Analytics mindset

Peach State University Hotel

Background

Data analytics has been an important part of the audit process for many years. However, several significant changes in technology and data availability have created exciting new challenges for the audit profession, including:

► The amount and types of data available for audit have expanded rapidly.

► There has been a significant increase in computing power for analyzing data.

► Almost all audit evidence is now electronic in nature.

In addition, audit clients are using their data in more sophisticated ways, delivering additional and relevant insight and value. As clients improve their data collection and analyses, they expect auditors similarly to improve and offer higher quality and more efficient audits. In this era of big data, the use of data analytics during the external audit has also received additional interest from regulators and standard setters who continue to underscore the need for a continued focus on the quality of audit work and audit evidence and greater levels of professional skepticism. As a result, auditors have begun to challenge existing practices and look for new ways to embed analytics into all aspects of the audit process.

The analytics mindset

Because the audit is being transformed with more focus on the use of data analytics and more sophisticated technology tools, auditors need to have an analytics mindset, which is the ability to:

► Ask the right questions

► Extract, transform and load (ETL) relevant data

► Apply appropriate data analytics techniques

► Interpret and share the results with stakeholders

Auditors who have an intellectual curiosity and an inquisitive nature are much more likely to effectively interpret and respond to the results of analytics. Further, critical thinkers will be more likely to design future analytics to provide the audit evidence needed for a particular risk or situation. While auditors currently are not expected to be experts at using a specific analytics tool, they should understand enough about technology to have an intelligent conversation with analytics architects, the personnel responsible for developing analytics that use the existing information system's infrastructure.

Too often auditors are intimidated by the "black box" that stores and processes data, including journal entries, but the reality is that the black box is becoming a more important part of the audit every day.

The audit profession is investing in technology

Businesses expect that their auditors will leverage new analytics techniques and technologies. EY has developed a leading-class analytics platform, EY Helix, for use by its Assurance practice. This platform helps deliver a quality audit by:

► Providing clients with greater confidence in their financial reporting through identification of business insights, hidden patterns and trends in their financial data

► Allowing the auditor to gain a deeper understanding of a client's business by analyzing larger populations of audit-relevant data to present a fuller picture of what happened and identify the risks that matter

► Identifying trends and anomalies in processes to help direct the audit efforts in the right areas

► Using complete data populations rather than samples to obtain higher-quality audit evidence within areas of higher risk

► Delivering relevant feedback and insights during the audit so clients can optimize their business processes and controls

► Saving clients' valuable time and effort by allowing auditors to pull data and reports through repeatable data capture processes using globally integrated data extraction tools and processes

EY Helix is a proprietary tool and not available for the classroom. However, the EYARC has developed EY Helix General Ledger Analyzer for students, a simplified tool based on elements of EY Helix designed specifically for the classroom using Tableau Desktop software. The tool, and supporting cases, are designed to help you develop your analytics mindset and simulate real-world audit analytics procedures by using data, analyses and tools similar to those used by professional auditors.

Audit of Peach State University Hotel (PSU Hotel)

PSU Hotel is a hotel and conference center located near a major university in a relatively small city in the southeastern United States. You are a new member of the audit team assigned to audit PSU Hotel for fiscal year 2016 (FY16), ended June 30, 2016. All other engagement team members are returning to the engagement this year. You have joined the audit in the planning phase taking place after PSU Hotel's FY16 year-end. Your firm has been the auditor of PSU Hotel and its corporate parent, College Town Hotels, Inc., for the last two years. This is the first year that the audit will be incorporating data analytics into the audit.

As a new member of the audit team, it is very important to understand the business context of your client before you begin auditing. It is also important to have strong insights about the industry in which the client operates to understand how the client's operations, business risks and opportunities might compare with the industry. This not only aids your audit work, but also can empower you to add more value to the audit by making recommendations to help your client improve its business, manage risks better, invest in technological advances and more.

Information available for these types of insights can come from many sources and can come at a price (e.g., subscriptions to industry publications). Many audit firms have professionals dedicated to performing and collecting this research on your behalf. Research might provide information about key performance indicators, key competitors, significant business risks, typical revenue streams, industry trends and more.

You are fortunate that you have a research team that has provided you with some of this information and the team is still working to get access to subscription-only content.

Beyond learning about the client's operations and its industry, you also need to learn about the general ledger (GL) data and accounting information systems that underlie the financial statements. As an auditor, you might work with specialists to help you understand how the data flows through the accounting systems and the risks and controls around various processes. These specialists also can help with the capture and delivery of the accounting data.

On this audit, you are fortunate to work with these specialists. You have received a download of 100% of the financial data from the accounting system for fiscal year 2015 (FY15) and FY16 from your data capture team. All ETL procedures already have been performed to cleanse the data, load the data appropriately into your audit analytics tool and maintain the data integrity. PSU Hotel's Accounting Department staff provided you with a description of all of the data fields, descriptions of the business units, chart of accounts, employee job descriptions and an approved employee authorization list by level (for those employees approved to use the different accounting systems).

Required

The case requirements listed below align with the analytics mindset competencies to help you understand how you are developing your analytics mindset.

► **Ask the right questions:**

  – Review the following accounting and operational background of PSU Hotel.

  – Review the background provided by your research team about the hotel sector within the hospitality industry.

► **ETL relevant data:**

  – Watch the video **Analytics_mindset_case_studies_PSU_Hotel_ETL.mp4** to learn more about the ETL efforts performed by your data delivery team.

  – Familiarize yourself with an overview of the accounting and operational data in the background of PSU Hotel (data fields) and the appendix, including the business unit descriptions, GL chart of accounts, employee job descriptions and approved employee authorization list by level.

Analytics mindset

Peach State University Hotel background

Overview

Peach State University Hotel (PSU Hotel) is a hotel and conference center located near a major university in a relatively small city in the southeastern United States. It has 200 rooms and suites, as well as facilities for meetings and other social occasions, such as weddings, reunions, etc. The hotel contains a full-service restaurant, a self-service casual café and a coffee shop. It also has a small gift shop offering snacks and sundry items.

The university attracts a significant number of visitors to the city, including for sports events, graduations, major conferences, festivals and arts productions. There are 12 other mid-scale hotels within one mile of PSU Hotel and close to the university collectively containing 1,423 rooms, which are the primary competitors of PSU Hotel. Emerging competitors of PSU Hotel include websites that facilitate the rental of individual homes, or even rooms in homes, during major events like football games (for example, rentlikeachampion.com or gamedayhousing.com). Although this type of room provider is still relatively new and currently has a minimal impact on PSU Hotel's operations to date, management is aware of the potential of this to be a significant competitive force in the future.

