

Segment of 1 to power engagement

The power of predictive modeling to maximize HSA utilization



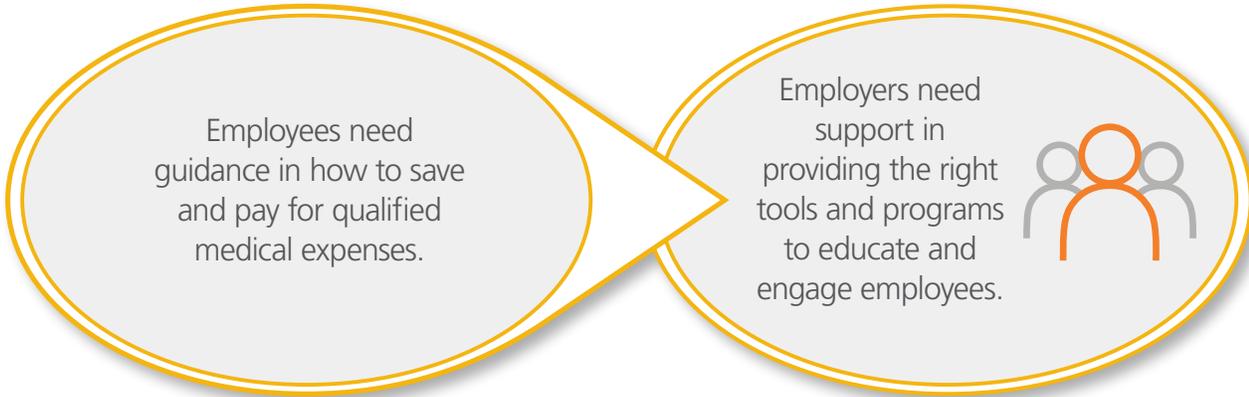
The latest advancement in the 5 Stages of Health Saving and Spending and the Health Finance Journey Model takes the model to a new level of sophisticated analytics.

Consumer-driven health plans have become the norm for employers that want to provide quality health care at an affordable price. These are often paired with health savings accounts (HSAs) to enable employees to set aside money for their share of the health care costs.

What makes HSAs so attractive?

By saving tax-deferred and growing tax-free, an HSA can help pay for current and future qualified health care expenses.

Even with widespread adoption of high-deductible plans and HSAs, employees need more guidance to maximize the benefits that they could be enjoying. This is particularly true for the HSA, given the ability to use this account as an effective savings vehicle.



Bridging the gap between what employees and employers need: The Health Saving and Spending Journey

In 2014, to better understand how consumers save and pay for health care, Optum® created the 5 Stages of Health Saving and Spending model. This proprietary behavioral model, based on consumer research and analysis of the HSA experience, maps an employee’s health care saving and spending behavior across five stages: DECIDE, OPEN, USE, MANAGE and OPTIMIZE.



Within each of these stages, people face a variety of goals, mindsets and activities. Some may take months to move through the stages; others may take years. Each stage is an important step toward health and financial well-being.

Building on the 5 Stages with the Health Finance Journey Model

The Health Finance Journey Model builds on the 5 Stages model by providing the employer with a data-driven understanding of their employees' progress across the five stages. The data and models drive an actionable engagement and communications plan that provides the right message at the right time so employees can make the most of an HSA for health care needs, now and into retirement.

Together, the 5 Stages of Health Saving and Spending model and the Health Finance Journey Model are tools for employers to understand where employees are in their journey—helping them to move along the journey.

For employees,
these tools educate and engage them on their accounts, making them more relevant to their lives.



Greater knowledge allows them to move to the next stage and **increases confidence** in their ability to save and pay for health care.



Forward movement also **builds wealth, increases preparedness** for current and future health care costs and saves on taxes.

For the employer,
the tools identify employees ready to move to the next stage.



This helps enable you to **make health care affordable** for your employees.



