

About MassMutual®

MassMutual is a leading mutual life insurance company that is run for the benefit of its members and participating policyowners. MassMutual offers a wide range of financial products and services, including life insurance, disability income insurance, long-term care insurance, annuities, investments, retirement plans, and other employee benefits.

For more information, visit www.MassMutual.com.

Dear Fellow Policyowners and Customers,

At MassMutual, our commitment to mutuality does more than set us apart. It gives our work purpose. It's a mindset that informs our decisions and protects our values. Above all, it's a pledge that allows every solution we offer to be backed by people who put you first.

By operating for the benefit of our members and participating policyowners, we can make long-term decisions without the constraints of short-term pressures. This enables us to focus on investing in new solutions and digital experiences while strengthening our foundation to keep our commitments for decades to come.

That's how we spent 2019: expanding our offerings to meet your needs today, while taking steps to meet your needs tomorrow. And we continued to Live Mutual, helping to create a world where we rely on each other to build a stronger future together.

A Year of Success Amid Uncertainty

While global uncertainty and day-to-day market volatility punctuated the economy in 2019, there was plenty to be happy about. The longest economic expansion on record continued as unemployment fell to historic lows, wages rose, and equity markets soared to all-time highs. At the same time, this enthusiasm was tempered by plummeting global interest rates, which put pressure on financial institutions and individual savers alike.

In this environment, MassMutual continued to perform strongly and fulfill our obligations to our customers. Sales from our U.S. insurance and retirement operations grew 15 percent to more than \$28 billion, which, along with other factors, helped drive operating earnings to more than \$2.2 billion. What's more, we increased the insurance protection we provide to nearly \$775 billion, while delivering more than \$5.7 billion in insurance and annuity benefits, helping people in their time of greatest need.

All of this was underscored by MassMutual's enduring financial strength, with total adjusted capital growing to more than \$24 billion and ratings that are among the highest of any company in any industry. This enabled us to approve an estimated \$1.7 billion dividend payout for 2020 to our eligible participating policyowners, the 152nd consecutive year we have paid a dividend.

Along with exceptional short-term performance, we solidified our long-term financial position so we can continue to invest in our business and meet your needs far into the future. This involved





As a company founded almost 168 years ago in Springfield, Massachusetts, our long-term success has depended on our ability to adapt to change and ensure we remain well-positioned to continue to help people secure their futures and protect the ones they love for another 168 years and beyond.

CEO LETTER

the ongoing, bold evolution of our portfolio of businesses. Most notably, we combined our asset management affiliate OppenheimerFunds with Invesco, making us the largest shareholder in one of the world's biggest asset management companies. With a reliable stream of earnings, additional capital, and expanded investment offerings in the future, we're confident this transaction will benefit our policyowners for years to come.

Building Greater Experiences and Accessibility

While we're proud of these accomplishments, our true measure of success is the security and confidence we bring to our customers' lives. As a mutual company, we can do that by making long-term investments in innovation to better serve you, no matter what life brings. With the resources of a nearly 170-year-old company and the boldness of a startup, we are creating an experience that is simple, personalized, and empowering.

For example, we are embarking on a strategy to offer a digital solution that consolidates all financial and account information into one place, allowing our financial professionals to better serve you in what we believe will be an industry-leading experience. We've already brought a similar level of personalization to the workplace, where we introduced MapMyFinances^{5M}, an online tool that helps prioritize savings and coverage based on your individual situation, budget, and goals. And, through Haven Life, MassMutual's in-house startup, we continued to roll out innovative new offerings, such as expanded health and wellness services, as well as AgeUp^{5M}, an online solution

that helps protect families from the financial risk of loved ones living into their 90s and beyond.

Along with developing greater experiences, we're also broadening access to our solutions. Our investments in data analytics have allowed us to transform how life insurance is purchased, using algorithms to deliver protection with efficiency and ease. In addition, we've used these algorithms to educate consumers by introducing MyLifeScore^{5M}, a risk-scoring system to help people better understand the link between personal health and insurance costs.

Our work here aims to address a sobering fact: financial security remains out of reach for far too many. By simplifying it, demystifying it, and constantly improving how we deliver it, we will make it easier for millions more to achieve it.

Supporting Our People and Our Communities

Yet as we look to the future, we know it's not just our customers who need our support. It's our people. After all, our employees are the ones who dedicate themselves to those we help. By investing

"With the resources of a nearly 170-year-old company and the boldness of a startup, we are creating an experience that is simple, personalized, and empowering." in them, we are building a flexible, empowering, and inclusive culture that is ready to adapt to the changes ahead.

A big part of this centers on seizing the innovative spirit of where our journey began in 1851, in our home state of Massachusetts. In June, we took a big step when we broke ground on our new office building in Boston. By deepening our commitment to Massachusetts, we're building a bridge across the Commonwealth and tapping into the best of all it has to offer.

We also know our employees can only do their best work if they can live their best lives. That's why we've expanded and modernized our benefits to more broadly cover needs based on how families have evolved, from fertility treatment, to gender affirmation, to cancer care. We've also adopted



a more generous leave policy to give people more time when they need it most, whether it's becoming a parent, grieving the loss of a loved one, or volunteering in their communities. All of this enables our people to manage life's events, both planned and unplanned, just as we've helped families do for generations.

At the same time, our culture is only stronger if it has diverse perspectives to drive the best outcomes and make it a welcoming place to work. As such, we continued to foster an inclusive environment—from training on mitigating unconscious bias and practicing inclusive leadership, to holding ourselves accountable by setting annual goals to improve workplace diversity, to actively lending our support for causes that advocate greater equality. In doing so, we are creating a place that values and celebrates differences, recognizing the strength they bring to both our company and each other.

Finally, we bring this same philosophy of inclusive support to our work in our communities, where we are committed to focused, long-term investment. "We continued to foster an inclusive environment— from training on mitigating unconscious bias and practicing inclusive leadership, to holding ourselves accountable by setting annual goals to improve workplace diversity."

Our MassMutual Foundation is now embarking on such an effort through our Live Mutual Project, which aims to increase social connections and financial wellness in underserved areas by bringing resources and expertise to residents to help transform their communities, neighborhood by neighborhood.

And, in a year of strong numbers, we were especially proud of how many people we reached through our philanthropic work. We've provided nearly 2 million students with financial and life lessons

through our FutureSmart program, and protected more than 14,000 families with \$700 million in coverage through our LifeBridgeSM free life insurance program.³ Programs like this are part of our ongoing effort to bring opportunity and security to young people as they embark on a bright future.

A Live Mutual Future

I'm very proud of everything we accomplished in 2019. But I'm even prouder of how we accomplished it. By putting people first, time and again. And by focusing on the challenges you face today, while ensuring you can rely on us for decades to come.

