



*University of California
Audit and Communications
Plan For the Year Ending
June 30, 2019*

March 13, 2019



Members of The Regents
Committee on Compliance and Audit
University of California

February 13, 2019

Dear Members of the Committee:

We are pleased to have the opportunity to present our 2019 Audit Plan for University of California (“University”). The information included in this report allows you to understand the judgments we have made in planning and scoping our audit procedures. This report includes information covering:

- The audit approach;
- Our continued commitment, and;
- Trending topics.

This report was prepared based on information obtained from meetings with management, our knowledge of the University, our consideration of the operating environment and our risk assessment procedures. Our audit approach will remain flexible and responsive to the University’s environment. Any significant changes to our audit plan will be discussed with the Committee on Compliance and Audit (the “Committee”) at a future meeting.

Discussion of our audit plan ensures our PwC engagement team members understand your concerns and together we agree on mutual needs and expectations, which enables us to provide the highest level of service and audit quality. We remain committed to candid discussions with you and management, delivering a high quality audit, as well as providing an independent point of view. We welcome your feedback on our audit plan.

In addition, we have included our most recent thought leadership publications that we believe you will find helpful as attachments to this plan including:

- Perspectives in Higher Education 2018, which provides a summary of the more pressing issues impacting the higher education sector including on the regulatory environment, audit committee governance, enterprise risk management, cybersecurity and economic/ social impact.
- Top health industry issues of 2019, which provides perspective on focus areas to mitigate risks and uncertainties related to cost pressure, tax reform, health policy shift, and security threats.

We look forward to presenting this report, addressing your questions and discussing any other matters of interest. Please feel free to contact me at (415) 498-7445 or will.cobb@pwc.com with any questions you may have.

Very truly yours,

A handwritten signature in black ink that reads "Will Cobb".

Will Cobb
Engagement Partner

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This report and the information that it contains is intended solely for the information and use of the Committee or management, if appropriate, and should not be used by anyone other than these specified parties.



Audit approach

Audit objective



As the University's auditor, we are responsible for reporting on numerous financial statements.

Our audit engagement is directed toward delivering our services at three levels:

For stakeholders	Independent opinions and reports that provide assurance on financial information released by the University
For the Committee	Assistance to the Committee in discharging its governance compliance responsibilities
For management	Observations and advice on financial reporting, accounting and internal control issues from our professionals, including sharing experience on industry best practices

Our audit does not relieve management of its responsibilities with regard to the financial statements.

In performing our audits for 2019, our primary objectives are as follows:

- *Opine on the University of California financial statements, University of California Retirement System financial statements, including the University defined benefit retirement plans, University retirement savings program and report on the University of California Retirement Plan's Schedule of Cash Contributions, and each of the five University Medical Centers, in accordance with generally accepted auditing standards (GAAS) and, as applicable, Government Auditing Standards (GAGAS).*
- *In connection with our audits, we will obtain reasonable rather than absolute assurance about whether the financial statements are free of material misstatement, whether caused by error or fraud.*
- *Perform an audit of the University's compliance with federal award requirements in accordance with OMB Uniform Guidance.*
- *Communicate in writing to management and the Committee all material weaknesses and significant deficiencies identified during the audit. In addition, communicate in writing to management all deficiencies in internal control of a lesser magnitude identified during the audits.*
- *Pursuant to professional standards, communicate certain other matters to the Committee on a timely basis.*

Audit objective

PwC Services and Related Deliverables to the University

In conjunction with our service in providing audit services to the University, we also provide certain other audit and attest services to the University. Refer to the table below for a listing of services and related deliverables we expect to provide. Prior to commencing any non-audit related services, we are required to obtain preapproval from the Committee or the Committee's designee pursuant to the University's preapproval policy for its independent auditor. Our 2019 proposed fee of \$4,432,043 is inclusive of all out-of-pocket expenses which is consistent with our fee commitment agreed in 2016 as included in the professional services agreement signed on April 21, 2016 (inclusive of subsequent amendments).

- Audit reports
 - Report on the financial statements of the University of California
 - Report on the financial statements of each of the five Medical Centers
 - Report on the University of California Retirement System
 - Report on the University of California Cash Contributions to the Retirement System
 - Reports on federal awards in accordance with OMB Uniform Guidance
- Internal Control Observations
 - Report to the Committee on control and process deficiencies and observations, including material weaknesses and significant deficiencies (Regents Letter)
 - Reports to the campus Chancellors on control and process deficiencies and observations (Chancellor Letters)
- Other Services
 - Agreed-upon Procedures on Intercollegiate Athletic Departments (NCAA requirements) for two campuses
 - Review of consolidated Form 990-T of the Regents of the University of California and University of California Retirement Plan
 - Reviews in connection with bond offerings
 - Accounting consultations and other assistance associated with emerging accounting and reporting issues and complex transactions
- Committee Reporting
 - Audit and communications plan
 - Results of audits and required communications

We note that the campus foundations, Fiat Lux Risk and Insurance Company ("Fiat Lux"), and the Benioff Children's Hospital of Oakland have separate audits of their financial statements and the auditor's reporting on those organizations are directed to their respective audit committees. Accordingly, this Audit and Communications Plan is not focused on the specifics of these entities.

Risk assessment process and results

Approach and definitions

Our audit approach is based on the following principles:

- The use of a top-down, risk-based approach
- The application of well-reasoned professional judgment

These principles, with the application of materiality, allow us to develop and execute our audit approach in an effective and efficient manner. The results of our risk assessment include the identification of audit risks and also drives the identification of significant accounts. We evaluate audit risks as defined below.



Significant – requires special audit consideration in terms of the nature, timing or extent of testing (or in other respects) due to the risk’s nature, likely magnitude of potential misstatement and/or likelihood of that risk occurring - including the possibility that the risk may give rise to multiple misstatements.




Elevated – requires additional audit consideration beyond what would be required for a normal risk, but that does not rise to the level of a significant risk because of the nature, likely magnitude of the potential misstatements and/or the likelihood of the risk occurring.

Normal – relates to the relatively routine, non-complex transactions that tend to be subject to systematic processing and require little management judgment. Although a risk of material misstatement exists, there are no special factors related to the nature, the likely magnitude of the potential misstatements or the likelihood of the risk occurring.

Risk assessment process and results

Significant risk

We have outlined below the significant risk identified based on our preliminary risk assessment process.

<i>Risk</i>	<i>Related accounts</i> (including relevant assertions)
 Management Override of Controls	Pervasive
Planned audit response	
We evaluate the design and operating effectiveness of internal controls as well as perform substantive tests of details for significant risk areas including testing journal entries.	

Other Areas of Audit Focus

In addition to the significant risk identified above, we have identified the areas below that are not considered significant or elevated risks but are areas of focus during the audit due to materiality of the balance or complexity/judgment involved in the accounting. Such audit areas are subject to material accounting policies and/or judgments and are considerations as we develop our current year audit approach.

- Accounting and reporting for actuarially determined estimates (retirement plans and retiree health benefit obligations).
- Determination of which entities are to be included as component units under GASB reporting guidelines due to their significance and the nature of the University's relationship with the entities.
- Accounting for receivables and allowances such as pledges and medical center receivables.
- Valuation of certain alternative investments.
- Capitalization of fixed assets, particularly related to construction activity.
- Notes, bonds payable and commercial paper liabilities.
- Presentation and disclosure of the financial statements.
- Treatment of related party transactions with the University, as applicable to the separately-issued financial statements of the medical centers and benefit plans.

Risk assessment process and results

Uniform Guidance Reporting and Compliance Risk

Although not considered a significant risk from a financial reporting standpoint, we also focus our audit procedures on regulatory compliance, including federal grants, and continued focus on compliance processes and controls over the University's federally sponsored research, financial aid, and other programs. These procedures are performed in connection with our OMB Uniform Guidance audit. The responsibilities surrounding the federal monies received bring about reputational risk and potential regulatory ramifications were there to be non-compliance with federal regulations.

Independence

As auditors of the University, we are subject to a variety of standards to ensure our independence, including American Institute of Certified Public Accountants, Governmental Accountability Office, and internal PwC standards. Our quality control processes include confirmation of independence by professional staff and training and are established to ensure our continuing independence.

We hereby confirm our independence of the University for the fiscal year ending June 30, 2019. We will reconfirm our independence at the completion of our June 30, 2019 audits for the University.

Risk assessment process and results

Materiality

We consider both quantitative and qualitative factors in our assessment of materiality. We also assess the metrics used by the users of the financial statements in determining the appropriate base for calculating materiality.

Materiality is defined as ‘the magnitude of an omission or misstatement of accounting information that, in the light of surrounding circumstances, makes it probable that the judgment of a reasonable person relying on the information would have been changed or influenced by the omission or misstatement.’

We identify and assess the risk of material misstatement at:

- The overall financial statement level, and
- In relation to classes of transactions, account balances and disclosures.

Our determination of materiality is a matter of professional judgment, and is affected by our perception of the financial information needs of users of the financial statements. Therefore, the benchmark we use to calculate materiality varies based on the audit being performed.

For the University’s consolidated financial statements, we use total assets as our benchmark. Industry practice is to apply a percentage to this benchmark of total assets to calculate overall materiality.

For the University’s medical centers’ financial statements, we use total operating revenues as our benchmark. Industry practice is to apply a percentage to this benchmark of total operating revenues to calculate overall materiality.

For the University’s benefit plans, we use net position as our benchmark. Industry practice is to apply a percentage to these benchmarks to calculate overall materiality.

Scoping

Financial statement scoping

In an audit of the financial statements of an organization with operations in multiple business units, we determine the extent to which audit procedures should be performed at selected locations to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. As part of that analysis, we consider:

- The size and complexity of the business and its components;
- The existence of entity-level and information technology general controls; and
- Management's process for evaluating internal control over financial reporting.

Once the components have been selected, we scope in financial statement line items considering various factors, including those outlined in the box below. There are three different levels of scope that may be applied to each business unit, which are outlined below.

Levels of scoping

- Full scope** – An audit of the financial information using allocated materiality
- Limited scope** – Audit procedures over certain identified balances and/or transactions using allocated materiality
- Out of scope** – Detailed audit procedures not performed, but certain entity-level and risk assessment procedures provide insight into the reasonableness of the balances at these business units

Considerations for scoping accounts

- Size and composition of the account
- Susceptibility of misstatement due to errors or fraud
- Volume of activity, complexity and homogeneity of the individual transactions processed through the account or reflected in the disclosure
- Nature of the account or disclosure
- Changes from the prior period in account or disclosure characteristics
- Accounting and reporting complexities associated with the account or disclosure
- Exposure to losses in the account
- Possibility of significant contingent liabilities arising from the activities reflected in the account or disclosure
- Existence of related-party transactions in the account
- Knowledge obtained in prior audits

Scoping

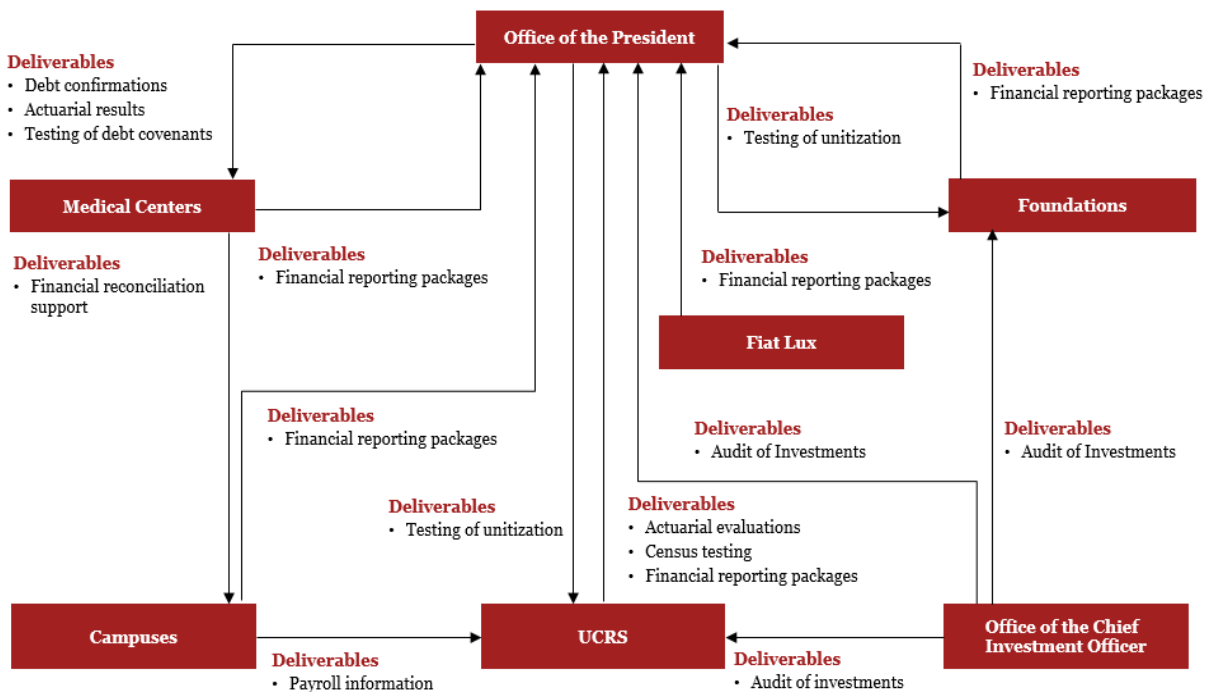
Financial statement scoping

PwC has adopted a consistent approach for our audit procedures at all University and University related entities. We have developed standardized reporting templates and common audit programs and approaches to achieve consistency and effectiveness. As a result, our reporting structure allows for local teams who understand the unique aspect of each entity but who work within the framework of a common reporting structure.

We have taken the following steps to ensure the overall quality of audit engagement:

- Prepared and communicated a centrally determined audit scope and plan.
- Established a framework for continuous communications throughout our engagement teams.
- Adherence to engagement timelines to achieve your reporting objectives.

The multi-location engagement team is aligned to the University's geographical organization and mirrors the management control structure of your organization. This structure, coupled with centralized engagement management, leverages the expertise of our local professionals who can respond directly to questions at each location. The following depicts the organization and flow of information among the different component audit teams.



For every deliverable, a set of instructions is issued communicating a particular scope of work, materiality and timing.

Scoping

Financial statement scoping

Office of the President and Office of the Chief Investment Officer – Audit procedures are performed as necessary at these locations in order to opine on the financial statements of the University. We also take into consideration in our audit scope for these locations the requirements of the medical centers audits, the UCRS audit and the audits of the campus foundations. In particular, the investment work we perform at the Office of the Chief Investment Officer has a wide-sweeping impact on the various University components.

Medical Centers and UCRS - As described throughout this document, we perform audits of the stand-alone financial statements for the five medical centers and the University Retirement System which consists of multiple benefit plans. We rely on those stand-alone audits for purposes of the audit of the University's financial statements and fiduciary fund financials.

Campuses – We perform specific audit procedures at the campus locations as needed to achieve sufficient coverage to express an opinion on the University's financial statements. We are in the process of determining which locations will be in scope in the current year.

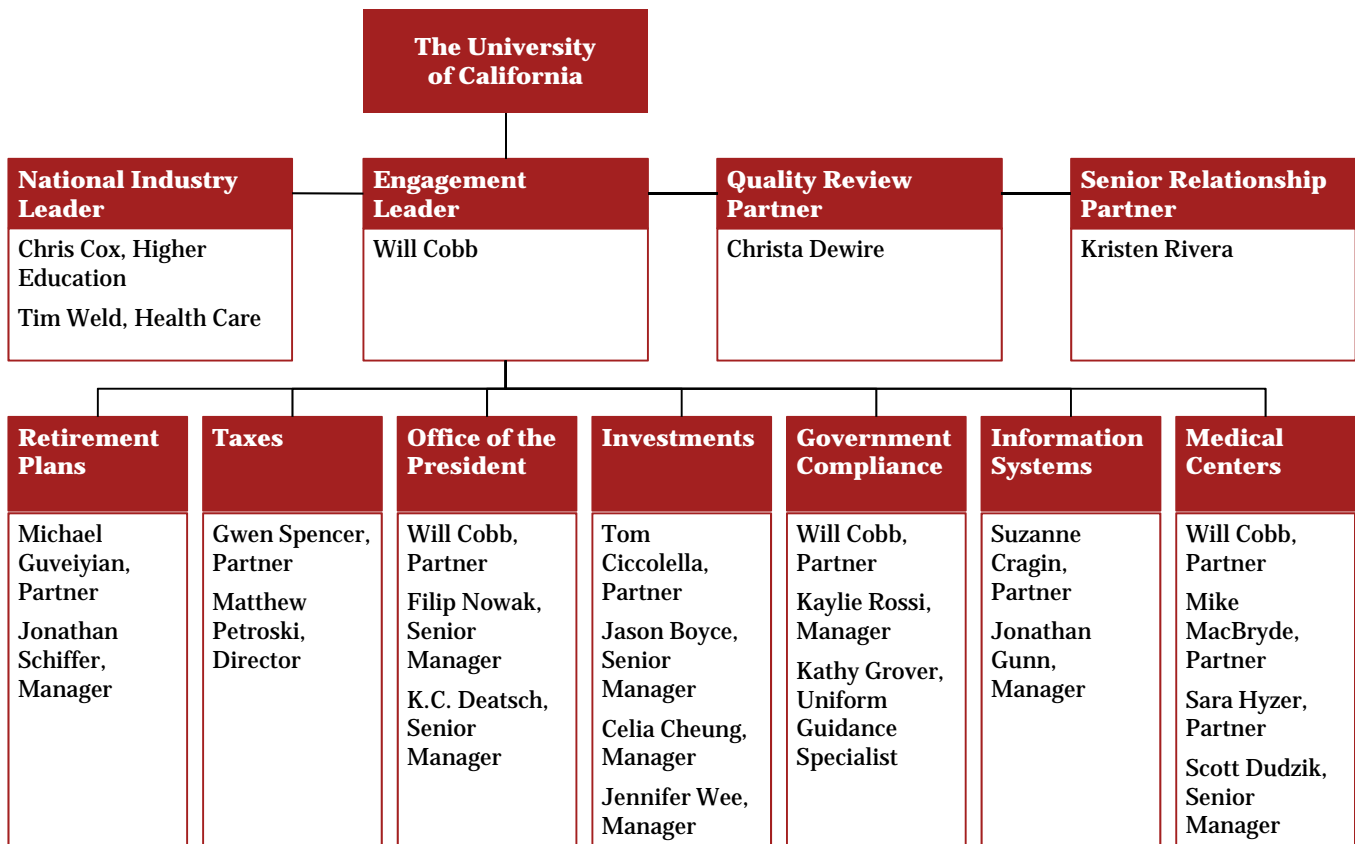
Foundations – The audits of the campus foundations are performed by separate foundation audit teams. However, as the combined financial statements of the campus foundations are presented discretely in the University's financial statements, we coordinate with and rely upon the work performed by the campus foundation teams.

Fiat Lux – The standalone audit of the University's captive insurance company, Fiat Lux, is performed by a separate audit team. As Fiat Lux is included in the University's financial statements, we also coordinate with this team and where necessary rely upon the work they perform.

Regardless of the extent of audit procedures performed at a location, each location has an assigned partner and manager. Accordingly, our engagement teams have established local points of contact to facilitate the completion of scheduling and planning to support local audit requirements as well as discussion of issues of local interest.

Client service team








Your service team is comprised of very experienced professionals, reflective of the stature and importance of the University as a leading higher education client of PwC. In selecting our team, we focused on those team members with significant, relevant industry experience in areas that are important to the University, the Medical Centers, and the benefit plans. All partners and managers below have relevant higher education and/or healthcare experience from past university audits and, in almost all cases, other relevant experience.



Client service team



Specialists

The University operates in a highly complex environment, requiring additional expertise beyond traditional audit resources. During the course of our audits, we will utilize functional experts to evaluate key areas of your business risks— such as the valuation of self-insured risks and insurance accruals, the valuation of pension and postemployment benefit obligations, valuation of certain investments, and third party settlements. Drawing upon their best practice knowledge, our team will provide points of view related to your business, industry and regulatory compliance. These specialists also will ensure that we have the right resources to achieve our audit objectives. Accordingly, our PwC engagement team will include the following specialists who will work with our audit teams and management at your business units to assist us in executing our audit:

Area of expertise	Description of service
 Financial Services Valuation	Assistance with the evaluation of the fair value of investments and related disclosures
 Self-Insurance	Review of actuarially determined balances and actuarial models involving self-insurance reserves
 Compensation and Benefit Plans	Review actuarial assumptions related to compensation programs and benefit plans
 Healthcare Reimbursements	Review third party account transactions subject to complex rules and interpretation
 Information Technology	Review and testing of IT and application controls
 Healthcare Compliance	Provide guidance to Medical Center audit teams and the University regarding healthcare compliance requirements
 Regulatory Compliance	Review the University's Uniform Guidance report and provide perspective on federal agencies' monitoring and expectations of award recipients

Timeline and communication plan

We have developed the following reporting timeline that facilitates the University meeting all of its legal and regulatory requirements. As you can see below, this timeline spans the entire year and represents our commitment to the University throughout the year.

 Key Procedures Performed	 Timing of Procedures
Planning and Audit Management	
▪ Meet with management to understand the University's activities and assess risk; and obtain update of operating plans and activities	▪ Ongoing throughout the year
▪ Assess significant audit risks and materiality	▪ December 2018 – January 2019
▪ Complete preliminary scoping of accounts, processes and locations	▪ December 2018 – January 2019
▪ Meet with the Committee to discuss service plan	▪ March 13, 2019
▪ Coordinate with PwC engagement teams and issue instructions for the audits of the University, Medical Centers, and benefit plans as well as Uniform Guidance testing procedures	▪ March - April 2019
Execution and Audit Management	
▪ Provide consultations on major issues and developments	▪ Ongoing throughout the year
▪ Perform updates to understanding and testing of internal controls	▪ March – June 2019
▪ Evaluate nature, timing and extent of substantive procedures based on controls testing	▪ March – June 2019
▪ Perform audit procedures at interim for both financial statements and Uniform Guidance audits	▪ April – June 2019
▪ Perform audit procedures at year end for both financial statements and Uniform Guidance audits	▪ August – November 2019
Completion and Audit Management	
▪ Issue audit opinions and related financial statements	▪ October 2019
▪ Meet with the Committee to communicate results of year-end audit and internal control recommendations	▪ November 2019
▪ NCAA Agreed-upon Procedures on Intercollegiate Athletic Departments	▪ January 2020
▪ Issue Report on Uniform Guidance Compliance	▪ February 2020

Other required communications

Fraud

We are required to make certain inquiries of the Committee related to fraud risks. In addition, as part of our overall response to fraud risk, we incorporate unpredictability into our audit by modifying the nature, timing and extent of our procedures.

Fraud is a broad legal concept and auditors do not make legal determinations of whether fraud has occurred. Rather, the auditor's interest specifically relates to acts that result in a material misstatement of the financial statements. The primary factor that distinguishes fraud from error is whether the underlying action that results in the misstatement of the financial statements is intentional or unintentional. The two types of misstatements relevant to the auditor's consideration of fraud are those arising from fraudulent financial reporting and those arising from misappropriation of assets.

Fraud items for discussion:

- *Programs and controls in place to mitigate the risk of fraud and error*
- *Specific concerns about the risk of fraud or error*
- *Any actual, alleged or suspected fraud*
- *Oversight of the assessment of fraud risks and mitigating controls*
- *Violations or possible violations of law*
- *Nature and extent of communications about misappropriations by lower level employees*
- *Other matters relevant to the audit*

Misstatements arising from fraudulent financial reporting are intentional misstatements or omissions of amounts or disclosures in financial statements designed to deceive financial statement users where the effect causes the financial statements not to be presented, in all material respects, in conformity with generally accepted accounting principles (GAAP).

Misstatements arising from misappropriation of assets (sometimes referred to as theft or defalcation) involve the theft of an entity's assets where the effect of the theft causes the financial statements not to be presented, in all material respects, in conformity with GAAP.

