

# Digitizing Dollars & Dimes

**How Robotics and Cloud-Based Automation  
are Transforming Physical Cash into Electronic  
Currency**

# Executive Summary

Despite technological advances on multiple financial fronts, most modern day money continues to be managed just as it was centuries ago. In fact, cash management wise, not much has changed since the introduction of coins around 5000 BC.<sup>1</sup>

Money continues to be counted, stored in safes, and audited. Yet, theft, counterfeiting, and proper transportation and tracking remain hurdles to quality management of cold hard coin and bill capital.

The automation evolution is beginning to bring the management of cash into increasingly streamlined and safe practices. For instance, incorporating robotics and cloud-based management into the distribution, tracking, acceptance, and transmission of cash virtually eliminates error. This reinvention of cash management is driving down costs and changing perception of cash from metal and paper to currency that can be digitized.

*Digitizing Dollars & Dimes: How Robotics and Cloud-Based Automation are Transforming Physical Cash into Electronic Currency* gives a glimpse into automated cash management – a practice projected to be the mainstream modern method for back office financial operations. This study considers how the move toward automation impacts a spectrum of industries including hospitality, retail, and grocery.

# Cash Evolution: Converting Apples into Pigs

Money itself is just metal or paper. The physical value of the currency is unrelated to the derived value.

According to Smithsonian Museum research, money “**Promotes exchange as a measure of value**”<sup>2</sup> – but what does that mean? A simple example is to look at an apple merchant that wants to buy a pig before the existence of money.

- Without currency, humans bartered but transactions could be difficult. If I have apples but want a pig, the pig merchant might not currently want apples. In that case, I might need to convert my apples into something else that the pig merchant needs in order to complete my trade.
- The invention of currency allows me to convert my apples into a measurable value. This value can then in turn be used to buy a pig.
- Money not only simplified the exchange, but also increased the speed of transactions. If it is winter and I want a pig, in the past I’d have to wait until the next fall when I could harvest my apples. With money, the value can be maintained for a duration beyond the goods / services that generated the original value.



# Cash – A Brief Historical Timeline

**Pre 5000 BC:**

*Before cash, trading of goods served as payment exchange.<sup>3</sup>*

**1250 BC – 1450 AD:**

*Distribution of Roman, Islamic, Indian, & Chinese currency.<sup>5</sup>*

**1661 AD:**

*Sweden becomes first European country to experiment with paper money.<sup>7</sup>*