Room rates vary based on the room type and date of occupancy. For example, a regular room can range from $99 per night to $400 per night depending on the demand. Suites range from $175 to $650 per night. Certain businesses and university departments that use the hotel frequently have special discounted rates — generally, $99 per night. The average daily room rate for FY15 was $116.31 and for FY16 it was $117.88 (more detail about occupancy is provided in the information that follows).

Conferences and other catered events make up a significant amount of PSU Hotel's revenue. Peach State University conducts many conferences and training events at the hotel each year, as well as athletic banquets, graduation parties and fundraising galas. Additionally, the venue attracts many non-university events due to its delicious catered dinners, tasteful décor and meticulously maintained grounds.

PSU Hotel's operations are carried out by approximately 180 on-site employees who manage guest services, food and beverage operations, and routine administrative functions. The hotel is part of a larger corporate hotel organization, College Town Hotels, Inc., that owns and operates hotels near universities across the southern United States. The corporate office manages or coordinates many of the administrative functions, like IT security, marketing and accounting. For example, all revenue collected by the hotel is processed first on-site, but is sent to corporate for verification and to be recorded in the GL.

Calendar of events and corporate office closure

There are several key events that occur during the year that are likely to result in high occupancy and higher nightly rates. The following table shows the key events occurring in FY15 and FY16, but note that hotel occupancy and rates may increase in the days immediately surrounding these events as well. Further, there may be other events, such as conferences, reunions or weddings, which occur throughout the year and also may drive occupancy and catering services.

In FY16, PSU Hotel expanded its large catering contract with the university by $435,000 to provide dinners for athletic teams in addition to lunches, which were previously provided in FY15. In FY15, PSU Hotel provided lodging services for a large biennial conference that took place on various dates throughout April that included 1,281 hotel rooms and $133,000 in revenue. Since this conference is biennial, it is not held every year and, thus, there was no FY16 revenue.

A graph of catered event activity is provided in the general operating procedures. There also is a table following that shows the dates the corporate office was closed for holidays in both FY15 and FY16.

Calendar of events					
FY15: 7/1/2014–6/30/2015			FY16: 7/1/2015–6/30/2016		
Day of the week	Date	Event	Day of the week	Date	Event
Saturday	8/30/2014	Football	Saturday	9/5/2015	Football
Saturday	9/20/2014	Football	Saturday	9/19/2015	Football
Saturday	9/27/2014	Football	Saturday	9/26/2015	Football
Saturday	10/4/2014	Football	Saturday	10/3/2015	Football
Saturday	11/15/2014	Football	Saturday	10/17/2015	Football
Saturday	11/22/2014	Football	Saturday	11/7/2015	Football
Saturday	11/29/2014	Football	Saturday	11/21/2015	Football
Friday	12/19/2014	Graduation	Friday	12/18/2015	Graduation
Friday	4/24/2015	Marathon	Friday	5/6/2016	Marathon
Saturday	4/25/2015	Marathon	Saturday	5/7/2016	Marathon
Friday	5/8/2015	Graduation	Friday	5/13/2016	Graduation
Monday	6/8/2015	Music festival	Monday	6/13/2016	Music festival
Tuesday	6/9/2015	Music festival	Tuesday	6/14/2016	Music festival
Wednesday	6/10/2015	Music festival	Wednesday	6/15/2016	Music festival
Thursday	6/11/2015	Music festival	Thursday	6/16/2016	Music festival
Friday	6/12/2015	Music festival	Friday	6/17/2016	Music festival

Corporate holiday schedule (office closed)					
FY15: 7/1/2014–6/30/2015			FY16: 7/1/2015–6/30/2016		
Day	Date	Holiday	Day	Date	Holiday
Friday	7/4/2014	Fourth of July*	Friday	7/3/2015	Fourth of July*
Monday	9/1/2014	Labor Day	Monday	9/7/2015	Labor Day
Thursday	11/27/2014	Thanksgiving*	Thursday	11/26/2015	Thanksgiving*
Friday	11/28/2014	Thanksgiving*	Friday	11/27/2015	Thanksgiving*
Thursday	12/25/2014	Christmas*	Friday	12/25/2015	Christmas*
Friday	12/26/2014	Christmas*	Monday	12/28/2015	Christmas*
Monday	12/29/2014	Christmas*	Tuesday	12/29/2015	Christmas*
Tuesday	12/30/2014	Christmas*	Wednesday	12/30/2015	Christmas*
Wednesday	12/31/2014	Christmas*	Thursday	12/31/2015	Christmas*
Thursday	1/1/2015	New Year's Day*	Friday	1/1/2016	New Year's Day*
Monday	1/19/2015	Martin Luther King, Jr. Day	Monday	1/18/2016	Martin Luther King, Jr. Day
Monday	5/25/2015	Memorial Day	Monday	5/30/2016	Memorial Day

*The hotel also is closed on these holidays and the adjacent the weekends and some holiday-adjacent days (Christmas hotel closure for FY15 was December 23 through January 1 and in FY2016 it was closed from December 23 through January 3). For Thanksgiving weekend, the hotel is closed every other year based on a football event. For FY15, it was open. Per the 2016 occupancy reports, there were no occupants from December 23 through January 3. In 2015, there were no occupants from December 23 through January 1.

Unusual events

► **Hotel renovation:** PSU Hotel underwent a large, interior renovation during FY16. It included painting, new carpet, new linens, replacement of fixtures, etc. To minimize the impact of the renovation on hotel revenues, the construction occurred during November, December and January, when there are fewer athletic events and the university is closed for the winter break. The following table describes the impact of the renovation on available rooms.