Other required communications

<i>Independence</i>	<p>We carefully monitor the independence of our team members. Should we become aware of an independence breach or new circumstance that would affect our ability to complete the audit, we will inform you on a timely basis.</p> <p>There were no relationships or other matters identified that might reasonably be thought to bear on independence.</p> <hr/>
<i>Significant issues discussed with management prior to appointment or retention</i>	<p>There were no significant issues discussed with management in connection with the retention of PwC.</p> <hr/>
<i>Obtain information relevant to the audit</i>	<p>We will inquire of the Committee about whether it is aware of matters relevant to the audit and about the risks of material misstatement.</p>



***Our continued
commitment***



Our continued commitment

We affirm our commitment to the Committee to help you meet your responsibilities. We will endeavor to fulfill our responsibilities to you and management by focusing on quality and the following key commitments:

Perspectives and relevant insights from the audit



- We will continue to attend all applicable meetings of the Committee throughout the year. We are available to attend all meetings at your request.
- We will provide guidance to management and the Committee related to various accounting and reporting matters, such as the implementation of technical guidance on emerging pronouncements from the Governmental Accounting Standards Board (GASB). Those pronouncements identified as having an impact on the University in 2019 and beyond are outlined in the “Trending Topics” section below.
- We will provide guidance and insight to management and the Committee on impacts resulting from legislation passed in Congress and any potential reforms in regulatory policies.
- We will provide ongoing points of view, thought leadership and personalized education sessions on various accounting and industry issues throughout the year.

Responsiveness, timeliness and transparency



- Our job is to support the Committee as it fulfills its responsibilities to the University’s stakeholders. We will pursue an effective relationship with the Committee while maintaining objectivity, acting independent of management, and have direct, candid and timely discussions.
 - Our team emphasizes prompt and personal communication with the University and will be available to management throughout the year. We will collaboratively work with management to ensure early identification of complex technical matters and communicate timely the impact that any changes have on our audit scope.
 - We will hold internal weekly audit update meetings (during interim and year end field work) with the various component teams, as well as holding regular weekly meetings with University management at the system-wide and local levels, providing real time updates on the status of key issues as needed.
 - Beyond the scheduled meetings with the Committee, we will maintain timely communication with the Committee throughout the year particularly if significant issues should arise.
-

Our continued commitment

Quality and innovation



- We support the Committee in achieving its objectives through robust dialogue surrounding issues and expectations, providing independent views on internal controls, technical and business matters.
 - The University operates in a complex environment, requiring additional expertise beyond traditional resources. During the course of the audit, we will utilize our functional experts to evaluate key areas of your business risks. Drawing upon their best practice knowledge, our team will provide points of view related to your business, industry and regulatory compliance. All subject matter specialists are partners/principals, directors, or managers and will assist in audit planning and execution as needed. Such specialists engaged as part of the on-going audit process are outlined in the “Client service team” section.
 - We focus our audit efforts on those areas considered to be material to the University or complexity/judgment involved in the accounting as outline in the “Risk assessment process and results” section above.
 - We will strive to build in continuous improvements into our audit through the continued use of various project management tools at our disposal.
 - We will include our U.S. higher education leader, Chris Cox and our U.S. healthcare services leader, Tim Weld, on our service team to provide industry perspectives to our team and your management team.
 - We will leverage Martha Garner, who serves as our Firm’s National Technical Accounting Director for Higher Education and Healthcare and has been exclusively servicing higher education and healthcare entities in her national role for over 30 years, to provide technical advice and advice on emerging GASB pronouncements and ensure the timely resolution of technical issues for the University.
 - We will leverage Kathy Grover who serves as our Higher Education and Uniform Guidance Regulatory Specialist in our Uniform Guidance audit and also share with management on a timely basis on any updates for Uniform Guidance or other related regulatory topics.
-

Our continued commitment

Our multi-year audit innovation strategy



Create a **global xLOS** platform to meet clients' needs in all geographies and promote **reusability** of analytic modules, client data and insights in **appropriate** and approved ways.



Deliver client engagements with **enhanced quality** through **data-driven audit procedures**, machine learning and our best in class resource expertise.



Securely extract and analyze our client's information through state of the art methods and cryptography.



Deliver **next-generation insight** to clients about their data, performance, process efficiency, and optimization in ways not possible with today's PwC tools and applications.



Tech-enable the audit to streamline, standardize, automate, and centralize our work in Centers of Excellence/Service Delivery Centers (SDCs).



Deliver a workforce of talented professionals with the **triple threat of business knowledge, digital skills, and technology know-how**, who are highly valued in the marketplace.



Train our people in new digital skills that will be in demand at PwC and elsewhere, to be their best at work and in life, and to use their skills to make a difference.

[Click here to hear more about our innovation strategy](#)

Our continued commitment

Audit innovation tools



Digital Accountancy Forum and Awards Audit Innovation of the Year

PwC's Halo

Winner 2016



Digital Accountancy Forum and Awards Audit Innovation of the Year

PwC's GL.ai

Winner 2017

Our current technology used on the audit engagement today



Aura

Aura, our global ERP system, is used by our 100,000 auditors worldwide on every PwC audit. It involves a systematic, risk based approach with workflow technology. This ensures that things are done one way – the right way – consistently and efficiently across the Group. The result is all of the elements of our audit fitting together seamlessly – no duplication, no omissions.



Halo

Halo is revolutionising the PwC audit, providing greater assurance and deeper insight. It is market-leading assurance technology that tests and visualises information, testing more, more often. We are able to share insight with management based on trends and anomalies identified in the data.



Connect

Connect is our data sharing and collaborative workflow tool, providing fast, efficient and secure information sharing at every stage of the audit globally. It monitors the status of information flows on a real time basis.

Connect Audit Manager is our global project management tool which will give you a real time view of the status of all your global statutory audits. CAM will facilitate even greater project management, more visibility and control, and a global consistency across the Group.



ADC

Automated Disclosure Checklist (ADC) is a cloud based technology solution which allows multiple users to work on a checklist at the same time from different locations.

Next generation technology



GL.ai

GL.ai is a revolutionary bot that uses AI and machine learning to 'x-ray' a business, analyzing billions of data points in milliseconds, seeing what humans can't, and applying judgement to detect anomalies in the general ledger. It is the first module of PwC's Audit.ai.



Data Sieve

We have bespoke optical character recognition tools that utilise machine learning technology and can be 'trained' to scan contracts and extract the relevant information. This information is easily searchable and can be analysed in several different ways. The technology is already being used to help clients to implement revenue and Leases for example.



Process mining

Our range of Halo tools can illustrate the journey that each transaction takes through your systems. This generates a detailed illustration of the transaction flows for each key process, showing not only the most common route that transactions take, but also where transactions follow an unexpected path.

This enables us to compare expected data flows to reality and to properly understand the reliance companies are placing on automated and manual controls. This drives a higher quality risk based audit and also generates unique insight into your business.

Our diversity and inclusion strategy

“When you include a diversity of minds in the decision-making process, you inevitably have a better and stronger result.” - Tim Ryan, US Chairman and Senior Partner

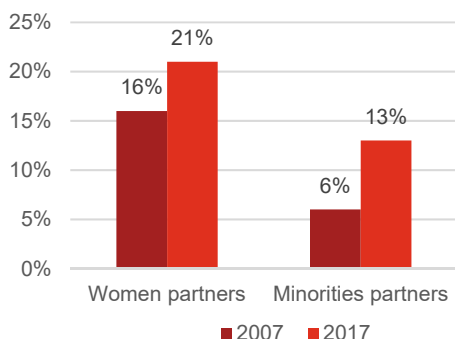
An integrated approach

PwC has been on a journey to promote diversity and sustain an inclusive environment. Today, women and minorities comprise 45% and 33% of our firm, respectively. To better align our programs and initiatives with our people and business strategies, our diversity priorities are incorporated into our organization at many levels, starting with our core values of caring and working together, including:

- Our **“Blind Spots” program** is required for all new hires and promotees and available to all our people, and helps individuals gain awareness of unconscious biases and their consequences.
- We continued a series of **Color Brave™ conversations** about race that has helped break down barriers to employees bringing their best selves to work.
- We engage our people through **employee networking groups** for Black/African-Americans, Asians/Pacific Islanders, Latinos/Hispanics, women, working parents, veterans, people with disabilities and LGBT professionals.

Another testament of our progress is our 2017 new partner class—the most diverse in our history—with 45% women and minorities.

While we are proud of the progress we have made, there is still more we want to do to enhance our inclusive culture so that we can continue to attract talented people who have unique skills, experiences and ambitions.



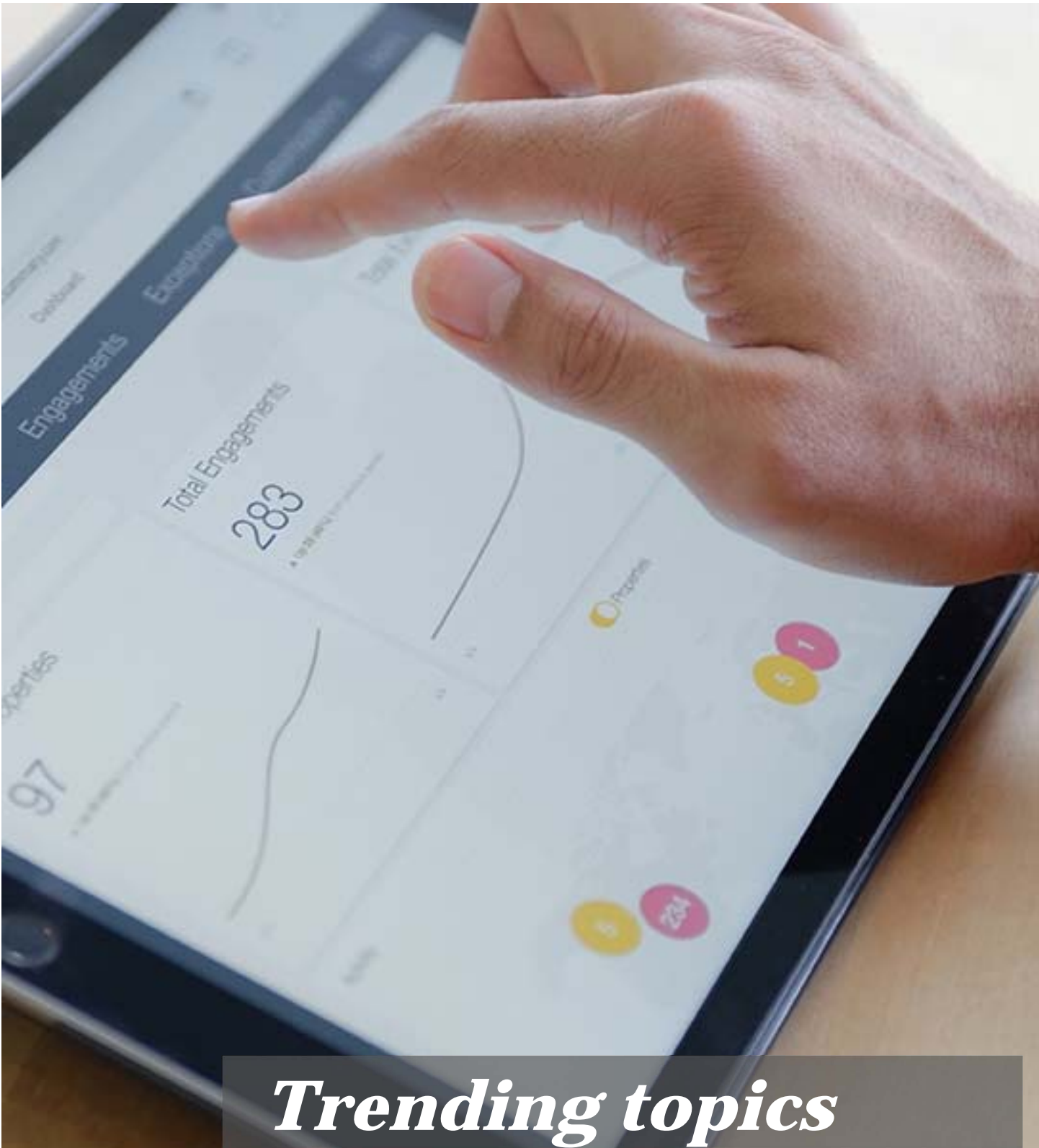
“As a result of our efforts to promote diversity and sustain an inclusive environment, the diversity of our partners has gone from 16% women and 6% minorities in 2007 to 21% women and 13% minorities in 2017.”

CEO **ACT!ON** FOR DIVERSITY & INCLUSION

There have been over 13,000 individual “I Act On” pledges at www.CEOaction.com

PwC launched CEO Action in 2017

The CEO Action for Diversity & Inclusion™ is the largest CEO-driven business commitment to advance diversity and inclusion within the workplace. A unique coalition of more than 500 CEOs have signed on to this commitment, agreeing to take action to cultivate environments where diverse experiences and perspectives are welcomed and where employees feel comfortable and encouraged to discuss diversity and inclusion. All the signatories of the commitment serve as leaders of their companies and committed to implementing the pledge within their workplaces, or where companies have already implemented one or several of the commitments, will support other companies in doing the same.



Trending topics

Relevant Pronouncements and External Guidance

Accounting standards effective now and on the horizon for GASB entities

Fiscal Year 2019

Fiscal Year 2020

Fiscal Year 2021

Certain asset retirement obligations

***Fiduciary activities
(periods beginning after
December 15, 2018)***

***Leases
(periods beginning after
December 15, 2019)***

***Majority Equity
Interests -an amendment
of GASB Statements
No.14 & No. 16
(periods beginning after
December 15, 2018)***

***Accounting for interest
cost incurred before the
end of a construction
period
(periods beginning after
December 15, 2019)***

Certain asset retirement obligations

GASB Statement No. 83, *Certain Asset Retirement Obligations*, was issued in November 2016. Under Statement No. 83, a government that has legal obligations to perform future asset retirement activities related to its tangible capital assets is required to recognize a liability and a corresponding deferred outflow of resources. The guidance also identifies the circumstances that trigger recognition of these transactions.

- The Statement requires the recognition of an asset retirement obligation (ARO) occur when the liability is both incurred and reasonably estimable.
- Initial measurement of an ARO is based on the best estimate of the current value of outlays expected to be incurred.
- The deferred outflow of resources associated with an ARO will be measured at the amount of the corresponding liability upon initial measurement and generally recognized as an expense during the reporting periods that the asset provides service.
- This Statement requires the current value of a government's AROs to be adjusted for the effects of general inflation or deflation at least annually. In addition, it requires a government to evaluate all relevant factors at least annually to determine whether the effects of one or more of the factors are expected to significantly change the estimated asset retirement outlays. A government should remeasure an ARO only when the result of the evaluation indicates there is a significant change in the estimated outlays.

The requirements of Statement No. 83 are effective for the University in 2019. Disclosure requirements include a general description of the ARO and associated tangible capital assets, the source of the obligation to retire the assets, the methods and assumptions used to measure the liability, and other relevant information.

The University is in the process of assessing the potential financial statement impact of the new guidance. The guidance may impact the University's financial statement presentation and processes.



Fiduciary activities

GASB Statement No. 84, *Fiduciary Activities*, was issued in January 2017 to enhance consistency and comparability by establishing specific criteria for identifying activities that should be reported as fiduciary activities and clarifying whether and how business-type activities should report their fiduciary activities. The requirements of this Statement apply to the financial statements of all state and local governments.

The focus of the criteria for identifying activities that should be reported as fiduciary activities generally is on:

- (1) whether a government is controlling the assets of the fiduciary activity and
- (2) the beneficiaries with whom a fiduciary relationship exists.

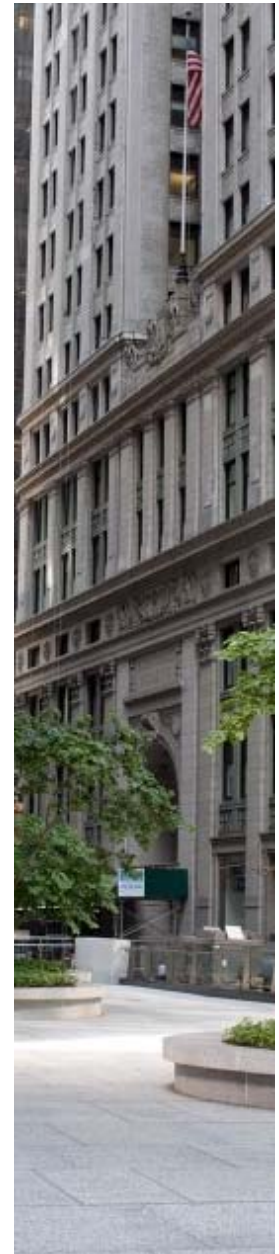
Separate criteria are included to identify fiduciary component units and postemployment benefit arrangements that are fiduciary activities. An activity meeting the criteria should be reported in the fiduciary fund financial statements (a statement of fiduciary net position and a statement of changes in fiduciary net position) of the basic financial statements.

This Statement describes four fiduciary funds that should be reported, if applicable:

- (1) pension (and other employee benefit) trust funds,
- (2) investment trust funds,
- (3) private-purpose trust funds and
- (4) custodial funds.

This Statement also provides for recognition of a liability to the beneficiaries in a fiduciary fund when an event has occurred that compels the government to disburse fiduciary resources. Events that compel a government to disburse fiduciary resources occur when a demand for the resources has been made or when no further action, approval, or condition is required to be taken or met by the beneficiary to release the assets.

The requirements of this Statement are effective for the University in 2020. Earlier application is encouraged. The University is in the process of assessing the potential financial statement impact of the new guidance. The guidance may impact the University's financial statement presentation and processes.



Majority Equity Interests – An amendment of GASB Statements No.14 & No. 16

GASB Statement No. 90, *Majority Equity Interests – An amendment of GASB Statements No.14 and No. 16*, was issued in August 2018 to improve the consistency and comparability of reporting a government's majority equity interest in a legally separate organization and to improve the relevance of financial statement information for certain component units. It defines a majority equity interest and specifies that a majority equity interest in a legally separate organization should be reported as an investment if a government's holding of the equity interest meets the definition of an investment. A majority equity interest that meets the definition of an investment should be measured using the equity method, unless it is held by a special-purpose government engaged only in fiduciary activities, a fiduciary fund, or an endowment (including permanent and term endowments) or permanent fund. Those governments and funds should measure the majority equity interest at fair value.

For all other holdings of a majority equity interest in a legally separate organization, a government should report the legally separate organization as a component unit, and the government or fund that holds the equity interest should report an asset related to the majority equity interest using the equity method. This Statement establishes that ownership of a majority equity interest in a legally separate organization results in the government being financially accountable for the legally separate organization and, therefore, the government should report that organization as a component unit.

This Statement also requires that a component unit in which a government has a 100 percent equity interest account for its assets, deferred outflows of resources, liabilities, and deferred inflows of resources at acquisition value at the date the government acquired a 100 percent equity interest in the component unit. Transactions presented in flows statements of the component unit in that circumstance should include only transactions that occurred subsequent to the acquisition.

The requirements of this Statement are effective for the University in 2020. Earlier application is encouraged. The University is in the process of assessing the potential financial statement impact of the new guidance. The guidance may impact the University's financial statement presentation and processes.



Leases

On June 28, 2017, the GASB issued governmental lease accounting standard Statement No. 87, *Leases*, which will bring substantially all leases on to lessees' balance sheets.

Lessees

For operating leases (other than short-term leases), lessees will be required to recognize an asset for the right to use the leased item and a corresponding lease liability.

With the exception of short-term leases, all distinctions between operating and capital leases will be eliminated, and all leases will be treated as financings (similar to capital lease accounting today). Lease liabilities will be considered long-term debt and lease payments will be capital financing outflows in the cash flow statement. In the activity statement, lessees will no longer report rent expense for today's operating-type leases, but will instead report interest expense on the liability and amortization expense related to the asset.

Lessors

Lessor accounting will mirror lessee accounting. Lessors will recognize a lease receivable and a corresponding deferred inflow of resources (with certain exceptions) while continuing to report the asset underlying the lease. Interest income associated with the receivable will be recognized using the effective interest method. Lease revenue will arise from amortizing the deferred inflow of resources in a systematic and rational manner over the lease term.

Once the new standards take effect, FASB and GASB entities will apply different accounting for operating-type leases. This may add complexity when comparing financial statements of entities in sectors comprised of both GASB and FASB reporters, such as higher education and healthcare.

The requirements of Statement No. 87 are effective for the University in 2021, with earlier application encouraged.

The University has begun to assess the potential financial statement impact of the new guidance. The new guidance may impact the University's financial statements and processes.



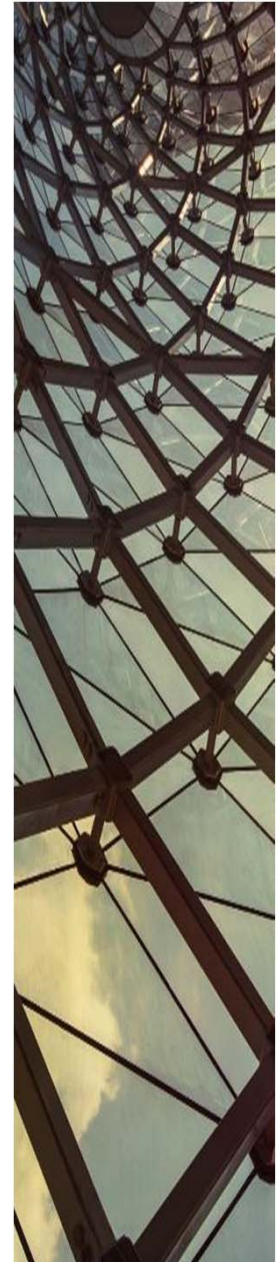
Accounting for interest cost incurred before the end of a construction period

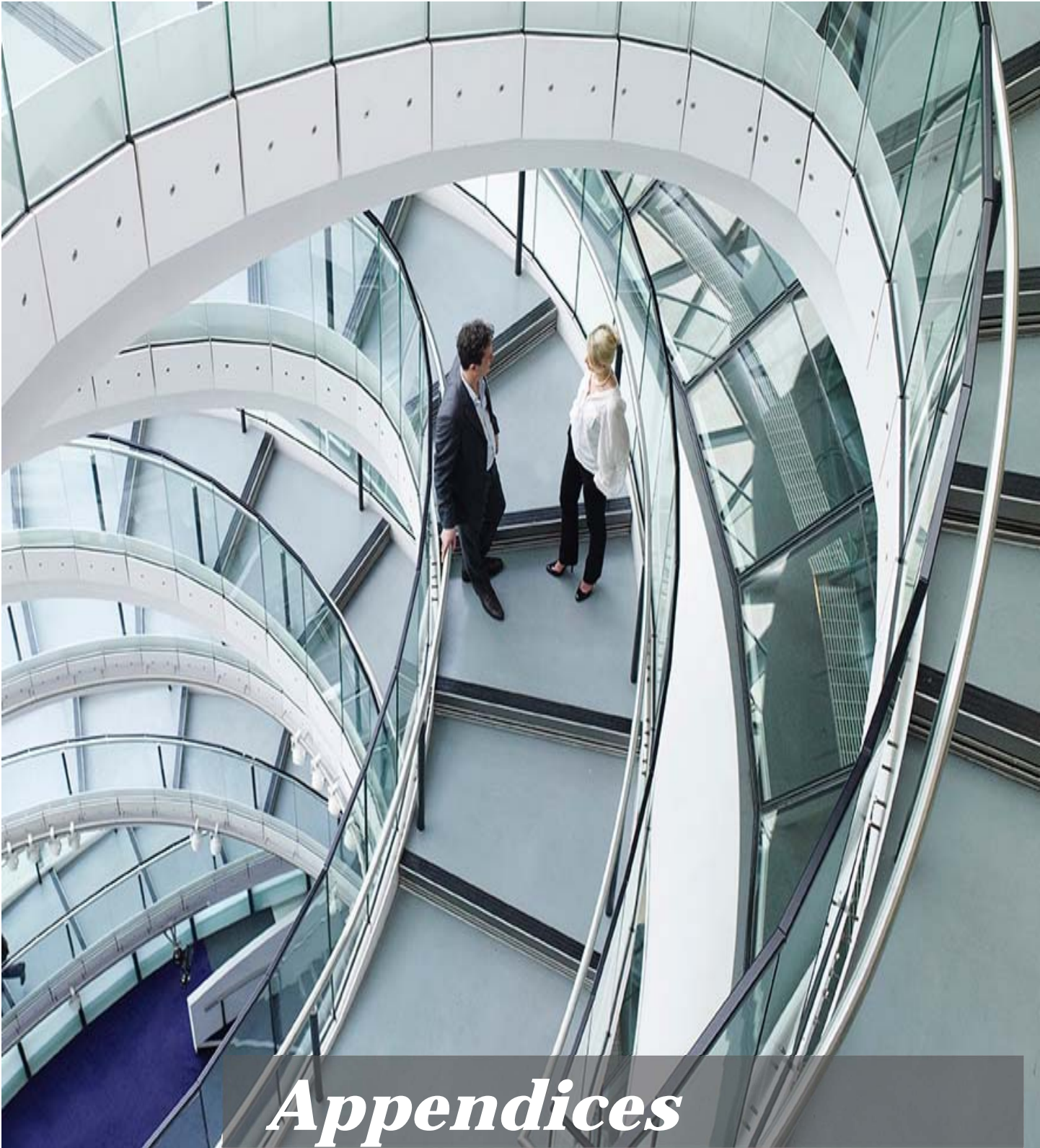
GASB Statement No. 89, *Accounting for interest cost incurred before the end of a construction period*, was issued in June 2018 to enhance the relevance and comparability of information about capital assets and the cost of borrowing for a reporting period and to simplify accounting for interest cost incurred before the end of a construction period. The requirements of this Statement apply to the financial statements of all state and local governments.