That is what it means to be a mutual company. It means that our focus stays, first and foremost, on our purpose: to help people secure their future and protect the ones they love.

We look forward to working with you in 2020 and beyond to sustain that commitment, expand the ways we serve you, and bring greater confidence to each and every life we touch.

Sincerely,

Pagar W. Crandall

Roger W. Crandall

Chairman, President & Chief Executive Officer

\$2.2 BILLION
IN OPERATING
EARNINGS

NEARLY
\$775 BILLION
OF PROTECTION
IN FORCE

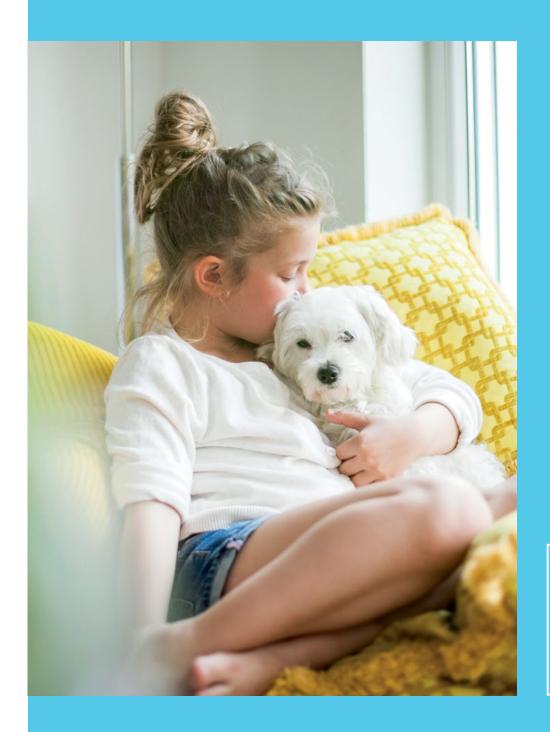
MORE THAN

\$24 BILLION
IN TOTAL
ADJUSTED CAPITAL

¹ Financial strengthratings for MassMutual and its subsidiaries, C.M. Life Insurance Company and MML Bay State Life Insurance Company, are as follows: A.M. Best Company, A++ (Superior); Fitch Ratings, AA+ (Very Strong); Moody's Investors Service, Aa3 (High Quality); and Standard & Poor's, AA+ (Very Strong). Ratings are as of March 1, 2020 and are subject to change.

² Dividends are determined annually, subject to change, and not guaranteed.

³ MassMutual pays the premiums.



Why MassMutual®

Policyowners & Retirement Plans

Policyowners pay insurance premiums that MassMutual uses to:

- · Cover the cost of providing protection.
- · Meet current benefit obligations.
- · Invest to pay future benefits and generate future value.

Retirement plan contributions are invested to help secure future retirements.

Diversified Investment Strategy

Through a disciplined investment process that supports long-term investment performance and prudent risk diversification, MassMutual invests in:

- · A variety of asset classes to help meet policyowner commitments.
- Strategic operating businesses that capitalize on core capabilities while generating complementary returns.

Financial Strength & Dividends

Our earnings help:

- · Pay dividends to eligible participating policyowners.
- \cdot Contribute to capital and surplus.
- · Support business reinvestment. (Dividends are not guaranteed.)

The Result

A framework focused on delivering:

- $\cdot {\sf Competitive}\, {\sf risk-adjusted}\, {\sf returns}.$
- · Diversified product offerings.
- · Industry leadership in financial strength.
- · Dividends.
- · Quality service.

Our Purpose and Mission

MassMutual was founded in 1851 in Springfield, Massachusetts, by 31 investors who pooled \$100,000 to start writing policies for their friends and neighbors. Our founders knew that creating shared value is a journey that requires discipline, commitment, and a sense of purpose. Nearly 170 years later, despite changing economic conditions, we remain guided by our purpose: help people secure their future and protect the ones they love. In service of our purpose, we operate as a mutual company, promoting strength through interdependence and helping one another. So even today, decades later, there's never a question as to where our priorities lie. We thrive when our customers and communities do well. We grow by helping generations reach financial independence with targeted solutions, education, and quidance on their own terms.

Our strategic plan is designed to serve our purpose with three areas of focus:



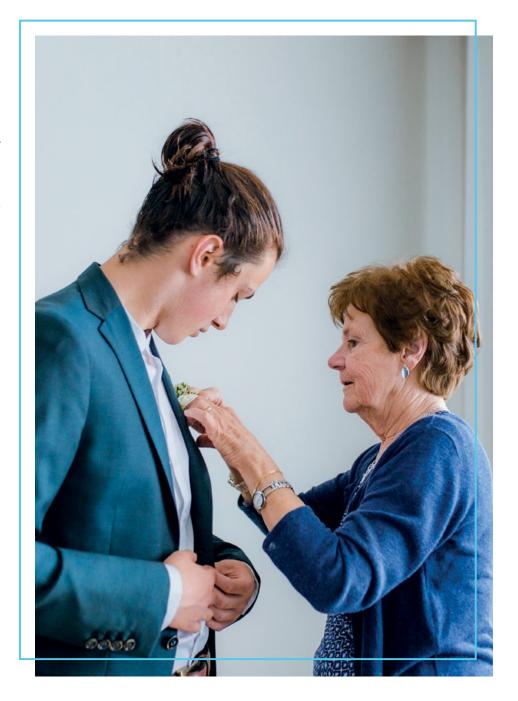
Staying ahead of disruption



Evolving our portfolio of business



Investing in our employees and communities



Performance Review

2019 was another successful year for MassMutual, marked by double-digit sales and earnings growth, as well as record levels of capital. This was achieved against a mixed backdrop, with favorable equity markets counterbalanced by global uncertainty and a continued low interest rate environment.

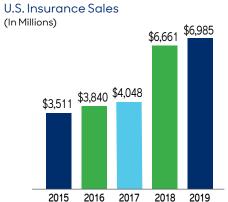
Total revenue was more than \$30 billion, reflecting industry-leading sales in core businesses and a diversified portfolio of products and services. Highlights include:

- Weighted¹ Whole Life Insurance sales of \$607 million.
- · Record annuity sales, topping \$5 billion for the second consecutive year.
- Strong sales from our Institutional businesses exceeding \$14 billion, an increase of 37 percent over prior year.
- \$25 billion in sales through MML Investors Services, MassMutual's broker-dealer and registered investment adviser offering investment and wealth management solutions.

Bottom-line results were strong. Statutory net gain from operations before policyowners dividends and taxes, our primary earnings measure as a mutual company, was \$2.2 billion, a notable increase over prior year reflecting business growth and operational efficiencies.