Rooms out of order	Total rooms out of inventory	Number of days out of order each month	Total daily room rentals lost
November 2015	109	4	436
December 2015	109	21	2,289
January 2016	108	7	756
Total			**3,481**

► **Mechanical failure:** In August 2015 (FY16), the hotel refrigerator and freezer system malfunctioned, resulting in considerable spoilage and loss of perishable foods.
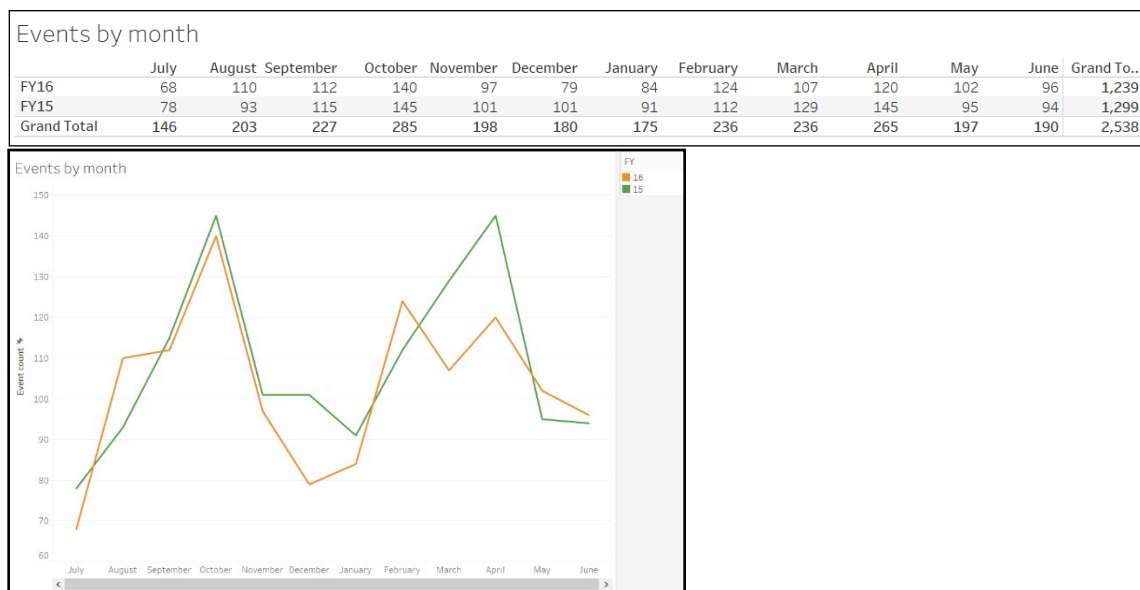
General operating processes

► **Reservations:** Individuals can make a reservation over the phone or online. Online reservations can be made through the hotel's website or through a third party (e.g., Orbitz or Kayak). Credit card information is collected at the time of reservation, although the card is not charged until checkout or when the check-in time was missed (in the event of a no-show).

► **Guest check-in:** Upon arrival at the hotel, guests go to the front desk and provide their name to the clerk. Clerks usually can find the guest's name in the GuestSystem *(*GuestSYS*),* the property management system (PMS) used for room-related transactions, using the guest's name and the date. Clerks confirm with the guest the number of nights of the reservation and then print the occupancy agreement for the guest to review. The guest initials by their name and contact information, as well as by the agreed-upon room rate. Guests also are asked to provide their credit card, which may be the same or different than the one used when reserving the room, for incidentals and room charges (e.g., guests can charge their meals to their rooms). Clerks then activate a key card (or two cards if requested by the guest) and designate the guest's room account as "open," which means the guest has arrived and expenses can be charged to the account.

► **Guest checkout:** Room charges and incidentals are recorded and charged to guest accounts in the GuestSYS and applied to the guests' bills throughout their stay. At approximately 3:00 a.m. on the date of checkout, final bills are printed from the GuestSYS by the night auditor, the clerk who performs nightly reconciliations and guest billing, for all guests who will be checking out that day. Then, a member of the housekeeping staff slips the bill under the door of each guest. Guests can call the front desk to check out or can they can check out with the clerk at the front desk. Any additional charges that a guest might incur between the time the bill is printed and checkout will be applied to the guest's bill and will be charged to the credit card on file. If guests do not check out formally, their room charges and incidentals are charged to the credit card on file. Customers can pay with a credit card, cash or check. Credit card payments are recorded as CREDIT CARD RECEIPT as the source of the transaction. Check or cash payments are recorded as CASH RECEIPT as the source of the transaction. Refunds for overpayments can be issued via check or credit card and appear with CREDIT CARD RECEIPT or CHECK as the source of the transaction.

► **Recording guest charges:** There are two different subsystems used to record guest charges at the hotel: (1) GuestSYS, which is used to record all transactions related to a guest's room; and (2) Point-of-Sale System (POS), which is used to record all incidentals and food and beverage charges. Room charges are entered in the GuestSYS on the day of checkout. Transactions related to incidentals and food and beverage charges are entered individually in POS on the date of the transaction. Credit card transactions are processed and recorded in these subsystems the following day, once the daily reports are reconciled with the receipts. Transactions from both systems roll up into the GL\, which is maintained by the corporate accounting office.

There generally is a lag of one to four days between the time a guest charge occurred and when it is recorded to the GL by the corporate accounting office. The lag occurs because corporate accounting verifies that the money has been received by the bank before recording it in the system. Additionally, the lag is longer near weekends and holidays, when the corporate accounting office is closed. But, there always is at least a one-day lag because corporate accounting processes receipts the day after they are sent from the hotel. In the GL, the *Entry Date*, is the field that identifies the date the transaction was posted to the subsystems (i.e., GuestSYS or POS). Generally, this is one day after

the activity occurred (e.g., the guest checked out of the hotel). The *Effective Date* is the date upon which the transaction is posted in the GL and recognized as revenue. The corporate office therefore is recognizing revenue throughout the year based on this date rather than on the date that it is meeting its performance obligations, which you would consider the "right" effective date for proper accounting treatment. However, the corporate office performs year-end cutoff procedures to account for this at a level of materiality that, year over year, would suit corporate and ensure that amounts are properly stated.

► **Conference and catering revenues:** Conferences and catered events make up a significant revenue stream for PSU Hotel and are the basis for typically 75% to 90% of all food and beverage (dining) revenue. Gross margin on dining revenue is typically between 75% and 85% on a monthly basis. Catered events are all coordinated and managed by the catering manager, who works with the event organizer to manage all of the event details. Customers planning a catered event will complete an event contract that records all of the details about the event, including the number of guests, meal preferences, the number of required hotel room reservations and other details. Often, customers will pay for the entire event (including both hotel rooms and food and beverage charges) with a check or credit card and the catering manager processes these payments by completing the necessary paperwork and initiating the journal entry to book the revenue. Because of the high volume of catered events conducted by the university, sometimes the university will pay for all events that occurred during the month with one payment, which is then processed by the catering manager. Customers can pay with a credit card, cash or check. Credit card payments are recorded as a CREDIT CARD RECEIPT as the payment method of the transaction. Checks or cash payments are recorded as a CASH RECEIPT as the source for the transaction. Refunds for overpayments can be issued via check or credit card and appear with CREDIT CARD RECEIPT or CHECK as the source for the transaction.