This Statement establishes accounting requirements for interest cost incurred before the end of a construction period. Such interest cost includes all interest that previously was accounted for in accordance with the requirements of paragraphs 5–22 of Statement No. 62, *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements*, which are superseded by this Statement. This Statement requires that interest cost incurred before the end of a construction period be recognized as an expense in the period in which the cost is incurred for financial statements prepared using the economic resources measurement focus. As a result, interest cost incurred before the end of a construction period will not be included in the historical cost of a capital asset reported in a business-type/enterprise activity (which is what the University is considered).

This Statement also reiterates that in financial statements prepared using the current financial resources measurement focus, interest cost incurred before the end of a construction period should be recognized as an expenditure on a basis consistent with governmental fund accounting principles.

The requirements of this Statement are effective for the University in 2021. Earlier application is encouraged. The University is in the process of assessing the potential financial statement impact of the new guidance. The guidance may impact the University's financial statement presentation and processes.





Appendices

Appendices

- Appendix I – Perspectives in Higher Education 2018
- Appendix II – Top Health Industry Issues of 2019

Appendix I – Perspectives in Higher Education 2018



Perspectives in Higher Education

June 2018



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Introduction

Colleges and universities continue to deal with political, financial and compliance challenges. While the challenges have varied from one year to the next, a common theme has emerged – the higher education environment continues to be complex, with increasing expectations about performance, accountability and value from many constituents including students, parents, regulators, donors and federal and state governments. From business model changes and regulatory expectations, to the competitive international marketplace, institutions are being pushed to keep up with the dynamic pace of change.

In this edition of “Perspectives in Higher Education” we have provided our annual outlook on how the political environment in Washington may affect higher education, as well as an expanded discussion on tax reform. In addition, we provide a glimpse into the future of higher education including affordability, internationalization and trends in the workforce. We have also continued the dialogue around cybersecurity and have added a discussion on the risks associated with disruptive innovation. Lastly, we discuss such sensitive topics as mental health on campus and student activism. In this time of significant change, it is important for institutions to stay abreast of changes and pressures within the industry. Approaching change in a proactive and positive manner will ensure success and continued leadership in the years ahead.

This document was created to share PwC’s insights into the key challenges and related opportunities facing colleges and universities, and to offer an informed point of view on how institutions might proactively respond. As a leader in providing audit, tax, and advisory services to the higher education industry, PwC has been honored to work with many of the nation’s premier educational institutions in addressing their most pressing challenges. Our contributors to this paper are working with your peers on regulatory, tax, risk, and operational issues and are in an excellent position to share trends, insights and perspectives.

While each institution has its own unique set of challenges, all educational institutions are currently contending with a number of shared challenges. Notwithstanding these challenges, the U.S. higher education system remains the envy of many countries, and U.S. colleges and universities continue to be leaders in creating and sharing knowledge and value around the globe.

This document is not meant to be comprehensive in nature. Drawing upon our understanding of the diverse nature of higher education institutions that have complex educational, research and clinical activities, we offer the summary as a broad platform for discussing these topical issues in a proactive and collaborative manner.

I invite you to contact me at (617) 530-4076 with any questions or comments you may have.



Christopher Cox
National Higher Education and Not-for-Profit Practice Leader

Future Challenges for Higher Education

Background

The challenges facing colleges and universities today are coming from all directions. Increasing costs and declining revenue growth stand out, but there are many other factors at work that accentuate the importance of strategic planning and dialogue around the changing environment. The higher education industry was downgraded by Moody's from stable to negative in December 2017. Standard and Poor's followed suit in January 2018 with a negative outlook due to increased credit pressures. Institutions are also dealing with aging facilities that are in need of modernization to keep pace with the demands of today's student. Additionally, with anticipated budget cuts to both financial aid and grant funding, there will be continued pressure for institutions to make up the difference through alternative revenue sources and cost containment measures.

Today's students are weighing the cost of their education against the value received, and are often measuring value by the acquisition of tangible skills and proven outplacement. The rise in the demand for value is putting increased pressure on financial aid to recruit and retain the best students. There are also budget pressures from increased faculty compensation, especially for those in certain fields that are a priority such as science, technology, engineering, and mathematics (STEM) programs to satisfy the growing appetite for these skills in the workforce. Institutions with substantial resources are competing for the best talent to build or expand these programs, which in turn is driving up the cost for all.

All institutions are faced with demographic shifts in the U.S., especially the overall decline in the number of high school graduates. Based on current census data, there is a projected decline in high school graduates in both the Northeast and Midwest. Although the South and West are projected to have limited growth, it will be substantially less than in the past decade.

Technology may also be a disruptor for many colleges and universities, as distance learning will continue to be an avenue for expansion. One example is the Minerva Schools at the Keck Graduate Institute (KGI), which is a partnership between venture capital-funded Minerva and the KGI that has flipped the classroom model by leveraging online and connected technologies. In the KGI classroom, faculty deliver courses remotely to students that live in dormitories in seven global cities, and the students travel between cities year to year. The enrollment is approximately 310 students, of which 75% are international, with an acceptance rate of only 2% of applicants.¹ The increasing prevalence of these types of learning models has the potential to further impact traditional colleges and universities.

Impact on educational institutions

Faced with the myriad of challenges, colleges and universities are developing plans to face them head on. Each institution's challenges are unique based on their financial situation, size, curriculum, and geographic location, but the need to strategize about future challenges is common among all.

Those institutions that are highly endowed and are the top names in the country will face the pressure to maintain the current quality of their student body in light of declining high school graduates and increased competition. For tuition-dependent institutions with a strong balance sheet, sound business model, and brand loyalty, the challenges will be different. These institutions will need to continue to contain costs while looking for alternative revenue

¹ businessinsider.com – April 2016

streams and funding models. Demonstrating successful job placement for prospective students will be paramount to stand out from the competition.

With regard to alternative revenue streams, many institutions are looking at private/public partnerships to fund capital projects and offset growing operating costs. For instance, certain universities have worked with third parties to monetize certain assets such as dormitories, parking facilities and power plants. Potential risks with this model include the loss of control of the underlying asset, the potential impact on future costs, or reputational risk to the brand.

The impact of all of these factors is leading to increases in mergers, closings and consolidations. Retired Ohio University economics professor Richard Vedder predicts 500 U.S. colleges will close in the next decade.² Institutions that are tuition dependent are feeling the pressure to diversify their revenue streams or consider partnering with others to stay viable. Certain institutions have closed their doors without significant notice or alternative options for their students. When these closings happen, it shines a light on the industry as a whole and often requires a reaction from politicians. This in turn puts pressure on all institutions to justify the value they provide to their students, especially when colleges and universities are receiving governmental support or are benefiting from their tax-exempt status.

Our perspective

Each institution's long-term plan will look different based on individual facts and circumstances. Although one size does not fit all, the status quo is not an option. We continue to see expanding disparity between the "haves" and the "have nots". The challenge for financially strapped liberal arts and other colleges is about survival and being able to make their budgeted enrollment so they can cover their operating costs. Yet, endowments for some institutions are at an all-time high and top-tiered schools appear to be thriving.

For the top colleges and universities, current issues include maximizing the return on endowment, competing for the best students, and navigating the regulatory and political environment. Immigration and international footprints will also continue to be an area of focus as many top students come from outside the U.S. Colleges and universities will need to rethink their domestic and global recruiting process to continue to thrive in an environment of increased competition.

Financially stable, tuition dependent institutions will need to continue to focus on what programs are being offered, and aligning these with student demands. To continue to be successful, these institutions will need to challenge conventional thinking when it comes to content delivery and put an emphasis on credentialing their students with skills that are marketable and give them the best chance of success after graduation.

Colleges and universities without a stable financial situation will struggle to maintain their current position and will need to rethink future strategies. The demand for capital to stay competitive will continue to be financially challenging. Consideration should be given to partnerships, strategic alliances, or other alternatives as a means to continue their educational mission.

It is clear that the landscape in higher education is changing. Enrolling the optimal mix of students while also increasing tuition annually are no longer a given. Each institution has to be able to better communicate their value proposition due to the increased competition and awareness of the student as a consumer. Higher education institutions are under great scrutiny, both from a regulatory and funding perspective, and historic levels of federal and state funding are at greater risk now more than ever. Now is the time for institutions, and the boards that govern them, to ensure that they have a clear vision of the road ahead and that there is consensus on where the risks and opportunities lie.

² Boston Globe – April 2018

Emerging Trends in the Workforce

Background

Along with many other industries, higher education finds itself in the midst of unprecedented and rapidly accelerating change fueled in large part by the explosion of technological advances. Big data, artificial intelligence, robotics, machine learning and other forms of automation and advancing technology have become almost ubiquitous and are expected to significantly impact work environments. According to the World Economic Forum, automation could replace millions of jobs in the U.S. within the next 5 to 7 years³, and by 2020 more jobs will require cognitive abilities, systems skills and complex problem solving skills. The figure globally is exponentially higher. This includes science and technical skills to create and advance emerging technologies, as well as analytical and critical thinking skills needed to use those tools, communicate and translate the learnings and innovate to maximize the benefits. Contrasting the need for these skills is an apparent gap in filling them, as 32% of U.S. CEOs surveyed are extremely concerned about the availability of key skills.⁴ Organizations tomorrow will still need people, but with different competencies than exist today.

While there appears to be broad acknowledgement of the expected impact of technology on employment, strategic plans identifying ways to leverage and benefit from the changes are much fewer. With challenges, however, come opportunities that should excite leaders and organizations willing to embrace them. According to PwC research on the topic, employees expect change and are ready for it. While more are worried about automation displacing jobs (37% of survey participants) and 60% believe jobs will no longer be as stable over their careers as they have been in the past, 74% are ready to retrain and learn new skills and 73% believe technology can never completely replace the human mind.⁵

In addition to a changing workforce driven by automation, employee expectations are also driving change. Overall physical, mental and spiritual well-being are no longer personal, non-work related concepts. Employees are demanding workplaces where they can not only grow and develop skills, but also contribute to a larger purpose and maintain or advance their well-being. Emerging definitions of success, which are more holistic than the traditional trappings of career success such as titles and salaries, are contributing to a dynamic new work environment that will significantly shape organizations in the future. This emerging generation of employees is also much more global and urban, expects a diverse and engaged workplace that more closely aligns with their experience, and is less patient about waiting for change.

Colleges and universities find themselves at the epicenter of this changing environment given their responsibility and mission to prepare students as they advance through youth to become contributing adults in society. Campuses also provide a platform for new generations to explore and weigh in on the fundamental values that underpin their society. College leaders have the complex task of addressing these challenges not only for their students, but for their workforce.

Impact on educational institutions

Despite the importance of technological advances, the ultimate value to society of colleges and universities is grounded in people. Their missions of education and research are for the benefit of people, individually and collectively, and are accomplished by people. Institutions advance knowledge and contribute to local, national and global communities by preparing new generations through education, and by pursuing and sharing new knowledge

³ Towards a Reskilling Revolution: A Future of Jobs for All, January 2018

⁴ PwC 21st Annual Global CEO Survey, January 2018

⁵ PwC Workforce of the Future: The competing forces shaping 2030

through research and related scholarly activities. The advancing technologies are tools to be used by people to advance the greater good.

To continue to excel and advance their missions, institutions have recognized the need to update their curriculum and their campuses to keep pace with not only technological advances, but also the evolution of personal wellness, including mental support. This has included new courses, majors and paths to graduation, micro credentialing, and other offerings for students to keep pace and meet the new definitions and requirements for career success. It has also included substantial investments in students, particularly as it relates to the diversity of students on campus, and wellness and the overall student experience.

It will also be necessary for institutions to make these same investments in their employees and faculty to ensure they have the right skills and competencies for the future, and that they are attracting and retaining the necessary talent as the competition for talent escalates more rapidly. Rich benefits, the promise of a long and stable career, successful alumni connections, and to some extent, educational opportunities for interested and motivated employees have long attracted talent. These lures, however will likely not be sustainable and may prove too costly in the emerging economy. In the future, colleges and universities will need to shift their employment model and culture towards growth and development for all employees as opposed to a stay and contribute model.

Our perspective

In relation to their workforce, leading organizations need to move more quickly and deliberately than they have in the past and should start taking incremental steps now to continue to ensure their human resource model supports the emerging workplace demands in helping the development and growth of their people. Questions that should be considered in assessing and advancing this objective include the following:

- How is the institution focusing on competencies and skills, rather than job or task specific experiences?
- How is the institution identifying new talent that is analytical, collaborative, innovative, and demonstrates creative problem solving? How is the institution encouraging and rewarding the development of these competencies?
- What is being done in house to further develop appropriate skills or to reskill employees where necessary? Where might partnerships and collaborations assist with this?
- What does advancement look like with less transactional focus?
- What can be automated, outsourced or eliminated?
- How can the institution create more flexibility in jobs? For instance, up to 30% of positions may be filled by temporary or contract employees in the future. Not only do newer generations want more flexibility, but organizations need to be able to flex more quickly as the nature of business and jobs continue to rapidly change and emerge.
- How can disparate initiatives surrounding health, diversity, engagement and other employee focused activities be integrated with a more holistic view towards creating a more meaningful employee experience?
- How does the institution reinforce deep connections to the larger purpose and mission?
- How does the institution advance a culture of inclusion and ensure greater diversity on the leadership team and throughout the organization?

Institutions that are able to engage their people through shared purpose, as well as invest in growing and advancing the collective skills of the entire organization, will lead this revolution.

Washington Update

Background

The Trump administration's deregulatory agenda has reached every corner of the federal government including higher education related policies and procedures. While Congress is working toward a reauthorization of the Higher Education Act (HEA), it is likely that the Administration will continue to be the primary driver of change within the higher education sector. Legislated reforms are expected to originate outside of a full-scale HEA reauthorization, which is unlikely to be enacted this year. Below we highlight drivers in federally directed changes to higher education, with a focus on the impact to funding programs.

Impact to educational institutions

Higher Education Act Reauthorization

The HEA, which authorizes numerous federal aid programs that provide support to both students and higher education institutions, has not been updated in more than a decade. The last reauthorization – the Higher Education Opportunity Act of 2008 – was signed into law by President George W. Bush in his final year in office. While attempts were made to pass a reauthorization during the second term of President Obama, his administration's policy measures never generated serious consideration. This year, Congress is again mounting an effort to reauthorize the HEA, but the Senate and House are taking markedly different approaches and are at different stages in the process.

On December 13, 2017, the House Education and Workforce Committee voted along party lines to approve the PROSPER Act – introduced by Chairwoman Virginia Foxx (R-NC) to reauthorize the HEA. While bipartisan support exists for several of the bill's provisions, such as those aimed at updating the Free Application for Federal Student Aid process, expanding Pell Grant eligibility, and consolidating the direct lending process, other provisions are more controversial and have been criticized for inhibiting the scale and scope of affordable lending options to students.

To that end, the PROSPER Act does echo many of the policies set forth in President Trump's fiscal year 2019 budget request to Congress, such as eliminating the Public Service Loan Forgiveness Program (PSLF) and subsidized loans, changing federal borrowing limits, reducing repayment options, and simplifying federally funded aid into two independent loan and grant programs. While the majority of students borrow directly from the Department of Education (ED), private loan volumes have increased in recent years, and the bill, if enacted, is expected to accelerate that trend. The legislation would also allocate Title II funding to a new grant "earn and learn" program and double the amount allocated for the Federal Work Study Program, but would change the formula for school fund allocations and eliminate eligibility for graduate and professional students.

The PROSPER Act also seeks to provide regulatory relief to certain higher education institutions and lenders by rolling back policies promulgated under the Obama administration. This includes the high-profile Borrower Defense to Repayment and Gainful Employment regulations, among others. The bill would also block states from legislating and regulating federal student loan servicers.

While Chairwoman Foxx has been in talks with House Republican leadership to bring this bill to a full House vote, the PROSPER Act, as currently written, is unlikely to become law. If the bill is considered on the floor, a largely party-line vote is expected. By comparison, the 2008 HEA reauthorization that was produced by the Committee cleared the House with overwhelming bipartisan support by a vote of 354 to 58.

Deregulation and the Trump Administration

The Trump Administration, including the ED and other agencies, have aimed to deregulate certain areas in the higher education arena. On March 9, Secretary of Education DeVos released a memo arguing that state laws that govern student loan servicers are invalid, because they undermine the federal government's role. It is unclear when deregulation of the state laws could take effect, but it could impact the six states that already have student loan servicing laws in place.

Secretary DeVos has also suspended the Gainful Employment Rule and the Borrower Defense to Repayment regulations and is rewriting those regulations through a negotiated rulemaking process. DeVos explained that she wanted the regulations to be less confusing and less burdensome to higher education institutions. While there has not been much headway on creating these new rules, a draft memo from the rulemaking board stated that the ED would no longer impose sanctions on low-performing programs that do not prepare students for 'gainful employment in a recognized profession' at for-profit colleges and other career schools.

Current Student Loan Considerations

On the campaign trail, candidate Trump made a point to emphasize the increasing costs of tuition and student loan debt as topics for policy reform. These topics included: (1) capping tuition repayment plans at 12.5% of income over 15 years; (2) a consolidation of existing repayment plans; (3) promoting tax and investment incentives for colleges and universities to cut tuition costs; and (4) doing away with Federal Student Loan programs in favor of a "market-driven" system. However, in the months since his inauguration, President Trump has largely stayed the course and notably did not reference the cost of higher education or student debt burden in his State of the Union address.

President Trump's fiscal year 2019 budget proposal hones in on removing the PSLF program, eliminating subsidized student loans, and creating a single income-driven repayment plan in an effort to save a net estimated \$203 billion over 10 years. President Trump also outlined an expansion of the Pell Grant program to include certificates and short-term education programs as well as increased funding for the Federal Work Study program. However, the President reduced the overall discretionary spending for the ED by \$3.6 billion.

Perhaps the most controversial proposal is for an all-out elimination of subsidized loan programs. Under the fiscal year 2019 budget plan, the federal government would stop paying interest on student loans that were traditionally given to need-based undergraduates who were exempt from paying accrued interest until after graduation. Critics have argued that this initiative would put the nearly 6 million annual recipients of these loans at risk of being driven out of college. The Institute for College Access and Success estimated that eligible students would end up paying 16% more with accrued interest charges, and that the move would balloon into an additional \$23.4 billion in tuition costs for students over the course of 10 years.

Research & Research Funding

Research has been a consistent target in President Trump's budget proposals. In last year's fiscal year 2018 plan, the President proposed cuts to the budgets of major federal agencies that provide a significant funding pipeline to university research grants and projects. These suggested budget cuts included:

- 22% cut to the National Institutes of Health (NIH)
- 11% cut to the National Science Foundation (NSF)
- 70% cut to research on energy efficiency/renewability at the Department of Energy
- 44% cut to science and technology research funding at the Environmental Protection Agency (EPA)
- 78% cut to the National Endowment for the Humanities (NEH)

The majority of this research funding goes to institutions of higher education, with NIH grants alone supporting the research of over 300,000 researchers at more than 2,500 universities, medical schools, and research institutes. The backlash from agency heads and the academic community was significant, citing devastating consequences to the nation's economy, education system, and innovation in science and technology.

Lawmakers largely rejected these provisions in the spending bill, increasing funding for the NIH (\$2 billion) and NEH (\$2 million), while keeping NSF's budget consistent and only reducing the EPA's budget by 3%. President Trump's fiscal year 2019 budget proposal was nearly identical to his fiscal year 2018 plan, with only slight variations in the percentage point changes to budget reductions. Considering the bipartisan opposition to these provisions in the past, and the growing aversion to another government shutdown, it seems unlikely these controversial cuts will have a major part in the upcoming round of budget deliberations.

Immigration Considerations

According to a report published last year by the Institution of International Education, new foreign enrollment in American universities was approximately 291,000 in 2016 — a 3% drop from the previous year, representing the first decrease in growth the organization has recorded since it first started tracking those figures. It separately received feedback from 500 schools in the fall of 2017 who reported an average 7% drop in new international enrollment.

Shortly after the Trump administration announced that it would rescind the federal DACA program, dozens of universities declared their opposition to the move. Within days of the announcement, major colleges and higher education systems and associations issued critical statements. Later in the year, more than 200 university leaders signed a letter to the President urging him to protect and expand DACA. Universities across the country have quickly developed plans for responding to potential enforcement actions, ensuring immediate protection for DREAMers, and communicating university policies to enrolled DREAMers.

University presidents sent a letter to President Trump urging him to rescind his executive order banning immigrants from seven majority-Muslim countries and suspending the country's refugee program. Certain universities independently spoke out against the ban, as students or professors became stranded while traveling abroad, unable to return to the U.S. because of the order. Universities also explained that, in the long run, the order could have a negative financial impact on universities.

Our perspective

The preceding summary is a high-level briefing of selected regulatory matters that educational institutions are currently focusing their resources – or may need to focus their resources – to ensure compliance and to manage the risk associated with noncompliance.

The attention to higher education from Congress, the President, and other regulatory bodies is not slowing down. While some legislation is in progress to streamline compliance requirements and reduce the financial burden, other legislation may result in more compliance requirements and added cost of implementation. Therefore, educational institutions should stay abreast of the rapidly changing compliance requirements and continue to be vocal with regulatory bodies and political leaders as to their perspectives on proposed changes and the regulatory cost associated with such changes.

Tax Reform

Background

On December 22, 2017, President Trump signed the 2017 Tax Reform Reconciliation Act (the Act). The Act impacts institutions in several ways, including new excise taxes on compensation and net investment income, taxation of certain fringe benefits, and segmentation of unrelated trade or business activities. The following outlines the key provisions of the Act.