Our performance was underscored by our enduring financial strength. Statutory surplus grew to a record \$19 billion and total adjusted capital was more than \$24 billion. Our ratings remain amongst the highest of any company in any industry. This enabled us to approve a \$1.7 billion dividend² payout for 2020 to our eligible participating policyowners, the 152nd consecutive year we have paid a dividend.





MassMutual insurance sales included record contributions from annuities, as well as continued growth in our life and disability income products. Our product offering reflects a focus on creating solutions and long-term value for our policyowners while prudently managing risk.

 $\mbox{U.S.}\ \ ln surance sales include individual life insurance, disability income insurance, long term care insurance, and annuities.$

¹ Weighted sales are based on annualized new premium, with single premium payments weighted at 10 percent.

² Dividends are determined annually, subject to change, and not guaranteed.



U.S. Whole Life Sales (In Millions)



MassMutual is an industry leader in whole life sales, with sales exceeding \$1 billion for the fourth consecutive year.

These consolidated results of Massachusetts Mutual Life Insurance $Company\,also\,include\,its\,U.S.-domiciled, wholly\,owned\,subsidiaries: MML$ Bay State Life Insurance Company and C.M. Life Insurance Company. Prior year results have been restated to include additional products.

Annuity Sales \$5,316 \$5,608 (In Millions) \$2,458 \$2,556 \$2,709 2015 2016 2017 2018 2019

Annuity sales continue to grow, reflecting MassMutual's competitive offering in the fixed annuity market.

Annuity sales include individual fixed, income, and variable annuities.

Workplace & Institutional Sales



 $Workplace \, and \, Institutional \, businesses \, generated \, record \,$ sales, up 18 percent from 2018, with solid results across a broad product line. MassMutual maintains a meaningful presence in the pension risk transfer and bank-owned life insurance markets, with more than \$4 billion in combined sales in 2019.

Workplace sales include defined contribution plans in addition to disability and life insurance products sold at the workplace. Institutional sales include defined benefit plans, bank-owned life insurance, investment-only and pension risk transfer solutions, and funding agreements.

Consolidated Statutory Results¹

Policyowners' Dividends² (In Millions)



Our 2019 policyowners' dividends exceeded \$1.6 billion for the fifth year in a row, affirming our commitment to operate for the benefit of our eligible participating policyowners.

Total Adjusted Capital (In Billions) \$24.5 \$17.3 \$17.3 \$17.4

Total adjusted capital grew to a record \$24.5 billion, an increase of 23 percent from 2018, which underscores our enduring financial strength.

2015 2016 2017 2018 2019



Life company assets grew 10 percent in 2019 and reached an all-time high of \$280 billion.

1 These are consolidated statutory results of Massachusetts Mutual Life Insurance Company and its U.S.-domiciled life insurance subsidiaries; C.M. Life Insurance Company and MML Bay State Life Insurance Company. 2 Dividends are determined annually, subject to change, and not guaranteed. For more information, visit MassMutual.com/Financials.

Summary of Financial Position (Consolidated statutory basis, in Millions)

2019	2018
4,317	4,733
106,023	101,504
85,059	70,125
\$195,399	\$176,362
7,876	8,048
76,659	70,431
\$279,934	\$254,841
150,458	141,073
1,684	1,713
27,457	22,601
4,783	3,413
76,659	70,431
\$261,041	\$239,231
18,893	15,610
\$279,934	\$254,841
	4,317 106,023 85,059 \$195,399 7,876 76,659 \$279,934 150,458 1,684 27,457 4,783 76,659 \$261,041 18,893

STRONG GROWTH:

Total life company assets increased 10 percent to nearly \$280 billion, reflecting an attractive and diversified product portfolio and investment strategy.

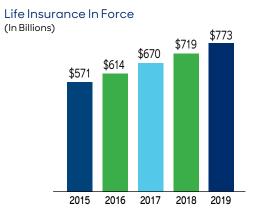
RECORD SURPLUS & CAPITAL:

Surplus and capital grew to record levels in 2019 with increases of 21 and 23 percent, respectively, over the prior year.

Enterprise Measures



The financial assets managed by MassMutual and our subsidiaries ended 2019 at \$567 billion, reflecting the contribution of our asset management affiliate, OppenheimerFunds, Inc., to Invesco Ltd. This is partially offset by higher assets under management at Barings due to market appreciation, as well as strong cash flows across MassMutual's protection and institutional businesses.



Life insurance in force represents the amount of protection the company has issued and remains outstanding. This measure continues to grow, an increase of 8 percent over prior year, due to strong sales and retention rates.



Results in 2019 reflect the sale of MassMutual Asia and partial sale of MassMutual Japan, offset partially by growth of domestic life insurance and institutional offerings.

2015 2016 2017 2018 2019

- 1 Assets under management include assets and certain external investment funds managed by MassMutual subsidiaries, including Barings.
- 2 Premium & Other Deposits include net premiums and deposits as defined in the consolidated statutory results of Massachusetts Mutual Life Insurance Company and its U.S.-domiciled life insuranced subsidiaries: C.M. Life Insurance Company and MML Bay State Life Insurance Company, as well as premium and deposits from MassMutual's international and asset management subsidiaries.

Summary of Operations (Consolidated statutory basis, in Millions)

As of December 31, 2019:	2019	2018
Premium income	23,099	23,262
Net investment income	8,008	8,087
Fees and other income	1,496	1,135
Total revenue	\$32,603	\$32,484
Policyowners' benefits	25,258	23,515
Increase in policyowners' reserves	897	3,056
Commissions, other expenses, and deductions	4,201	4,049
Total benefits and expenses	\$30,356	\$30,620
Net gain from operations before dividends and taxes	2,247	1,864
Dividends to policyowners	1,671	1,695
Net gain from operations before taxes	\$ 576	\$ 169
Federal income tax (benefit) expense	8	(159)
Net gain from operations	\$ 568	\$ 328
Net realized capital gains	(44)	(1,044)
Net income	\$ 524	\$ (716)

\$32.6B:

Revenue hit a record high in 2019, reflecting the value of MassMutual's holistic and diversified financial offerings for individuals and institutions.

\$1.7B:

Dividends to policyowners exceeded \$1.5B for sixth consecutive year, demonstrating MassMutual's commitment to its eligible participating policyowners.

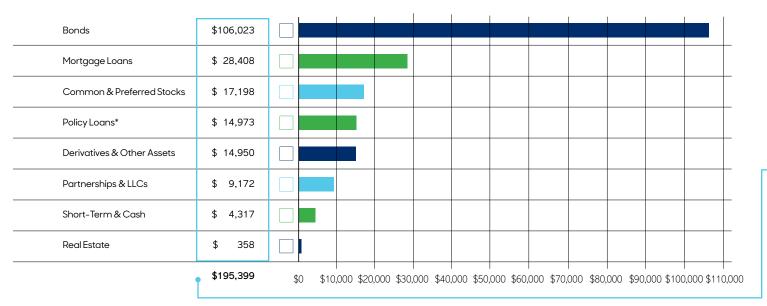
\$500M+:

Both net gain from operations and net income were strong, reflecting business growth and operational efficiencies.