Generally, there is a two- to three-week lag between the time the event occurs and when the processing is complete and the payment is posted to the GL. The table and graph below from a management report show the number of events by month. Note that the food and beverage revenue for events can vary widely based on the menu chosen by the customer planning the event.

Events by month

	July	August	September	October	November	December	January	February	March	April	May	June	Grand To..
FY16	68	110	112	140	97	79	84	124	107	120	102	96	1,239
FY15	78	93	115	145	101	101	91	112	129	145	95	94	1,299
Grand Total	146	203	227	285	198	180	175	236	236	265	197	190	2,538

► **Other sales revenues:** PSU Hotel has several other minor revenue streams. (1) The hotel maintains vending machines on the premises that earn a small amount of revenue. The number of machines has fluctuated during FY15 and FY16, resulting in somewhat inconsistent revenue. (2) There is an ATM on the premises and the hotel earns $500 per month in fees from this machine. (3) There are various fees that the food services division charges for catered events, such as bartender fees, private server fees, extended time and space rentals, special linens, etc.

► **Other income:** PSU Hotel does not have investments, but earns a small percentage of interest from its cash.

► **Purchasing and payment transactions:** The hotel makes many purchases of food and beverage items and maintenance supplies. For each purchase, there is an initiator from the Requisitioning Department and a separate approver. Approvers include the hotel manager, assistant managers, accounting managers and the director of Food Services. For purchases more than $2,500, two approvers, including the hotel manager, are required. None of the approvers can approve a transaction that they initiated. A matrix showing the system authorization level for each employee is included in the appendix.

► **Payroll and human resources:** PSU Hotel typically employees between 175 and 200 employees across four divisions: Administrative, Front Desk, Food and Beverage, and Maintenance. Some employees are paid an hourly wage, while others are paid a salary. See the table in the appendix that describes the number of employees in each position in each division during 2016.

► **Equity:** PSU Hotel has one (equity) investment account. The change in this account represents net income.

Accounting overview

PSU Hotel has a fiscal year-end of June 30. Therefore, each fiscal year runs from July 1 through June 30. You have received a download of the complete data from the accounting system for FY15 and FY16. This includes PMS data from the GuestSYS about room revenue; POS data related to food and beverage revenue and other guest charges; purchasing data from the purchasing system and payroll data; and various accounting entries, such as depreciation of fixed assets. The following fields are available for your analysis.

Data fields	
Field name	**Field description**
AccountClass	Specific classification of account (e.g., payroll expenses). Typically, aligned with the face of the financial statements. See the appendix.
AccountType	Type of account (e.g., asset, liability). See the appendix.
Amount	Total amount of the journal entry line item (may be positive or negative).
BusinessUnit	The business unit (e.g., hotel, food and beverage) of the journal entry. See the appendix.
Credit	Credit amount of the entry.
Debit	Debit amount of the entry.
EffectiveDate	Date the entry was posted to the GL as occurring. See more information in the general operating processes descriptions.
EntryDate	Date that the entry was entered into the subsystem or GL, depending on the type of transaction. See more information in the general operating processes descriptions.
GLAccountName	Name of the GL account from the chart of accounts. See the appendix.
GLAccountNumber	GL account number from chart of accounts. See the appendix.
JEDescription	Description of the transaction. May include vendor or guest name, etc.
JEIdentifier	Unique identifier for each journal entry.
Period	Indicates which month within the fiscal year the transaction occurred. The fiscal year runs from July to June. For example, July 2015 is the first month of FY16 and the period is recorded as 2016-01. The period for January 2016 is 2016-07.
PreparerID	The employee ID for the employee who initiated the transaction. (See the appendix for information about authorized preparers.) For transactions recorded initially in a subsystem (e.g., GuestSYS or POS), the preparer ID is listed as the system and not the employee.
Source	Describes the payment type or other source type of the transaction (CASH RECEIPT, CHECK, CREDIT CARD RECEIPT, CREDIT MEMO, PAYROLL JV, PAYROLL MANUAL JV, PAYROLL S/B JV, PURCHASE CARD, REGULAR JV)

Occupancy data

The following charts provide an overview of hotel occupancy during FY15 and FY16.

Total number of rooms occupied

FY	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
2016	3,142	2,878	3,164	3,842	2,806*	899*	2,722*	3,750	3,608	3,474	3,439	4,299	**38,023**
2015	3,344	3,755	3,234	3,548	3,336	2,076	2,750	3,429	4,263	4,215	3,367	4,386	**41,703**
Five-year average	**3,235**	**2,687**	**3,458**	**3,504**	**3,056**	**1,398**	**2,678**	**3,545**	**3,875**	**3,698**	**3,639**	**4,110**	**38,883**

Renovation month

Occupancy rate (percentage of rooms occupied)

