<table>
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<tr>
<th>Topic</th>
<th>Timing</th>
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<tr>
<td>Panel discussion</td>
<td>8:30 a.m. – 9:35 a.m.</td>
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<tr>
<td>Tax update</td>
<td>9:35 a.m. – 10:25 a.m.</td>
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<tr>
<td>Accounting update</td>
<td>10:40 a.m. – 11:30 a.m.</td>
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<tr>
<td>Technology in construction</td>
<td>11:30 a.m. – 12:05 p.m.</td>
</tr>
<tr>
<td>Closing remarks</td>
<td>12:05</td>
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</table>
Executive real estate panel
Panelists

**Moderator**
Robert T. O’Brien
Global Real Estate & Construction Leader
Deloitte & Touche LLP

**Panelist**
David E. Moore
Senior Vice President, Portfolio Director
Equity Office

**Panelist**
Meredith Darnall
VP, Research and Strategy
General Growth Properties

**Panelist**
Steve Steinmeyer
Senior Managing Director, Tenant Representation
JLL

**Panelist**
Joan Bottarini
Senior Vice President Finance, Americas Region
Hyatt Hotels Corporation
Tax update
Tax Update

I. Tax Reform
II. New Partnership Audit Regime
III. Recent REIT Guidance
IV. California Transfer Tax
Tax reform
Three basic building blocks

1. Desired Tax Rates
2. Redefine Tax Base
3. Revenue Neutrality
### The evolution of GOP tax reform

From A to B... sometimes via Z

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</thead>
<tbody>
<tr>
<td><strong>Corporate taxation</strong></td>
<td>35% top rate</td>
<td>25% top rate, phased in</td>
<td>20% top rate</td>
<td>15% top rate</td>
<td>20% top rate</td>
</tr>
<tr>
<td><strong>Int’l taxation</strong></td>
<td>Worldwide with deferral</td>
<td>Territorial with 95% dividend exemption</td>
<td>Territorial with 100% dividend exemption</td>
<td>Worldwide with repeal of deferral ('16); Territorial ('17)</td>
<td>Territorial with 100% dividend exemption</td>
</tr>
<tr>
<td><strong>Foreign-held earnings</strong></td>
<td>US tax deferred until repatriated; FTC offset</td>
<td>Deemed repatriation at 8.75%/3.5%; proportional FTC offset</td>
<td>Deemed repatriation at 8.75%/3.5%</td>
<td>Deemed repatriation at 10%</td>
<td>Deemed repatriation at bifurcated rate TBD</td>
</tr>
<tr>
<td><strong>Capital Expensing</strong></td>
<td>MACRS/ADS with bonus depreciation</td>
<td>Phased-in repeal of MACRS</td>
<td>100% immediate expensing (permanent)</td>
<td>Electable regime ('16); no change ('17)</td>
<td>100% immediate expensing (5+ years)</td>
</tr>
</tbody>
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## The evolution of GOP tax reform

From A to B... sometimes via Z

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<tbody>
<tr>
<td><strong>Base erosion measures</strong></td>
<td>Subpart F rules for passive income</td>
<td>Minimum worldwide tax at 15.5%/12.5%</td>
<td>20% destination-based cash flow tax (BAT)</td>
<td>Repeal deferral (‘16); unspecified (‘17)</td>
<td>Minimum worldwide tax at TBD rate</td>
</tr>
<tr>
<td><strong>Business tax incentives</strong></td>
<td>Myriad</td>
<td>Repeal many</td>
<td>Repeal most except R&amp;D credit and LIFO</td>
<td>Repeal many, unspecified</td>
<td>Repeal or limit many; retain R&amp;D and LIHTC</td>
</tr>
<tr>
<td><strong>Corporate AMT</strong></td>
<td>20% on alternative minimum taxable income</td>
<td>Repeal with refundability of credits</td>
<td>Repeal</td>
<td>Repeal</td>
<td>Repeal</td>
</tr>
<tr>
<td><strong>Business interest payments</strong></td>
<td>Generally deductible</td>
<td>Modify 163(j) rules and implement new thin cap rules</td>
<td>No current deduction for net interest expense</td>
<td>Electable regime (‘16); no change (‘17)</td>
<td>Partially limited</td>
</tr>
</tbody>
</table>
## The evolution of GOP tax reform
From A to B... sometimes via Z

<table>
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</thead>
<tbody>
<tr>
<td><strong>Passthru business income</strong></td>
<td>Taxed at owner’s rates</td>
<td>Taxed at owner’s rates (surtax on some income)</td>
<td>25%, TBD rules to ensure “reasonable compensation”</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Individual taxation</strong></td>
<td>7 brackets, top rate of 39.6%</td>
<td>2 brackets, top rate of 25% + 10% surtax on MAGI</td>
<td>3 brackets, top rate of 33%</td>
<td>3 brackets, top rate of 33%</td>
</tr>
<tr>
<td><strong>Individual tax incentives</strong></td>
<td>Myriad</td>
<td>Limit some, consolidate others, double SD, eliminate PE</td>
<td>Repeal SALT and most others, double SD, eliminate PE</td>
<td>Repeal most, double SD</td>
</tr>
<tr>
<td><strong>Estate tax</strong></td>
<td>40% after exemption of $5.5M/$11M</td>
<td>Retain</td>
<td>Repeal</td>
<td>Repeal, tax cap gains of $10M+ at death (’16); repeal (’17)</td>
</tr>
</tbody>
</table>
How do we get there?

According to the CBO, a rate reduction of 1 point costs $100 billion (over 10 years)

Congressional Budget Office
Optimizing opportunity in an ever-changing environment

Amortization of research & experimental expenditures
Amortization of advertising expenses
Phaseout and repeal of 199 deduction
Repeal of LIFO

Total revenue raised from these: $556.5B

Requires $500 billion in Revenue

Path to 30%

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First Four:
- Amortization of research & experimentation
- Amortization of advertising expenses
- Phaseout & repeal of 199
- Repeal of LIFO
Get you $557 billion or 5.57%

Path to 25% Requires $1 trillion in Revenue

- $557B
- $217B
- $84B
- $67B
- $45B
- $33B
Tax reform issues and observations
Tax reform: Key issues to be resolved
Process and scoring

Reconciliation or Regular Order?
• Reconciliation = Policy & budget constraints, but filibuster-proof
• Regular Order = No constraints, but Democratic votes needed

Permanent, Temporary, or a Mix?
• Reconciliation rules prohibit increasing the deficit over the long-run
• Raises specter of sunsets—either to entire bill or select provisions

Dynamic Scoring
• What role will it play? JCT seen as more conservative in its dynamic analysis
• If no expensing and/or rate cuts are temporary, dynamic gains could be lower