- *Inclusion of Certain Fringe Benefits as Unrelated Business Income (UBI)* – The provision provides that organizations must include as UBI amounts paid or incurred by the organization for the provision of certain benefits provided to employees, including qualified transportation fringe and parking facilities used in connection with qualified parking. The provision arose out of a similar provision in the Act which removed the deduction for transportation fringe benefits previously available to taxable entities. Further regulatory guidance from Treasury is expected to clarify the types of expenses includable as revenue under the provision. This provision was effective beginning January 1, 2018.
- *Segregation of UBI Activities* – Similar to other taxpayers, exempt organizations taxed on UBI are able to report all of their UBI activities together and pay tax on the net income of the organization. If any net operating loss (NOL) is generated, it can be used against any source of UBI (subject to the NOL rules). Beginning in fiscal year 2019, the Act provides for a significant reporting change. Under the new statute, the UBI of an organization that has more than one trade or business now must be calculated separately for each trade or business. A loss from one activity may not offset taxable income from another trade or business, and NOLs are calculated separately for each trade or business going forward and can only be used to offset 80% of net income. NOLs generated prior to fiscal year 2019 can still be used to offset 100% of income from all activities and are subject to a 20-year carryforward period.
- *Excise Tax on Certain College and University Net Investment Income* – The Act imposes a 1.4% excise tax on the net investment income of certain private colleges and universities that have at least 500 full-time tuition paying students and assets with a fair market value which equals at least \$500,000 per full-time student. The excise tax is initially expected to impact 30 to 40 colleges and universities, but this number is expected to increase with the continued growth of university endowments. Assets that are used directly in carrying out an institution's exempt purpose are not taken into account in determining the value of its assets. In computing an institution's assets and its investment income subject to the tax, assets and income of certain related organizations are included. The tax calculation is structured similar to the rules applicable to private foundations per the statute with additional details on calculations and reporting expected from Treasury. The provision is effective for tax years beginning after December 31, 2017.
- *Excise Tax on Compensation Over \$1 Million and Excess Parachute Payments* – This provision imposes an excise tax of 21% on compensation above \$1 million paid to certain "covered employees." Covered employees generally include the top five highest compensated employees of the organization plus any employee who was a covered employee in a prior year. The excise tax also applies to "excess parachute payments" paid to covered employees and amounts paid by related organizations. Compensation is defined as wages subject to income tax withholding. Compensation does not include remuneration paid to licensed medical professionals for the performance of medical services. The statute structures the provision to be applicable on an organization by organization basis and based on fiscal year compensation. Further guidance is expected through Treasury regulation. The provision is effective for tax years beginning after December 31, 2017.

The Act also includes several other provisions of interest, including the following items. These provisions were effective January 1, 2018.

- Denial of a charitable contribution deduction for amounts associated with athletic seating rights
- The removal of the deduction and wage exclusion for qualified moving expenses
- Elimination of advance refunding bonds for tax-exempt financings. The elimination of advance refunding bonds means that colleges and universities can no longer refund bonds that are not immediately callable with tax-exempt financing. Taxable financing or use of other capital will be necessary to refund these issues going forward.

Impact on educational institutions

While there are several provisions affecting colleges and universities, the full impact of the Act will not be known until further regulatory guidance is provided to assist organizations with calculating income and excise tax liabilities. Regulatory guidance timing is generally unknown, but Treasury is expected to issue guidance on UBI matters in late June 2018. Organizations are however taking steps to prepare and budget for the impact of tax reform.

For colleges and universities that are potentially subject to the excise tax on net investment income, or that may be subject to the excise tax in the future since the applicable limits are static and do not index for inflation, significant effort is needed to prepare for the complex calculation. As currently structured, consistent with calculations for private foundations, the calculation of net investment income will require applicable colleges and universities to capture a wide range of investment income, including interest, dividends, royalties, rents, and realized gains from the sale of property. This includes tracking flow-through income from alternative investments. Adding to the complexity, colleges and universities have diverse assets and income sources beyond the types of assets owned and income generated by private foundations, which has caused uncertainty with applying the rules to colleges and universities. The inclusion of related organizations will cause additional investment income to be subject to the tax, including, perhaps, the investment income of academic medical centers. Colleges and universities are working now on modifying systems and preparing for reporting requirements.

In connection with the excise tax on compensation over \$1 million on certain covered employees, colleges and universities are looking at current compensation arrangements and determining if changes can be made to reduce remuneration subject to the excise tax. Further, budgeting decisions must be made as to what department will bear the cost of the excise tax in its budget.

The Act will also have a significant impact on UBI reporting of colleges and universities. Many institutions, particularly those in urban areas, provide generous transportation benefits that are subject to potential inclusion as UBI. Colleges and universities are currently considering modifying such benefits or absorbing the additional tax expense. Further, the segmenting of UBI activities raises a number of questions, including how separate trades or businesses will be identified as well as treatment of investments. Organizations continue to wait for additional guidance before modifying UBI structuring.

Colleges and universities with athletic programs are considering how to handle seating rights now that no charitable contribution deduction is allowed for individuals (and businesses) who contribute in exchange for athletic seating rights. Organizations are looking at the impact to existing programs and whether modification will be needed to retain funding.

Our perspective

Tax reform provisions will have a significant impact on colleges and universities including increased tax costs and additional tracking of information needed to complete tax calculations.

Although regulatory guidance is necessary for several provisions, colleges and universities should begin to consider potential structural and business process changes that may be necessary as a result of tax reform. For those institutions potentially subject to the excise tax on net investment income, the development of modeling should be considered to determine whether they meet the threshold for the excise tax on a yearly basis. Institutions subject to the tax now, or potentially in the future, should work closely with their investment office to develop strategies and resources to assist with the gathering of additional data and tax basis calculations. Institutions should also be working with their related organizations (such as academic medical centers, museums and other related entities) to determine what information is necessary for the tax. Related to the compensation excise tax, this tax could present opportunities for structuring remuneration to reduce the total tax liability, including the use of arrangements to reduce current-year compensation.

UBI reporting changes bring both challenges and opportunities. The treatment of certain qualified transportation fringe should cause organizations to review the benefits they provide. State taxing authorities may follow federal tax treatment. Colleges and universities should gather data necessary to assess the liability and make estimated payments as necessary. The segmentation of UBI could significantly impact UBI reporting from on-campus UBI activities and investments, but further guidance is necessary to assess the full impact.

Institutions will need to carefully consider the impact of tax reform, including the potential data gathering necessary to comply with changes, estimating the additional cost, and the potential impact to business operations, financial reporting, and existing tax processes.

Affordability

Background

What should be considered when determining the affordability of a college education? What is the definition of affordable? Factors other than the cost of tuition, room, board, books, and fees need to be reflected in this definition. Consideration should also be given to what a student will get in return for the amount paid to determine the true value of a college degree and whether or not it is affordable.

Although higher education has become more expensive than ever before, a higher education degree has never been more valuable. College graduates with a bachelor's degree typically earn 66% more than those with only a high school diploma and are also far less likely to face unemployment. However, low-income students, first-generation college students, and minority students, in particular, are being underserved by the current system. Just 9% of students from the lowest income quartile graduate with a bachelor's degree by age 24, compared to 77% from those in the top income quartile.⁶

Providing full access to students at all income levels continues to challenge many colleges and universities. Uncertainties in future funding at both the state and federal levels, combined with increases in cost, will continue to strain financial resources. For private colleges and universities, this means more reliance on institutional resources or endowments to fill the financial gap left in the neediest students' financial aid packages.

Impact on educational institutions

Institutions are continuing to define their value proposition and are refining their messaging to demonstrate to the public the value that will come from the price paid for an education at their institution.

As the cost of four year institutions continues to climb, community colleges will likely play a larger role in ensuring access and affordability. Financial aid is also going to become more important to alleviate the costs of obtaining a degree. As federal budgets are cut, grant aid will cover a much smaller percentage of total tuition costs, while more of the financial aid given to students may be in the form of loans. Since the start of the Great Recession, student loan debt in the U.S. has doubled, with every graduating class owing more for their college degree than the class before. More than 44 million people owe a total of \$1.4 trillion for their college educations.⁷ This is more than the nation's credit card debt. The number of people over 60 with student loan debt has quadrupled in the last decade from 700,000 to 2.8 million. That group's share of the debt has skyrocketed from \$8 billion to \$67 billion and many are having loan payments deducted from their Social Security checks.⁸

While the final tax bill has less impact on higher education than earlier drafts of the bill, the legislation places a 1.4% excise tax on the net investment income of certain private colleges and universities that have at least 500 full-time tuition paying students and assets with a fair market value which equals at least \$500,000 per full-time student. For several years, government representatives have been raising questions regarding not-for-profit institutions and the appropriate use of their endowment funds. This tax on the wealthiest colleges and universities could be construed as addressing criticism of colleges and universities that continue to raise tuition and fees at their institutions while garnering double-digit returns on their endowment portfolios.

⁶ <https://www.ed.gov/college>

⁷ <https://www.nbcnews.com/think/opinion/student-debt-crisis-threatens-american-way-life-washington-can-t-ncna860556>

⁸ <https://www.debt.org/students/>

Our perspective

The economy is near full employment in many parts of the country, but young adults still have more trouble finding jobs than more experienced workers. The struggle is even more difficult for those who do not have a college degree. The unemployment rate for recent college grads ages 22 to 27 is just 4%, which is less than half the 8.5% unemployment rate for workers of the same age who don't have a college degree.⁹ Given this, the value of a college degree continues to be strong.

At the same time, as tuition rates rise, the level of student debt is rising as well. The increase in student debt will continue to have long-term effects. When graduates are making substantial monthly payments on their student debt, they are less able to invest in their future, such as housing and retirement. As student debt rises, it will be important to sustain financial aid counseling so graduates are well-educated on their repayment requirements and the impact it will have on their future financial status.

While the affordability of a college education continues to be challenged, one consideration that should be given in determining the value of a college degree is the potential lifetime earnings of college graduates versus high school graduates. The earnings gap between college graduates and all others has reached its widest point on record. A college graduate can expect to earn \$1.3 million more than high school graduates over the course of their working lives.¹⁰ In addition, earnings increase as the level of advanced degree attained increases, and unemployment levels decrease.

Institutions will need to continue to address cost and value with prospective students and be transparent related to expected costs, as well as financial aid and loan options. It is important for institutions to continue one-on-one admissions and financial aid counseling to ensure prospective students have an accurate picture of the true cost of attendance at a particular institution rather than relying only on website data. Institutions should be mindful of how they define whether their institution is affordable, including demonstrating the expected future opportunities that will be available based on a prospective student's education.

⁹ <http://www.thefiscaltimes.com/2017/07/05/Value-College-Degree-One-Simple-Chart>

¹⁰ <https://www.debt.org/students/>

Internationalization

Background

Internationalization continues to be a key area of focus for colleges and universities. International strategies take many forms including global recruiting initiatives, increased study abroad options, establishing a greater physical presence through overseas branch campuses or collaborations with other institutions, and expanding virtual and distance learning.

Statistics on the effect of internationalization point to the need for ongoing attention by trustees and senior management. While international student enrollment in U.S. institutions was up between 2012 and 2016, studies show a decline in 2017 compared with 2016, including a 2.2% decrease in undergraduate international student enrollment and a 5.5% decrease in graduate international students.¹¹ The main drivers of this decrease include increased competition around the globe as other countries are focusing on their level of efforts in internationalization of education, the high cost of tuition in the U.S. and the uncertain political climate regarding immigration policies.

This data highlights the urgency for American institutions to develop formal and agile strategies, as well as thoughtful plans around future international efforts. Additionally, as institutions continue to look for ways to optimize and diversify revenue, international efforts are seen as a way to achieve growth beyond the traditional revenue streams.

Impact on educational institutions

Internationalization and what it means to a particular institution and its students continues to evolve. As institutions wrestle with the related opportunities and challenges, some critical focus areas include the quality of academic programs, the need for stringent recruiting practices, and the financial and regulatory implications of overseas expansion. Details surrounding these focus areas include the following:

- *Recruitment practices and support services* - To attract and retain international students, U.S. colleges and universities have created policies and procedures to facilitate the recruitment process, including providing students with transparent admissions requirements and clear information about the cost of attendance. Oversight of overseas admissions counsellors and/or independent contractors has been important to ensure they are abiding by established principles and practices of a university. Additionally, once international students are present on a campus, colleges and universities are establishing ongoing support programs to aid students with integration into the culture of the institution.
- *Maintaining standards of academic programs* - As institutions deal with domestic pressures to define and measure the quality of a student's academic experience, expanding globally increases the challenge of monitoring whether the international academic experience is on a par with the institution's standards established in the U.S. Maintaining academic quality while students are abroad is important to preserving the institution's reputation. Leading universities have considered establishing quality assurance programs to ensure the experiences overseas coincide with the expectations of the domestic campus. Other institutions are also integrating international experiences into their core academic curriculums.

¹¹ Inside Higher Ed: "NSF report documents declines in international enrollments after years of growth", January 22, 2018

- *Regulatory requirements* – When an institution’s presence is contemplated in a foreign country, multiple rules and regulations must be considered, including licensing requirements, taxation, student visas, and export rules, among many others. Whether establishing an overseas location, sending faculty and students to a foreign country or setting up a recruiting office, U.S. institutions are involving both domestic and international legal counsel, as well as other specialists knowledgeable about the regulatory requirements in a specific country.
- *Financial considerations, including employee compensation* - Regardless of the type of foreign program established, long-term forecasts and budgets are being considered to determine the viability of international expansion. Projections that consider fluctuating enrollment, currency exchange variability and operating and capital requirements are being factored into the forecasts that are developed. Colleges and universities are also evaluating the compensation and benefits provided to foreign faculty and administrators to determine how they align to U.S. policies.

Our perspective

It is important for colleges and universities to continue to pursue a variety of international strategies in order to retain and attract current and future students. These strategies could include educational alliances and research partnerships, developing short-term global projects and programs, maintaining overseas campuses, expanding international recruitment efforts or offering online classes to reach students or professors around the globe. Institutional policies and procedures around internationalization should be clearly set forth and communicated across the college or university.

As trustees and senior leadership consider international strategies for their institution, the following questions should be considered:

- Which international strategies best align to the institution’s mission and vision?
- Are there clear policies and procedures for the recruitment of foreign students?
- How are international programs monitored to ensure they meet domestic standards?
- Have legal and regulatory considerations been explored before expanding into a new country?
- What is the budget and oversight process around international activities?
- Is there the appropriate support structure and related programs for international students?
- Are safety protocols in place for students and faculty traveling abroad?
- Have collaborations been explored with other domestic institutions when pursuing an international strategy?
- Are there alternative plans if trade regulations, immigration policies or other rules cause borders to be closed or U.S. or foreign students to be prevented from traveling?
- How can technology be used and leveraged to meet an institution’s international strategy?
- Is there diversification of countries that are recruited from or partnered with to sustain and grow revenue?

Internationalization provides opportunities for students to learn what it means to be culturally sensitive in a global environment and to find ways to develop relationships and interact with people around the globe. These opportunities will help students develop skills that will benefit them in their future careers by learning how to communicate with others and by broadening their outlooks to appreciate and understand different perspectives. Institutions are aware of this and, as such, continue to define their international strategic objectives in the short and long term, while being flexible enough to be proactive in the face of international socioeconomic and other industry trends.

Current Trends in Cybersecurity

Background

Colleges and universities are under increasing scrutiny by both internal and external stakeholders to provide a level of assurance that sensitive and confidential information collected and processed by the institution is protected from cyber threats. Pressure from external regulators, including the U.S. Department of Education and the European Union Parliament with the release of General Data Protection Rules (GDPR), is catching the attention of trustees and audit committees. In turn, these executive stakeholders are challenging information technology (IT) and information security (IS) leaders to evaluate the capabilities and maturity of their existing cybersecurity programs. Additionally, cyber incidents affecting the private information of hundreds of millions of consumers continue to gain public attention because of increased media scrutiny. High-profile cyber incidents and resulting resignations of senior leaders of several major U.S. companies suffering from recent cyber-attacks have prompted many higher education institutions to ask themselves about the state of their own cybersecurity programs.

The release of advanced cyber hacking utilities and methodologies stolen from the U.S. Intelligence Community in 2017 has provided nation state actors, organized crime, and individuals with unprecedented access to offensive cyber capabilities. These malicious actors are weaponizing cyber technologies against new targets, including higher education. As a result, the rate of incidents of severe malware infestation, destruction of critical information assets, and information systems held for ransom has increased dramatically in recent months. The profile of the criminal actor has changed from those motivated by political activism to those motivated by financial gain. Personal information stolen from credit bureaus, medical records, and credit cards results in identity theft against consumers, including students and families. The rise of Bitcoin motivated ransomware has hit multiple sectors, and colleges and universities have not been exempt from these attacks.

Impact on educational institutions

Regulators have responded to pressure from consumers and legislatures to develop stronger oversight programs for colleges and universities that collect, store, or process personal information.

Department of Education (ED)

The Gramm-Leach-Bliley Act (GLBA) of 1999 outlined a broad set of requirements applicable to financial institutions processing personal financial information (e.g., student loans) to safeguard sensitive data. While this rule has been around for nearly 20 years, and applicable to institutions of higher education since 2003, ED and the Federal Student Aid (FSA) office have introduced an audit objective for fiscal year 2018 that includes an audit of an institution's adherence to the GLBA Safeguards Rule. The rule outlines broad cybersecurity program attributes against which colleges and universities will need to demonstrate appropriate capabilities, including:

- The existence of a formal information security program designed to protect the security and confidentiality of customer information, protect against anticipated threats or hazards to the security or integrity of customer information, and protect against unauthorized access to, or use of, customer information
- The information security program must include the following attributes:
 - Designate an employee to coordinate the information security program
 - Identify reasonably foreseeable internal and external risks to the security, confidentiality, and integrity of customer information
 - Design and implement safeguards to control the risks identified through risk assessment activities
 - Oversee potential cyber risk introduced through the use of service providers

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- Continually evaluate and adjust the program based on the results of risk assessment activities, control testing, incident response, or material changes to control operations

Research Institutions and National Institute of Standards and Technology (NIST) 800-171

Since the requirements outlined in GLBA are high level, the specific control details to be implemented by each institution are left to the institution to determine. Every institution's environment is different, with unique technologies, risks, and processes. As such, each college and university will have a unique response to the broad requirements outlined in GLBA. Without some formal structure to organize these controls, it can be difficult to determine if a holistic program has been considered, or if there may be gaps in the cyber capabilities developed by the institution.

Additionally, research institutions with relationships with the U.S. Government have additional cyber requirements imposed upon them through contracts. Any organization, including higher education, in receipt of Controlled Unclassified Information (CUI) in non-Federal systems is required to comply with the controls outlined in NIST Special Publication 800-171, "Protecting Controlled Unclassified Information in Nonfederal Systems and Organizations." In higher education, many institutions perform research and product development using data sets that fall under the broad category of CUI. In these instances, the research team is likely required, as part of the research agreement, to apply the controls outlined in NIST 800-171 to the technologies storing, processing, or transmitting CUI.

As a result of the widespread application of NIST 800-171 across research organizations within higher education, FSA and ED have provided recommendations to institutions now also facing GLBA audits to adopt the NIST 800-171 portfolio of controls as the baseline for the enterprise-wide cybersecurity program. NIST 800-171 outlines cybersecurity controls and capabilities across 14 high-level domains:

- Access control
- Awareness and training
- Audit and accountability
- Configuration management
- Identification and authentication
- Incident response
- Maintenance
- Media protection
- Personnel security
- Physical protection
- Risk assessment
- Security assessment
- System and communication protection
- System and information integrity

While each institution is not expected to implement every control defined within 800-171, institutions should be able to articulate why specific controls have been implemented, or not implemented, in response to their identified risks.

Our perspective

Consumers, families, and students will continue to expect that their personal information is protected against theft and fraud resulting from a cyber incident at their institution. Regulators are responding by demanding that institutions demonstrate that they are aware of the risk environment in which they operate and are developing cyber protection capabilities in response. Business partners, research partners, and peer networks are holding each

other accountable throughout the value chain to help protect against a high-profile cyber incident. Trustees and administrators must recognize the risk to their institution in the event of a severe cyber incident.

An effective response to these cyber risks requires the IT and IS departments to broaden their views of cyber risk, and establish a programmatic response to managing these risks. Good governance begins with an understanding of risk, independent credible challenges to the maturity of existing cyber protections, and a commitment to continuous improvement at all levels of the institution. At a minimum, institutions of higher education must have the following basic elements in place to respond to a regulatory audit or inquiry from an outside party:

- Perform a formal cyber risk assessment across the entire institution at least annually
- Adopt an industry leading security framework, such as NIST 800-171, and align controls to the risks identified through the risk assessment
- Regularly test controls through independent challenges. Penetration testing, social engineering, and maturity assessments are common methods to evaluate the strength of existing protections
- Monitor progress of remedial activities identified through testing results
- Report on progress to executive stakeholders, including the audit committee and the full board of trustees

Managing Risk Associated with Disruptive Innovation

Background

Disruptive innovation is a term that has become a common way to describe the pace of change being experienced across nearly all industries. While disruptive innovation can lead to great opportunities for advancement, it also brings about more complicated risks and thus the need for more advanced risk management programs. Those tasked with risk management oversight at organizations – from executives in compliance and internal audit to board members – are struggling with how to effectively manage risk in an innovative environment while attempting to mitigate risks that may be unknown or not well-defined in a new landscape. One item most executives agree on is that the only risk that may be more significant than disruptive innovation is the risk of not innovating at all.

One of the most significant drivers of disruptive innovation is technology advancement. According to a recent PwC Survey of Global CEOs, the speed of technological change is a top risk to their institution.¹² As barriers to entry continue to fall, organizations are immersing themselves in innovation, which is made possible largely by technology enablement. Artificial intelligence, connected devices (the “Internet of Things” or “IoT”) and ever-increasing computing power are just a few of the technologies disrupting processes, organizations, and even entire industries. In varying degrees and at varying rates, these technologies impact all businesses and the lives of the people in those businesses.

It has become increasingly important for all organizations, including those in higher education, to evolve their risk management functions to be more prepared in the face of disruptive innovation. This evolution will include making changes to risk management processes and protocols, ensuring the right skills and competencies are in place to govern the risk management program, and harnessing new tools and technology to support the assessment of innovation-related risks.

Impact on educational institutions

Some of the most disruptive innovations in recent years have been fueled by ideas that were developed by students on campuses. These ideas led to innovations that have forever changed society – the internet, social media and other technologies. Higher education leaders are under pressure now more than ever from students and other constituents to embrace a culture of disruptive innovation, and to deliver more value for tuition.

The higher education industry continues to leverage technology to remain relevant to its constituents. Students expect their undergraduate and graduate programs to be technologically savvy, allowing them access anytime, anywhere. “There’s an App for that” is not just a saying; it’s an expectation for current students. YouTube is part of virtually every course, either by design, or because students use it to expand their learning. The use of and demand for online learning and technologically advanced classroom experiences have grown exponentially. Researchers at academic research institutions are expanding use of cloud storage and the ability to store and easily share large amounts of data, enabling them to be ever more productive. Analysis of massive amounts of data is no longer confined to time consuming, painstaking weeks; data analytics and visualization bring data alive with a few clicks of a mouse. Artificial intelligence is starting to invade diverse aspects of university operations, from academic advising to financial aid support to facility efficiency.¹³ Technology, in various forms, is having a pervasive effect on all aspects of institutions of all sizes.

¹² <https://www.pwc.com/gx/en/ceo-agenda/ceosurvey/2018/gx/business-threats.html>

¹³ “How A.I. is Infiltrating Every Corner of the Campus,” Chronicle of Higher Education, April 8, 2018.

These new technologies are increasing the significance of current risks and, in some cases, creating new categories of risk for higher education institutions. How secure is the data researchers store in the cloud and share with others? How does an institution defend itself from the thousands of cyberattacks executed on a daily basis, such as the coordinated Iranian hack of over 140 research universities? How are IoT devices on campus, from printers to security cameras to door locks, identified and assessed for potential risks? A decade ago these exposures were non-existent, while now they are omnipresent across the industry.

Higher education institutions have played a significant role in the fueling of disruptive innovators who have driven change in the world. While disruptive innovation has been slower to impact the higher education industry, it is happening. Those institutions who keep up with this evolution through a more adaptive risk management program that addresses innovation related risk will be much better positioned during periods of disruption.