FY	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Average
2016	52.5%	48.1%	54.7%	64.2%	48.5%	15.0%	45.2%	67.0%	60.3%	60.0%	57.5%	74.3%	**53.9%**
2015	55.9%	62.8%	55.9%	59.3%	57.6%	34.7%	46.0%	63.5%	71.3%	72.6%	56.3%	75.8%	**59.3%**
Five-year average	**53.2%**	**44.2%**	**58.8%**	**57.7%**	**52.0%**	**23.0%**	**44.1%**	**64.6%**	**63.8%**	**62.9%**	**59.9%**	**69.9%**	**54.5%**
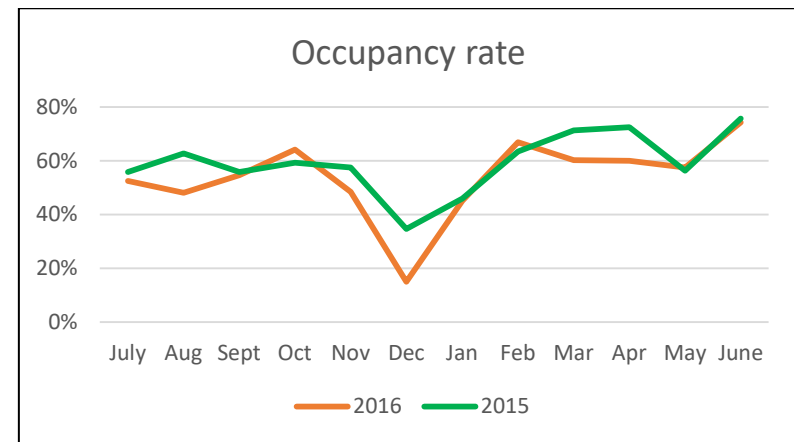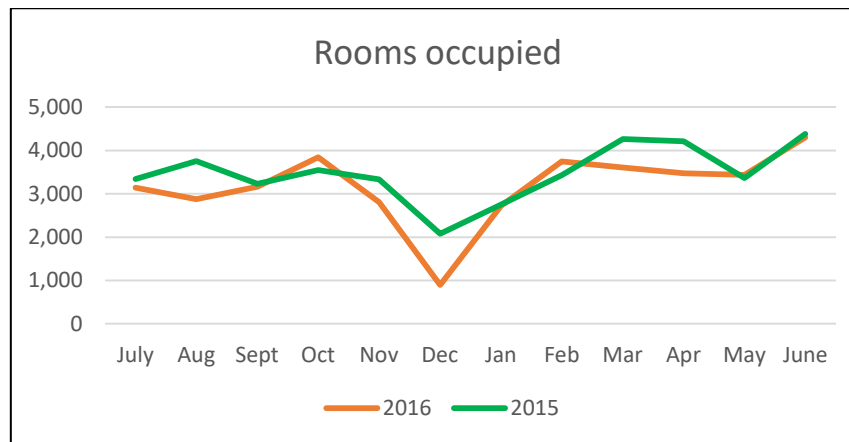
Appendix

The following information is contained in the appendix for the background of PSU Hotel.

► Business unit descriptions

► Chart of accounts

► Employee job descriptions

► Approved employee authorization list by level

Business unit	Description
Hotel	Transactions related to guest rooms and overall hotel operations. Includes payroll for administrative staff, clerks and interns.
Housekeeping	Transactions related to the Housekeeping Department. Primarily includes payroll for housekeepers and housekeeping supplies.
Hotel Marketing	Transactions related to hotel marketing and advertising, including supplies.
Hotel Pantry	Transactions related to the hotel convenience store, including some food and beverage costs.
Food Service	Transactions related to food and beverage service. Includes all guest transactions in the hotel restaurants, catering-related transactions and food service payroll.
Maintenance	Transactions related to the hotel Maintenance Department. Primarily includes payroll for maintenance, grounds keepers and related supplies.
Interest	Interest from the cash operations account.
Oper – General	Transactions related to corporate accounting functions, e.g., monthly depreciation entries.

Appendix – GL chart of accounts

GL account number (GLAccountNumber)	GL account name (GLAccountName)	Account type (AccountType)	Account class (AccountClass)
11845	Operating Bank Account	Assets	Cash
11200	Petty Cash	Assets	Cash
12987	Food Service Conference Accounts Receivable	Assets	Accounts Receivable
13100	Prepaid Expenses	Assets	Prepaid Expenses
14250	Hotel Pantry Inventory	Assets	Inventory
14260	Food Service Inventory	Assets	Inventory
16100	Land and Improvements	Assets	Plant, Property and Equipment
16200	Buildings & Building Improvements	Assets	Plant, Property and Equipment
16290	Accumulated Depreciation - Building & Improvements	Assets	Plant, Property and Equipment
16500	Equipment	Assets	Plant, Property and Equipment
16590	Accumulated Depreciation - Equipment	Assets	Plant, Property and Equipment
21103	Accounts Payable	Liabilities	Accounts Payable
21900	Other Short-term Liabilities	Liabilities	Other ST Liabilities
22100	Payroll Liability	Liabilities	Accrued Payroll
22110	Payroll Deductions Liability	Liabilities	Accrued Payroll
29100	Other Non-current Liabilities	Liabilities	Other LT Liabilities
31000	Investment in Plant	Equity	Investments
32000	Retained Earnings	Equity	Retained Earnings
40910	Interest on Investment	Revenue	Other Income
43180	Rents - Hotels	Revenue	Sales-Hotel
43310	Sales - Dining Halls	Revenue	Sales-Dining
43440	Sales - Other	Revenue	Sales-Other

GL account number (GLAccountNumber)	GL account name (GLAccountName)	Account type (AccountType)	Account class (AccountClass)
43620	Vending Operations	Revenue	Sales-Other
43770	Other Enterprises	Revenue	Sales-Other
51110	Monthly Payroll	Expenses	Payroll Expense
51120	Salaried Bi-Weekly	Expenses	Payroll Expense
51130	Hourly Bi-Weekly	Expenses	Payroll Expense
51140	Overtime	Expenses	Payroll Expense
51200	Interns	Expenses	Payroll Expense
51240	Overtime - Interns	Expenses	Payroll Expense
51400	FICA - OASDI	Expenses	Payroll Taxes
51402	FICA - HI	Expenses	Payroll Taxes
51510	Retirement - Pension	Expenses	Retirement Benefits
51531	Retirement - 401k	Expenses	Retirement Benefits
51610	Group Health Insurance	Expenses	Other Expenses
51620	Group Life Insurance	Expenses	Other Expenses
51700	Insurance - Employee Liability	Expenses	Other Expenses
51800	Unemployment Security	Expenses	Other Expenses
51850	Workmen Compensation	Expenses	Other Expenses
64100	Travel	Expenses	SG&A
64150	Travel - Mileage	Expenses	SG&A
70300-FS	Cost of Goods Sold	Expenses	COGS-Food
70300-HP	Cost of Goods Sold	Expenses	COGS-Hotel Pantry
71200	Motor Vehicle Expenses	Expenses	SG&A