Against which Revenue Baseline?
• Measuring tax reform against a “current policy” baseline makes budget math ~$400 billion easier
Tax reform observations

• Much of the detail from the Sept. 27 framework is left up to the taxwriting committees to draft

• Little discussion of the revenue raisers needed to offset the cost of proposed tax cuts

• A Senate Republican version of tax reform may look very different than a House GOP approved approach

• Tax reform and the FY18 budget resolution are still linked procedurally, which may complicate prospects and delay the process

• Timing for tax reform is fluid and mixed messages from the White House may complicate congressional reform efforts

• Even so, presidential leadership is necessary to drive tax reform
Time for a “hard pivot” to tax reform?  
December 8 cliff/encroaching mid-terms = brief window for action

115th Congress

- Congress Reconvenes
- FY2017 Ends
- IRS Comm’r Koskinen’s Term Ends
- Med Device Tax Moratorium Expires
- First Congressional Primary
- FY2018 Ends
- Mid-Term Elections

August Recess

About 40 Legislative Days*

Dec. 8

Current “Continuing Resolution” Expires
(defense and nondefense appropriations lapse)

Debt Limit Suspension Period Ends
(“extraordinary measures” employed by Treasury could postpone hard deadline into 2018)

* “Legislative Days” here are counted liberally (includes days only one chamber plans to be in session; also include planned sessions on Mondays and Fridays, which are often light work days)
New centralized partnership audit regime: Proposed regulations
Overview of new law
Major partnership changes in the BBA

**TEFRA and Electing Large Partnerships Repealed Effective 2018**

- Applicable for partnership taxable years beginning after 12/31/2017
- Possibility for early application under the *election in* rules for partnership taxable years beginning after 11/2/2015
- Subject to the small partnership *election out* rules

**Exams Conducted, Adjustments Assessed and Collected, and Penalties Determined at the Partnership Level**

- Like TEFRA, requires partnership-level resolution of partnership income, gain, loss, deduction, or credit
- Unlike TEFRA, the partnership, not the partners, is assessed tax based on the imputed underpayment amount at the highest applicable federal tax rate
- Subject to some key exceptions
Determination at partnership level
Section 6221(a) and Prop. Treas. Reg. § 301.6221(a)-1

• Any tax attributable thereto shall be assessed and collected at the partnership level
  – The term tax means tax imposed by chapter 1 of subtitle A of the IRC, and does not include,
    for example, taxes under chapter 2 (self-employment tax), chapter 3 (withholding tax),
    chapter 4 (foreign accounts), or chapter 6 (consolidated returns)

• The applicability of any penalty, addition to tax, or additional amount that related to an
  adjustment to any such item or share shall be determined at the partnership level
  – Any defense must be raised by the partnership regardless of whether the defense relates to
    facts and circumstances relating to a person other than the partnership
  – After the adjustments determined in a partnership proceeding become final, no defense to
    any penalty determined may be raised or taken into account in determining the applicable
    penalties, additions to tax, or additional amounts with respect to any person
Election out for small partnerships
Section 6221(b) and Prop. Treas. Reg. § 301.6221(b)-1

A partnership may elect out if:

• Each of the partners is an individual, C corporation, a foreign entity that would be treated as a C corporation if it were a domestic entity, an S corporation, or an estate of a deceased partner
  – Eligible partners do not include partnerships, trusts, ineligible foreign entities, disregarded entities, nominees, or other estates

• The election is made with a timely filed return for such taxable year and must include a disclosure of the name and TIN of each partner
  – The disclosure must also contain the federal tax classification of each partner and an affirmative statement that each partner is an eligible partner

• An election may not be revoked without the consent of the IRS
  – The partnership and all partners are bound by an election out unless the IRS determines that the election is invalid
Partnership-level tax
Section 6225 and Prop. Treas. Reg. §§ 301.6225-1 and -2

• The imputed underpayments can be reduced if reviewed-year partners file amended returns properly taking into account all partnership adjustments properly allocable to each such partners
  − The reviewed-year partners must fully and timely pay all tax, penalties, and interest due as a result of taking the adjustments into account
  − The partnership representative must provide to the IRS an affidavit from each reviewed-year partner signed under penalties of perjury stating that each amended return has been filed and all payments have been made
  − The assessment statute of limitations must not have expired for the reviewed-year partner’s return

• Imputed underpayment may be reduced if partnership demonstrates that a portion of imputed underpayment is allocable to C corporations or individuals with a lower tax rate
  − The lower rate may not be less than the highest rate in effect with respect to the type of income and taxpayer, so, for example, the highest rate in effect for all C corporations would apply, regardless of the rate that would apply to the C corporation partner based on the amount of the C corporation’s taxable income
Partnership election to issue amended statements
Section 6226 and Prop. Treas. Reg. § 301.6226-2

• Within 45 days of receiving a notice of final partnership adjustment, any partnership may elect out of the imputed underpayment process so long as it pushes the imputed underpayment out to the reviewed-year partners and provides the IRS with a statement of each partner’s share of any adjustment to income, gain, loss, deduction, or credit.

  – The statements must be furnished to the reviewed-year partners and electronically filed with the IRS no later than 60 days after the date all of the partnership adjustments to which the statement related are finally determined.

• Under this procedure, reviewed-year partners calculate their share of additional tax due based on the statement and pay the additional amount with their respective current year tax returns.

• Partners may elect to pay a “safe harbor” amount of tax, rather than running the addition through all the intervening tax years.
Partnership representative
Section 6223 and Prop. Treas. Reg. §§ 301.6223-1 and -2

• Each partnership must designate a partner or other person with a substantial US presence as the partnership representative
  – A person has substantial US presence if the person is available to meet in person with the IRS in the US at a reasonable time and place, the person has a street address that is in the US and a telephone number with a US area code, and the person has a US TIN
  – An entity can be the partnership representative only if a designated individual who meets the requirements of the regulations is appointed by the partnership as the sole individual through whom the partnership representative will act

• The partnership representative will have the sole authority to act on behalf of partnership
  – Except for a partner that is the partnership representative or the designated individual, no partner, or any other person, may participate in an examination or other proceeding involving the partnership without the permission of the IRS

• A partnership and all partners are bound by the actions taken by the partnership and by any final decision in a proceeding brought with respect to the partnership
Awaiting guidance
Awaiting guidance

- Impact on Capital Accounts and Basis
- Tiered Partnerships
  - Prop. Treas. Reg. § 301.6221(b)-1(b)(3)(ii) clarifies that the term “eligible partner” does not include partnerships.
  - The Treasury Department and the IRS have declined to exercise, in the proposed regulations, the authority under section 6221(b)(2)(C) to expand the types of entities that are eligible partners for purposes of the election out rules or to create separate election out provisions for specific partnership structures (such as tiered partnerships)
- Financial accounting impact
  - ASC 740 vs. FAS 5
  - Measurement
  - Other financial statement disclosure
- State tax conformity to changes
Awaiting guidance

