectives from your executive team, your front line business and IT staff, and your customers. We then analyze your current position, institutional capabilities, and technology against your goals. If necessary, we help you reformulate your technology and business plans to address short-term and long-term needs.

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We provide services that help you refine your product and service offerings. Examples include:

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