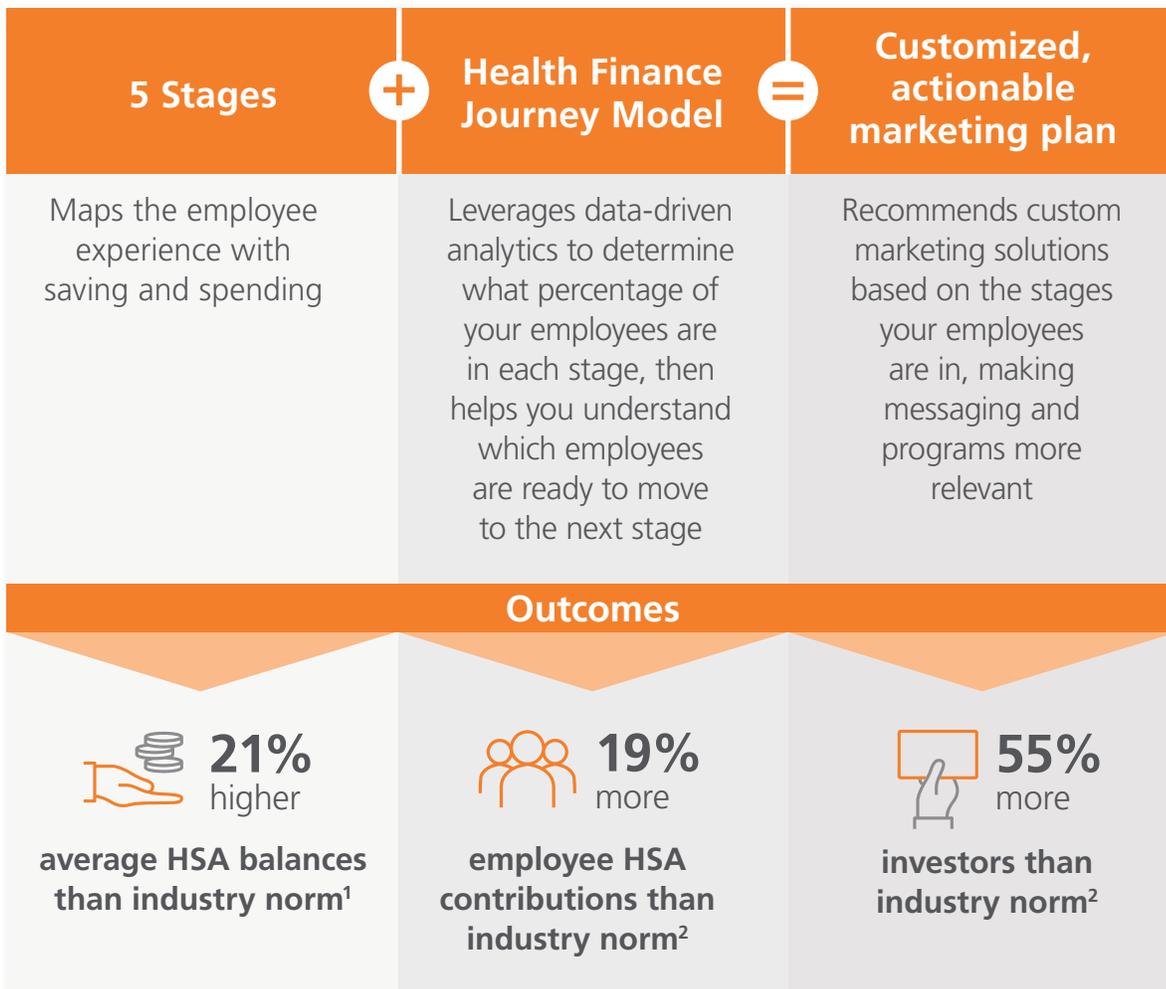
It also **saves you money** on payroll taxes and, potentially, monthly maintenance fees.