• Impact on Capital Accounts and Basis

• Tiered Partnerships
  – Prop. Treas. Reg. § 301.6221(b)–1(b)(3)(ii) clarifies that the term “eligible partner” does not include partnerships.
  – The Treasury Department and the IRS have declined to exercise, in the proposed regulations, the authority under section 6221(b)(2)(C) to expand the types of entities that are eligible partners for purposes of the election out rules or to create separate election out provisions for specific partnership structures (such as tiered partnerships)

• Financial accounting impact
  – ASC 740 vs. FAS 5
  – Measurement
  – Other financial statement disclosure

• State tax conformity to changes
Next steps
Next steps

Complete Prior to BBA Effective Date

- Consider list of potential partnership representatives and associated rights and obligations
- Review uncertain tax positions to be prepared for potential adjustments
- Determine whether to elect in
- Determine whether to elect out (if a small partnership)
- Modify partnership agreements to account for BBA rules and terminology

Ongoing Efforts After BBA Effective Date

- Elect out if appropriate
- IRS exam planning
- Partnership level reserve computations (as needed)
- Escrows for departing partners
Recent REIT administrative guidance and notable PLRs
Elective stock dividends
Rev. Proc. 2017-45

• Establishes a *permanent* safe harbor allowing publicly offered REITs to make elective stock dividends (frequently called “cash and stock dividends”) that will qualify for the dividends paid deduction

  – The value of the stock received by any shareholder in lieu of cash will be considered to be equal to the amount of cash for which the stock is substituted

• At least 20 percent of the distribution must be paid in cash

• A REIT may utilize a formula for calculating the number of shares to be received by shareholders that uses data from a period of no more than two weeks ending as close as practicable to the payment date

• Eliminates the need for publicly offered REITs to obtain private letter rulings regarding elective stock dividends

  – Some prior PLRs were issued to REITs that were not publicly traded or publicly offered, but where there was some diversification of stock holdings. E.g., PLR 201447019 (July 30, 2014). Those types of REITs may still be able to obtain a PLR
Charges based on energy savings does not disqualify rent

PLR 201722016 (Feb. 28, 2017)

- REIT’s property contains equipment that stores electricity during off-peak hours that is used at the property during peak hours, when electricity is more expensive.

- Equipment is operated by an independent contractor, and equipment discharges electricity only for use at the property or back to the grid utility.

- REIT pays the independent contractor a monthly fee (the “Charge”) equal to 50% of the REIT’s energy cost savings.

- REIT uses some electricity itself for common areas and tenants uses the remainder. REIT includes allocable share of the Charge, along with charge for electricity from the grid, in the separately stated electricity charges due under tenant leases.

**Held:** Amounts paid to REIT by tenants for the allocable portions of the Charge do not depend in whole or in part on the income or profits derived by any person from the property within the meaning of section 856(d)(2)(A).
Parent REIT allowed to take loss on REIT spin-off
PLR 201705004 (Oct. 28, 2016)

• Parent REIT formed new REIT (“Spin-REIT”) to effect a spin-off of certain properties leased to a tenant whose business had deteriorated

• Among other transactions, Parent REIT transferred cash to Spin-REIT in exchange for Spin-REIT stock. Spin-REIT contributed cash to a number of newly formed subsidiary REITs (“Sub-REITs”) along with Spin-REIT stock

• Sub-REITs obtained third-party financing. Sub-REITs used financing proceeds and Spin-REIT stock to acquire from Parent REIT and one of its subsidiaries a partnership that leased the properties to the troubled tenant. Sub-REITs also purchased stock of troubled tenant owned by Parent REIT

• Held: Intercompany sales would be respected as a taxable sales. Any loss recognized on those sales would be deferred (rather than disallowed) under section 267(f) until the assets sold left the Parent REIT’s controlled group (which would occur upon the spin-off of Spin-REIT)

  – Observation: Intercompany sales facilitated recognition of loss upon the spin-off of Spin-REIT that would otherwise have been disallowed under section 311(b)
California documentary transfer tax
California documentary transfer tax—background

• California Revenue and Taxation Code ("RTC") Sec. 11911 authorizes its counties to impose a Documentary Transfer Tax ("DTT") on conveyances of real property, generally at a rate of $0.55 per $500 of consideration received, exclusive of any liens or encumbrances on the property.

• "Chartered" cities may impose the tax on a non-conforming basis (e.g., higher tax rate or without a lien deduction).

• The RTC does not specifically address the imposition of DTT on a change in control of a legal entity that holds California real property interests, except that a partnership, at the time of its termination within the meaning of IRC Sec. 708, is deemed to have transferred all of its realty for purposes of the DTT.

• In recent years, certain counties amended their DTT ordinances or adopted an informal policy of assessing DTT upon a “change in control” of any legal entity that held California real property interests, within the meaning of the property tax rules under RTC Sec. 64(c) or (d).
California documentary transfer tax—
926 North Ardmore Avenue, LLC v. County of Los Angeles

- On June 29, 2017, the California Supreme Court (“Court”), in 926 North Ardmore Avenue, LLC v. County of Los Angeles, held that the DTT may be imposed when a transfer of an interest in a legal entity results in a change in ownership of real property within the meaning of RTC Sec. 64(c) or (d).

- The Court upheld the decisions of the lower courts, and concluded that “a written instrument conveying an interest in a legal entity that owns real property may be taxable even if the instrument does not directly reference the real property and is not recorded.”

- The California Supreme Court’s decision is final. On August 9, 2017, the taxpayer’s petition for rehearing was denied.

- It appears that all counties are authorized to assess DTT on a change in control of a legal entity, potentially on a retroactive basis. However, the application of certain DTT provisions to unrecorded documents is unclear at this time (e.g., delinquency).
About this presentation

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Break

10 minutes
Accounting and regulatory update
Agenda

• Definition of a Business
• Clarifying the Scope of Asset Derecognition Guidance and Accounting for Partial Sales of Nonfinancial Assets
• Revenue Recognition
• Leases
Disclaimer

• This presentation does not provide official Deloitte & Touche LLP interpretive accounting guidance

• The views expressed are solely those of the presenter and are not formal Deloitte & Touche LLP positions

• Check with a qualified advisor before taking any action
Definition of a Business
ASU 2017-01: Clarifying the Definition of a Business

**Principle:** To be considered a business, an acquired set must include both inputs and processes that together **substantively contribute** to the ability to create outputs.