Total Invested Assets

December 31, 2019 (In Millions)



\$195,399 MILLION TOTAL INVESTED ASSETS

^{*}Policy loans are loans taken by policyowners against the cash surrender value of their policies and, as such, are secured by the cash surrender value of those policies.

Bonds

December 31, 2019 (In Millions)



^{*}Residential mortgage-backed securities (RMBS), commercial mortgage-backed securities (CMBS), and asset-backed securities (ABS)



Diversification

We diversify the composition of the General Investment Account (GIA) by investing in a variety of asset classes in order to reduce the impact of negative events on our portfolio. MassMutual further diversifies by investing in strategic partnerships in international insurance and asset management businesses.



Prudent Security Selection

Our investment professionals conduct regular, thorough reviews of both current and potential holdings to ensure that they meet our criteria for inclusion in the GIA.



Relative Value

A relative value assessment of risk versus return informs our decision-making process as we consider various opportunities and their prospective impacts on GIA performance.



With economic inequality continuing to grow, people across the U.S. remain vastly underprepared and underinsured. We see several disruptions in the marketplace; primary among them are the role of digital technology in how customers want to interact, the rise of the average life expectancy, and the continued challenge of saving for longer retirements.

With digital technology rapidly changing how people interact, learn, and build relationships,

our products and services must be designed with an easy-to-use and accessible mindset. That's why we are investing in expanding the digital experiences of both our employer-based products and direct-to-customer services. We're using algorithms to better assess risk and better serve our customers. We're providing specialized solutions that leverage our long-term view. And we're creating integrated mobile experiences that engage customers on their terms.

Second, we're working hard to address what we're calling the longevity crisis. While the average life expectancy is on the rise, retirement savings are static or, worse, falling. To address this issue, we are reviewing our products to better serve retirees, doubling down on our efforts to educate people on the importance of financial planning, and collaborating with partners and employers on integrating financial wellness into existing products and platforms. We're addressing disruption by driving positive change.

Financial Decision Making: Seamless and on Their Own Terms

Despite the advent of technology across most aspects of our lives, we know that many people still prefer working one-on-one with a financial professional when it comes to making the biggest financial decisions of their lives. Our network of 8,000 financial professionals has long been one of our biggest advantages, as they work each day with five distinct generations of customers to provide a broad portfolio of financial solutions and guidance. Since we find that each of these generations prefers to work differently, we increasingly supplement personal connections with digital options, giving our customers the best of both worlds-a faster, seamless digital experience along with the one-on-one guidance expertise of a financial professional. Digital technology will also allow financial professionals to work more efficiently by digitizing more interactions in one place.

For instance, our new complete, end-to-end digital experience provides a better customer interface and makes our life insurance and investment products more accessible to a broader segment of the population.

Digital Health Profile: Quicker Underwriting, Faster Claims

As a continued expansion of our digital evolution, we launched the Digital Health Profile (DHP) initiative in 2019 to shorten the underwriting process. As customer demands continue to shift, we continue to evolve our process, bringing in digital components where possible to meet expectations. The DHP will allow us to harness the power of digital data to reduce costs, shorten underwriting cycles, and better protect customers.

Algorithmic Underwriting: Better Assessments, Faster Coverage

Algorithms today support underwriting processes and risk assessments, but they also exponentially improve our customers' experience. As we continue to enhance our digital experiences, our work in data science and rule-based evaluation tools is helping transform a traditionally cumbersome process into an agile and responsive one. By using data science, we can now use application information collected from several sources to determine whether a client can be issued a favorable rate, where appropriate without review by an underwriter. The result is better assessment of risk and a faster process for our customers.

When we started algorithmic underwriting three years ago, we applied it to 10 percent of our applications. Now algorithms assess risk on nearly 75 percent of our applicants—on people up to age 60—and help make the process of buying life insurance simpler and quicker, with more accurate pricing to help people secure their future and protect the ones they love.



Our Financial Professionals: Relationships Matter

Now more than ever, whether you're taking care of loved ones, growing a family business, or leading an organization, having a trusted partner makes all the difference. MassMutual's 8,000 financial professionals work to put your needs first and simplify financial decision making.

By aligning their practices with a company owned by its policyowners, these financial professionals put client's interests first. Their ability to provide holistic advice throughout life's journey empowers our clients to be confident in their financial decisions. Since our founding, personal attention and long-term relationships have been at our core.

STAYING AHEAD OF DISRUPTION

Better Transparency for Consumers and the Marketplace: LifeScore LabsSM

Based on the success we've had with algorithmic underwriting, we launched a new subsidiary with the goal of setting the standard for life insurance underwriting while providing transparency to all involved parties. LifeScore Labs hit the market in early 2019 and is currently offering four life insurance underwriting models.

MyLifeScoreSM was introduced in 2019 as a free online risk assessment tool for consumers, providing insight into how insurance carriers may measure your risk. Based on the answers to as few as 10 simple questions on characteristics such as age, height, weight, and smoking status, consumers are provided with a score between 1 and 100 (with 100 being the best). They also get a report on the factors that contributed to the score. The goal is to help consumers better understand and interpret how their risk profile may impact their life insurance risk. All data, scores, and reports are anonymous and not shared with other life insurance companies or third parties.

The remaining solutions offered by LifeScore Labs are marketed directly to underwriting platform providers or directly to carriers with the goal of streamlining and/or digitizing their underwriting process to provide a better customer application experience.

Data Science: Using Data to Improve Customer Experience

We began developing our own data science practice five years ago to stay ahead of rapid acceleration in the field and to ensure our offerings continue to stay cutting edge, customer focused, and can support our financial professionals with the best possible tools. Today, the practice includes a team of nearly 50 data scientists, with additional recruitment ongoing, largely through our partnerships with colleges. This focus on data science has helped us stay ahead of digital disruption in the marketplace and has uncovered several breakthroughs that are transforming customer experience in multiple ways, allowing us to better assess risk and provide coverage faster.



We proudly partner with several colleges and universities in Massachusetts and Vermont, including:

- · University of Massachusetts
- · Smith College
- · Mount Holyoke College
- University of Vermont



Igniting the Power of Data Science

- 2019 marked the first year of a multiyear, \$5 million partnership with University of Vermont to fund the MassMutual Center of Excellence in Complex Systems and Data Science.
- Sponsored five local hackathons or data events.
- Hosted monthly meetups open to local students and industry experts in Boston and Amherst, Massachusetts, to promote data science education and management.
- Various data science team members mentored graduate student groups participating in Data for Common Good summer-long projects at UMass Amherst, partnered with Hampden Legal Clinic for a data ingestion project.