**1795 AD:**

*Formal circulation of U.S. mint officially begins.<sup>9</sup>*

**1914 AD:**  
*Creation and circulation of the federal U.S. dollar.<sup>11</sup>*



**5000 BC:**  
*Metal objects began to be used as monetary objects.<sup>4</sup>*

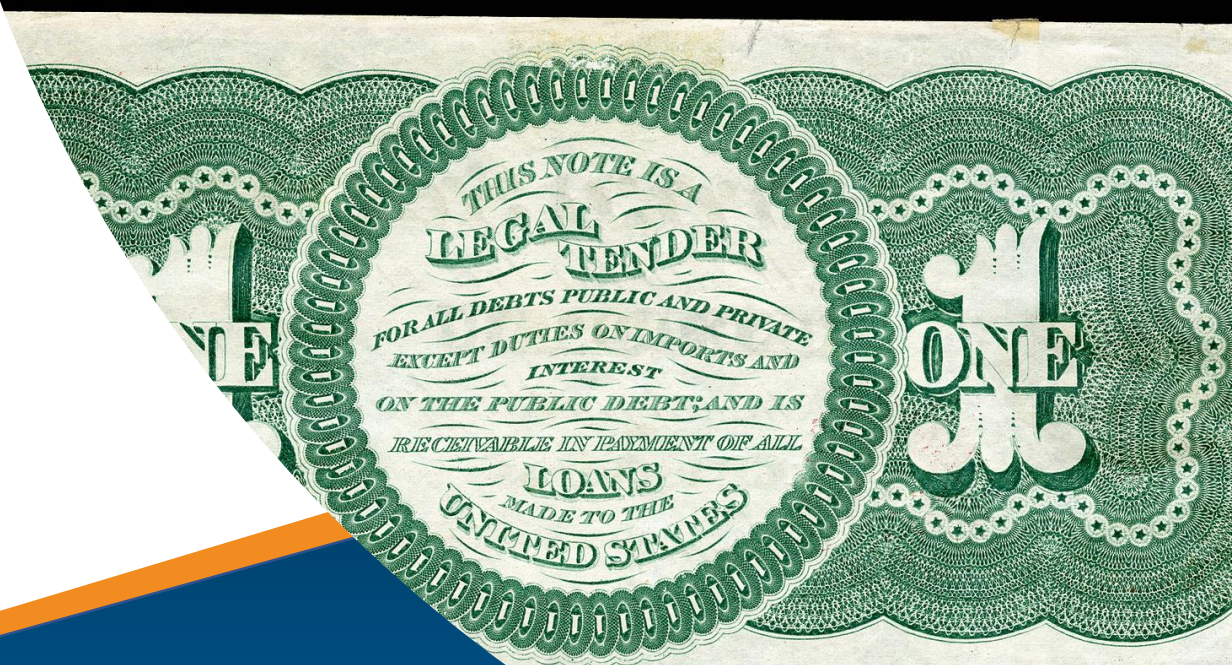
**650 – 600 BC:**

*Ionia and Lydia Elites use gold and silver to pay armies.<sup>6</sup>*

**1792 AD:** U.S. Congress passes the Coinage Act, which established the first U.S. mint.<sup>8</sup>

**1862 AD:** The U.S. Greenback created. (was NOT backed by gold or silver)<sup>10</sup>

# The US \$1 Bill – The “Greenback”



At the time, the value of the note could move against gold.<sup>13</sup>

The “Greenback” was first issued in 1862.<sup>12</sup>

In 1944, the federal dollar was named the official Federal Reserve currency.<sup>14</sup>

Much of the original design has remained in today’s notes.

# \$1,000 Bill in the USA - Some American History

- First issued at the start of the Revolutionary War.<sup>15</sup>
- \$1,000 bills are still “legal tender,” but the Federal Reserve stopped printing the bills in 1946. After 1969, the Fed removed the bills from circulation due to illegal activity.<sup>16</sup>
- Larger bills (\$5,000, \$10,000, and \$100,000) were also in use at one time.<sup>17</sup>



# Cash – A popular payment method

- As new forms of payment emerge, the retail & hospitality industries must cater to customers that prefer cash.
- Globally, about 83% of transactions are cash transactions.<sup>18</sup>
- IHL Group found that 30% of retail transactions are cash transactions.<sup>19</sup>
- According to Global Cash Report, in Europe, 79% of POS transactions were completed in cash.<sup>20</sup>
- Global Cash Report also found that in North America, cash is used in more than 50% of transactions costing less than \$25. Cash transactions also account for more than 60% of transactions costing less than \$10.<sup>21</sup>
- Cash is widely used in hotel outlets. Bartenders typically have “banks” over \$500.<sup>22</sup>
- Millennials, a demographic that will soon acquire the most purchasing power,<sup>23</sup> prefer cash per a survey conducted by the Fed.<sup>24</sup>

# Cash is EXPENSIVE to manage

- Cash Management within many retailers, grocers, and hospitality organizations has not changed in decades!
- Closing a drawer is labor intensive and expensive - averaging 10-30 minutes!<sup>25</sup>
- According to the Harvard Business Review, theft alone cost U.S. retailers \$40 billion annually.<sup>26</sup>
- Tight security, audit controls, and standardized cash management processes are critical, but costly to manage.<sup>27</sup>
- Research conducted by Evention shows that a typical upscale / luxury hotel spends \$21K per month in cash management (labor, fees, accounting, shrink, etc.).<sup>28</sup>
- With over 4,000 upper upscale and luxury hotels in the US, the estimated annual cost of cash management in those segments alone exceeds \$1 Billion.<sup>29</sup>
- According to IHL Group, the cost of managing cash ranges anywhere between 4.7% - 15.5% for various retail segments resulting in an average cost of 9.1% overall.<sup>30</sup>
- In many cases, cash management consumes resources of individual, dispersed locations, but an opportunity to centralize the process can generate enormous efficiencies.<sup>31</sup>
- Organizations often keep “too much” cash at each location. This float can consume millions of dollars that simply sits – stores / hotels to fund daily tills.<sup>32</sup>





## Grocery

- With razor thin margins, grocers manage operations to increase productivity and cut costs.<sup>33</sup>
- Reviewing operations to co-exist with e-commerce.<sup>34</sup>

## Retail

- Increased focus on improving customer experience to compete with online retail.<sup>35</sup>
- Less costs and more automation allow increased customer / staff interaction to bolster customer experience and stock strategy.<sup>36</sup>