**Impact:** Most real estate acquisitions will qualify as asset acquisitions rather than business combinations.

**Effective:** FY18 for public entities and FY19 for non-public entities with early adoption permitted

---

**Yes**

Does the set include **substantive processes** other than customer contracts (like leases), lists or other similar arrangements? To determine if the acquired processes are substantive an entity would consider the presence of the following factors:

- The acquired process or processes are **critical** to the ability to create outputs
- The presence of an **organized workforce** that has the necessary skills, knowledge, or experience to complete the processes critical to the outputs
- The presence of a fully functional infrastructure that is currently being utilized to perform processes critical to the ability to create outputs
- The acquired process is unique, scarce or significant to the ability to generate a return
- The process cannot be replaced without significant cost, effort, or delay in the ability to continue producing outputs

---

**No**

Is substantially all the fair value of the acquired assets **concentrated** in a single tangible or identifiable intangible asset or group of similar assets? **For real estate, land, building and lease intangibles are considered similar assets**

---

**Yes**

The acquirer set is a **business**

---

**No**

The acquired set is an **asset**
# Accounting for Asset Acquisitions vs Business Combinations

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<thead>
<tr>
<th></th>
<th>Asset</th>
<th>Business</th>
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<tbody>
<tr>
<td>Contingent</td>
<td>Not recognized until the contingency is resolved</td>
<td>Recognized at the acquisition date fair value while changes in estimate are trued-up through earnings after the acquisition date</td>
</tr>
<tr>
<td>Consideration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External acquisition-related costs</td>
<td>Capitalized</td>
<td>Expensed</td>
</tr>
<tr>
<td>Initial measurement</td>
<td>Allocated cost on a relative fair value basis</td>
<td>Measured at fair value</td>
</tr>
<tr>
<td>Goodwill</td>
<td>N/A</td>
<td>Recognized as an asset</td>
</tr>
<tr>
<td>Bargain purchase gain</td>
<td>N/A</td>
<td>Recognized immediately in earnings as a gain</td>
</tr>
<tr>
<td>Measurement period</td>
<td>No current guidance allowing for a measurement period</td>
<td>Measurement period not to exceed 12 months</td>
</tr>
</tbody>
</table>

* In the next phase of the project, the Board will discuss whether there are other differences between asset and business accounting that could be removed
Issue 3: Contingent consideration payments in a business combination:

- Payments (subsequent to the initial recording) should be classified:
  - As financing outflows up to the fair value amount of the contingent consideration liability recognized at the acquisition date
  - As operating activities for any excess cash payments (i.e., those above the fair value amount at the date of the acquisition)

Impact from New Definition of a Business?

- If acquisition is determined to be an asset acquisition, the costs related to the contingency are recorded when resolved into the basis of the property; thus, the related payments would all be investing cash outflows
Clarifying the Scope of Asset Derecognition Guidance and Accounting for Partial Sales of Nonfinancial Assets
ASU 2017-05: Clarifying the Scope of Asset Derecognition Guidance and Accounting for Partial Sales of Nonfinancial Assets

- Defines “in-substance nonfinancial assets,” sales of which are subject to the guidance in ASC 610-20, Other Income
- Clarifies that sale of a business (even a real estate business) is subject to the guidance in ASC 810, Consolidation
- Clarifies that sale of an equity method investment (even if it is real estate) is subject to the guidance in ASC 860, Transfers and Servicing
- A partial sale of ownership in a subsidiary where control is retained is an equity transaction; no derecognition or gain or loss
- A partial sale of ownership in a subsidiary where control is lost results in derecognition and gain or loss; retained interest is recorded at fair value
- If assets are contributed to form a non-controlled joint venture, the equity investment is recorded at fair value, regardless of whether cash is taken out
- Effective dates: FY18 for public entities and FY19 for nonpublic entities
Revenue Recognition
New Revenue Standard

The five-step model

Core principle: Recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration the entity expects to be entitled in exchange for those goods or services

- Identify the contract with a customer (Step 1)
- Identify the performance obligations in the contract (Step 2)
- Determine the transaction price (Step 3)
- Allocate the transaction price to performance obligations (Step 4)
- Recognize revenue when (or as) the entity satisfies a performance obligation (Step 5)

This revenue recognition model is based on a control approach, which differs from the risks and rewards approach applied under current U.S. GAAP.
Scope of the New Revenue Standard

- Applies to an entity’s contracts with customers
- Does not apply to:
  - Lease contracts (ASC 840, ASC 842)
  - Insurance contracts (ASC 944)
  - Certain financial instruments and other contractual rights or obligations
  - Guarantees other than product or service warranties (ASC 460)
  - Nonmonetary exchanges whose purpose is to facilitate a sale to another party
- Some key aspects apply to transfer (sale) of nonfinancial assets (such as real estate) that do not meet the definition of a business.

Glossary terms

**Contract**: An agreement between two or more parties that creates enforceable rights and obligations

**Customer**: A party that has contracted with an entity to obtain goods or services that are an output of the entity’s ordinary activities in exchange for consideration
Potential effects on real estate
Elimination of bright-line tests

- Prescriptive guidance provided by ASC 360-20 (Sales of Real Estate) and ASC 605 (Construction) will be lost:
  - Buyer’s financial commitment
  - Collectibility of transaction price
  - Continuing involvement by seller
  - Sales to limited partnerships/joint ventures
  - Guarantee buyer return
  - Partial sales
  - Condominium sales

- Collectibility threshold was changed
  Must be probable (not necessarily reasonably assured) that the entity will ultimately collect the consideration it is entitled to receive

- Will likely result in more transactions qualifying as sales of real estate with gains being accelerated
Real Estate Sale

Illustrative example

Real Estate Sale—Facts

Company A enters into an agreement to execute a seller-financed sale of its office building in Chicago to Company B for $150 million.

Based on the terms of the contract, the property is to transfer on December 1.

On December 1, Company B pays $10 million to Company A, obtains title to the property, and begins operating the property as landlord.

Question: Does this qualify as a sale for Company A?
NO. Buyer’s initial downpayment was 6.67% sales value ($10M of $150M). That does not meet the minimum initial investment of 10% for this property type. See table to right from ASC 360-20-55-2.
Real Estate Sale—Analysis

Question: Does this qualify as a sale for Company A under ASC 610-20?

POTENTIALLY. If Company A determines that it is probable it will ultimately collect the consideration it is entitled to receive.

How will the seller determine whether it is “probable” that it will ultimately collect the consideration?

Will sellers require less money as downpayment?
Real Estate Sale
Illustrative example

Real Estate Sale—Facts

Company A enters into an agreement to execute the sale of a hotel to Company B. The sale of the hotel is determined to be the sale of an in-substance nonfinancial asset.