Alliance for Lifetime Income: Upgraded Retirement Planning

Despite the U.S. being one of the wealthiest countries, it is still facing a looming retirement income crisis. Simply put, it means those retiring from the workforce may not have the money necessary to maintain the standard of living they have become used to during their working years. There is a growing need to address this income gap and outdated formula for retirement planning. Annuities, which provide protected lifetime income, can help be part of the solution, but they remain underused.

The Alliance for Lifetime Income, a nonprofit marketing coalition, was created to shift retirement perceptions from accumulation to generating income. MassMutual became a partner of the Alliance in 2018, along with 23 other member companies, in order to help educate consumers on how annuities can provide them with a protected lifetime income. In 2020, MassMutual will continue to leverage the partnership with the Alliance to help ease consumers' concerns associated with the retirement crisis and provide financial professionals with the tools they need to discuss the benefits of annuities with their clients.



In 2019, the Alliance sponsored the Rolling Stones' "No Filter" tour, providing us with a great opportunity to raise awareness about our partnership across our employee base. Through a national contest, employees were asked to share how they lived mutual through moments that created lasting community impact, inspired others to do good, or showed how we are all connected. The contest also served as a useful medium to educate our employees on the importance of protected lifetime income and the growing role that annuities can play in addressing this goal.



AgeUpSM: Simple, Straightforward, and 100% Digital

- Designed for financial protection for life after 90, making it the only annuity that converts into an income stream for life, beginning at age 91 or later. Age 85 is typically the oldest annuitization age for other products.
- The first annuity to be financially accessible to nearly everyone, with no up-front contribution required and monthly premiums starting as low as \$25.
- The only annuity specifically designed for the intergenerational use case of adult children supporting aging parents.
- Adult children pay the monthly premiums and receive monthly payouts once the parent reaches the trigger age.

AgeUp: Longevity Protection and Improved Financial Health for Retirees

Given the current state of retirement savings, it is no surprise that many retirees end up depending on Social Security benefits to support themselves. Choosing when to retire and file for Social Security retirement benefits, however, shouldn't be a forced decision. To better understand the learnings from those who have filed for Social Security retirement benefits, we commissioned the MassMutual Social Security Pulse Check in 2019. Conducted in collaboration with AgeFriendly.com, the survey uncovered several findings including:

- Three out of 10 (30%) filed at age 62 or younger.
- Nearly four out of 10 (38%) wished they had filed later.
- More than half (53%) filed out of financial necessity, such as not saving enough, and another one-third (30%) filed as the result of unforeseen issues, such as health issues or employment changes.

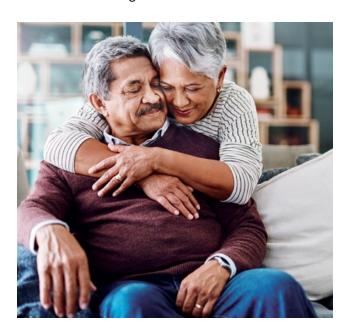
The study underscored that most people still were not saving enough. It also became clear that many end up needing to access funds as soon as they qualify, regardless of the longer-term impact of that decision.

In 2019, we developed AgeUp through MassMutual's in-house startup Haven Life to tackle one aspect of financial security in retirement—longevity risk, or the chance of outliving one's resources. AgeUp reimagines the buying experience for retirement products and, specifically, how income annuitization can help address the financial concerns of future retirees and their families. With Haven Life, a wholly

owned subsidiary of MassMutual, powering its technology, AgeUp was launched as a first-of-its-kind annuity product for an often overlooked customer problem: Who will take care of your parents if they live into their 90s or 100s, a lifespan that is increasingly common, but for which few plan? To ensure AgeUp was built to address this retirement gap, we also conducted extensive internal research with thousands of potential customers, primarily millennials and Gen Xers.

Here are some of the key findings:

- 71% believe at least one parent or in-law will live longer than average.
- **57%** have a relative who lived to age 95 or beyond.
- **64%** expect to financially support their parents or in-laws in their old age.
- **35%** think their parents will run out of money between the age of 90 and 100.





AgeFriendly: Candid Insights for Retirees

MassMutual served as a founding sponsor of AgeFriendly, a new website launched in 2019 as a first-of-its-kind online platform with crowd-sourced, age-friendly scores for neighborhoods in America. It features user-contributed reviews, research, and helpful content for people making important decisions about where to live in retirement. With information on helpful resources, caregiving, and volunteering opportunities, the website offers honest and candid insights for retirees making important decisions about where to live in retirement.

Whole Health: Financial Wellness Gains Traction

Employers have always depended on our insurance and retirement products to connect employees with financial well-being, and we continue to innovate to boost the access of these products and increase their participation rate. Our efforts to integrate our products and platforms help ensure that customers' financial savings and wellness decisions are cohesive and connected with their everyday financial

requirements. We've also seen that consumers want to engage with our financial professionals more because our content and offerings drive interest, intent, and ultimately, action.

Financial Health With MapMyFinancesSM

Given the growing appetite for actionable financial well-being support delivered through the workplace, MassMutual fully deployed MapMyFinancesSM in 2019 to help organizations' employees develop a short- and long-term financial game plan. MapMyFinances is designed to give users a better understanding of their benefit needs, helping them to feel financially healthy and secure, today and for the future. Based on information about themselves and any family members, individuals receive a financial wellness score based on their personal financial situation. Additionally, they are provided a tailored step-by-step game plan to improve their overall financial wellness, prioritizing important decisions while considering what an individual can actually afford.

Additionally, MapMyFinances connects users from planning to execution by creating an ecosystem to take action. Among those integrated employer elected benefits are a Health Savings Account (HSA) and Student Loan Repayment program, helping users save for health care expenses and paying down student loans. As actions take place, individuals can see how their score improves, allowing for a dynamic and customized experience. Financial advisors serving these employers have leveraged MapMyFinances to provide more targeted approaches to help improve overall workforce financial wellness.





According to Our Plan Sponsor Wellness Research from 2019:

- 86% of employers say financial wellness is critically or somewhat important.
- Nearly half of all employers believe that at least 20% and as many as 49% of their employees are struggling financially.



As the marketplace becomes increasingly digital and life expectancies continue to rise, how we help people protect their future must evolve as well. As we have done for the last 150 years, we continued to proactively evolve our product portfolio in 2019 without losing sight of our purpose. Accordingly, the business partnerships we build are centered on innovation, coupled with evolving our product offerings to meet the changing needs of our customers.