## Hospitality

- With decreasing resources, accounting centralization is pivotal.<sup>37</sup>
- Roles like “General Cashier” must be automated to stay competitive.<sup>38</sup>

Modern market moves  
necessitate transition to  
automation



## Retail / Grocery Contemporary Environment

Traditionally, retailers and grocers have operated out of brick and mortar stores. Despite the largely digital nature of click and collect convenience, this e-commerce option requires a brick and mortar presence for stocking and pickups.<sup>39</sup> Nearly half of online shoppers opt for click and collect.<sup>40</sup>

It's estimated that grocer's operate on a margin somewhere between 1-3%.<sup>41</sup> This slim margin requires extra careful consideration of ROI and general strategy and is why grocery stores often slowly acquire new technologies.<sup>42</sup>

Stores need to consider the convenience and experience driven consumer phenomenon. The need-it-now mentality and consumer demand for an experience impacts stock and customer service strategy.<sup>43</sup> In 2015, retailers lost \$1.75 trillion due to out-of-stocks.<sup>44</sup> Automating the back office allows for more human labor in these other areas that need attention.<sup>45</sup>

In the U.S. retail industry alone, cash shrink has reached as much as \$54B.<sup>46</sup>

Millennials are most likely to purchase their groceries with cash.<sup>47</sup>

Grocer's rely on impulse purchases and store traffic to build profit.<sup>48</sup> A recent report shows that about 43% of grocery transactions are cash transactions.<sup>49</sup> One study found that a grocery store sampling averaged over 190 hours per month just handling cash.<sup>50</sup>

Retailers not doing enough to bolster customer experience and not adapting to change, must be particularly careful.<sup>51</sup> Research projects that by 2020 consumers will value experience more than price and product.<sup>52</sup> (86% will pay more for a better experience).<sup>53</sup> Customers also looking for expertise.<sup>54</sup>

## Hospitality Contemporary Environment

Due to the large amount of house float present in many hotels, hospitality is often associated with costly courier pickups, deposit fees, and change orders.<sup>55</sup> High amounts of house float also creates a significant amount of risk and costly insurance fees.<sup>56</sup>

Traditionally, hotels have a general cashier who manages the till drops and till refills and cash is stored in archaic vaults.<sup>57</sup> On average, it takes employees approximately 30 minutes to cash out<sup>58</sup> at the end of their shift.

Generally, properties spend hours generating manual spreadsheets in order to reconcile drops against POS/PMS systems.<sup>59</sup> It is also time consuming for properties to create cash journals and report on cash at month's end.<sup>60</sup> Furthermore, managers must count drops and audit banks daily.

Hospitality is a customer-focused field<sup>61</sup> so it is important to consider leveraging face-to-face interaction as much as possible. Eliminating mundane back office tasks can help hotels leverage the human presence in the front office as an asset.

Today's hotel consumers rarely relate<sup>62</sup> to inauthentic customer service. Millennials in particular value authentic customer service.<sup>63</sup> This fact emphasizes the need to invest in as much front-facing, human interaction as possible.

With the rise of the sharing economy that's produced a new type of competition (Airbnb and VRBO for example),<sup>64</sup> hotels must review innovations to remain competitive.



# Automation

*Transforming Cash to Digital Currency*

# The lifecycle of cash in retail, hospitality, grocery

Cashiers receive their tills to start their day

Excess cash is dropped via drop envelopes into a safe throughout the day

Change is made as cashiers run low on denominations

At the end of shift, all cash (till plus sales) is returned and “audited/counted”

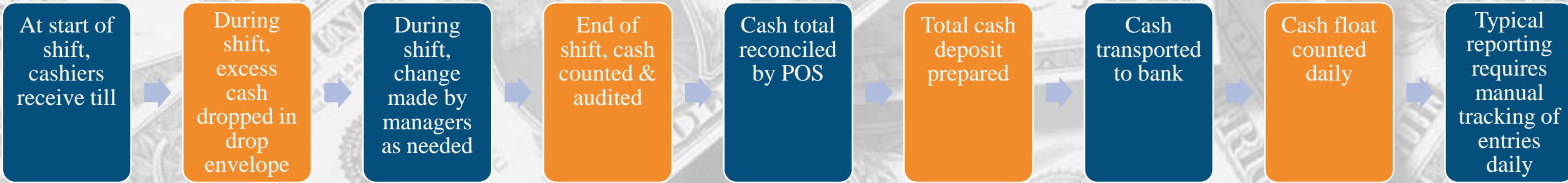
Cash totals are reconciled against the POS and bookwork is compiled