Our perspective

Higher education institutions must view disruptive innovation as an opportunity to achieve revenue growth, maintain competitive advantages against peers, meet the demands of constituents and contribute to the evolution of the higher education industry more broadly. Risk management programs can provide institutions with a framework to embrace disruption under a defined framework that allows an institution to effectively identify, assess and manage risks. PwC's 2018 Risk and Review Study identified five actions organizations should take today to manage risk and enable growth in this age of disruptive innovation including:

- Drive risk tone and culture from the top
- Engage early and often during the innovation cycle
- Adjust the risk appetite and tolerances with frequency
- Monitor and assess risk management's effectiveness
- Harness new skills, new competencies and tools to support innovation

There are many stakeholders with a role to play in an effective risk management program. In higher education, internal audit has historically played one of those important roles. PwC's 2018 State of the Internal Audit Profession Study identified that today's internal audit functions are expected to be responsible for addressing the risk associated with innovation. Internal auditors specialize in identifying risks and helping institutions understand their risk mitigation activities. Technology risk is no exception. In order for internal auditors to continue to be effective at this role, they need to adapt their own tools and technologies to address ongoing risks, become more efficient, and challenge their staff.

Internal audit departments are being more thoughtful about innovation related risks, and are beginning to use technology-enabled tools, such as data analytics, to help identify and manage risks. These departments are also addressing potential skill gaps through hiring upgrades, training and sourcing. As the pace of technological change will only accelerate, internal audit departments need to keep pace by investing in people and supporting technologies.

Mental Health on Campus

Background

Over the past ten years, colleges and universities have seen a significant increase in the need for mental health services on campus. Most deans of students would characterize mental health as one of their top areas of focus and mental health has frequently made its way to one of the top 10 areas of risk within a college or university.

Many believe that there is a mental health crisis on college campuses today, as mental health issues are prevalent among college students. An estimated 26% of Americans ages 18 and older – or about 1 in 4 adults - live with a diagnosable mental health disorder. Half of all serious adult psychiatric illnesses – including major depression, anxiety disorders, and substance abuse – start by 14 years of age. Three-fourths of them are present by 25 years of age.¹⁴

Mental health issues affect students' ability to succeed. Almost one third of all college students report having felt so depressed that they had trouble functioning, more than 80% of college students felt overwhelmed by all they had to do in the past year and 45% have felt things were hopeless.¹⁴

Suicide is the second leading cause of death, after vehicle accidents, among college students, claiming the lives of 1,100 college students each year. Based on a study performed by the American College Health Association, suicides accounted for 6.18 deaths per 100,000 students (compared to 6.88 deaths per 100,000 students in a vehicle accident) and is double the suicide rate for the general population. More than half of college students have experienced suicidal thoughts, and 1 in 10 students seriously consider attempting suicide. Half of students who have suicidal thoughts never seek counseling or treatment.¹⁴

Impact on educational institutions

Being away from home for the first time, easier access to alcohol and drugs, and rigorous academic demands continue to challenge young adults. In addition, over the past decade, the diagnosis of mental disorders and mental health concerns for millennial and generation Z students (current college age students) have grown exponentially. More students than ever are seeking help on campus. Some of that increase relates to raised awareness of mental health matters. Many students now enter college with a clinical diagnosis of depression, bipolar disorders, or other mental health issue. Twenty years ago, students with more serious psychiatric disorders would not have made it to a college campus. However, with therapy and medications, these students have been more successful in transitioning to college campuses from home. The range of students who are now able to attend college with mental health diagnoses has increased the demand for additional services provided by a campus counseling center.

The pervasiveness of social media and connected devices have been cited as contributing factors to this growth in mental health concerns. Surveys have found that spending more time on social media and smartphone activities correlates with lower levels of happiness and higher feelings of loneliness, levels of depression, and risk of suicide. College students today can also experience the stress of cyber bullying and the fear of “missing out.” Many college students, as a result of social media, have not been able to develop social skills and coping mechanisms needed to deal with the transition to living independently at college.

College health clinics have struggled to keep up with the greater number of students requiring their services. The increase in demand can lead to counseling centers redirecting their limited budgets away from ongoing treatment in order to address immediate needs of at-risk students. Common complaints by students on campus include limited access to services and the time it takes to get an appointment to receive treatment.

¹⁴ <https://www.activeminds.org/about-mental-health/statistics/>

Recently, a State's Supreme Judicial court ruled on a case where a family sued a university asserting that the university should have known that their son was high risk for suicide. Although the court ruled in favor of the university, the ruling made it clear that colleges and universities have a responsibility to do what they can to prevent suicide on their campuses. The court stated that while universities do not have the same degree of responsibility to students as jails have to prisoners or hospitals to patients, they must respond when they have "actual knowledge of a student's suicide attempt that occurred while enrolled at the university or recently before matriculation." The State's Supreme Judicial court stated that universities must also take action if they know about "a students stated plans or intentions to commit suicide."

Our perspective

The demands placed on mental health services on campuses have outpaced their capacity. With a larger percentage of the student population utilizing services, the traditional student fee no longer covers the costs associated with mental health programming. As such, in addition to the overall safety of the student population, the cost of such programs is one of the primary concerns for many institutions and is projected to continue to be so.

Of the many changes in higher education in recent years, one of the most dramatic is the growth in the mission, services, and facilities of health centers. Decades ago most colleges and universities believed their responsibility for student health was limited to setting up a clinic to treat the sick and injured. That mandate has clearly changed.

Institutions are exploring ways to improve their mental health policies, initiatives and resources. Many have done this through outsourcing or co-sourcing their mental health facilities and services. However, staffing traditional counseling centers and increasing the number of college counselors is not enough. Campuses should consider establishing educational platforms to discuss mental health and illness, including student wellness programs, community forums, websites, and awareness programs to decrease the stigma of mental illness and promote identification of students who may be experiencing depression or suicidal thoughts. Campuses should also be considering alternatives to supplement their traditional campus counseling centers, including 24-hour mental health hotlines, online anonymous peer counseling services, and tele-counseling.

Colleges and universities have a unique relationship with their students. It is clear that public, as well as judicial, expectations of administrators and staff to identify students who may be prone to committing suicide or a violent act on campus continues to grow. Institutions should continue to assess their overall strategy with regard to the role mental health plays in student safety, student success, and student satisfaction.

Student Activism

Background

Student activism is not new on college campuses, but there are a growing number of organized protests across the country with more college students getting involved. For instance, as highlighted in a recent article, “In the last two to four years, we’ve seen protests on campuses where there haven’t been in a very long time, we’ve seen marches and rallies at traditional activist campuses drawing in a lot more students than they have in the past.”¹⁵ Studies show that college students are more likely than ever to be involved in political and civic engagement. Recent research indicates that nearly one in ten incoming freshmen plan on getting involved with activism, with Black students more than twice as likely to participate in campus protests than white students.¹⁶

College and university campuses have a long history of initiating social change, with student activism often being the vehicle used by students to put forth views or grievances. The political atmosphere and decisions of policy makers in the current administration in Washington, D.C. has sparked a resurgence of activism which has brought a strong response from students across the country. Social media has had a major impact on how students communicate, organize and rally to action on issues quickly. Protests that might have taken months to coordinate in the past can now be organized in hours using platforms like Facebook, Instagram and Twitter, and the internet allows people around the globe to participate or react in real time. As social media evolves, it will continue to shape communication and action.

The recent spike in student activism coincides with a number of broad national issues, including free speech, immigration, and sexual harassment. These issues have sparked protests and demonstrations on campuses and marches around the country. Some of these topics have been the focus of significant public debate regarding the appropriate regulatory response and the role of the government in overseeing campus responses. However, the current regulatory instability and unpredictability have required institutions to interpret existing regulations and make judgments and decisions regarding how they reinforce desired culture and expected behavior.

- *Free speech versus hate speech* - The increase in race related incidents on college campuses or related to faculty and students has reignited the issue of free speech, its boundaries and associated behavior. Protests have brought fundamental issues concerning the First Amendment into the spotlight – the commitment to free speech and open debate and the distinction when speech advocates violence or hate.

A recent Gallup/Knight Foundation poll showed that 56% of college students say protecting free-speech rights is extremely important to society, and 70% said they preferred an “open learning environment” that allows offensive speech to a “positive environment” that prohibits certain speech. However, the commitment to open debate has been inconsistent: nearly half of students say they favor campus speech codes; nearly two-thirds do not believe the U.S. Constitution should protect hate speech; and 73% are in favor of campus policies that restrict hate speech.

A new poll of college presidents released by the ACE (American Council on Education) found strong support for free expression on campus and strong opposition of shouting down controversial speakers. According to the poll, 96% of college presidents supported campus policies that “allow students to be exposed to all types of speech, even if they find it offensive or biased.”¹⁷

¹⁵ USA Today – Is this the golden age of college student activism? Casey Smith, March 22, 2018

¹⁶ Higher Education Today, Embracing Student Activism, American Council on Education

¹⁷ Inside Higher Education, Presidents Back Free Speech, Scott Jaschik, April 10, 2018

A critical aspect of the free speech debate is campus safety and the importance of having engagement strategies that can protect the constitutional rights of demonstrators and the safety of students, citizens and law enforcement. The challenge for college and university leaders is to find the balance between free speech and the safety of students, and to create a learning environment that is supportive and inclusive, while being protective of freedom of expression.

- *DACA*- The repeal of the Deferred Action for Childhood Arrivals (DACA) in September 2017 created a sense of crisis for undocumented students across the country and spurred student protests and marches on college campuses and in Washington, D.C. The call on Congress to pass permanent protection has not yet materialized, and the political debate continues with no sense of security for DACA recipients. There has been a strong response from college presidents, including a letter to Congress from 57 AAU (American Association of Universities) presidents and chancellors to establish a permanent legislative solution for DACA recipients. Higher education leaders have strongly advocated on behalf of undocumented students and are concerned that the lack of permanent protection will undermine the educational mission, as well as result in the loss of talented contributors. Campuses around the country have created focus groups and initiatives to address the needs of undocumented students as legislation is stalled and DACA recipients remain in limbo.
- *Sexual harassment*- Student activists have been fighting for years against all forms of sexual harassment and gender-inequality on college campuses. The current Administration's position of more open due process and consideration of the rights of the accused has created some legislative and regulatory uncertainty regarding interpreting regulations and enforcement. However, students and victim advocates continue to push to maintain advances in awareness and safety on campuses. Additionally, the more recent proliferation of faculty-student misconduct allegations in the wake of the #MeToo movement has added energy to student activists keeping the pressure on campus sexual assault.

Under Title IX of the Educational Amendments Act of 1972, colleges and universities are required to develop procedures to respond to claims of sexual harassment; however, there has been much controversy over how colleges have handled sexual assault allegations, the time taken for disciplinary proceedings and the resolution. To add to the challenges facing colleges and universities, the National Science Foundation (NSF) announced a plan to require colleges and universities to inform NSF of any NSF-funded researcher who has been disciplined for any harassment issue in order to take decisive action. The National Institutes of Health (NIH) is also developing a new anti-harassment policy.

Impact on educational institutions

The increase in student activism and engagement has a far-reaching impact on college campuses. Colleges and universities have to be prepared for large events, particularly addressing campus and community safety and interruption to normal operations, often without sufficient time for appropriate planning and coordination with local authorities.

The uncertain social and political climate in the U.S. may also impact the ability for colleges and universities to recruit international students. A recent study, conducted by the Council of Graduate Schools, noted a decline in applications and enrollment by international graduate students. Similarly, a survey of nearly 500 campuses across the country by the Institute of International Education found 45% of campuses reporting drops in new international enrollment. The softening of interest in colleges and universities in the U.S., which has driven 82% of colleges and universities to reassess their recruitment strategy, may not only create challenges in maintaining a diverse student body but also the ability of institutions to provide the necessary support students feel they need for the learning environment to be safe and inclusive.

Finally, student activism is attempting to expand the traditional role of student government. This includes students displaying a greater interest in transparency and seeking greater involvement in operating decisions of institutions, including areas of governance. This aligns in many ways with shareholder activism in the corporate environment.

Our perspective

Colleges and universities should be clear in their expected campus culture, particularly with respect to diversity and inclusion, and should continually re-evaluate their policies and practices relating to student activism, free speech and sexual misconduct. A continued effort to develop a comprehensive approach and design a framework that is more transparent, makes clear confidentiality requirements, and clarifies the rights of students, faculty and staff will provide greater understanding within the campus community. Initiatives to cultivate a culture of respect, open and inclusive dialogue and expanded training across the campus community will provide a safer environment for open debate.

Colleges and universities may also need to provide more education to the student body about civic engagement, particularly in this age of social media. Students are flooded with information and news, and learning how to navigate difficult conversations online around sensitive topics is becoming increasingly important. Additionally, as more students become involved in student activism and organized protests, colleges and universities may need to consider how to support the mental health of campus activists. The choice between advocacy and curriculum work, along with balancing participation in student groups and meetings with administrators creates additional challenges for student activists and may have a negative impact on their mental health. Creating mentorship programs and having faculty work with students on balancing their responsibilities, as some colleges and universities have started to do, appears will be a continuing trend.

Crisis planning and communication continues to be a high campus priority, as oftentimes events speed ahead of decision making processes and protocols. With the prevalence of the internet and social media, colleges and universities no longer have long lead times to respond to a crisis event. Now a student tweet can get mass attention and grab news headlines before a standing committee or leadership team is able to meet. Institutions should ensure they have a framework that can be used for different types of crises. There should be regular reviews and rehearsals of the plan, with revisions made as necessary. A key element of the plan is a monitoring system over social media for triggering terms that provide early warnings that will help the institution stay in front of the story, and allow necessary resources to mobilize and ensure safety and calm in the face of large demonstrations and gatherings.

Finally, institutions must discuss and have plans for where and how students are to be engaged in sharing operational information and involved in related decisions.

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Appendix II – Top Health Industry Issues of 2019





Top health industry issues of 2019: The New Health Economy comes of age

In its 13th year, PwC Health Research Institute's annual report highlights the forces expected to most powerfully affect the industry in 2019.

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Heart of the matter

The US health industry has often lagged other industries—think tech, retail, hospitality—when it comes to modernizing. Once thought to operate outside the greater US economy, the industry—with its byzantine payment system, complicated regulatory barriers and reliance on face-to-face interactions—is being disrupted. Finally, there’s robust evidence that what PwC calls the New Health Economy is kicking into gear.

Consider the following:



Eighty-four percent of Fortune 50 companies are involved with healthcare. Those include technology companies, telecommunications companies and financial services firms along with traditional healthcare organizations.¹



Venture capital funding for digital health startups is projected to top \$6.9 billion in 2018, an increase of 230 percent from five years ago.²



Private equity firms, long operating on the margins of the US health industry, closed 487 healthcare deals in the first three quarters of 2018, more than double the number of deals they closed a decade earlier.³



A number of novel deals and partnerships were announced in 2018, including those involving CVS and Aetna; Amazon, Berkshire Hathaway and JPMorgan Chase & Co.; United Health Group and DaVita Medical Group; and a flurry of providers big and small.⁴ These new partnerships—and the many that don’t garner headlines but reshape their local markets—will transform the industry in 2019.



American consumers have told PwC’s Health Research Institute (HRI) since 2013 that they’re eager to embrace more convenient, digitally enabled and affordable care;⁵ finally, they’re finding it, with options that resemble the choices they have in other parts of their lives (see Figure 1).

The US health industry is looking less like a special case, an asterisk in the US economy, and is beginning to behave like other industries. So for 2019’s top health industry issues report, instead of focusing on issues only US health organizations face, HRI for the first time is featuring business issues common to all industries: deals, business and tax strategy, risk and regulatory issues, workforce trends and digital transformation. The details may be healthcare, but the business issues are shared with many other parts of the economy.

In the digital arena in 2019, life sciences companies will market digital therapeutics and connected devices targeting atrial fibrillation, hemophilia, substance abuse, birth control, depression, diabetes, epilepsy and other conditions. In 2019 the health industry will see value lines created by innovative providers and payers that have figured out how to subsist—comfortably, thank you very much—by serving almost entirely Medicaid or cash-strapped patients.

Figure 1: Consumers are ready to embrace a new era of care delivery



78%

of consumers are interested in having a “menu” of care options offered by multiple providers, allowing them to choose care from local providers or virtual care from specialists across the country.



78%

who had a hospital stay in the last two years believe at least a few of their recent in-person interactions with providers could have occurred virtually.



54%

would choose to receive hospital care at home if it cost less than the traditional option.



54%

of consumers surveyed by HRI said they would be somewhat or very likely to try an FDA-approved app or online tool for treatment of a medical condition.



47%

would be comfortable receiving health services from a technology company such as Google or Microsoft.

Source: PwC Health Research Institute consumer survey, May 2018

The industry will continue to be transformed in 2019 by deals made by private equity firms, new entrants and other companies flush with cash thanks to 2017’s tax reform. The industry’s regulatory side, beset with turmoil over the past two years, will settle into predictability in 2019, with campaigns from the FDA and CMS to streamline regulation, address drug spending and foster greater transparency in prices consumers pay for everything from ER visits to prescription drugs.

Even the future of the Affordable Care Act (ACA) appears largely secure in 2019 despite attempts over the past two years to repeal the law or fundamentally weaken it.⁶ The Trump administration’s approach to the ACA—and to health regulation overall—will create new winners and losers throughout the industry.

Of course, challenges remain.

The sort of transformation the health industry is undergoing requires vast new skills from its workforce. Nearly one in two provider executives surveyed by HRI in 2018 said that their workforces’ skills remain an obstacle to organizational change.⁷ Half of payer executives surveyed by HRI said they want new hires to arrive with informatics and data analytics skills.⁸ In contrast, six in 10 pharmaceutical executives surveyed by HRI said their workforce has the skills needed for an evolving digital economy.⁹



Cost also remains a serious challenge for the industry. HRI projected that medical cost trend will be 6 percent in 2019, about the same as it has been for the past five years.¹⁰ That remains unsustainably high, with American consumers, employers and government payers increasingly unable—and unwilling—to absorb the ever-increasing spending. Aiming to reduce costs, health organizations are making inroads on addressing social determinants of health, but their efforts remain nascent.

Healthcare remains a potent political issue, topping Americans' list of concerns in a survey HRI conducted just weeks before the midterm elections.¹¹ Politicians from both parties seeking office at the national, state and even local levels prominently touted their healthcare positions in their campaigns in the weeks before Nov. 6.

Government's role—the question at the heart of the differences between the two parties' approaches—won't be settled in 2019, but health organizations can expect that policy will increasingly be made by state politicians and bureaucrats. That will make it harder for organizations operating in more than one state to develop comprehensive business strategies.

So what are health organizations to do in 2019? Some may find private equity as a deals partner or as an unexpected purchaser of assets they wish to offload. All organizations likely will have to adjust to a deals market fueled, in part, by the \$186 billion that was held by top health companies overseas at the end of 2016 that became available for favorable repatriation under the Tax Cuts and Jobs Act of 2017.¹²

Others may begin to develop value lines—akin to a Southwest Airlines of healthcare—inspired by strategies created by companies living off some of the lowest reimbursements in the nation. Others may find these strategies useful in fine-tuning their bottom lines.

Still other organizations may find that other industries can teach health a lot about upskilling their workforces in a tight labor market. HRI found one Fortune 50 telecommunications company that's spending \$1 billion training its workers in cloud computing and data analytics, helping some obtain advanced degrees and what it is calling “nano” degrees.¹³

Change has come to the US health industry at last. Healthcare is joining other industries, such as financial services, that have aggregated data, cut out middlemen and made it easier for their consumers to engage. The industry also can look to these other industries for ways to increase efficiencies, improve customer experience and foster price transparency. The pressures of adapting to that change and seizing the opportunities it represents are spurring a wave of innovation in business models that hasn't been seen in a long time.¹⁴ The long-term beneficiaries of these new models, new pairings, and new ways of delivering care likely will be the Americans who depend on the industry to keep them well as long as possible and to return them to wellness, or as close to it as possible, when they fall sick.

In 2019, these Americans may be one step closer to a system that serves them better and more conveniently at a fair price.

The US health industry is looking less like a special case, an asterisk in the US economy, and is beginning to behave like other industries.



Digital therapeutics and connected care reshape the life sciences industry

In 2019, new entrants and biopharmaceutical and medical device companies will bring to market new digital therapies and connected health services that can help patients make behavioral changes, give providers real-time therapeutic insights, and give insurers and employers new tools to more effectively manage beneficiaries' health.

The arrival of digital therapeutics—an emerging health discipline that uses technology to augment or even replace active drugs in disease treatment—is reshaping the landscape for new medicines, product reimbursement and regulatory oversight. This means that new data sharing processes and payment models will be established to integrate these products into the broader treatment arsenal and regulatory structure for drug and device approvals. Connected health services, enabled by devices that transmit data or connect to the internet, give additional visibility into care delivery and new ways to improve patient outcomes.

As digital therapeutics and connected devices have transitioned from concept to reality, investors have poured a staggering \$12.5 billion into digital health ventures in 2017 and 2018.¹⁵ Compared with 2013, this level of investment represents an increase in funding of 230 percent, while the average funding deal size grew 67 percent over the same period.¹⁶

“Digital therapeutics are the next frontier.”

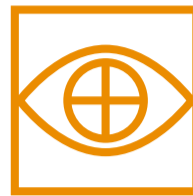
-- Sai Jasti, GlaxoSmithKline

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Figure 2: Drug, device and technology manufacturers are using four primary methods to validate digital therapeutics



FDA approval or clearance for use: This approach requires regulatory review of clinical information to validate health claims made by the product, technology or combined service.



Observational studies or pilot programs: Observational data collected from clinical trials, or from real-world pilot programs, can demonstrate new products' or services' effects.



Registered clinical trials: Clinical trials conducted and registered with a regulatory authority such as the FDA or the European Medicines Agency are the gold standard for demonstrating safety, efficacy and patient outcomes.



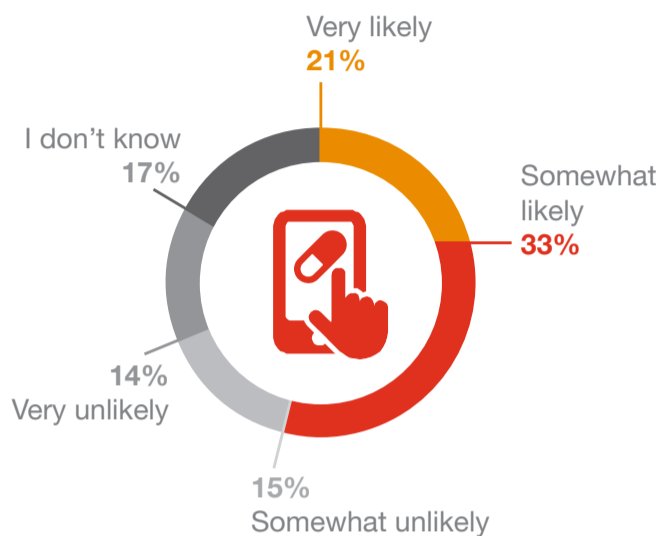
Retroactive studies: Retroactive studies can be used to calculate financial outcomes associated with a new product or connected health service, and may be used as a comparison with existing treatments.

Source: PwC Health Research Institute

Unlike branded companion apps and online portals, digital therapeutics and connected devices are clinically validated by the FDA and target specific health outcomes (see Figure 2).¹⁷ The FDA already has approved some new digital therapies, such as Boston-based Pear Therapeutics' Reset mobile application for the treatment of substance abuse, and Stockholm, Sweden-based Natural Cycles' birth control app. The Natural Cycles app already has over 900,000 registered users, according to a company statement.¹⁸ Many other connected devices designed to treat diabetes, central nervous system disorders and other conditions—in concert with an active drug, or not—are expected to enter the market in 2019.

Figure 3: A majority of consumers surveyed are interested in FDA approved digital apps or online tools to treat their medical conditions

If an FDA-approved app or online tool was available to treat your medical condition or a family member's medical condition, how likely would you be to try it?



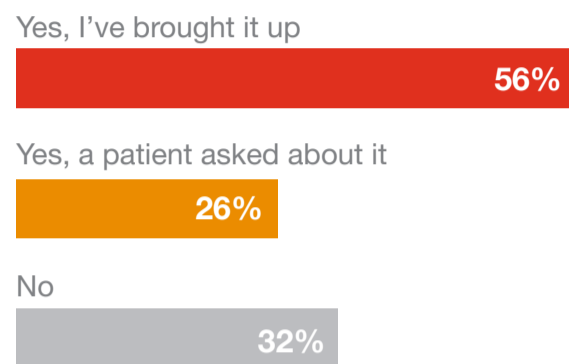
Source: PwC Health Research Institute consumer survey, September 2018.