GL account number (GLAccountNumber)	GL account name (GLAccountName)	Account type (AccountType)	Account class (AccountClass)
71400	Supplies and Materials	Expenses	SG&A
71410	General Office Supplies	Expenses	SG&A
71420	Postage	Expenses	SG&A
71500	Repairs and Maintenance	Expenses	SG&A
71740	Natural Gas	Expenses	SG&A
71900	Rents - Other Than Real Estate	Expenses	SG&A
72000	Other	Expenses	SG&A
72702	Other	Expenses	SG&A
72712	Conferences and Workshops	Expenses	SG&A
72714	Non-Employee Travel	Expenses	SG&A
72715	Relocation Expenses - Nontaxable	Expenses	SG&A
72716	Relocation Expenses - Taxable	Expenses	SG&A
72722	Dues & Memberships	Expenses	SG&A
72723	Subscriptions	Expenses	SG&A
72725	Registration Fees	Expenses	SG&A
72732	Freight or Express Shipments	Expenses	SG&A
72760	Other Services	Expenses	SG&A
72765	Support Services	Expenses	SG&A
73300	Software	Expenses	SG&A
74200	Publications	Expenses	SG&A
74201	Advertising - General	Expenses	SG&A
74203	Advertising - HR	Expenses	SG&A

GL account number (GLAccountNumber)	GL account name (GLAccountName)	Account type (AccountType)	Account class (AccountClass)
74220	Printing - On Campus	Expenses	SG&A
74300	Equipment - Non-Inventory	Expenses	SG&A
74306	Computers and Peripherals 100.00-499.99	Expenses	SG&A
74318	Equipment - Audio/Visual	Expenses	SG&A
74328	Equipment - Computers & Peripherals	Expenses	SG&A
75110	Other Per Diems	Expenses	SG&A
75113	Consultant	Expenses	SG&A
75210	Reimbursable Expense	Expenses	SG&A
76910	Telecommunications - Data	Expenses	SG&A
76930	Telecommunications - Other	Expenses	SG&A
76932	Telecommunications - Cellular	Expenses	SG&A
84320	Other Equipment	Expenses	SG&A
86100	Depreciation Expense - Building	Expenses	Depreciation Expense
86200	Depreciation Expense - Equipment	Expenses	Depreciation Expense
74308	Equipment Purchases 3000.00-4999.99	Expenses	SG&A
75220	Direct Expense	Expenses	SG&A
75300	Contracts	Expenses	SG&A
76030	Computer Charges	Expenses	SG&A

Appendix – Employee job descriptions

Job title	Number of employees	Job description
Administrative		
Hotel manager	1	Oversees all operations (hotel and food and beverage). Has approval authority for purchases, guest comps, changes to rates and staffing decisions.
Assistant manager	2	Assists the hotel manager in all operations (hotel and food and beverage). Has approval for purchases, guest comps and changes to room rates.
Outlets manager	1	Supervisor responsible for guest relations. Works closely with the hotel manager, executive chef, director of Food Services and dining commons manager to ensure guests have a positive experience.
Sales associate	1	Administrative employee responsible for sales and marketing for the hotel and conference center.
Administrative assistant	1	Executive assistant to the hotel manager.
Accounting manager	2	Accounting personnel responsible for booking adjusting journal entries, other administrative journal entries and processing payroll. Accounting managers have approval authority for all hotel and food-and-beverage-related transactions.
Food and Beverage		
Baker I	1	Employee responsible for preparing baked goods for the restaurant and café.
Baker II	1	Employee responsible for preparing baked goods for the restaurant and café. Also coordinates menu of baked goods with executive chef.
Catering manager	1	Responsible for coordinating all catered events at the hotel and conference center. Has approval authority for all catering event purchases, as well as other food and beverage purchases.
Cook I	2	Employee responsible for meal preparation for the restaurant and café.
Cook II	2	Employee responsible for meal preparation for the restaurant and café. Assists the executive chef in menu design.
Dining commons manager	1	Employee responsible for guest-facing aspects of the hotel's food and beverage services (e.g., the "front of the house"). Has authority to approve food-and-beverage-related purchases and other transactions.
Director of Food Services	1	Supervisor responsible for all activities related to food and beverage services throughout the hotel. Has authority to approve food-and-beverage-related purchases and transactions.

Job title	Number of employees	Job description
Executive chef	1	Manages the meal preparation operations and creates menus. Has the authority to initiate food-and-beverage-related purchases.
Food Operations manager	2	Manages all food and beverage operations, including the restaurants and pantry.
Food Service supervisor	2	Kitchen employee who monitors food inventory levels. Has authority to initiate food-and-beverage-related purchases and transactions.
Food Service worker I	2	Kitchen employee involved in food preparation (zero to three years of experience).
Food Service worker II	4	Kitchen employee involved in food preparation (more than three years of experience).
Kitchen utility worker	14	Line kitchen employee. May be responsible for food preparation, dishes, etc.
Materials handler	1	Kitchen employee who maintains food storage, including loading and unloading food deliveries.
Retail food sales manager	1	Food services supervisor primarily responsible for Food Pantry and café sales. Has authority to approve all food-and-beverage-related transactions.
Waiter/waitress	30	Server in the restaurant or café. Has access to the POS to enter customer orders and payments.
Front Desk		
Front desk supervisor	3	Supervisory employee who works at the front desk, processes guest check-ins and checkouts, takes reservations and manages guest requests. Has access to the GuestSYS (property management system) to process guest reservations and payments. Oversees the front desk clerks and interns.
Clerk	50	Works at the front desk, processes guest check-ins and checkouts, takes reservations and manages guest requests. Has access to the GuestSYS (property management system) to process guest reservations and payments.
Intern	40	Student employee who works at front desk, processes guest check-ins and checkouts, takes reservations and manages guest requests. Has access to the GuestSYS (property management system) to process guest reservations and payments. While taking classes, interns are limited to part-time employment status and are not subjected to FICA withholding.
Night auditor	1	Front desk clerk who works the overnight shift and is also responsible for balancing the revenue and expense transactions that occurred during the day at the hotel.