Making the insights actionable

Beyond understanding the stages and the profiles of account holders within each stage, Optum also wanted to study consumers who have HSAs and the reasons behind their financial habits and decisions.

By blending the HSA demographic segmentation with the Health Finance Journey Model behavioral segmentation, we can further identify the right message to deliver at the right time, and which consumers are likely to move to the next stage and optimize their accounts. We let consumers know what stage they are in on their statement and in the online banking website and app so they can understand where they need to go.

Building on the 5 Stages of Health Saving and Spending engagement model



Microsegments: Virtual segments of one

This innovative approach to HSA understanding and utilization has now evolved with microsegmenting.

Using the 5 Stage Health Finance Journey Model as a foundation for understanding consumer behavior as it relates to usage of HSAs, we have built upon this approach by creating a framework that identifies distinctly actionable microsegments. We are calling this evolution 2.0, as we continue to further increase the sophistication of this proven model.

Specifically, the Optum approach used clustering to examine nearly 200,000 account holders to identify natural segments (clusters) based on an unsupervised learning approach. Profiles that describe the typical consumer within a microsegment were developed to give each dimension and make them relatable.

More than 2,000 attributes were synthesized based on the following 10 inputs to make up the model.



Internal HSA

- ✓ Contributions minus distributions
- ✓ Account tenure
- ✓ Journey stage



Lifestyle

- ✓ Chronic condition markers
- ✓ Evidence of interest in healthy lifestyle (exercise, sports, diet)



Demographics

- ✓ Credit history attributes
- ✓ Homeowner status
- ✓ Marital status
- ✓ Age
- ✓ Estimated household income

Data analytics through clustering and profile building helped Optum discover 20 microsegments (four to six per stage) differentiated by the 10 key inputs within OPEN, USE, MANAGE and OPTIMIZE.

In other words: **Greater sophistication drives greater ability to inspire understanding and use of HSAs.**

Sample microsegment profile

Microsegment 5 – Looking to Invest

Stage: Open	% of Population: 6%	% of Stage: 18%	Propensity to move up in stage: Very High
			Technology adoption: Moderate

Who is this segment?

Average age: 51

63% Male

Higher than average socioeconomic status

Married with teenagers

Suburban dwellers



HSA Utilization

Employee contribution: higher than average for stage (average contribution of \$36; average total of \$432), but lower overall

Average HSA account balance: much higher than average for stage (\$799 in 2016), lower compared to accountholder universe

Account Tenure: 2.0 years

Health and Lifestyle Profile



Current health state is satisfactory, but there are signs of emerging risk



Evidence of preventative healthy behaviors such as exercise



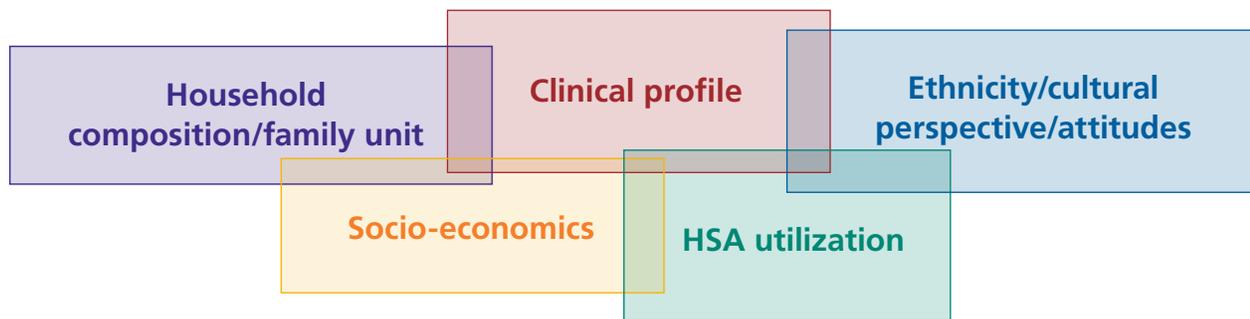
1 in 4 have a chronic condition; 1 in 8 have evidence of stress, anxiety or depression