As a mutual insurance company, we recognize the power of long-term creation. We can invest in our future only if the decisions we make today fuel the long-term performance necessary to meet our customers' needs far into the future. It is with this perspective in mind that we announced and executed a series of strategic transactions over the past year involving our asset management and international insurance holdings.

These businesses are strategic differentiators for us, giving us the ability to both broaden our offerings and generate earnings that benefit our policyowners. Together with our partners, we are building a stronger, more innovative, and diversified company.

Customer-Centered Innovation: New Products and Benefits

Whole Life Insurance: New Products

As generations shift across the workplace, financial needs are changing as well. So in 2019, we added two new policies, Legacy 12 and Legacy 15, to our suite of Whole Life Insurance products: These new policies are designed to give policyowners additional options for not only meeting their insurance protection needs, but also may provide supplemental retirement income¹ or fund other financial goals. We also enhanced our policy riders to allow policyowners more flexibility to add and maintain long-term care options to their life insurance coverage.

Expanded Coverage: Better Underwriting

In 2019, we significantly revised our underwriting guidelines to expand access to more individuals with breast and prostate cancer, many at more favorable ratings, thanks to recent medical advances. As the medical community continues to gain greater understanding into breast cancer, attention is shifting diagnostically, allowing many more individuals to qualify as soon as treatment is completed, and be eligible for more favorable ratings.

Defined Benefits: Better Investing

Our experience serving defined benefit plans means a continual reinvestment in technology and services to improve the customer experience, which includes acknowledging choice and flexibility as required elements in the pursuit of excellence in pension investment management and de-risking strategies. These elements were at the core of our Defined Benefit business investment in 2019.

Building a leading Defined Benefit investment platform means not only providing access to a broad array of investments and robust reporting capabilities, but also simplifying the sponsor and advisor experience.

To achieve these goals, we delivered a modern and sophisticated platform that complements our pension expertise and provides advisors and consultants with the tools they need to improve client outcomes.



Our new platform ensures we provide sponsors and their advisors with **broad** investment choices along with the reporting and benchmarking tools needed to manage their pension investments with ease.





Student debt in the U.S. continues to rise, with the latest estimate at a total of \$1.5 trillion, preventing many from facing their financial future with confidence. At the end of 2019, MassMutual's financial professionals had held over 1,000 conversations with clients or prospects to help them manage their student debt, resulting in over \$25 million of refinanced student loans.

Better Together: Invesco and OppenheimerFunds Join Hands

When it comes to the world of asset management today, the whole is increasingly greater than the sum of its parts. In 2019, we decided to combine OppenheimerFunds, Inc. with market leader Invesco to create exactly that. Over the years, OppenheimerFunds has been an incredibly successful affiliate of MassMutual since we acquired it in 1990. Back then, purchasing a retail asset manager was considered a bold move in our industry. And the bold move paid off. Today, we have increased OppenheimerFunds' assets under management (AUM) fifteenfold, with customer accounts growing more than 10 times.

So, when the opportunity came to join with Invesco to form a leading, diversified, global asset management firm, we knew it was time for another bold move. We are confident that the opportunity to be the largest shareholder of one of the largest global asset managers is leading us in the right direction. The power of bringing these two companies together into a combined entity, one in which we became a significant owner, was greater than either could achieve alone. We closed the deal in May 2019 as Invesco's largest shareholder. The new combined entity has a total AUM of more than \$1.2 trillion (as of 12/31/19), making it the 13th-largest global investment manager and sixth-largest U.S. retail investment manager.

Together, Invesco and OppenheimerFunds can now provide even more relevant investment solutions to their existing mutual fund shareholders and an expanded number of institutional and retail clients in the U.S. and around the globe. And clients can now enjoy a simplified, integrated, and diversified platform.

MassMutual International: Leading with Digital

After completing the sales of MassMutual Asia and MassMutual Japan in 2018, we focused on strengthening our partnerships with the purchasers, Yunfeng Financial Group (Hong Kong) and Nippon Wealth Life Insurance Company (Japan), respectively.

With continued ownership interests in our new partners, we were also able to position ourselves to leverage MassMutual's overall digital advances in insurance and begin adapting them to the Asian market, an arena we believe has substantial potential for growth.



EVOLVING OUR BUSINESS PORTFOLIO

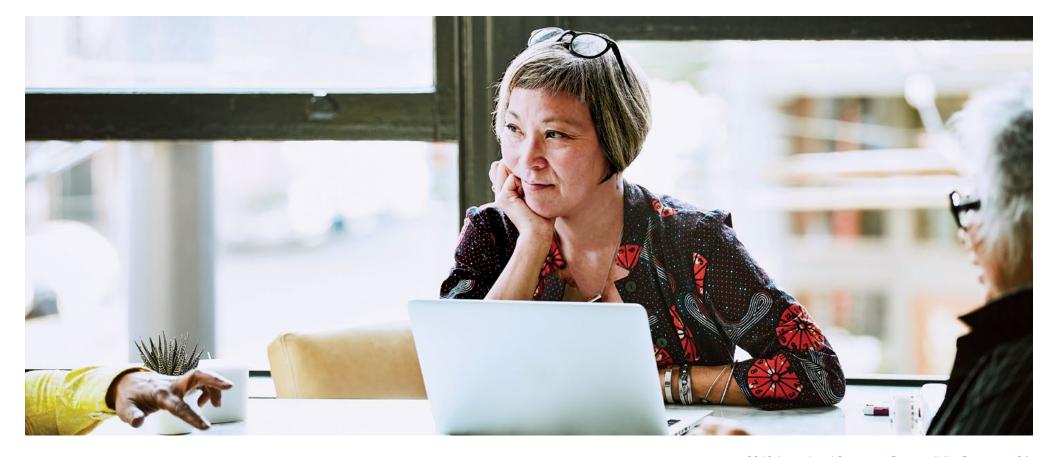
These sales are early examples of how we are executing our strategy to expand our international presence through innovative networks of entrepreneurial businesses, in this case based in Hong Kong and Japan, with an exciting range of prospective initiatives from big data to asset management.

Additionally, we continue to enhance Yingda Taihe Life Insurance Company, our joint venture in China, with the State Group Corporation.

Brinker Capital: Better Solutions for High-Net-Worth Clients

We expanded our advisory capabilities for high-net-worth clients in 2019 by launching a new partnership with Brinker Capital, a privately held investment management company. The partnership allows MML Investors Services, the registered investment adviser and brokerdealer arm of MassMutual, to offer Brinker Capital Wealth Advisory (Wealth Advisory) services on its Wealth Management Services (WMS) platform.