Within the contract, Company A has guaranteed that the hotel will generate $25 million in revenues each year for the next 3 years. Company A will fund any shortfalls of that $25 million.

Question: Does this qualify as a sale for Company A?
Real Estate Sale
Illustrative example

Real Estate Sale—Analysis

**Question:** Does this qualify as a sale for Company A?

**ASC 360-20:** NO.
- Seller guarantee constitutes significant continuing involvement
- ASC 360-20-40-41: “...If the seller guarantees return of the buyer's investment or if the seller guarantees a return on the investment for an extended period, the transaction shall be accounted for as a financing, leasing, or profit-sharing arrangement.”

**ASC 610-20:** POTENTIALLY.
- Presence of guarantee on its own does not preclude sales recognition
- Fair value of guarantee recorded as liability in accordance with ASC 460
- Remaining consideration allocated to performance obligations in the contract (e.g. transfer of control of the hotel to the buyer)
- Seller could recognize portion attributed to transfer of control if it has deemed control to be transferred and determines that it is probable it will ultimately collect the consideration it is entitled to receive
ASC 606 Considerations for Real Estate Companies

Though ASC 606 is not expected to have a significant impact on real estate companies, be aware of the following common revenue streams that should be evaluated:

• Property and Asset Management Services
  — Are there separate distinct services within the contract?
  — If so, do those represent one performance obligation (e.g. can they be combined as a series) or multiple performance obligations?
  — Conclusion could impact timing of revenue recognition

• Leasing Services
  — When does control of the leasing services transfer? Over time or at a point in time?

• Non-Lease Components After Adoption of New Lease Standard
  — To discuss in next section...
### Effective Dates and Transition Methods

**Effective Dates**
- Public companies – Reporting periods beginning after December 15, 2017 *(FY18)*
- Nonpublic companies – option to defer additional year *(FY19)*

**Full retrospective approach**
- Restate prior periods in compliance with ASC 250
- Optional practical expedients

**Modified retrospective approach**
- Apply revenue standard to contracts not completed as of effective date and record cumulative catch-up
- Required disclosures:
  - Amount of each F/S line item affected in current period
  - Explanation of significant changes

### Effective Dates and Transition Methods

<table>
<thead>
<tr>
<th>January 1, 2018 Initial Application Year</th>
<th>2018 Current Year</th>
<th>2017 Prior Year 1</th>
<th>2016 Prior Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>New contracts</td>
<td>New ASU</td>
<td>Legacy GAAP</td>
<td>Legacy GAAP</td>
</tr>
<tr>
<td>Existing contracts</td>
<td>New ASU + cumulative catch-up</td>
<td>Legacy GAAP</td>
<td>Legacy GAAP</td>
</tr>
<tr>
<td>Completed contracts</td>
<td>Legacy GAAP</td>
<td>Legacy GAAP</td>
<td>Legacy GAAP</td>
</tr>
</tbody>
</table>
Leases
Overview
Introducing the new standard
What’s in and what’s out?

**Scope**

- Applies to leases of property, plant, and equipment
- Does **not** apply to:
  - Leases of intangible assets
  - Leases to explore for or use nonregenerative resources
  - Leases of biological assets
  - Leases of inventory
  - Leases of assets under construction
The “Big Picture”

Key takeaways from this presentation

- Most leases on balance sheet for lessees
  - Classification will drive expense profile

- Lessor model largely unchanged
  - Most changes result from alignment with ASC 606
  - Separate lease & non-lease components and disclosures

- FASB tried to make things easy
  - Classification, reassessment, transition

- Effective 2019 (2020 nonpublic), but don’t wait to assess impact
  - Process and systems changes may be required
  - Potential impact on debt covenants
What is a Lease?
Identifying a lease

For a contract to be, or contain a lease, it must:

- Depend on the use of an identified asset, and
- Convey the right to control the use

Right to obtain substantially all of the economic benefits from the asset use, and

Right to direct the use of the asset over lease term
Identified asset
Understanding the criteria under ASC 842

**Contract must depend on use of identified asset**
- Asset must be explicitly or implicitly identified
- Physically distinct portion of a larger asset may be an identified asset
- Capacity portion of a larger asset is generally not an identified asset

**Right of substitution**
- Would result in the asset not being deemed a specified asset
- Substitution would be considered substantive if:
  - Lessor has the practical ability to substitute the asset
  - Lessor would benefit from exercising its right of substitution

**Warranty or upgrade considerations**
- Supplier’s right or obligation to substitute an alternative asset due to operational failure does not mean the asset is not an identified asset
- Supplier’s right or obligation to upgrade the asset similarly does not mean the asset is not an identified asset
Identified asset—Facts

Company A enters into a three-year contract with Vendor B, an owner of a parking garage, for 100 parking spaces within the garage.

Based on the terms of the contract, Vendor B will always hold 100 parking spaces within the garage for Company A.

Vendor B’s parking garage has 1,500 parking spaces.

The parking spaces within the garage are not numbered or reserved but instead available on a first-come, first-choice basis.
Identified asset
Illustrative example (cont.)

**Identified asset—Analysis**

Arrangement does not contain an identified asset

Company A does not have exclusive use of specified spaces or a specified portion of the parking garage

Portion being used is not substantially all of the parking garage capacity; there is no identified asset

Although the contract specifies the number of parking spaces that will be held, the spaces actually used can be changed at any time

The answer would change if the parking garage only had 110 parking spaces
Right to control the use
Obtain substantially all of the economic benefits from use

Can obtain economic benefits from the use of an asset directly or indirectly in many ways

Economic benefits from the use of an asset include its primary output and by-products, including potential cash flows derived from these items

Benefits related to the ownership of an asset should not be included in the assessment of whether an arrangement contains a lease
Right to control the use
Right to direct the use

Right to direct the use of the asset

- Right to direct “how and for what purpose” the asset is used throughout the period of use; or
- Relevant decisions about “how and for what purpose” asset is used are predetermined before the period of use, and:
  - Customer has the right to operate asset without supplier having the right to change operating instructions; or
  - Customer designed the asset in a way that predetermines the most relevant decisions about how and for what purpose

Protective rights, while defining the scope of the asset use, generally do not, in isolation, prevent the customer from being able to direct the use of the asset
Right to control the use
Illustrative example

Contract for the use of a crane—Facts

Customer A, a construction company, enters into a contract with Supplier B for the use of a specific crane for a two-year period.

Supplier B is not permitted to substitute the crane during the contract term.

During the lease term, Customer A is required to provide a properly trained operator for the crane.

Customer A decides what and when the crane will lift during the contract period, subject to certain limitations.