The importance of microsegment distinctions

By adding depth and breadth to the segmentation, we were able to find logical connections between microsegments in different stages. This supports belief that movement between stages is not always linear. In the USE stage, for example, the following differences can greatly influence HSA utilization and progression in the journey:

Non-linear movement between microsegments



Microsegmenting fuels predictive modeling: The virtual segment of one

The microsegments increase insights and relevancy to maximize stage movement and serve as the platform for advanced trigger-based marketing. This prepares the way for predictive modeling today and machine learning (artificial intelligence) tomorrow, which will be our next stage in 2019–2020. The objective is to get to an optimal level of individual personalization by moving from segment-based insights to personalized insights based on the individual context of each account holder as determined by the analytic models.

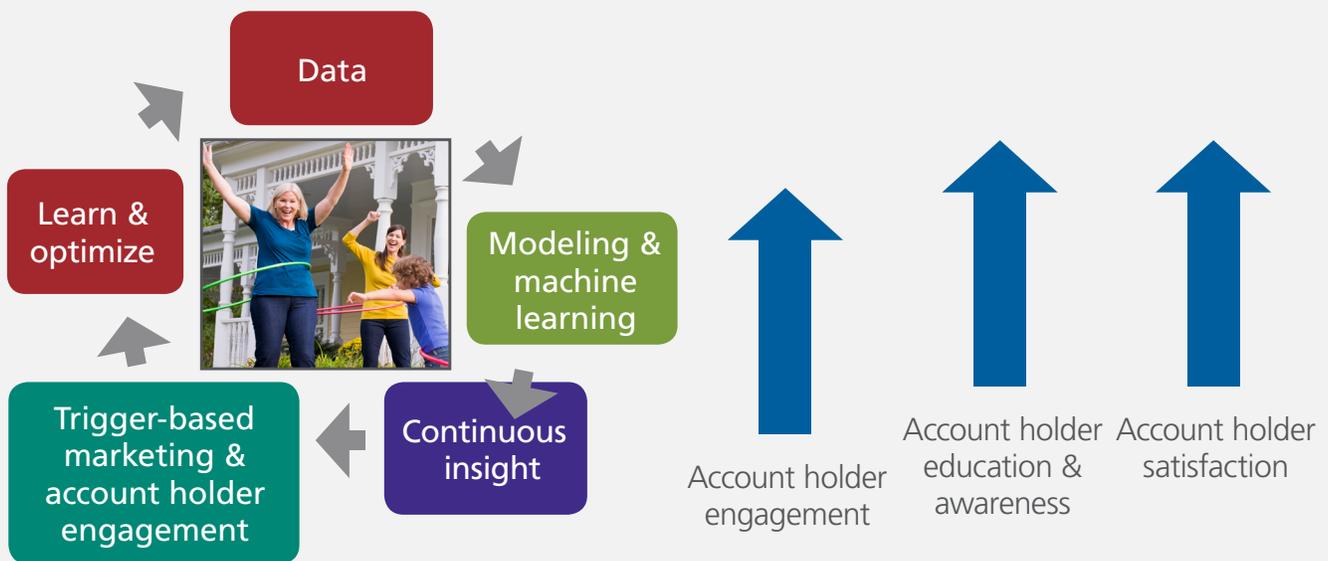
With predictive modeling, Optum is able to discern patterns of behavior and HSA usage, even where data availability may be a constraint, by taking a “consumers like me” approach. This means applying the microsegmentation insights to particular consumer groups to create more relevant, compelling communications promoting HSA use.

And that’s only the beginning of a more dynamic model. Future capabilities could include:

- ‘In-session’ recommendations/problem-solving
- Personalization based on account holder activity
- Contribution/investment recommendations to get to next milestone
- A deep-learning approach to anticipate account holder need and appropriate marketing

Defining predictive modeling and trigger-based marketing

Predictive modeling uses data mining and statistical science to forecast future results. Those results can then be used to identify key events in a customer or business life cycle. When the event occurs, a specific marketing activity is **triggered** to influence a desired action.