With the high-net-worth market estimated at \$100 trillion, MML is always looking for innovative partners to expand our client platform and provide our investment advisor representatives with greater access to tailorable solutions. With a full suite of services and solutions, Wealth Advisory includes access to a dedicated portfolio management team, tax management and transition solutions, robust reporting, and third-party partners specializing in alternative investments; banking and lending; environmental, social, and governance (ESG) solutions; and trust services.





To truly Live Mutual, we must ensure that our employees and communities can thrive and build secure futures. We know that people who thrive in life bring their best wherever they go, whether that's their home, their workplace, or their community. That's why we invest wholeheartedly

in our own people. As an insurance company, we continue to embed agility and flexibility into our workplace culture to ensure our employees can thrive in a state of constant change. A workplace culture that conveys a clear sense of purpose helps everyone adapt more nimbly to change,

fostering both a sense of security and the courage to do what it takes to succeed. And ensuring our culture meets this challenge requires us to prioritize the ongoing success of our employees and our communities, something we consider a critical part of our promise to live mutual.

Live Mutual in Action

Celebrating the Moments Where Planning Pays Off

In 2019, we launched a new campaign called *This Is A Moment You Plan For*. To stand out in the category that often depicts the moments of stress that precede the need for a financial plan, our stories capture the relief and freedom that comes with having one.

Each commercial celebrates the end result of planning for different life scenarios from the moment when your child is accepted to her dream college to finally pursuing a passion in retirement to the pure bliss of letting loose at your daughter's wedding. Those special moments that stay with you are the moments MassMutual wants to help you plan for.

This campaign continues to deliver strong results, increasing consideration for MassMutual's products and services.



Recognizing Those Who Help Us Get Home for the Holidays

In the spirit of the holidays, we developed a campaign to recognize and celebrate those who help us get home to our loved ones during the holiday season. Thanks Along the Way set out to remind Americans that the holidays are the most mutual time of year—the time to recognize and say thank you to the transit workers, service personnel, and first responders who sacrifice their holidays so that we can get home safely. We launched the campaign the day before Thanksgiving with a branded takeover on iHeart Radio. The MassMutual Thank You Hour was the first–ever radio hour dedicated to celebrating mutuality and thanking the people who work, serve, and think of others during the holidays.







INVESTING IN OUR PEOPLE & COMMUNITIES

Expanded Benefits for Every Employee

In 2019, we refreshed our benefits to give employees more flexibility and accountability to manage their work and lives. As employees become parents, care for a loved one, grieve a loss, or volunteer in their community, we want to make sure they have the time they need when they need it. So we expanded the definition of "a loved one" to include any person of emotional significance to our employees, whether connected by blood or by heart. In other words, MassMutual doesn't define who our employees' loved ones are. They do.

In line with expanding the definition of a loved one, we also expanded our fertility and gender affirmation benefits and enhanced coverage and support services for people dealing with a cancer diagnosis.

To support our working parents, we significantly increased our parental leave to eight weeks fully paid within 12 months of the child's birth or placement for adoption. Recognizing the recovery time needed after having a child, people who give birth now receive 10 consecutive weeks of paid maternity leave after childbirth plus the additional eight weeks of parental leave for a total of 18 paid weeks. We also added two additional

weeks of paid leave that employees can use to care for a loved one suffering from a serious health condition.

Just as new parents require time to bond with their children, we recognize that all of us grieve the loss of a loved one differently. Different relationships have different impacts on our lives. And when it comes to losing someone we love, there's no precise formula for how long we need to grieve before coming back to work. That's why we expanded our bereavement time to up to 15 days of paid time off to grieve the loss of a loved one. Employees can decide how much of that time they need to use.



Now Paid Time Off for Volunteering

Our employees are passionate about giving back to their communities, both financially and with their time and talents. To give our employees the freedom to do so on their own terms while aligning with our Live Mutual brand promise, we began offering three paid days off every year in 2019 to volunteer with nonprofit organizations of their choice. We also enhanced our Matching Time program to include all volunteering, whether done as part of a MassMutual sponsored program, or not. For every hour volunteered and logged on our Community Impact Portal, the MassMutual Foundation will award \$25 per hour volunteered, up to \$1,500 per year per employee.



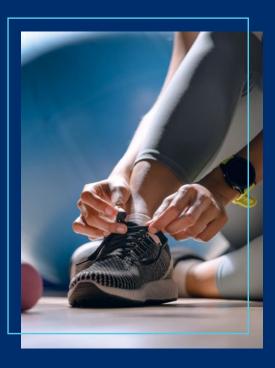


\$1,858,550 earned through our "Live Healthy, Live Well" wellness incentive program

11,300 visits to Wellness Services

3,124 online mindfulness classes taken, totaling 47,800 minutes of mindfulness practiced

2,158 business resource group members representing approximately 28% of employees



Also Included in Our Suite of Employee Benefits and Programs:

- · Free mindfulness meditation classes.
- Subsidized healthy food choices in our cafeterias.
- Onsite Fitness Centers with free classes, including walk-to-run program, yoga, and more.
- ·On campus 5Ks.
- Recreation leagues (softball, volleyball, golf, basketball, and corn hole).
- Free webinars on behavior change, diabetes, stress, and more.
- 50% subsidy on WW (formerly Weight Watchers) memberships.

INVESTING IN OUR PEOPLE & COMMUNITIES

Diversity Drives Innovation

Diverse perspectives foster improved decision-making, innovation, and outcomes while creating a welcoming place to work. Our more than 7,500 employees are our biggest strength, serving as partners to our businesses and driving a better experience for our customers. For us, workforce diversity is one of our annual goals, measured along with sales and earnings to help us achieve our purpose. We seek and value diverse perspectives, backgrounds, and experiences that reflect the markets we serve, and remain committed to advocating for fairness, equity, and inclusion.

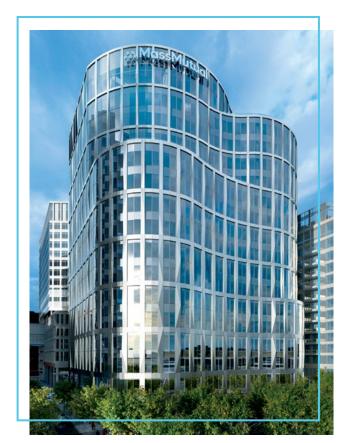
In 2019, we increased the diversity of our workforce for the third year in a row, as well as the percentage of employees who self-identify as LGBTQ, veteran, or as having a disability. We also expanded our education efforts to nurture a culture where every employee feels like they belong and can bring their whole self to work. Our eight employee-led Business Resource Groups were instrumental in this effort, continuing to focus on professional development, mentoring, and promoting an understanding of differences and inclusion at every level of the company.