The majority of American consumers want new digital therapies and connected devices as treatment options (see Figure 3 and Figure 4). More than 50 percent of consumers surveyed by HRI said they would be somewhat or very likely to try an FDA-approved app or online tool for treatment of a medical condition.

The same consumers also are more likely to feel comfortable sharing their medical or health information, according to HRI survey data. Physicians are interested in these tools as well (see Figure 5).

Figure 4: Physicians are incorporating digital therapies in their interactions with patients

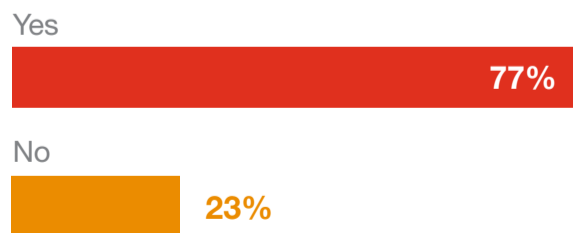
In the past 12 months, have you discussed an app or digital program with a patient related to their diagnosis or treatment?



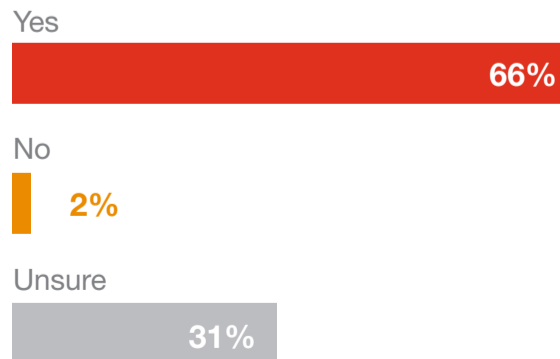
Source: PwC provider survey 2018

Figure 5: Most physicians have recommended digital treatments with success

Have you recommended an app or digital program to your patient?



Did the app or digital program improve any part of their treatment experience?



Source: PwC provider survey 2018

The FDA's Digital Software Precertification Program is expected to begin awarding approvals starting in 2019. Nine biopharmaceutical, device and technology companies are working as partners with the "pre-cert" program in a pilot phase that began in 2017.¹⁹ The program's goal is to reduce the amount of submission materials required from manufacturers of software-based medical devices and expedite the review process for companies that demonstrate a "robust culture of quality and organizational excellence, and who are committed to monitoring real-world performance," according to the FDA.²⁰

The ability to induce behavioral change in patients is a distinguishing characteristic of the new digital therapeutics and connected devices. For patients struggling with substance abuse or depression, cognitive behavioral therapy (CBT) principles are taking the form of customized content delivered to individual patients through mobile apps. Results from clinical studies of Pear Therapeutics Reset substance abuse app, for example, show increased abstinence from alcohol, cocaine, marijuana and stimulant substance use compared with patients who didn't use the app.²¹ Gaia AG, based in Hamburg, Germany, is developing individually customized digital CBT approaches to treat depression, epilepsy, compulsive gambling and back pain, among other conditions.²²

Seamless health data collection and sharing can help patients make positive lifestyle changes and can help physicians intervene to prevent poor outcomes. Boston-based Akili Interactive has developed digital treatments with direct therapy to treat cognitive deficiency and improve symptoms associated with medical conditions across neurology and psychiatry. The company is preparing to submit a prescription video game targeting ADHD patients to the FDA for approval.²³ Connected devices are moving from diabetes and central nervous system disorders into new therapeutic areas such as respiratory, cardiovascular and rare diseases.

In the respiratory area, GlaxoSmithKline (GSK) is partnering with Propeller Health, a Madison, Wisconsin-based digital therapeutics company, which uses digital sensor technology to track and optimize patient inhaler usage. The partnership's goal is to learn how this technology can help improve patient engagement and medication adherence, said Sai Jasti, commercial data officer at GSK, in an interview with HRI. "Digital therapeutics are the next frontier," said Jasti. "I think we will see a lot more collaboration between pharmaceutical and technology companies to drive this forward, ultimately to the benefit of patients."

As more digital therapeutics and connected devices come onto the market, biopharmaceutical companies will have to change their approach to product discovery and development, focusing on solutions that have demonstrable outcomes for patients, providers, insurers and employers.²⁴ New entrants and technology firms—Apple received an FDA clearance in September for its smart watch ECG and an algorithm for detecting atrial fibrillation—will continue to develop products using their strengths, including user interface, consumer engagement and sensor technology. Also in September, the American Medical Association proposed new billing codes for 2019 for remote patient monitoring and digital consults, which could speed physician adoption of connected health services.²⁵

Implications



Focus on outcomes, not just endpoints. To succeed in the digital therapeutics era, pharmaceutical and life sciences companies must venture more deeply into care delivery. Organizations that can become an integral part of giving patients positive health outcomes—using real-world data and enhancing the connection between patients and providers—also will be able to design new payment and contracting models. Biopharmaceutical companies may look to the medical device industry to further understand the skills and processes necessary to move from selling products to creating healthcare solutions.²⁶



Evaluate the impact of digital therapeutics and connected care solutions on your practice. New health data streams coming in from patients' devices and mobile phones may disrupt provider practices even as they help improve care delivery. Evaluate workflow processes for new data streams, including integration in electronic medical health records. Successfully integrating new patient data into physician practices may improve in-person visits, making health discussions more efficient and informed by real-world patient behaviors.



Explore partnership models focused on demonstrating results. Innovation Health, an insurance provider created jointly by Virginia-based Inova Health System and Aetna, is testing digital therapeutics and financial models to better understand these new products' effectiveness.²⁷ Digital therapeutics and connected devices may make it easier to construct value-based contracts and other outcomes-based financial models with payers and providers to drive adoption. Subscription pricing for digital therapeutics or connected device solutions, for example, could make pharmacy spending more predictable and efficient.



Your company's new, upskilled health worker of the future is you

In 2019, healthcare companies new and old will identify which employees—from the back office to the front lines and all the way up to the C-suite—have to be upskilled or reskilled to get the most out of new and impending investments in technologies such as artificial intelligence (AI) and robotic process automation (RPA). These technologies will be critical in helping companies continue their shift into providing care anywhere through telehealth. They also will help reduce transactional tasks for the 63 percent of US health workers who say the work they do requires a great deal of manual entry or analysis, allowing them to enhance their analytical IQ.²⁸

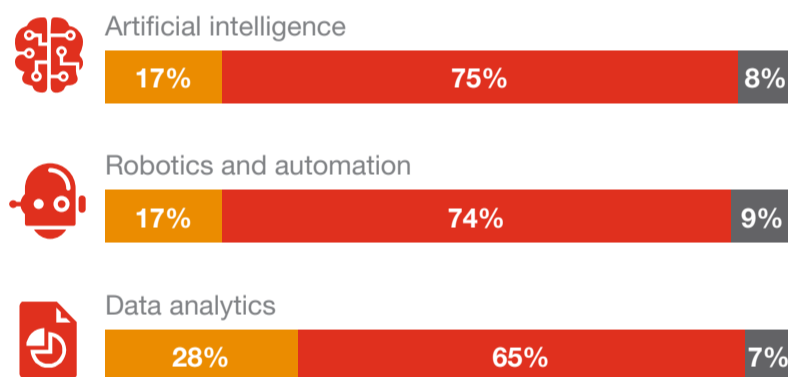
Healthcare companies are trying to figure out how to accomplish this training, and every company is affected. Out of provider executives HRI surveyed on the subject, 45 percent say their workforce's capabilities are a significant barrier to organizational change.²⁹ Fifty-five percent of payer executives say it's very important for new hires to be skilled in informatics and data analytics, second only to customer service.³⁰ Six in 10 pharmaceutical executives surveyed by HRI said their workforce has the skills needed for an evolving digital economy.³¹

Companies could choose to hire external talent, but that strategy presents significant challenges: Thirty-five percent of the skills workers will need will change by 2020, and the required skills will continue to evolve, according to the World Economic Forum.³¹ For example, 20 percent of workers are expected to rely on artificial intelligence to do their jobs by 2022, according to Gartner Inc.³² AI and process automation are expected to eliminate 1.8 million jobs while creating 2.3 million new ones reliant on a more skilled workforce.³³

Forty-two percent of US workers surveyed by PwC said they agreed or strongly agreed that automation would put jobs at risk of elimination.³⁴ This first wave of automation in healthcare has affected finance functions the most. While upskilling an employee may take time, companies that invest in making employees digitally fit should be ready for the technological challenges of tomorrow and beyond. These investments could create two types of competitive advantages: A better skilled workforce, and a workforce that is less likely to leave (see Figure 6). A recent HRI survey found that healthcare workers are more likely than those working in other industries to think training on new technologies would help them do their jobs more effectively. They also were more likely to say they would stick with an employer if the training was offered.

Figure 6: Few health companies are offering training in emerging technologies, but doing so could improve recruitment and retention

Does your employer offer you training in the following technologies to help you and your colleagues prepare to meet future work demands?



■ Training offered ■ Training not offered ■ I don't know

When looking for an employer, how important is it to find an employer that would help you and your colleagues prepare to meet future work demands?



How likely are you to stay with an employer that offers you training that would help you and your colleagues prepare to meet future work demands?



■ Very ■ Somewhat ■ Not very or not at all ■ I don't know

Source: PwC Health Research Institute consumer survey, September 2018 ³⁵

For companies concerned about disruption, upskilling and reskilling make for a nimble, sustainable strategy. More specialization will be needed, and competition for the talent with those skills will be fierce. Thirty-eight percent of executive respondents to PwC's 2018 global CEO survey said they're extremely concerned about the availability of key skills as a threat to business growth, and 38 percent said they were extremely concerned about the speed of technological change.³⁶ A recent PwC survey found that 75 percent of US workers are willing to learn new skills or completely retrain to remain employable.³⁷

Training in RPA and AI can help healthcare professionals practice at the top of their licenses and abilities, automating tedious work that adds little value and freeing them up to focus on higher-value tasks such as spending more time with patients and customers. This could increase employee job satisfaction and may also help professionals glean new insights from existing data. For example, physicians could use machine learning to reanalyze old charts and medical images to develop new care standards or determine with a higher degree of confidence whether a patient has a specific condition.

“In most cases, artificial intelligence isn’t getting rid of people in an organization,” said Peter Durlach, senior vice president of healthcare strategy and new business development at Nuance Communications Inc., in an interview with HRI. “What Nuance’s AI product does is amplify the core capabilities of humans to make them more productive and efficient. We help unburden care teams and give them more time to take care of patients by providing efficient new ways to capture clinical information and deliver real-time intelligence for better decision-making. It’s about augmenting human intelligence—not replacing it.”

For all healthcare companies—and especially those affected by recent deal-making—2019 will be a time to invest in increasing their existing workforce’s efficiency and productivity to ensure they can compete at the top of their abilities and licenses.³⁸ The convergence of healthcare and digital also is driving companies to rethink how they operate and who their competition is. As many technology companies in the Fortune 50 (20 percent) are now involved in healthcare as traditional healthcare companies, according to an HRI analysis.³⁹ This translates to new competition for many healthcare companies, which face the deep talent pools and customer skill sets of technology companies such as Apple Inc. and Amazon.

While much of the initial upskilling waves will focus on back-office employees, including those working in information technology and human resources, companies should give equal thought to their customer-facing employees to improve how they deliver healthcare to patients. Some workforces already anticipate this change. Thirty-nine percent of physicians think virtual health use will significantly increase in the next 10 years, according to an HRI survey.⁴⁰

“It’s about augmenting human intelligence - not replacing it.”

— Peter Durlach, Nuance Communications Inc

Consumers and patients, too, seem willing to adopt this model of “care anywhere and everywhere,” which increases the promise of new business models emerging to serve consumers more conveniently (see Figure 7).⁴¹ But training will have to emphasize the soft skills of using technology. Patients, for example, should see doctors’ faces—not the backs of their heads—while the doctors use a technology platform.

Figure 7: The majority of surveyed consumers are willing to use digitally enabled home healthcare technologies

How likely are you to do the following?

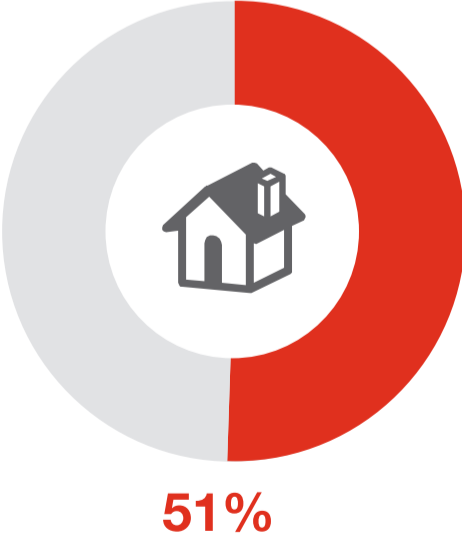
Check vital signs at home with a medical device attached to your phone?



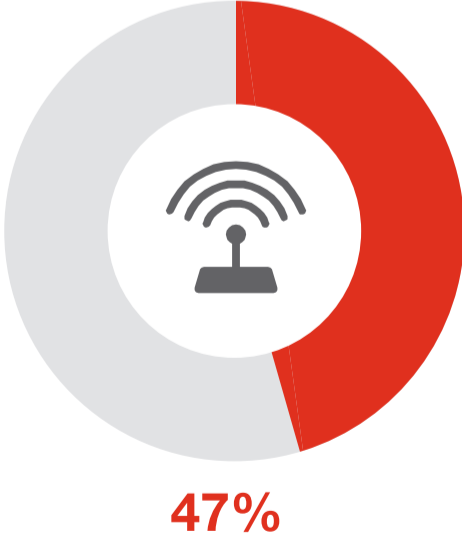
Have a live visit with a physician via an application on your smartphone?



Have pacemaker or defibrillator checked at home wirelessly by your physician?



Have an echocardiogram (ECG) at home using a medical device attached to your phone, with results wirelessly sent to your physician?



Source: PwC Health Research Institute consumer survey, February 2018

Implications



Modernize the HR strategy. Before rolling out any technology training program, health companies should develop incentives and performance metrics for employees who align with the digitally fit culture they seek to develop. They also should revisit their recruitment and retention strategies to compete for a gig workforce that is attracted to a virtual work environment.



Consider how best to train your employees. Companies looking for better ways to train their employees in technology use can embrace digital tools to engage and educate them. Many companies lack in-house training capabilities—either expertise in training or the learning management system required to train a national workforce—and will have to partner with external organizations to deliver advanced training. Some healthcare companies—and in particular academic medical centers—are already aligned with educational institutions and may be able to advance more quickly.

An example of those who partner to train their employees is AT&T, which is working with the online training platform Udacity and the Georgia Institute of Technology to teach such skills as data science and cloud computing. The arrangement also helps employees obtain low-cost master's degrees and so-called “nano” degrees, which focus on a single subject.⁴² The company plans to spend more than \$1 billion training its workforce to be ready for the future instead of relying on technology that's expected to soon be obsolete.⁴³

Academic institutions may be able to adapt by incorporating training on intelligent automation into their curricula. Learning how to design data-driven, evidence-based care plans using AI or RPA could make the clinicians of tomorrow more capable and effective caregivers.⁴⁴

Implications



Consider which employees should get top priority. Healthcare companies already have experience training their employees on technological systems, including one notable example: electronic health records. As they did then, companies won't have to train every employee immediately and they won't have to train each employee at the same level. Consider your company's immediate needs and which employees might benefit most, such as leadership and key staff who can spread knowledge to others. For example, Nokia Corp. has said that it will train all its employees on the basics of machine learning, while a pool of experts will consider ways to implement the technology more broadly.⁴⁵ Identifying those employees can yield rapid benefits for a business.

Some employees, such as a hospital system's IT team, will soon need strong abilities in a given subject area, such as developing a technology. Others, such as nurses or social workers, may need fewer capabilities in using that technology once it's deployed. Fifty-one percent of employees whom HRI surveyed said they felt that training in AI, RPA and analytics would help them do their jobs better.⁴⁶ These skills should be developed in tandem with strategic goals to ensure a company is ready to act on its strategy. Companies also should consider measuring employee engagement and success. Just because an employee has access to training doesn't mean that employee will—or has time to—take advantage of it.



Tax reform has only just begun for healthcare companies

The healthcare industry will begin to feel substantial effects of the 2017 Tax Cuts and Jobs Act in 2019. The law will create both new possibilities for companies looking to turn their tax savings into competitive advantages and novel challenges for organizations facing new taxes. At the same time, emerging trade pressures may create uncertainties for companies hoping to maintain the status quo.

Portions of the healthcare industry are responding to tax reform's known effects in different ways (see Figure 8). For-profit companies generally are benefiting from tax reform because of lower tax rates on earnings (reduced from 35 percent to 21 percent beginning in 2018) and the ability to repatriate foreign cash at a favorable rate (15.5 percent for cash holdings as of Dec. 31, 2017 and zero US federal income tax for new foreign earnings starting in 2018). Some companies already have repatriated significant holdings, though the law doesn't compel them to do so.

Many payers and providers don't have foreign operations, so they won't benefit from the repatriation provision, or they may not have positive taxable income to realize these benefits. In addition, other provisions of the law could negatively affect payers, providers and life sciences companies. For example, the global intangible low-taxed income (GILTI) provisions require a US shareholder to pay a minimum aggregate US and foreign tax on its share of the earnings of its controlled foreign corporations. And the base erosion and anti-abuse tax (BEAT) provisions impose an additional corporate tax liability on domestic and foreign companies operating in the United States that make certain deductible payments to foreign-related parties.

Figure 8: What major tax provisions will matter most in 2019?

Provision and explanation	Magnitude of impact	Payers	Providers	Pharma/Life Sciences
Reduction of individual mandate penalty to \$0	High	⊖	●	●
Movement to a territorial tax system	High	●	●	⊕
Repatriation of foreign holdings at 15.5 percent rate	High	●	●	⊕
Medical device excise tax in effect in 2019	High	●	●	⊖
Increased standard deduction for individuals may decrease charitable contributions to non-profits	Moderate	●	⊖	●
Unrelated Business Taxable Income (UBTI) changes will likely result in new expenses for non-profits and payers, such as taxes on qualified parking benefits	Moderate	⊖	⊖	●
R&D tax credit will require longer periods of capitalization (5-years in US starting in 2021; 15 years for foreign spending)	Moderate	●	●	⊖
Orphan tax credit cut in half to 25 percent	Moderate	●	●	⊖
Net investment excise tax on educational foundations may affect academic medical centers	Low	●	⊖	●
New 21% excise tax imposed on tax-exempt employers that pay “excess” compensation to “covered employees” over \$1 million	Low	●	⊖	●

⊕ Positive
 ● Neutral
 ⊖ Negative

Source: PwC Health Research Institute and PwC National Tax Practice analysis

In 2019, healthcare organizations may find it necessary to restructure their businesses to accommodate new rules on unrelated business taxable income (UBTI); assess how taxes and refunds could affect their Medical Loss Ratios; determine how best to invest cash previously held outside the US; and restructure their supply chains to accommodate a new territorial tax system and emerging trade uncertainties, among other actions. 2019 also will mark the first calendar year in which most companies file a tax return reflecting a complete fiscal year under the new tax law.

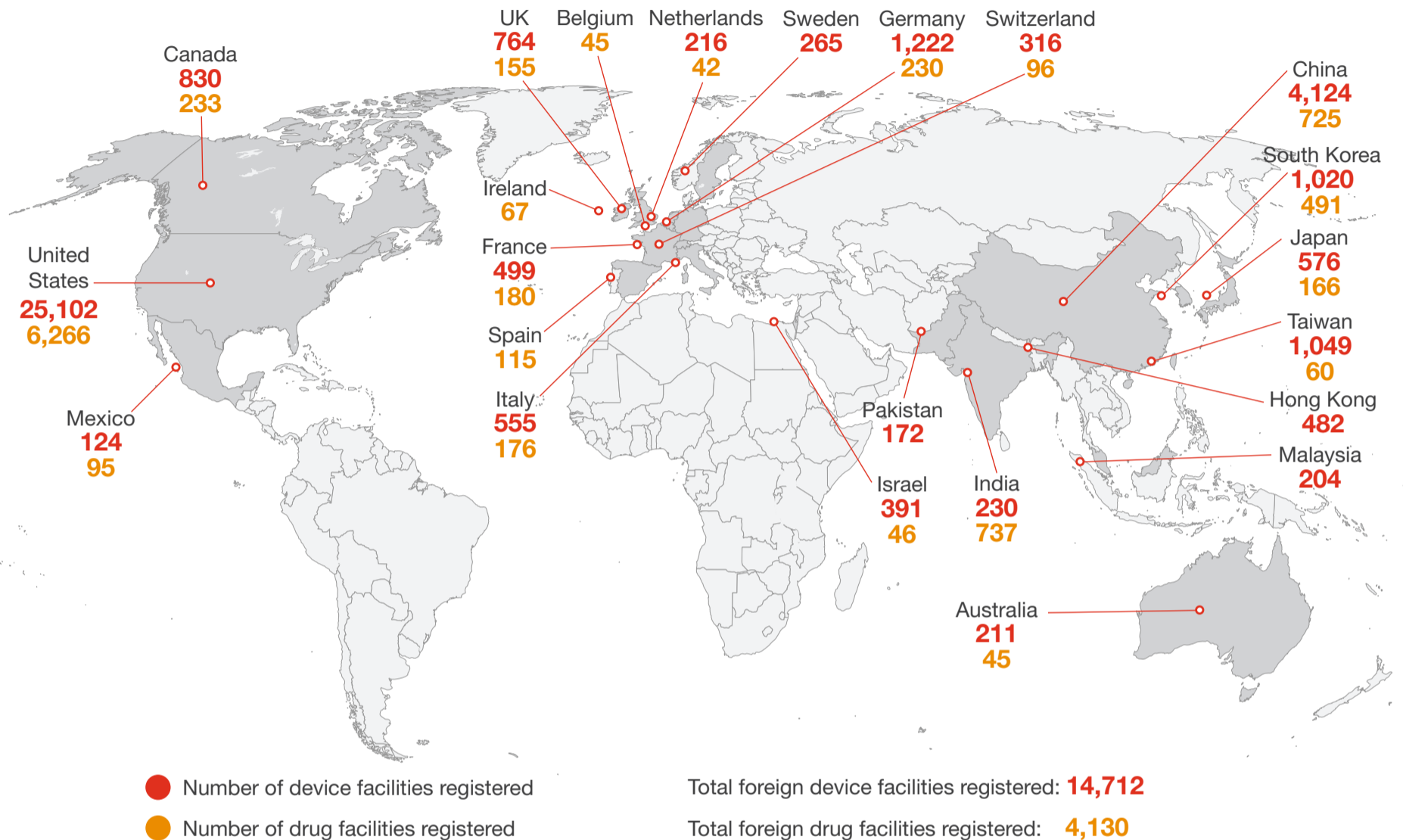
Tax-exempt entities in some cases will have greater tax liabilities under the law's rules that require such organizations—nonprofit hospitals, for example—to include the value of certain fringe benefits offered to employees, such as qualified transportation and parking benefits, as UBTI. The law also eliminated an incentive for some individuals to contribute to charitable organizations by almost doubling the standard deduction.

As with any major new law, the act didn't change the tax system the moment it was signed.⁴⁷ While many of the law's provisions have gone into effect, the IRS and Treasury Department are still developing guidance on its numerous complex rules. The terms "Secretary shall" or "by the Secretary" appear 51 times, each indicating where the IRS or Treasury is required to release guidance or regulation. Beyond that, the IRS still must weigh in on dozens of smaller issues, including definitions and which entities a specific provision applies to. The pace of Treasury and IRS guidance may accelerate by the end of 2018. While organizations are grappling to understand tax reform's complicated effects on their business operations, changes to the global trade environment and the introduction of new trade tariffs may complicate their operations and supply chains, increasing their costs or forcing them to restructure to maintain efficiencies. The United States has proposed changes to its dealings with several prominent trading partners, including Mexico, Canada and China. Several changes are expected to go into effect in 2019.