Customer A is prohibited from using the crane unsafely (e.g., lifting anything in excess of 20 tons).

During the contract period, Supplier B is required to maintain the crane.
Right to control the use
Illustrative example (cont.)

**Contract for the use of a crane—Analysis**

In this scenario, Customer A has the right to control the use of the crane throughout the two-year contract period.

Customer A has the right to obtain substantially all of the economic benefits from the use of the crane during the contract period through its exclusive use of the crane.

Customer A has the right to direct activities related to the use of the crane because it decides where and what the crane will lift.

While there are contractual restrictions about using it unsafely, these are protective rights and do not prevent Customer A from having the right to direct the use of the asset.

Since Customer A has an identified asset (crane) and the right to control the use of the crane, this contract would meet the definition of a lease.
Contracts with multiple components
Identifying components in a contract
Components transfer a good or service

**Lease component**
A contract may contain one lease component or many lease components. Only lease components must be accounted for in accordance with ASC 842.

**Non-lease component**
A non-lease component includes items in a contract that convey another good or service, such as a common area maintenance. Non-lease components should be accounted for in accordance with other topics.

**Not a component**
If an item does not provide a separate good or service – it does not represent a separate component. For example, real estate taxes and insurance reimbursements do not convey a good or service.
Contracts that contain multiple components
Allocating consideration in the contract

The basic process is similar for lessees and lessors

Step 1
Determine the consideration in the contract

Lessees:
• Fixed and in-substance fixed payments, less incentives
• Variable lease payments that depend on an index or rate

Lessors:
• Same as above, plus
• Variable consideration in accordance with ASC 606, for which variability does not relate to the lease component

Step 2
Determine the basis for allocation

Lessees, for each component:
• Stand-alone price using observable stand-alone price, if readily available
• If not, estimate stand-alone price maximizing the use of observable information
• Residual estimation may be appropriate

Lessors, for each component:
• Stand-alone selling price, in accordance with ASC 606

Step 3
Allocate consideration in the contract to each component

Lessees:
• Relative stand-alone price basis

Lessors:
• Relative stand-alone selling price basis, in accordance with ASC 606
Step 4: Allocating transaction price

Time out and refresh. What does ASC 606 tell us about estimating the standalone selling price?

- Allocate transaction price on a **relative stand-alone selling price basis** (estimate stand-alone selling price if not observable)
  
  — The expected cost-plus margin method, adjusted market assessment method, or residual method (only if price is highly variable or uncertain) are acceptable

- Allocate transaction price to all performance obligations (and subsequent changes based on initial allocation), unless a portion of (or changes in) the transaction price relate entirely to one or more obligations and certain criteria are met

- Do not reallocate for changes in stand-alone selling prices
Example: Lessor allocation

- Lessee X enters into a gross lease of a building from Lessor Y
- Fixed annual lease payments are $35,000 and the contract outlines the following payments for rent, property taxes, common area maintenance (CAM), and insurance (in which Lessor Y is the named insured):

<table>
<thead>
<tr>
<th>Items</th>
<th>Contractual payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent</td>
<td>$20,000</td>
</tr>
<tr>
<td>CAM</td>
<td>7,000</td>
</tr>
<tr>
<td>Property taxes</td>
<td>5,000</td>
</tr>
<tr>
<td>Insurance</td>
<td>3,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$35,000</strong></td>
</tr>
</tbody>
</table>

**Question 1:** How many components are there in the contract?

**Question 2:** What is Lessor Y’s consideration in the contract?
Example: Lessor allocation (cont.)

**Answer 1:** Two

- Lease component, for the right to use the building
- Nonlease component, for the maintenance services

**Note:** Payments charged for property taxes and insurance do not reflect components in the contract because they do not transfer goods or services to Lessee X

**Answer 2:** $35,000

Accordingly, Lessor Y would allocate its $35,000 total consideration in the contract on the basis of stand-alone selling price (SASP) for two components. Assume that the SASP for the building rent, excluding property taxes and insurance, is $21,500. Further, assume that the stand-alone selling price for the maintenance services is $7,650

<table>
<thead>
<tr>
<th>Component</th>
<th>SASP</th>
<th>% of Total SASP</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent, excluding taxes and insurance</td>
<td>$21,500</td>
<td>73.8%</td>
<td>73.8% × $35,000 = $25,830</td>
</tr>
<tr>
<td>Maintenance</td>
<td>$7,650</td>
<td>26.2%</td>
<td>26.2% × $35,000 = $9,170</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$29,150</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>$35,000</strong></td>
</tr>
</tbody>
</table>
Example: Lessor allocation

- Lessee X enters into a lease of a building from Lessor Y
- The lease stipulates that lessee is responsible for separately contracting all maintenance services for the building during the term of the lease
- Fixed annual lease payments are $28,000 and the contract outlines the following payments for rent, property taxes, and insurance (in which Lessor Y is the named insured):

<table>
<thead>
<tr>
<th>Items</th>
<th>Contractual payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent</td>
<td>$20,000</td>
</tr>
<tr>
<td>Property taxes</td>
<td>5,000</td>
</tr>
<tr>
<td>Insurance</td>
<td>3,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$28,000</strong></td>
</tr>
</tbody>
</table>

**Question 1:** How many components are there in the contract?

**Question 2:** What is Lessor Y’s consideration in the contract?
Example: Lessor allocation (cont.)

Answer 1: One

Lease component, for the right to use the building

Note: Payments charged for property taxes and insurance do not reflect components in the contract because they do not transfer goods or services to Lessee X

Answer 2: $28,000

Accordingly, Lessor Y would allocate its $28,000 total consideration in the contract to the single lease component.
Lessor accounting

Transaction price reallocation when transitioning to ASC 606

When transitioning to ASC 606...

Is a lessor required to reallocate contract consideration between revenue components (i.e., “substantial services”) and lease components when adopting ASC 606?

- Accounting for the lease component in a contract could change if the transaction price is reallocated to all components on the basis of the relative stand-alone selling price.
- This could impact lease classification if the transaction price that is allocated to the lease component changes.

**FASB decision:**

- An entity is not required to reallocate contract consideration between revenue and lease components when it adopts ASC 606.

- Application of the new revenue standard should only affect the accounting for the revenue components of a contract.

*This Board decision will only be reflected in the meeting minutes and will not result in any future standard setting.*
Overview of the core accounting models
Lessee accounting model

What does the lessee model look like?