Investing in Massachusetts: Breaking Ground in Boston, Expanding in Springfield

In 2019, we broke ground on our new building in Boston's booming Seaport district at 10 Fan Pier Boulevard. This marked an integral milestone in our multiyear plan to expand in our home state of Massachusetts. Once completed, the new 17-story, 310,000-square-foot building will house approximately 1,000 MassMutual employees, giving us greater access to Boston's

financial markets, a talented and diverse workforce, and thriving entrepreneurs. We're also working to add 1,500 jobs to our headquarters in Springfield, Massachusetts, by the end of 2021.

This realignment of our geographical footprint will enable us to grow and thrive in Massachusetts, realizing the benefits of having a presence across the state—from Springfield to Boston—and create a better company for future generations of policyowners, customers, and employees. Expanding on both ends of the state will allow us to tap into the incredible talent pool and network of higher education institutions that Massachusetts offers.





2019 Snapshot: Committed to Growing Diversity and Inclusion

- Signed onto Human Rights Campaign's Business Statement on Transgender Equality.
- · Joined the Business Coalition for the Equality Act, which creates clear, consistent protections to prohibit discrimination on the basis of sexual orientation and gender identity.
- Joined hands with other businesses opposing Tennessee's Slate of Hate laws.
- Developed gender transition guidelines for employees and managers to support transitioning employees in partnership with experts.
- Our Latinx Business Resource Group contributed to the company's goals for LifeBridgeSM policies in force.

The MassMutual Foundation: 2019 Highlights

The Live Mutual Project: Collaborating for Financially Healthy Futures

For nearly 170 years, we have kept our purpose central to how we operate, building our business on strong relationships and always working hard to protect those we love. The Live Mutual Project uses our connections, knowledge, and resources to help people build and expand their own relationships with individuals and institutions that, in turn, can help them gain access to greater economic opportunity and help them build a better future. We do this by focusing on three key areas: providing basic needs (such as affordable housing), building community connections (like mentoring), and developing financial capabilities (including how to budget, save, and plan).

In 2019, the MassMutual Foundation awarded a \$1.5 million grant to Live Mutual Project nonprofit partner Way Finders to help fund the organization's new Housing Center, currently under construction in Springfield, Massachusetts. This grant will enable Way Finders to serve even more people in the community who are facing homelessness or struggling to achieve financial security.

Building a Truly Sustainable 21st Century Company

MassMutual remains committed to integrating sustainability into its entire business and investment strategies. Nearly a decade ago we demonstrated this commitment when we installed 1.750 solar



Since 1996, we have donated more than \$2.5 million to nonprofits through the Community Service Awards program. These awards are given in honor of MassMutual financial professionals who demonstrate outstanding commitment to nonprofit organizations in their local communities.

panels at our Springfield campus. Today, we lead with our Diversity and Inclusion practice, as well as our approach to building resilient communities through our Live Mutual Project.

We are taking an accelerated approach to incorporating sustainable practices into our day-to-day operations and decision-making processes. Centered around mutuality and the power of communities, we are developing a company-wide sustainability framework that is driven by experts throughout our organization, underscored by a long-term and multidimensional view of what it means to be a truly sustainable company in the 21st century.



Live Mutual: Fulfilling a Dream with LifeBridgeSM

We designed LifeBridge to help parents protect their dream of providing an education for their children, even if they can't be there to provide for them. LifeBridge is a free \$50,000 10-year term life insurance program for incomeeligible families with the premiums paid by MassMutual. For Polly (featured above), LifeBridge proved to be a blessing after her father passed away from a sudden heart attack when she was only 16 years old. Being able to go to college was important to her, and without his support her future suddenly felt uncertain. A few months later, her grandparents got a call from MassMutual informing them that her father had a LifeBridge policy and that MassMutual was going to make it possible for Polly to go to college. The sense of relief upon hearing this news was palpable as Polly realized that she could in fact go to the college of her dreams. For us, Polly's story is a great example of how we activate our promise to Live Mutual, helping people protect the ones they love.

INVESTING IN OUR PEOPLE & COMMUNITIES

FutureSmartSM: Making Financial Literacy Fun and Teachable

We invest in FutureSmart because we believe that financial education is foundational to achieving economic empowerment. We are on track to reach our goal of providing financial education to 2 million students by mid-2020. In the 2018-2019 school year, just over 6,200 middle and high schools were using our free digital resources to build curriculum and interactive experiences, resulting in reaching almost 530,000 middle and high school students.



Hill Harper (featured right), an award-winning actor, best-selling author, philanthropist and FutureSmart spokesperson, addresses middle school students at the MassMutual Foundation's FutureSmart Challenge in Phoenix, Arizona.

When Teaching Financial Literacy Involves Innovation and Some Props!

Gianna Gurga is a middle school family and consumer sciences teacher at the Dag Hammarskjold Middle School in Connecticut. Part of her job is to teach financial literacy to seventh graders, a topic that takes constant innovation and experimentation to be interesting for teenagers. In 2019, she turned to FutureSmart's digital lessons on savvy shopping to introduce financial planning to her students in a relatable and fun way.

FutureSmart uses a story-based narrative and interactive exercises to help students learn how to make real-life decisions about their personal finances, as well as how to achieve important goals around saving money, education and career planning, and budgeting. With FutureSmart's Information Worksheet, designed for teachers, Ms. Gurga created a yearlong curriculum that would take her class through essential skills such as:

- · Setting financial priorities and habits.
- Defining budgets, prioritizing needs and wants, comparison shopping, and setting up an emergency fund.
- Managing day-to-day expenses, understanding credit card management, assessing and understanding different types of credit, reviewing different types of income, as well as exploring elements such as taxes, health care costs, credit score, etc.

Next, she created a pop-up store in the class. Props from her local Target, laminated price tags, and pictures of real products pasted on poster boards gave the "store" an authentic look. The students were able to "shop" and learn firsthand about the aforementioned important real-life skills. At the end of the exercise, students filled out self-assessments to allow Ms. Gurga to improve the experience for future classes based upon how the students felt, what lessons they learned, and where they struggled. Stories like these demonstrate why we are so proud of FutureSmart, while



highlighting the importance of creating these resources for teachers, who are such critical gatekeepers on topics such as financial literacy in early education.



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- 3. Human Resources
- 4. Investment
- 5. Technology & Governance
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World's Most Ethical Companies Ethisphere Institute World's Most Admired Companies FORTUNE*

America's Best Employers for Diversity Forbes

Top Places to Work

Boston Globe

Best Places to Work for Disability Inclusion
Disability Equality Index

Diversity Best Practices Inclusion Index
Diversity Best Practices

Corporate Equality Index Rating of 100% Human Rights Campaign

Top Corporate Charitable Contributors

Boston Business Journal

Military Friendly Employer Victory Media

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