Most affected by tariffs may be the pharmaceutical and medical device sectors, which have a significant global manufacturing footprint and could see notable disruptions as they seek to move raw materials and finished products from global manufacturing facilities to their paying customers in the US (see Figure 9). US medical device manufacturers could face higher costs for materials, especially those made of metal, while drug manufacturers could see increased costs for chemicals used in manufacturing. Hospitals could face higher costs for medical goods or shortages if supply chains face major disruption.

2019 will mark the first calendar year in which most companies file a tax return reflecting a complete fiscal year under the new tax law.

Figure 9: There are more than 18,800 medical product manufacturing facilities registered with the FDA representing more than \$167 billion in annual value



Source: PwC Health Research Institute analysis of FDA facility registration data, Sept. 10, 2018

The medical device trade group AdvaMed told HRI that it identified \$3.5 billion in products affected by a recent round of tariffs China imposed in retaliation against US tariffs, adding up to \$754 million new annual taxes. For the US life sciences industry, which exports tens of billions of dollars in medical products each year, reciprocal tariffs could endanger revenues by making US-made products less competitive with foreign counterparts.

Implications



Be prepared to act. For both tax reform and trade-related issues, many companies are now in a holding pattern, awaiting guidance and action by government regulators before responding. On trade, while some actions will have recently gone into effect, others—such as trade tensions with China—are ongoing. This gives companies time to fully understand and analyze their business, partners and supply chains. Companies should consider a range of options, including business unit reorganizations, and be ready to act quickly to realize potential gains from changes to the tax code or trade environment. Prepared companies can rapidly realize advantages over their competitors by taking such actions as reorganizing business units to reduce tax liabilities.



Use tax savings to position for success. Some healthcare companies will have access to a substantial amount of capital to help them gain a competitive advantage. Before tax reform enactment, healthcare companies in the S&P 500 held an estimated \$186 billion in cash overseas at the end of 2016, according to a Credit Suisse analysis, and they may now begin repatriating those funds at favorable rates.⁴⁸

Companies can spend their tax savings in different ways, including reinvestment, acquisitions and stock buybacks. How they spend that money will affect the public's perception of them, according to respondents to an HRI survey. Sixty to 72 percent of respondents would have a positive opinion of a life sciences company, health insurer or hospital that used its tax savings to hire more staff, while 38 to 39 percent would have a negative opinion if the same company were to repurchase shares of its stock from investors.⁴⁹

Implications



Figure out what operational changes the new tax law will require. Companies must come to terms with a simple fact: The old way of doing business may no longer be the most effective or efficient way under the new code. The changes may require new supply chains, business unit reorganizations, benefit redesigns for executives and staff, investments in technology and staff training. Operational agility will permit companies to act quickly when necessary, but that will require planning and creativity.



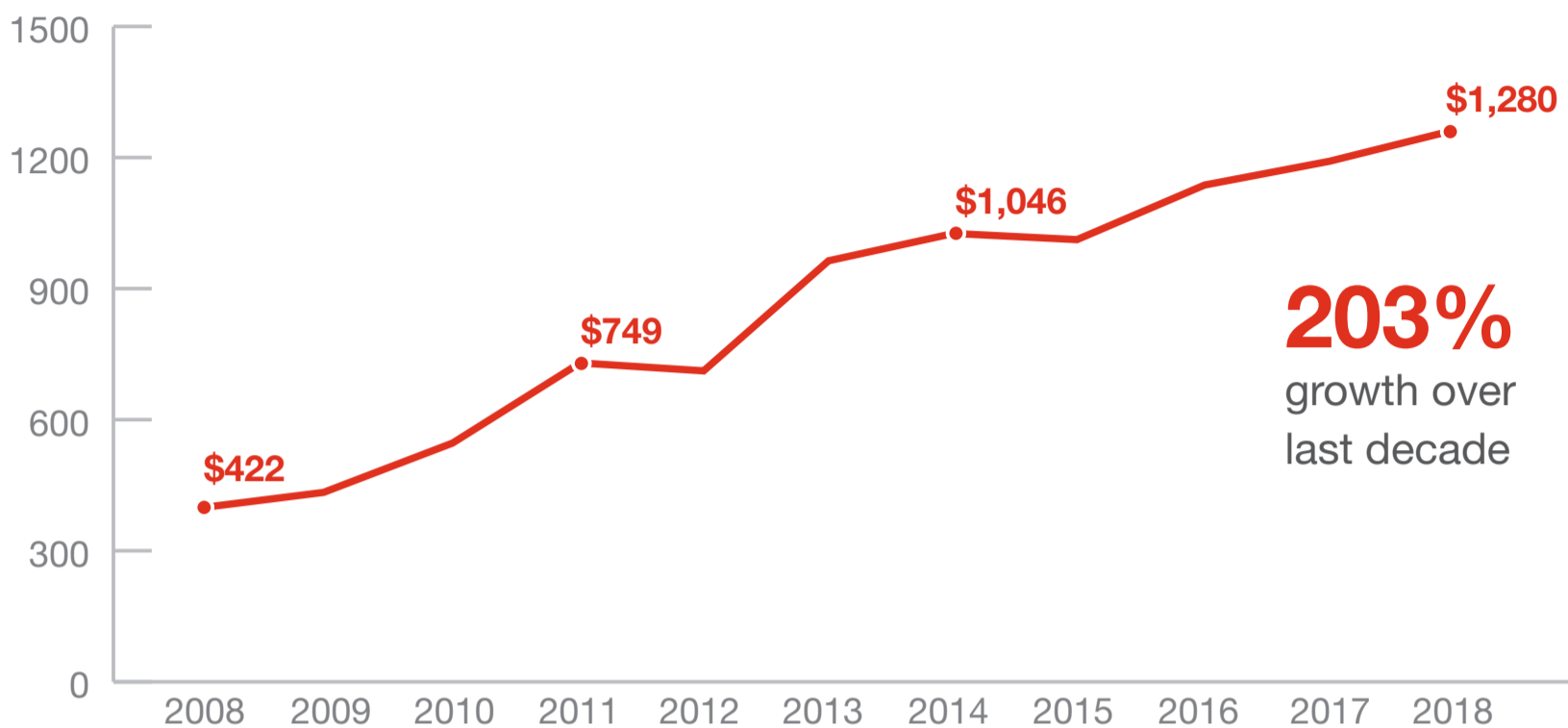
Creating the Southwest Airlines of healthcare

Despite its high costs and mammoth size, the US health industry is lacking a “value line” of products or services, its own version of a Southwest Airlines that eases the cost of travel, a Costco Wholesale that sells its products and services at a known markup, or an Uber that transports people with a click of a button. These companies offer premier customer experiences at low, transparent costs, balancing in-person and virtual interactions with employees who are laser-focused on the consumer. In 2019, a health industry increasingly pressured to do more with less will take lessons from emerging companies that have figured out how to deliver value to the uninsured and underinsured—traditionally deemed unprofitable—and turn a profit.

A lower-cost value line is an important growth strategy in a healthcare ecosystem in which average deductibles have tripled over the last decade and are now almost \$1,300 for an individual with employer-based insurance, making healthcare costs a difficult financial decision even for the insured. Fifty-two percent of consumers with a high-deductible health plan say it would be hard to afford the deductible.⁵⁰ Also, nearly 30 million Americans remain uninsured, and Medicaid covers more than 60 million people.⁵¹ (see Figure 10)

52% of consumers with a high-deductible health plan say it would be hard to afford the deductible.

Figure 10: Average deductible for employer-sponsored plans over the past decade



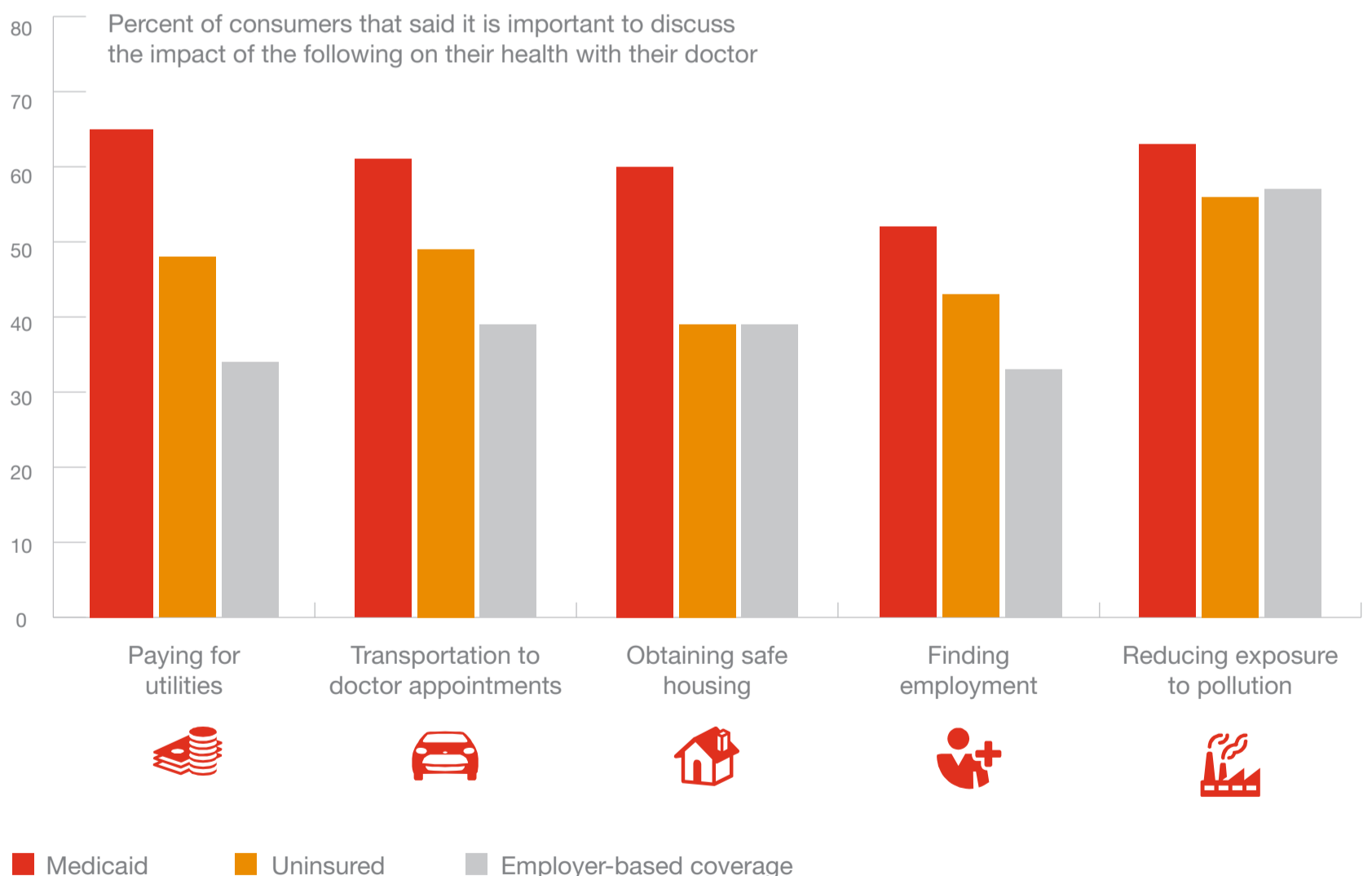
Source: PwC Health Research Institute analysis of Health and Well-being Touchstone survey, 2018

In response to these pressures, some healthcare companies are starting to build new, lower-cost delivery models to capture this market, bucking the trend by reducing fixed costs, rethinking which clinicians deliver care and addressing the social determinants of health.

Ardás Family Medicine in Denver provides walk-in-only service to refugees predominantly enrolled in Medicaid—and does so profitably.⁵² Since 2012, Ardás has seen more than 10,000 patients, with 97 percent of revenue coming from Medicaid.⁵³ “They don’t teach you that you can open your own practice and structure it to make money off Medicaid,” Ardás founder Dr. P.J. Parmar said in an interview with HRI. How does Ardás do it? “There is no one magic bullet,” Parmar said. Ardás operates on a walk-in basis rather than handling appointments, in a space designed to move people in and out quickly. It works with only one payer and has built a model around the customer experience, with evening and weekend hours and over-the-counter medications available in the office.⁵⁴

New York City-based Cityblock Health, which contracts with health plans to serve low-income and vulnerable communities, sees significant opportunity to deliver and manage care differently for Medicaid beneficiaries.⁵⁵ “Medicare Advantage has been a gold rush for provider-plan partnerships,” said Robbie Pottharst, chief operating officer of Cityblock Health, in an interview with HRI. “Medicaid has the added complexity of plans and patient populations that vary by state, requiring a highly tailored approach, but also creating an opening for new care delivery models.” The company receives a set amount of money per patient each month and takes on the financial risk of managing those patients’ care.⁵⁶ Cityblock creates “Neighborhood Hubs” with local healthcare teams that deliver a high-touch care experience to address complex medical, behavioral health and social needs. Consumers want to address the social determinants of health, with Medicaid patients in particular recognizing their importance (see Figure 11).

Figure 11: Social determinants of health are perceived to be of greater importance to the health of Medicaid patients



Source: PwC Health Research Institute consumer survey, May 2018

CareMore, an integrated health plan and care delivery system that serves Medicare and Medicaid patients in 10 states, is measuring and treating loneliness in the senior population through its Togetherness Program.⁵⁷ CareMore uses direct interventions such as weekly phone calls from CareMore employees and volunteers and home visits from social workers who connect patients to community-based organizations.⁵⁸ Early results are promising: Emergency room use declined by 5 percent and acute hospital admissions by 11 percent per 1,000 patients.⁵⁹ “Loneliness is an epidemic in plain sight,” said Dr. Sachin H. Jain, CareMore chief executive officer, in an interview with HRI. “We treat it as an unavoidable part of aging.”

Even some technology companies are finding ways to apply their business models to addressing the social determinants of health. In 2017, Uber began partnering with healthcare organizations to transport patients to medical appointments. The company formally launched Uber Health in 2018.⁶⁰

Some companies are anchoring themselves on transparency; 77 percent of consumers whom HRI surveyed said they want to see more of that in healthcare.⁶¹ Dallas/Fort Worth-based CityDoc Urgent Care lists self-pay prices for office visits and add-on services such as labs and X-rays on its website.⁶² CVS Health takes a similar approach with its MinuteClinics.⁶³

Generic drugs have long been the value line for pharmaceutical companies.⁶⁴ With 15 percent of consumers responding that they have skipped or delayed getting medicine in the past 12 months because of cost, generics alone aren’t enough.⁶⁵

For years, pharmaceutical companies have offered programs that help people afford their medications. HRI expects that in 2019 those programs will expand to help people manage their health and other aspects of their lives. For example, Sanofi’s Patient Connection program includes its Resource Connection service, which connects patients to nutritional assistance, transportation help, housing support and more.⁶⁶

“Loneliness is an epidemic in plain sight. We treat it as an unavoidable part of aging.”

—Dr. Sachin H. Jain, CareMore

Implications



Recognize your consumer segments that need value.

Consumers with high-deductible health plans, Medicaid consumers and those without insurance all have varying needs for value lines. They also have varying health needs and preferences that should be considered when creating these value lines.⁶⁷ Providers that understand the consumer segments they want to serve can design an operating model for the future—perhaps as “integrators” serving a payer mix and consumer base that are both diverse, or as “health managers” targeting the frail elderly, complex chronic, chronic and mental health consumer segments.⁶⁸



Consider partnerships to deliver lower-cost, high-quality care.

Scottsdale, Ariz.-based Redirect Health is working with employers nationwide to make it easy and affordable to provide healthcare to even low-wage employees.⁶⁹ For example, the company offers employees unlimited primary care visits paid for by their employer. Redirect Health is in talks with hospitals about collaborating to reduce unnecessary and expensive utilization by uninsured and Medicaid patients.⁷⁰ Such partnerships would let Redirect Health manage those patients’ ongoing care and avoid unnecessary, pricey emergency room visits that often go unpaid or under-reimbursed, so that hospitals can concentrate on where they are needed most.

Implications



Go beyond the prescription coupon. Pharma has yet to fully embrace the idea of value lines other than generic drugs and patient financial assistance programs. It could build on existing patient support programs to tackle social and lifestyle barriers to patient adherence. Pharma also could do more with outcomes-based payments, with which the price paid for a drug is linked to its economic or clinical performance.⁷¹ These companies also could develop value lines in the direct-to-consumer market with digital therapeutics such as Natural Cycles, a contraception app approved by the FDA in August 2018.⁷² The app costs \$80 a year and doesn't require a doctor visit or prescription.⁷³

77% of consumers say they want more price transparency in healthcare.



Private equity: Healthcare's new growth accelerator

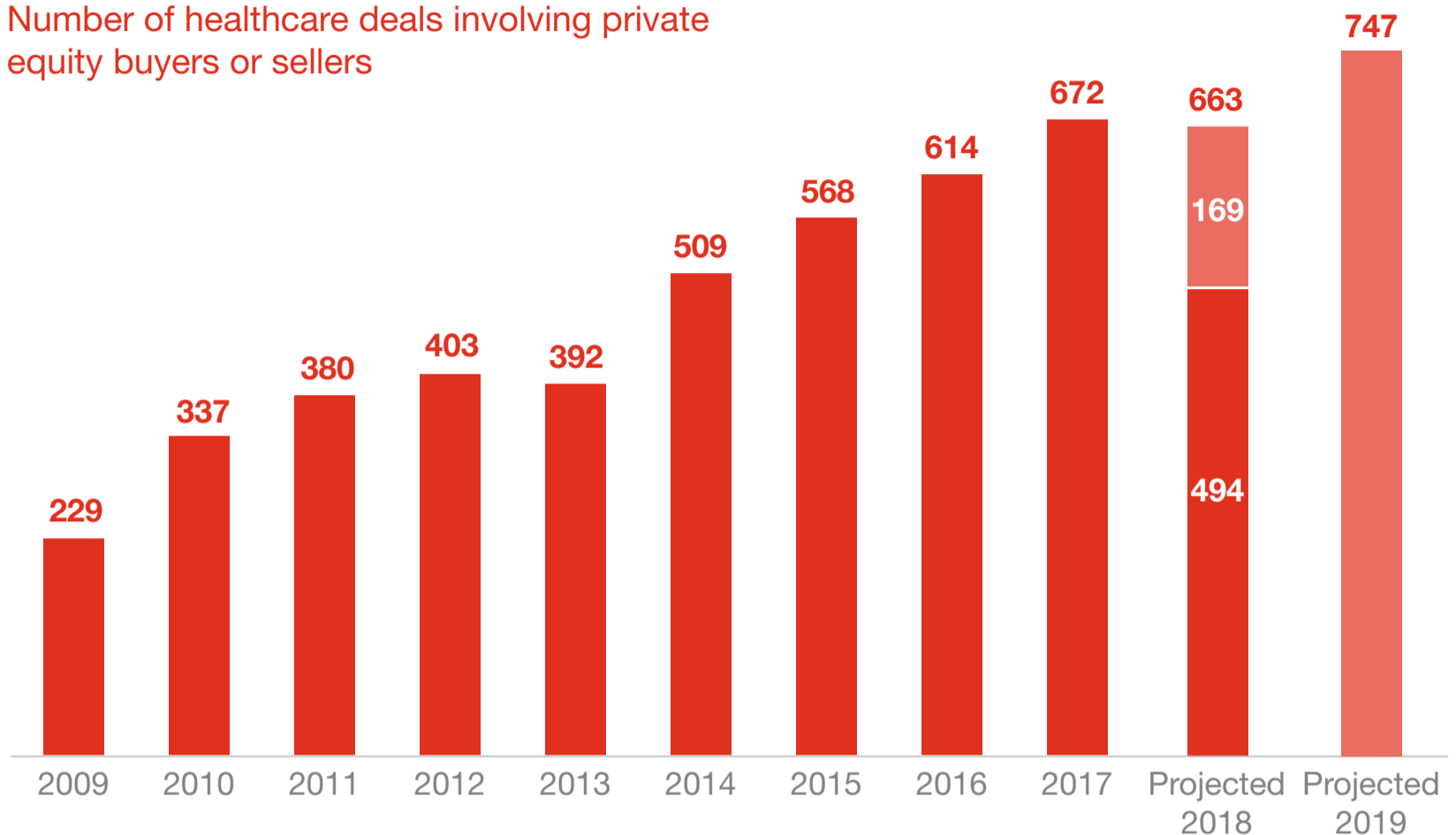
For years private equity firms have invested in healthcare, but now the pace is quickening as they step up their presence in a highly fragmented health industry, seizing on consolidation opportunities to build a better business model. Private equity's acquisitions and investments in the health sector have become increasingly diversified and frequent; they include such things as new entrants in technology and convenient care delivery, contract research organizations, and ophthalmology and dermatology practices. HRI expects this trend to accelerate in 2019, giving traditional healthcare companies opportunities to sell all or portions of noncore assets and double down on their core competencies, or partner with private equity in acquisitions in which they would otherwise be competing against each other or unable to act on their own.

A private equity sector bursting with cash and searching for deals means more of that money has flowed into the healthcare system over the past decade. In 2009, private equity firms completed over 200 healthcare deals, and by 2016 this had tripled to more than 600 deals (see Figure 12).

The healthcare industry saw a high level of deals in general in 2017 and 2018, involving both private equity and corporate buyers. As those deals are completed, many may be looking to sell noncore business units, prime targets for private equity firms looking for a proven business model and solid cash flow.^{75,76} Private equity's purchases of healthcare divestitures are expected to continue in 2019 as the sector looks to invest the cash it has raised, a reported \$624 billion ready for investment across industries as of July 2018.⁷⁷

Figure 12: Private equity activity in healthcare has steadily increased over the past decade

Number of healthcare deals involving private equity buyers or sellers



Source: PwC Health Research Institute analysis of PitchBook Data, Inc.⁷⁴

Private equity firms are approaching corporate entities more frequently, hoping to persuade them that some assets can be better managed by specialist private equity firms, said Don McDonough, managing director of JLL Partners, in remarks at the September 2018 Mergermarket Healthcare M&A Forum.⁷⁸ “More and more, PE firms are driving these types of carve outs,” he said, according to Forbes.

Corporate healthcare buyers increasingly find themselves competing for deals with private equity firms that are more aggressive in the bid process, said Jonathan Piques, director of corporate development and strategy for Owens & Minor, a Richmond, Va.-based healthcare logistics and medical supplies company, in an interview with HRI. “This presents an opportunity for corporate buyers to partner with private equity, spreading the risk of the transaction and increasing the number and types of deals that corporate buyers can pursue,” he said.