This graphic illustrates the operating model behind the advanced analytics. The machine learning approach provides continuous, ongoing insight into each account holder, which enables trigger-based marketing and, consequently, an approach to meeting consumers where and when they expect us to meet them. This approach also leads to better account holder education, awareness and engagement as well as the ability to deliver a more satisfying experience.

Imagine the potential of an offer management system where account holders receive tailored recommendations based on their stage or microsegment. For example, a website tells you how much you need to contribute to your HSA to move from OPEN to USE. You see three options:

1. "Let's do it." 2. "Remind me later." 3. "No, thanks."

That's the power of an immediately actionable offer based on highly personalized insights.

The strength of our approach to analytics is OptumIQ™, and comes from our experience across the health system. OptumIQ reflects the data, analytics and expertise that are infused into our products and services. We draw on the collective experience of over 24,000 multi-disciplinary professionals, like actuaries, clinicians, data scientists and researchers, to empower consumers to take the next-best action for their health and financial well-being. Incorporating this intelligence and applying it to consumer engagement enables personalized and compelling calls-to-action and offers, along with program design.

The Optum difference: Health care is in our DNA

Optum Bank is uniquely positioned to create and now continue to evolve the 5 Stages of Health Saving and Spending and the Health Finance Journey models. Our breadth and depth of claims and financial data, together with our unparalleled health care intelligence illuminates opportunities that would otherwise be invisible.

About Optum and Optum Bank

Optum is a leading information and technology-enabled health services business dedicated to helping make the health system work better for everyone. With more than 100,000 people worldwide, Optum delivers intelligent, integrated solutions that modernize the health system and help to improve overall population health. Optum Bank, Member FDIC, OptumHealth Financial Services (OHFS), a health and wellness company serving more than 115 million people. Optum Bank is solely dedicated to health care banking with more than 10 years of experience managing HSAs. With more than 5 million health savings and notional accounts and over \$9.5 billion in assets, Optum Bank is uniquely positioned to guide consumers along the journey from opening to optimizing an HSA. Health care and finance is in our DNA.

Authors

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Jesica is the Senior Director of Consumer Marketing at Optum. Jesica is responsible for driving consumer experience strategy and initiatives for OHFS and Optum Bank. She brings over 20 years of consumer engagement strategy, including campaign planning and execution expertise, to the marketing team at Optum. Jesica has a bachelor's degree in communications and psychology from the University of Minnesota.

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Asif is VP of Consumer Analytics at Optum. Asif's team is responsible for supporting OHFS and Optum Bank goals by developing strategic analytics assets and intellectual property that can be leveraged to drive account holder engagement and satisfaction. Asif has 15+ years of experience in the predictive modeling arena. Asif has a Master of Business Administration in marketing and supply chain management and a Master of Science in financial economics.

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In her role as Vice President of Marketing, OHFS, Barb is responsible for the marketing strategy and execution for OHFS and Optum Bank. She brings over 30 years of financial services both banking and investments along with health care expertise to the marketing arena for Optum. Barb has a master's degree in business communications and a Master of Science in healthcare leadership.

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Matt is Head of Product of OHFS. In this capacity, his primary responsibilities include product management, strategy and innovation of Optum Bank consumer accounts and Optum® Health Payment Solutions. Prior to joining Optum, Matt worked for Fidelity Investments, supporting institutional clients in relationship management, product and operations. Matt has over eight years of financial services experience, and graduated from Northeastern University in Boston, Massachusetts.

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1. Data based on 2017 year-end Devenir research HSA market statistics and trends.
2. Anderson. Based on 2017 industry norm calculations and 2017 Optum HSA analytics, as compared to 2017 year-end Devenir research HSA market statistics and trends.

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