Job title	Number of employees	Job description
Maintenance		
Building services worker	3	Hotel employee who performs repairs and cleanup, as needed.
Center housekeeper	1	Hotel employee responsible for managing the cleanliness of the conference center.
Grounds keeper	1	Hotel employee responsible for maintaining the grounds.
Housekeeper	11	Hotel employee responsible for cleaning guest rooms, conference center and restaurants. Housekeepers also record minibar usage in guest rooms and complete occupancy reports to track daily room usage.
Housekeeping supervisor	1	Hotel employee responsible for managing housekeeping staff.
Laundry worker	2	Hotel employee who launders hotel and restaurant linens and guest laundry.
Maintenance worker	1	Hotel employee responsible for daily upkeep and maintenance of property.
Utility worker	1	Hotel employee responsible for maintenance of the electrical, plumbing and other systems.
Total employees	**189**	

Appendix – Approved employee authorization list by level

ID	Job title	First Name	Last Name	Business unit	Annual salary	POS access	GuestSYS access	Initiation authority	Approval authority	Employee email
3811	Accounting Manager	David	Brown	Administrative	$42,000	1	1	1	1	david.brown@peachuhotel
1922	Accounting Manager	Victoria	Simpson	Administrative	$42,500	1	1	1	1	victoria.simpson@peachuhotel
1840	Administrative Assistant	David	Peters	Hotel	$26,309	1	1	1	0	david.peters@peachuhotel
2164	Assistant Manager	Alexander	Knox	Hotel	$40,500	1	1	1	1	alexander.knox@peachuhotel
2811	Assistant Manager	Brian	Gibson	Hotel	$40,500	1	1	1	1	brian.gibson@peachuhotel
9518	Catering Manager	Yvonne	Chapman	Food Service	$34,000	1	0	1	1	yvonne.chapman@peachuhotel
7483	Center Housekeeper	Mary	Chapman	Hotel	$52,863	0	0	1	0	mary.chapman@peachuhotel
8969	Dining Commons Manager	Gavin	McGrath	Food Service	$46,487	1	1	1	1	gavin.mcgrath@peachuhotel
9749	Director Food Services	Nicola	Fraser	Food Service	$95,000	1	1	1	1	nicola.fraser@peachuhotel
1036	Executive Chef	Vanessa	Metcalfe	Food Service	$77,532	1	0	1	0	vanessa.metcalfe@peachuhotel
5851	Food Operations Manager	Elizabeth	Rees	Food Service	$47,318	1	0	1	0	elizabeth.rees@peachuhotel
7770	Food Operations Manager	Carolyn	Slater	Food Service	$49,907	1	0	1	0	carolyn.slater@peachuhotel
1493	Food Service Supervisor	Deirdre	Clarkson	Food Service	$28,000	1	0	1	0	deirdre.clarkson@peachuhotel
6548	Food Service Supervisor	Sebastian	Hill	Food Service	$27,576	1	0	1	0	sebastian.hill@peachuhotel
2231	Food Service Supervisor	Andrea	White	Hotel	$26,000	1	1	1	0	andrea.white@peachuhotel
7388	Food Service Supervisor	Joan	Ball	Hotel	$28,610	1	1	1	0	joan.ball@peachuhotel
5920	Food Service Supervisor	Carl	Dowd	Hotel	$26,001	1	1	1	0	carl.dowd@peachuhotel
3203	Grounds Keeper II	Stephanie	McLean	Hotel	$25,977	0	0	1	0	stephanie.mclean@peachuhotel
0721	Hotel Manager	Brandon	Burgess	Hotel	$90,825	1	1	1	1	brandon.burgess@peachuhotel
6309	Housekeeper	Joe	Poole	Hotel	$22,134	0	0	1	0	joe.poole@peachuhotel
4180	Housekeeping Supervisor	Trevor	Roberts	Hotel	$28,938	0	0	1	0	trevor.roberts@peachuhotel
7266	Housekeeping Supervisor	Tim	Simpson	Hotel	$25,445	0	0	1	0	tim.simpson@peachuhotel
3864	Maintenance Supervisor	Rodney	Wilkins	Hotel	$31,330	0	0	1	0	rodney.wilkins@peachuhotel
9250	Materials Handler	Adrian	Coleman	Hotel	$30,257	0	0	1	0	adrian.coleman@peachuhotel
4490	Night Auditor	Michelle	Arnold	Hotel	$26,000	1	1	1	1	michelle.arnold@peachuhotel
9690	Retail Food Sales Manager	Tracey	Thomson	Food Service	$40,000	1	1	1	1	tracey.thomson@peachuhotel

► The detailed employee listing above provides detailed payroll and computer access data for employees with journal entry initiation or approval authority only. For data about all employees who are active during FY15 and FY16, see the data file.

► For the access fields, 1 indicates that the employee has access to the applicable subsystem and the authority to initiate or approval transactions.

► For the authority fields, 1 indicates that the employee has the authority to initiate or approve transactions.

► Not shown is that all waitstaff employees have access to the POS and all clerks and interns have access to the GuestSYS.

Hospitality industry background

What is the hospitality industry?

The hospitality industry is made up of companies focused on customer service. It includes hotels, resorts, restaurants, airlines, cruise lines, theme parks and other fields within the tourism industry. The hospitality industry depends heavily on the availability of leisure time and disposable income. Therefore, economic trends can have a significant impact on the performance of the industry. Additionally, since the industry is based on providing excellent customer service, customer satisfaction and loyalty are very important. Different levels of service can be sought and expected within this industry. In addition, the industry is heavily influenced by weather patterns and seasonality; therefore, strategic pricing and packages are used to attract customers during off-peak or off-season time frames. This industry typically incurs higher fixed costs than other industries and utilizes outsourcing more heavily for certain aspects of operations to convert fixed costs into variable costs.

The hospitality industry has many sectors. PSU Hotel is part of the hotel (lodging) sector within the hospitality industry.

Key performance indicators (KPIs)

For an analytics mindset, it is important to understand the metrics that your client uses to measure performance. This will help you ask the right questions. There are a variety of KPIs commonly used by hotels to measure performance. We highlight several below.

► **Average room rate** (ARR) measures the operating performance of the hotel. It represents the calculation of the average realized room rental for a given period and often is used to compare revenue between hotels to improve price positioning. When calculated daily, it is referred to as the average daily rate (ADR).

$$ARR = \frac{Total\ room\ revenue}{Total\ rooms\ occupied}$$

► **Occupancy rate** is the ratio of rented (or occupied) rooms divided by the total number of rooms available during a given time period. This metric provides information about cash flows because it can be used to predict future revenues and, if there is a low occupancy rate, it also may suggest that strategic changes need to be made to increase occupancy.

$$Occupancy\ rate = \frac{Total\ rooms\ rented}{Total\ rooms\ avaiable\ for\ rent}$$

► **Vacancy rate** is the opposite of the occupancy rate. It is the ratio of the number of empty rooms divided by the total number of rooms available during a given period of time.

$$Vacancy\ rate = \frac{Total\ rooms\ unoccupied}{Total\ rooms\ available\ for\ rent}$$