An example is the July 2018 deal involving TPG Capital; Welsh, Carson, Anderson & Stowe; and Humana to purchase Louisville, Kentucky-based Kindred Healthcare, a national healthcare services company that operates long-term acute care and post-acute care facilities.⁷⁹ The \$4.1 billion deal complements Humana’s existing capabilities while capitalizing on private equity’s strengths to enable growth.⁸⁰

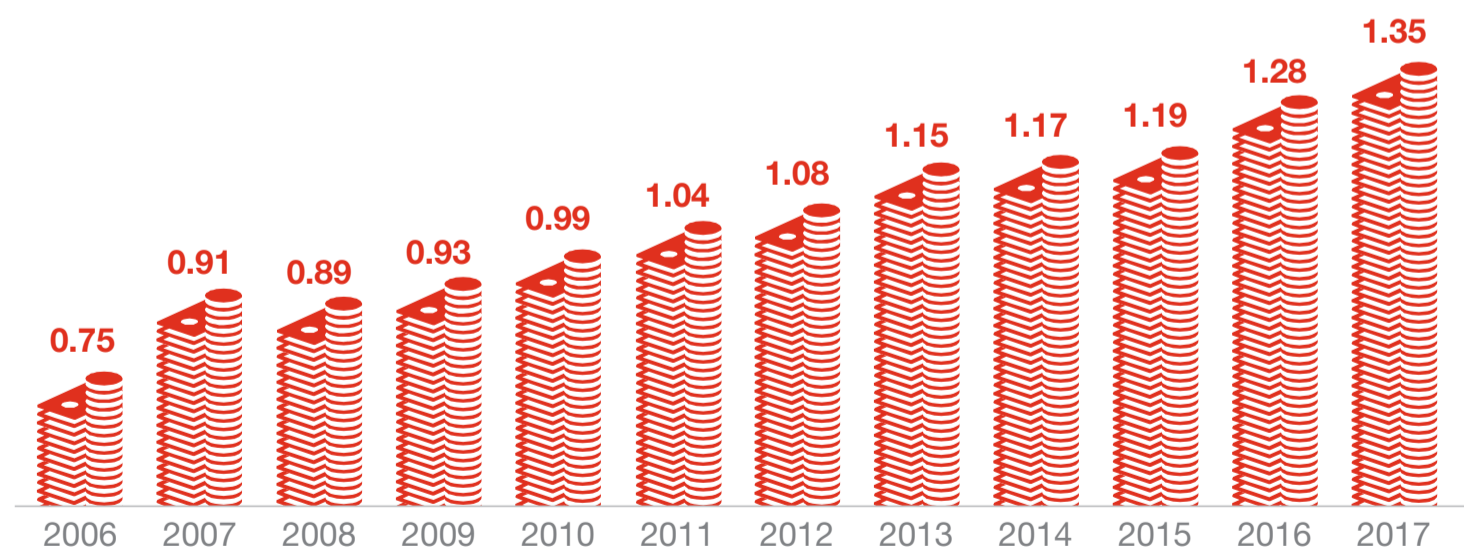
Partnerships between private equity and healthcare buyers also are evolving beyond acquisitions, with some healthcare companies spinning off noncore assets and co-investing with private equity in the new company. In September 2017, Pfizer and LifeArc, a medical research charity, partnered with Bain Capital and OrbiMed to create SpringWorks Therapeutics, an independent company that develops treatments for underserved patients.⁸¹ HRI expects to see more co-investing in 2019; it gives healthcare companies a chance to keep their portfolios diversified while mitigating some of the operational and financial risks that come with diversification.

Private equity's increased role in deals isn't unique to healthcare; rather, it reflects private equity's increased investments across the economy (see Figure 13), which is the result of increased debt financing and fundraising by private equity, both driven by low interest rates.⁸² As private equity firms seek to balance their investments in more volatile industries, such as technology, with investments in more stable industries that are less prone to a recession's effects, the growing healthcare industry may appear even more attractive.

CMS projects that national health spending will rise to 20 percent of the economy by 2026, up from 18 percent in 2016.⁸³ That growth creates opportunity for private equity to grow its footprint in the industry; healthcare companies also should be seeking their own opportunities.

Figure 13: Total assets under private equity management have increased by \$600 billion since 2006

Private equity assets under management in the US (in trillions)



Source: PwC Health Research Institute analysis of PitchBook Data, Inc.

Implications



Recognize that the market is ripe for divestitures.

Healthcare companies should consider selling noncore business units to private equity firms that have money to invest and may be more apt than a corporate buyer to purchase a single business unit. As megadeals complete, newly consolidated entities should consider shedding noncore assets, with private equity as a potential buyer.



Partner with private equity to unlock possibilities for growth and scale.

Companies across the industry should consider where they might partner with private equity firms when pursuing growth or expansion efforts, as the private equity sector may provide strategic advantages beyond key additional financing. “Viewing private equity as a banker is shortsighted,” said Dawn Von Rohr, senior vice president of strategy for Albany, N.Y.-based AMRI, a global contract research and manufacturing organization purchased by The Carlyle Group and GTCR LLC in 2017. “Private equity can drive deals forward quickly. Once the deal has closed, they can provide a strategic view, understanding industry trends through their portfolio of investments and advising on growth opportunities.”



Understand that private equity is accelerating change in the industry and eyeing disruptors.

Private equity investment in healthcare isn't going to single-handedly improve care quality, enhance the patient experience or reduce healthcare costs to consumers. But it likely is fueling the efforts already in place. Private equity firms bring capital and experience from other industries that can contribute to the healthcare industry's efforts to rein in costs and achieve better outcomes. For example, in May 2014, Los Angeles-based private equity firm Varsity Healthcare Partners acquired Baltimore-based Katzen Eye Group to form EyeCare Services Partners Holdings LLC

Implications

(ESP).^{84,85} ESP has since made multiple acquisitions and now provides practice management services to ophthalmologists and optometrists across 46 clinics in five states.⁸⁶ On its website, ESP touts increased reimbursement and elimination of administrative burden as benefits of selling a practice to ESP.⁸⁷

At the same time, private equity has its eyes on disruptors, monitoring their effects on investments and proposed deals. In rare cases, it invests in disruptors, as in The Carlyle Group's investment in San Francisco-based 1Life Healthcare, the parent company of national, membership-based primary care practice One Medical. The investment was announced in August 2018.⁸⁸

“Viewing private equity as a banker is shortsighted...they can provide a strategic view, understanding industry trends through their portfolio of investments and advising on growth opportunities.”

— Dawn Von Rohr, AMRI



The Affordable Care Act in 2019: Still alive

Two years into the Trump administration, the Affordable Care Act (ACA) remains law, but Republican lawmakers and the administration have reshaped parts of it through legislative, regulatory, budgetary and legal actions. In 2019, these actions will create new winners and losers.

Healthy individuals and small businesses seeking cheaper premiums will benefit in 2019, as will payers selling short-term, limited duration insurance and supporting association health plans. New entrants specializing in underinsured and uninsured consumers may find new markets thanks to Republican actions to expand access to these plans. Financial services companies, makers of nonretail medical devices and employers offering high-cost insurance plans all will enjoy modest gains too.

On the losing end of these policies and decisions are middle-class consumers seeking comprehensive coverage on the ACA exchanges, and providers and payers dependent on patients covered by Medicaid or ACA plans living in conservative-leaning states that are more skeptical of the law. Some ACA revenue-raising provisions have been delayed or eliminated, exacerbating their situation.

The administration's efforts to chip away at the ACA can be seen around the law's edges through softening individual and employer mandates, expanding access to health insurance plans that don't conform to ACA rules, reducing operational and financial support for individual exchanges, dialing back on Medicaid spending and expanding the use of health savings accounts (see Figure 14).

President Donald Trump, his administration and the Republican party campaigned in 2016 on repealing and replacing the ACA but failed to do it in a single piece of legislation in 2017.⁸⁹ "Repeal and replace" as a political rallying cry fell away in this fall's midterm elections, but in 2019, reshaping the law will remain a goal for the president, his administration and Republican lawmakers.⁹⁰

Figure 14: ACA in 2019 is creating new winners and losers

Goal	Actions	Impact	Winners	Losers
Soften ACA individual and employer mandates	Individual mandate penalty reduces to \$0 on Jan. 1, 2019; HHS reduces paperwork to claim hardship exemption for 2018 tax year filed in 2019	In 2019, increases number of uninsured by 4 million, reduces individual markets by 3 million, reduces Medicaid population by 1 million	Consumers wishing to purchase short-term, limited duration insurance (STLDI) or go without coverage; new entrants serving cash customers	Providers in states that don't replace penalty; payers dependent on ACA exchanges
Expand consumer choices for health insurance	Expanded access to association health plans (AHP) and STLDI through rule-making process. Sales began late 2018, with 2019 as first full year	In 2019, enrollment in STLDI increases by 600,000, decreasing on- and off-exchange enrollment by 500,000; AHP enrollment expected to be 4 million by 2023	Payers selling STLDI and supporting administration of new products in states that allow sales; healthy individuals, self-employed and small employers seeking cheaper coverage	Providers in states embracing sales; payers heavily dependent on nongroup and small group sales in states allowing sales; middle-class nongroup consumers seeking comprehensive coverage
Withdraw federal support for ACA exchanges	In 2019, reduced ACA enrollment periods, reduced funding for navigators and advertising	7% decrease in ACA enrollment between 2016 and 2018, when 11.8 million enrolled	Sellers of STLDI and AHPs	Providers serving large numbers of ACA patients; payers dependent on ACA exchanges
Repeal, delay or suspend ACA taxes and fees	Delays on taxes on payers, high-cost employer-sponsored insurance and nonretail medical devices	Reduction in federal revenues of \$14.6 billion in fiscal year 2019	Payers, employers offering "Cadillac" plans; medical device companies	Federal coffers
Reduce federal Medicaid spending	Approvals of Section 1115 waivers are allowing creation of state Medicaid work requirement programs. At least three states will operate programs in 2019	In Arkansas, 4,300 beneficiaries were cut in September	States with work requirements may see modest decreases in state Medicaid spending.	Payers and providers serving Medicaid beneficiaries in states with work programs
Expand use and usability of health savings accounts (HSAs)	Congress will consider several bills in 2019 to increase allowable contributions and goods and services eligible for HSA funds	If legislation passes, federal revenues would decrease by about \$650 million in the first fiscal year	Affluent consumers; financial services companies servicing HSAs; providers serving patients with high deductibles and well-financed HSAs	Federal coffers

Source: PwC Health Research Institute

Christopher Holt, director of health care policy for the Washington, D.C.-based American Action Forum, can foresee a scenario in which Republicans feel compelled to take another run at the ACA. “There’s certainly the potential for another round of ‘repeal-and-replace’ efforts in some form,” he told HRI in an interview. “There are elements inside Congress and the administration that feel that changing the ACA is why they’re here. They’ll want to push, and it will be hard for congressional leaders not to play that out.”

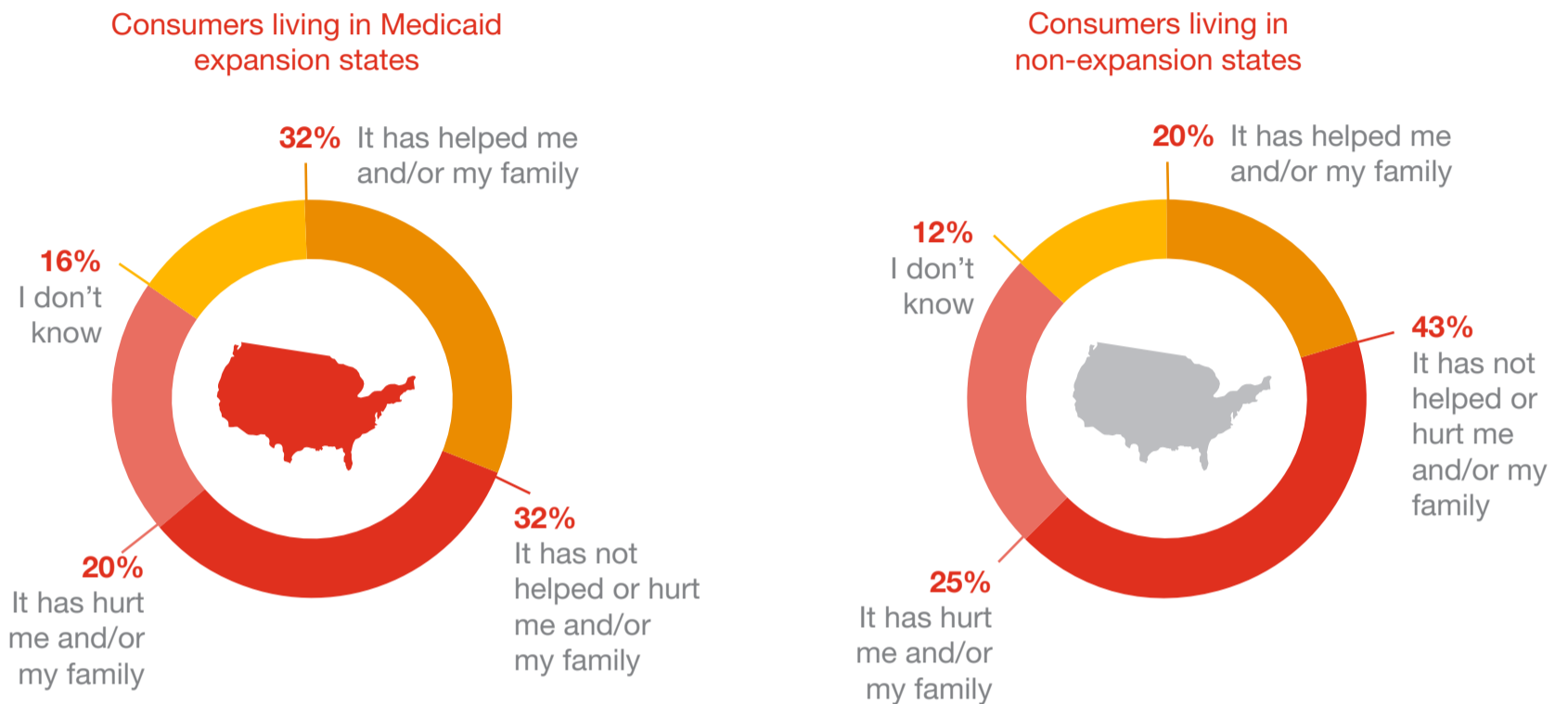
These endeavors are occurring against a backdrop of general industry deregulation, including CMS’ campaign to reduce reporting requirements and paperwork for providers and the FDA’s efforts to streamline medical product reviews.^{91,92} The health industry also is contending with the president’s proposed and enacted tariff increases on Chinese exports to the US—including some medical products and materials used to make them—which have triggered Chinese tariffs on American exports.^{93,94}

In 2019, providers, pharmaceutical and medical device companies will benefit from deregulation, while some life sciences and durable medical equipment companies may be caught in the middle of the US and China’s simmering trade war.

Nine years after the ACA’s passage, Americans remain ambivalent about the law. Residents of the 34 states and the District of Columbia that expanded Medicaid under the law were more likely to say the law helped their families than respondents living in the 17 states that didn’t expand Medicaid, according to an HRI survey conducted shortly before the 2018 midterm elections.

Figure 15: One in three Americans living in states that expanded Medicaid under the ACA say the law helped them⁹⁵

Which of the following statements do you agree with the most about the Affordable Care Act, also known as Obamacare?



Source: PwC Health Research Institute consumer survey, September 2018

Respondents living in Medicaid expansion states also were less likely to say the law had hurt their families (see Figure 15). While residents of expansion states were more likely to favor strengthening or modifying the law than those in non-expansion states, more than a third of expansion state residents said they favor repealing and/or repealing and replacing the law (see Figure 16).

Of all the actions that the Trump administration and Republican lawmakers took to affect the ACA, the one that will most strongly affect the health industry in 2019 is the reduction of the ACA individual mandate penalty to \$0 on Jan. 1, a change included in the Tax Cuts and Jobs Act of 2017.⁹⁶

The Congressional Budget Office (CBO) estimates that 4 million Americans will choose to forgo coverage in 2019 because of the \$0 individual mandate penalty.⁹⁷ Three million likely will be Americans who otherwise would have purchased comprehensive nongroup coverage, while 1 million likely will be people who would otherwise have enrolled in Medicaid, according to the CBO.⁹⁸

Figure 16: What do you think lawmakers should do about the Affordable Care Act also known as Obamacare?

Consumers living in Medicaid expansion states



Consumers living in non-expansion states



Strengthen it Modify it Leave it alone Repeal it and replace it Repeal it I don't know

PwC Health Research Institute consumer survey, September 2018

This means the \$0 individual mandate penalty will have the most significant effect on Medicaid in 2019. This is in spite of CMS' headline-grabbing approvals of work requirement programs for Medicaid expansion beneficiaries in a handful of conservative-leaning states, including Arkansas and Indiana.⁹⁹ In Arkansas, the first state to establish a work requirements program, 4,353 beneficiaries lost benefits in the first three months for failing to comply with the program.¹⁰⁰ In 2019, 170,000 Arkansas expansion beneficiaries will be subject to the requirements, according to the state. At least three states will operate under work requirements in 2019, with more likely to join.¹⁰¹

Providers and Medicaid managed care organizations serving Medicaid populations in Arkansas, Indiana and other states that eventually launch work requirement programs could see a slow attrition in coverage in 2019 as beneficiaries gradually lose coverage for failing to comply. Providers in these states could find themselves responsible for educating beneficiaries about the programs to help them remain compliant and also helping former beneficiaries understand why they lost benefits once they seek care.

The administration's new regulations allowing longer terms for short-term, limited duration insurance, which is exempt from many of the ACA's consumer protections, will create opportunities for payers selling and supporting these products in 2019, the first full year they will be sold under the new rules.¹⁰² The same is true of association health plans.¹⁰³ In 2019, the administration's new rules will allow more people to join forces for coverage under these products, which may be subject to fewer restrictions than nongroup and small group plans under the ACA.¹⁰⁴

The CBO estimates that an additional 600,000 people will buy short-term, limited duration plans in 2019, with up to 4 million additional people covered by association health plans by 2023.¹⁰⁵ Losers will include payers focusing on sales of ACA nongroup and small group coverage as hundreds of thousands of their customers swap those plans for the cheaper short-term and association ones.

Lawmakers also have made headway continuing delays of ACA taxes and fees, including the excise tax on nonretail medical devices, the fee on health insurance providers and the excise tax on so-called “Cadillac” employer-sponsored health plans.¹⁰⁶ Together, these provisions would have raised \$14.6 billion in revenue in fiscal year 2019.¹⁰⁷

In 2019, lawmakers from both parties also may opt to increase the amount Americans are allowed to contribute to HSAs and expand the goods and services that can be purchased with those funds.¹⁰⁸ This decision, put forth in several bills under consideration, would modestly benefit financial services companies servicing these accounts and reduce federal revenue by about \$650 million during the first fiscal year.¹⁰⁹

The reason for the relative pittance? Only 13 percent of HSA account holders contributed the maximum allowable amount in 2016, according to a study by the Washington, DC-based Employee Benefit Research Institute.¹¹⁰ An expansion would mostly benefit a relatively small number of affluent Americans, offering them a tax-sheltered way to pay medical bills and perhaps making it a little easier for the providers who care for them to chase down those bills.

Broadly, the administration’s actions affecting the ACA have shifted power to the states, which means the fates of many providers and payers depend on decisions made by state lawmakers and bureaucrats. Empowered, states are nurturing innovation for the industry. New Jersey, Vermont and Massachusetts have individual mandate penalties to stand in for the \$0 federal one.¹¹¹ Others, such as Alaska and Wisconsin, have opted to create reinsurance programs to pay high-cost ACA claims in an attempt to keep premiums down.¹¹² Others are still ripe for experimentation in the Medicaid space, even as budgets grow tighter. Which states will take on which initiatives is partially determined by their political makeup, though the goals are the same: fewer uninsured people and reduced healthcare costs.

“There’s an incredible opportunity for states to be innovative,” said Samantha Burch, senior director of congressional affairs at Chicago-based Healthcare Information and Management Systems Society, in an interview with HRI. “Health policy battles may get started on Capitol Hill, but they more often than not are won or lost in a statehouse.”

Implications



Care delivery must move beyond the office and to a broader team. Anticipating less robust coverage on individual and nongroup markets due to the greater availability of insurance plans that don't conform to ACA regulations, providers and payers should develop plans for triaging patients and members to lower-cost care options, including telehealth or in-home nurse visits. Providers also should pair patients with the most appropriate clinician to address patients' immediate health issues. This could mean scheduling them with a nurse, dietitian, mental health specialist or social worker instead of a higher cost physician.

HRI found that a well-designed primary care team could result in savings of \$1.2 million per 10,000 patients served annually.¹¹³ Providers and payers should enlist social and community support to address the social determinants of patients' health—such as obtaining reliable transportation or food security—and drive adherence to treatment plans with the goal of reducing avoidable hospitalizations and emergency room visits. Longer-term strategies should focus on tackling fixed costs, such as replacing certain physical infrastructure with virtual infrastructure and creating a value line of product and service options at different price points for patients.

Implications



Attention to drug prices will increase despite a slowdown in rule-making for manufacturers. An ACA provision that would implement monetary penalties on manufacturers that knowingly charge more than the ceiling price for a covered outpatient drug under the 340B purchasing program is scheduled to go into effect July 1. The Trump administration had previously delayed the provision. Lawmakers in 2019 will be increasingly interested in how 340B entities are using the benefit and whether or not savings generated by the program are making it to consumers or padding companies' pockets. Government scrutiny of drug prices is expected to continue. Seventy-three percent of Americans surveyed by HRI said they want the government to do more to control the cost of prescription drugs.

The frail elderly, consumers with chronic conditions and consumers with a mental illness most strongly endorsed government action. In July 2018, after drawing criticism from President Trump, drug companies Novartis and Pfizer announced they would freeze prices on their products in the US for the remainder of 2018.¹¹⁴



Insurance regulations are falling to states, creating a patchwork. States will be taking more direct action to secure their insurance markets in 2019, even as the methods for doing so become more variate, creating challenges for regulatory compliance. In all states, payers will be able to sell more products in the individual and group markets, but regulations of those products will differ. States that don't ban new products outright could still place greater restrictions on their use than federal regulations allow for.

At the same time, states will seek ways to stabilize marketplaces through federal assistance, particularly through reinsurance programs designed to reimburse payers with high-cost beneficiaries and slow individual plans' premium increases.¹¹⁵ When making decisions in 2019, payers seeking to get the most out of new opportunities should avoid thinking of states as red or blue when they approach marketplaces and should instead closely follow state regulatory decisions.

Healthcare after the 2018 midterm election: As control shifts, certainty settles in

The Democrats' midterm wins likely will slow, but not stop, the Republicans' pursuit of their healthcare agenda, which has focused on recasting the role of the federal government in the US health industry. Without overwhelming control of both chambers and the power to override presidential vetoes, Democratic lawmakers will have little room to pursue their own agenda, which includes shoring up the Affordable Care Act (ACA), strengthening Medicare and Medicaid, expanding consumer protections and using the federal government to provide relief for consumers struggling with healthcare spending.

After two years, the Trump administration's approach to the health industry is relatively clear and predictable. Providers and payers can expect that more of their fates will rest with state lawmakers and regulators. Providers, especially in states that embrace administration policies, can expect the number of underinsured and uninsured patients to swell modestly. Providers also can likely expect the administration to continue to embrace value-based care models, including mandatory ones. Meanwhile, pharmaceutical and life sciences companies can expect the FDA's review process to become more efficient and that the agency will likely continue to seek ways to work more closely with industry.

Democrats will also control more gubernatorial seats after the midterms. Unlike Republican states, Democratic-run states are less likely to pursue Medicaid work requirement programs or embrace ACA-sidestepping health coverage. Instead, they are more likely to try to buttress the ACA, passing their own individual mandate penalties, formulating reinsurance programs to dampen ACA premium increases and funding advertising to encourage constituents to enroll for coverage. These states also are more likely to adopt legislation calling for greater transparency in drug price increases.

Americans are increasingly accustomed to the benefits awarded by the ACA, especially protections involving pre-existing conditions. The Democratic victories signal a tilt, if only slight, back toward an expansion of benefits facilitated by the federal government and its resources, and away from a deregulated approach in which consumers have more health coverage choices but fewer protections.

Over the next two years, healthcare companies will likely see a higher premium placed on transparency, which will extend beyond prices for goods and services to corralling new coverage practices. Political changes in Washington, DC, will likely give Democrats more influence over the health policy agenda, but fundamental business issues of how to slow rising costs, create better consumer experiences and implement new technologies will likely remain perennial industry issues. In 2017, national health spending was projected to have grown 4.6 percent, reaching almost \$3.5 trillion, according to an analysis by the CMS Office of the Actuary. By 2026, national health spending is projected to top \$5.7 trillion.

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About this research

This annual report discusses the top issues for healthcare providers, health insurers, pharmaceutical and life sciences companies, new entrants and employers. In fall 2018, PwC's Health Research Institute commissioned an online survey of 1,750 US adults representing a cross-section of the population in terms of insurance status, age, gender, income and geography. HRI also oversampled to obtain data on specific market segments. The survey collected data on consumers' perspectives on the healthcare landscape and preferences related to healthcare usage.

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PwC's HRI provides new intelligence, perspectives and analysis on trends affecting all health-related industries. The Health Research Institute helps executive decision-makers navigate change through primary research and collaborative exchange. Our views are shaped by a network of professionals with executive and day-to-day experience in the health industry. HRI research is independent and not sponsored by businesses, government or other institutions.

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