Most* leases are recorded on the balance sheet using a right-of-use asset approach

**Initial measurement**

- **Lease obligation** — PV of lease payments not yet paid
- **ROU asset** — lease obligation + initial direct costs – lease incentives + prepaid lease payments

**Subsequent measurement**

- **Lease obligation** — amortized using the effective interest method
- **ROU asset** — depends upon lease classification
- Expense recognition pattern:
  - Finance lease — front-loaded
  - Operating lease — generally straight-line

* **Short-term leases**: A lessee can elect, by asset class, not to record on its balance sheet a lease with a lease term of 12 months or less and that does not include a purchase option that the lessee is reasonably certain to exercise
Lessee enters into a three-year lease with payments of $10,000 at the end of year one, $15,000 at the end of year two and $20,000 at the end of year three, for a total of $45,000. Assume an interest rate of 8%.

Entry at lease inception:

Right of use asset  
Lease liability  

$38,000 (assumes no initial direct costs)  
$38,000 (PV of lease payments @8%)
Lessee accounting—let’s do the journal entries!

Finance lease: entry at end of year one:

- Amortization expense: \( \$12,667 \) (\( \$38,000 / 3 \))
- Interest expense: \( \$3,038 \) (\( \$38,000 \times 0.08 \))
- Lease liability: \( \$6,962 \) (\( \$10,000 - \$3,038 \))
- Right of use asset—accumulated amortization: \( \$12,667 \)
- Cash: \( \$10,000 \)

Operating lease: entry at end of year one:

- Rent expense: \( \$15,000 \) (\( \$45,000 / 3 \))
- Lease liability: \( \$6,962 \) (\( \$10,000 - \$3,038 \))
- Right of use asset—accumulated amortization: \( \$11,962 \) (PLUG)
- Cash: \( \$10,000 \)
A lessee enters into a three-year lease and agrees to make the following annual payments at the end of each year: $10,000 in year 1, $15,000 in year 2, and $20,000 in year 3. The initial measurement of the right-of-use (ROU) asset and liability to make lease payments is $38,000 at a discount rate of 8%.

This table highlights the differences in accounting for the lease under the finance lease and operating lease models.

<table>
<thead>
<tr>
<th>Year</th>
<th>Both methods</th>
<th>Finance lease</th>
<th>Operating lease (straight-line approach)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lease liability</td>
<td>Interest expense $X$</td>
<td>Amortization expense $Y$</td>
</tr>
<tr>
<td>0</td>
<td>$38,000</td>
<td>$38,000</td>
<td>$38,000</td>
</tr>
<tr>
<td>1</td>
<td>31,038</td>
<td>$3,038</td>
<td>$12,666</td>
</tr>
<tr>
<td>2</td>
<td>18,520</td>
<td>2,481</td>
<td>12,667</td>
</tr>
<tr>
<td>3</td>
<td>–</td>
<td>1,481</td>
<td>12,667</td>
</tr>
<tr>
<td>Total</td>
<td>$7,000</td>
<td>$38,000</td>
<td>$45,000</td>
</tr>
</tbody>
</table>
Lessor accounting model
What does the lessor model look like?

- Classification depends on an assessment of control of the underlying asset (title transfer no longer required for real estate)

<table>
<thead>
<tr>
<th>Sales-type</th>
<th>Direct financing</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lessee gains control of the underlying asset</td>
<td>• Lessee does not obtain control of the asset, but the lessor relinquishes control</td>
<td>• Lessor retains control of the underlying asset</td>
</tr>
<tr>
<td>• Underlying asset is derecognized</td>
<td>• Underlying asset is derecognized</td>
<td>• Underlying asset remains on the lessor’s balance sheet</td>
</tr>
<tr>
<td>• Net investment in a lease is recognized</td>
<td>• Net investment in a lease is recognized</td>
<td>• Income recognized on a straight-line basis unless another systematic basis is more appropriate</td>
</tr>
<tr>
<td>• Selling profit or loss recognized at lease commencement</td>
<td>• Profit deferred and amortized into income over the lease term</td>
<td>• Initial direct costs deferred and amortized into income over the lease term</td>
</tr>
<tr>
<td>• Initial direct costs recognized at lease commencement unless no selling profit or loss</td>
<td>• Initial direct costs deferred and amortized into income over the lease term</td>
<td>• Initial direct costs deferred and expensed over the lease term in a manner consistent with income</td>
</tr>
</tbody>
</table>

**Short-term leases:** The standard does not provide for a short-term lease exemption from the lessor perspective. Leases with a term of 12 months or less will be classified as an operating lease; therefore, there is no benefit to a short-term lease exception.
Other provisions, effective date, and transition
Initial direct costs

The Boards decided that only **incremental** costs would qualify for capitalization. Costs would be incremental if they would not have been incurred absent the lease being obtained.

**Incremental:**
- Commissions paid upon execution of a lease (internal or external)
- Payments to existing tenant to incentivize them to terminate their lease

**Not incremental:**
- Leasing department salaries, bonuses, overhead, unsuccessful efforts
- Advertising, soliciting potential lessees, servicing existing leases
- Costs incurred before lease is obtained, such as legal or tax advice, negotiating the lease, due diligence on potential tenants

This will likely be a change in practice for our industry.
Purchase/sale leasebacks

**Seller and buyer accounting must be symmetrical:**

- If the **transfer of the asset is determined not to be a sale**, the seller-lessee shall not derecognize the transferred asset (accounted for as a financing liability) and the buyer-lessee shall not recognize the transferred asset (accounted for as a receivable).
- Required consistency between seller-lessee and buyer-lessee accounting does not exist in current GAAP—asset can be on both parties’ books.
### Presentation requirements

#### Lessee model

- **Balance sheet**
  - ROU asset
  - Lease liability

- **Income statement**
  - Amortization expense
  - Interest expense

- **Cash flow statement**
  - Lease payments (Operating)

#### Operating lease

- ROU asset
- Lease liability

- **Lease expense** (single line on straight-line basis)

#### Financing lease

- ROU asset
- Lease liability

- **Lease liability**
- **Amortization expense**
- **Interest expense**

#### Lessor model

Presentation consistent with current lessor model:

- **Balance sheet**—presentation depends on lease classification

- **Income statement**—profit or loss recognized in a manner consistent with business model

- **Cash flow statement**—recognized as cash inflows from operating activities
Disclosure requirements

**Disclosure objective**—Enable financial statement users to assess the amount, timing, and uncertainty of cash flows arising from leases