► **Revenue per available room** (RevPAR) shows a hotel's ability to rent its available rooms at an average rate and often is used to compare revenue between hotels. It is calculated as the ratio of room revenue divided by the number of rooms available (or, alternatively, the ARR multiplied by the occupancy rate):

$$RevPar = ARR \times occupancy\ rate$$

► **Gross margin** describes the profitability of the hotel, not including indirect fixed costs. It is calculated as the ratio of net sales less the cost of goods sold to the net sales. It is typically calculated only for non-lodging and meeting room sales because there is not cost of goods sold for those revenues.

$$Gross\ Margin\ \% = \frac{Revenue - cost\ of\ goods\ sold}{Revenue}$$

► **Profit margin ratio** describes the profitability of the hotel. It is calculated as the ratio of hotel income to net sales.

$$Profit\ margin = \frac{Hotel\ income}{Net\ sales}$$

Profit margin can also be examined at the department (or business unit) level, such as:

– **Rooms profit margin**: ratio of room income to net sales

$$Profit\ margin\ for\ rooms = \frac{Room\ income}{Room\ sales}$$

– **Food and beverage profit margin**: ratio of food and beverage income to net sales

$$Profit\ margin = \frac{Food\ and\ beverage\ income}{Food\ and\ beverage\ sales}$$

► **Labor cost percentage** describes the operating efficiency of the hotel and can be calculated at the hotel level or for individual business units (e.g., hotel, food and beverage). It is calculated as the ratio of total payroll and related expenses to net sales

$$Labor\ cost\ percentage = \frac{Total\ payroll + related\ expenses}{Net\ sales}$$

► **Food and beverage cost percentage** describes the profitability of the hotel's food and beverage services. It is calculated as the ratio of the cost of food and beverage sold to net food and beverage sales.

$$Food\ and\ beverage\ cost\ percentage = \frac{Total\ food\ and\ beverage\ expenses}{Net\ sales}$$

Typical hotel revenue streams and supporting systems

► Room revenue – revenue from the sale of rooms is generally the largest source of revenue. Billing is typically done through a property management system (PMS).

► Retention charges – revenue is from late cancellation or a no-show penalty for a customer's failure to fulfill their commitment.

► Food and beverage revenue:

  – Restaurants – billing is typically done through a point of sale system (POS system).

  – Minibar – generally, this is limited to beverages and snacks. Guests are billed based on a form they complete to record their consumption, and housekeeping records this upon replenishment of the minibar.

  – Events – rates vary and usually include food, beverage and space rental.

► Communication revenue – revenue is related to a guest's use of in-room telephones and internet. Billing is typically done through a PMS.

► Business center revenue – charges are related to business services, e.g., printing, copying and computer usage. Billing is typically done through a POS.

► Health club and spa revenue – revenue or fees relate to use of health club facilities, beauty treatments, etc. Billing is typically done through a POS.

► Laundry revenue – revenue is collected for laundering guest clothing and shining their shoes. Typically this is billed through the POS.

Outlook for the hotel industry

Growth

The hotel industry is among the largest and fastest-growing industries in the world. RevPAR has increased in each of the last several years. Given the current economic outlook and expected trends in travel, an increase in RevPAR is expected to continue well into the future. Hotels are expecting a high occupancy rate and a 5% increase in room rates in the next few years as well. Historically, when there are high occupancy rates and high room rates, there also will be an increase in the development of new hotels. For example, during 2016, approximately 132,000 new rooms were under construction in the United States.[1] The majority of this new growth is in the upscale or upper mid-scale chain category (e.g., members of the Hilton or Marriott family chains).

Competition

Traditional hotels are facing increasing competition from lodging options offered through the sharing economy (e.g., Airbnb or VRBO). These competitors often provide larger and more "home-like" accommodations than a hotel. Further, these competitors allow guests to search for and book rooms easily online and via apps. Traditional hotels must consider how they can better compete with these services. Enhanced digital investments can include booking, check-in, mobile keys, payment, in-room service and social media platforms. In addition, traditional hotels must differentiate themselves using dimensions that these online competitors do not include, such as customer service, food and beverage, and other services.

Evolving technology: opportunities and risks

The hotel industry faces several challenges and opportunities related to new technology. These include:

► *Information technology (IT) systems*: IT systems within the hospitality industry are typically complex because of the number of systems used. Rarely do hotels use a single unified enterprise resource planning system, and instead there is generally a different IT system used for each process or department (e.g., food and beverage data is processed and stored in a different system than the front desk or procurement).

► *Analytics*: "The use of analytics often has a direct impact on revenue for hotel management companies. In the revenue management department, companies can now leverage data from a multitude of sources, including online search behavior, air traffic, competitor sales and future reservations to better forecast demand and optimize pricing. As the hospitality industry captures enormous volumes of diverse data sets, the effective use of analytics is dramatically changing how hospitality businesses are run. Embracing data analytics will not only enhance the guest experience, but also drive top- and bottom-line results for hotel owners and management companies. In addition, those dealmakers who leverage data analytics in their diligence are likely to benefit from enhanced returns."[2]

► *Cybersecurity risk*: Hotels collect an abundance of customer data and must maintain customers' data privacy. "The average security breach costs hotel companies an estimated US $4.0 million, and such breaches remain a serious threat to the global hospitality sector. Companies must be prepared to quickly detect an attack, correctly diagnose the causes and mitigate financial and reputational damage. Confronting a security breach requires seamless integration of people, processes and tools."[3]

► *Robotic process automation (RPA)*: "RPA is an off-the-shelf advanced software technology that businesses can acquire from select vendors and set up for their own particular needs. As a 'virtual employee,' a robot or 'bot' accesses and manipulates other computer applications through their user interfaces, which enables it to automate high-volume, repetitive tasks with fewer errors. Given the many benefits of RPA, adoption is expected by more hotel companies. However companies should bear in mind that while RPA could possibly eliminate some jobs where the tasks performed are routine, they will need to retain the key people who are experienced in running accounting, HR and other operations so they can apply that experience in managing RPA."[4]

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[1] "Industry Update: PKF Hospitality Research Extends Record U.S. Occupancy Forecast through 2017," *Hospitality Net,* http://www.hospitalitynet.org/news/4073153.html, accessed September 1, 2017.
[2] "Industries: Real Estate, Hospitality & Construction – Global hospitality insights: top thoughts for 2017," *EY,* http://www.ey.com/gl/en/industries/real-estate/ey-global-hospitality-insights-top-thoughts-for-2017, accessed September 1, 2017.
[3] Ibid.
[4] Ibid.