<table>
<thead>
<tr>
<th>Lessee disclosures</th>
<th>Lessor disclosures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of its leases</td>
<td>Nature of its leases</td>
</tr>
<tr>
<td>Information about leases that have not yet commenced</td>
<td>Significant assumptions and judgments used</td>
</tr>
<tr>
<td>Related-party lease transactions</td>
<td>Related-party leases transactions</td>
</tr>
<tr>
<td>Accounting policy election regarding short-term leases</td>
<td>Tabular disclosure of lease-related income</td>
</tr>
<tr>
<td>Finance and operating lease costs</td>
<td>Components of the net investment in a lease</td>
</tr>
<tr>
<td>Short-term and variable lease costs</td>
<td>Information on the management of risk</td>
</tr>
<tr>
<td>Sublease income</td>
<td>associated with residual asset</td>
</tr>
<tr>
<td>Gain or loss from sale-and-leaseback</td>
<td>Maturity analysis of operating lease payments and lease</td>
</tr>
<tr>
<td>Maturity analysis for lease obligations</td>
<td>receivable</td>
</tr>
<tr>
<td>Weighted-average remaining lease term</td>
<td>Information required by ASC 360</td>
</tr>
</tbody>
</table>
Effective date and transition

Effective date
Public business entities—effective for calendar periods beginning on January 1, 2019 and interim periods therein
All other entities—effective for calendar periods beginning on January 1, 2020, and interim periods thereafter
Early adoption will be permitted

Transition
Lessees and lessors are required to use a modified retrospective transition method for all existing leases
Would apply the new model for the earliest year presented in the financial statements
Application of approach linked to current lease classification and new lease classification
An entity can use hindsight when evaluating lease term

Transition relief package:
Lessees and lessors are not required to reassess the following upon transition:
✓ Whether any expired or existing contracts are leases or contain leases
✓ The lease classification for any expired or existing leases
✓ Initial direct costs for any existing leases
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The trend to digital transformation

- Year after year disruption
- Enterprise adoption continues to vary widely
- Maturity curve is vast and variable
Engineering & Construction technology is changing rapidly

Market shifts and disruptions are demanding new solutions.

<table>
<thead>
<tr>
<th>Market Shifts</th>
<th>Disruptions</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>IoT and Smart Buildings</td>
<td>Intelligent Contract Extraction</td>
<td>Deloitte Digital</td>
</tr>
<tr>
<td>Robotics Process Automation</td>
<td>Blockchain</td>
<td>RevenuePrint Solution Bundle</td>
</tr>
<tr>
<td>Artificial Intelligence</td>
<td>Generational Differences</td>
<td>M&amp;A Playbook</td>
</tr>
<tr>
<td>Technology Adoption</td>
<td>M&amp;A Activity</td>
<td>Cloud Adoption</td>
</tr>
<tr>
<td>Environmental Sustainability</td>
<td>BIM and Augmented Reality</td>
<td>Managing Big Data and IoT</td>
</tr>
<tr>
<td>Big Data</td>
<td>Cloud</td>
<td>Managing a Changing Workforce</td>
</tr>
</tbody>
</table>

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Robotic Process Automation (RPA)
Robotic process automation definition

Computer-coded, rules based software that automates manual activities by performing repetitive rules-based tasks:

- **Bots is software programmed to perform repeatable tasks**: Using recorders and easy programming language, robots are programmed to replicate repetitive human tasks.
- **RPA operates in the User Interface layer**: It is able to automate rules-based work without compromising the underlying IT infrastructure.
- **RPA replicates human interactions with proven technology**: It mimics common tasks such as queries, cut/paste, merging, button clicks, etc.
- **RPA can be implemented at the desktop or in the virtual environment**: Flexibility to quickly deploy robots directly onto existing desktops (PCs, laptops) or virtually (virtual machines) to save on additional hardware costs.
RPA Benefits

RPA can be easily deployed and managed from a central controller to interact with a wide range of business applications:

1. Process Developers
2. Robot Controller
3. Robot
4. Business Users
5. Applications

- Efficiency & Quality
- Scalability & Expertise
- Insource & Control
- Governance & Compliance
- Competitive Advantages
RPA Capability

In an RPA solution, robots are capable of mimicking most user actions:

**Manual Process**
- Equipment Automation
- Timers, process kick-off
- Logging into web/enterprise applications
- Moving files and folders
- Copying and pasting
- Filling in forms
- Reading and writing to database
- Opening email and attachments

**Judgement Process**
- Scraping data from the web
- Connecting to system APIs
- Making calculations
- Extracting structured data from documents
- Collecting social media statistics
- Following ‘if/then” decisions/rules
Artificial Intelligence
Using Artificial Intelligence to improve safety

Using drones to increase performance and reduce safety issues. Scale safety inspections quickly and provide information to reduce safety incident and risk. New increased integration with machine telematics and other job site systems.

<table>
<thead>
<tr>
<th>Idea to action</th>
<th>Technology</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use software to manage drones to capture data for analytics.</td>
<td>Software companies Skycatch, senseFly, and DroneDeploy are developing software for drone use. Komatsu, AECOM, Bechtel and Stantec are some of many companies using this technology.</td>
<td>Automation of the survey and monitoring process using drones saving time and cost on projects and increasing data for analytics.</td>
</tr>
<tr>
<td>Image recognition software teach systems to recognize people from jobsite images and flag safety concerns.</td>
<td>Shimmick, Skanska, Mortenson, and Suffolk are some for many working with Very Intelligent Neural Network for Insight and Evaluation (VINNIE).</td>
<td>A first in applications to determine whether people are wearing safety colors and hardhats.</td>
</tr>
<tr>
<td>Create a safety inspection assistant that goes where the safety manager can’t.</td>
<td>Safety manager uses drones to monitor job sites and interacts with field staff.</td>
<td>Saves time and cost of resources to monitor tough job locations.</td>
</tr>
</tbody>
</table>
Very Intelligent Neural Network for Insight & Evaluation

VINNIE will be a second pair of eyes to flag an image that has potential risk and raise attention. VINNIE can get broader coverage of the job site faster than humans.
Image Recognition

Image analysis can begin by finding people and then identifying features or the lack of expected ones, such as hardhats to flag safety concerns.
Drones Act as the Safety Manager’s Assistant

Use of drones to enhance the effectiveness of the safety manager by:

a) Increasing coverage of the site

b) Interacting with crews with voice

c) Using remote control
Blockchain
Is E&C ready for Blockchain technology?

Understanding the three levels of Blockchain:

1. Near real-time
2. Trustless environment
3. Distributed ledger
4. Irreversibility
5. Censorship resistant

1. **Storing digital records**
   Blockchain allows unprecedented control of information through secure, auditable, and immutable records of not only transactions but digital representations of physical assets.

2. **Exchanging digital assets**
   Users can issue new assets and transfer ownership in real time without banks, stock exchanges, or payment processors.

3. **Executing smart contracts**
   Self-governing contracts simplify and automate lengthy and inefficient business processes.
   **Ground rules:** Terms and conditions are recorded in the contract’s code.
   **Implementation:** The shared network automatically executes the contract and monitors compliance.
   **Verification:** Outcomes are validated instantaneously without a third party.
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