The total “cash deposit” is prepared

Cash is transported to the bank typically via armored couriers

The entire store “float” is counted daily

# Traditional Cash Management



# Digital Cash Management



# Provisional Credit – Cash in the bank

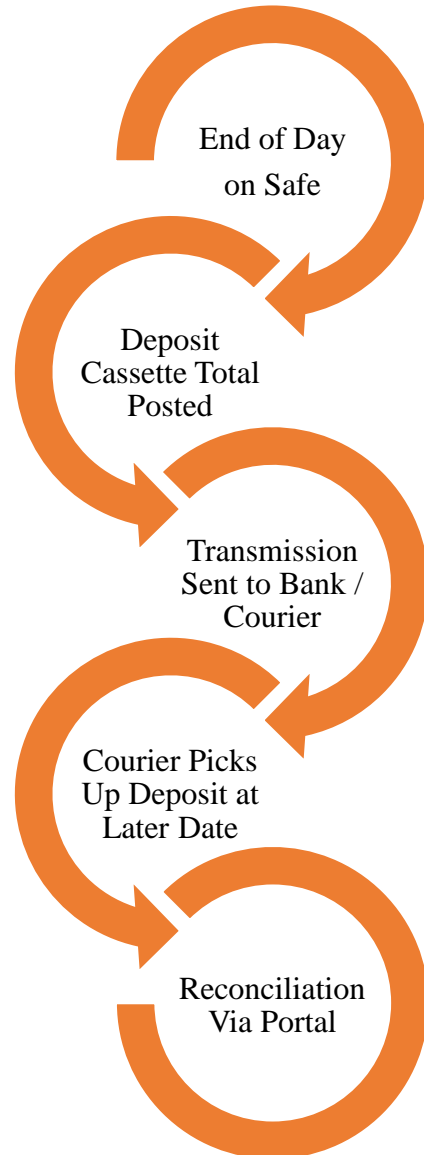
- **What is Provisional Credit?**

- The cash that you receive from customers each day credits automatically to your bank account each night.
- The courier comes regularly to pick up the physical cash, but it has already been credited.
- Provisional credit increases cash flow, reduces CIT pickups, and gives you daily visibility in your bank account for your cash deposits.

- **Provisional Credit is Optional**

- With the automation available, customers may choose to leverage provisional credit.
- Some customers love the cash flow and guarantee of cash into their bank each night.
- Others prefer to “control” their deposits to the bank and just have a courier pick up a “prepared deposit.”

# The Provisional Credit Process



- Provisional Credit is the last step in “digitizing” cash.
- As the cash is automatically validated / counted by the cash recycler, the total “deposit” is recorded for each business day.
- This total is transmitted to the bank and courier and the funds are guaranteed even though the courier may not pick up for days.
- Reconciliation streamlined by viewing provisional credit totals via the web.

# What is the result of digitizing cash?

---

- ✓ Cash costs, which can be more expensive than credit card fees to manage, can be dramatically reduced
- ✓ Continuing to accept cash allows customers to pay in any method they choose
- ✓ The tracking of cash moves from counting and auditing to on-line reconciliation just like credit cards
- ✓ Cash can be deposited into your bank account even though it is physically still at your location
- ✓ The risks of theft and shrinkage can be dramatically reduced



# A Small Retail Example

# Small Retailer (Convenience Store)

- Our small retailer has 200 convenience stores with an average of \$6.4K in daily deposits

Summary of Client	<b>Store Overview</b>			
	Number of Registers	3		
	Accounting / Bookkeeping Time Daily for Cash Management	0.5		
	Total Store Float	\$3,000		
	Average Number of Tills In / Out per Day	9		
	Average Daily Sales	\$16,432		
	Average Daily Deposit	\$6,412		
	Number of Stores	200		
	<b>Labor Costs</b>	<b>Wage / Hour</b>	<b>Burdened Rate</b>	<b>Burdened / Hour</b>
	Cashier Wage	\$7.75	25%	\$9.69
	Manager Wage	\$20.00	55%	\$31.00
	Cash Office / Accounting Wage	\$20.00	55%	\$31.00
	<b>Courier Details</b>			
	Courier Pick-up Fee (per pickup)	\$40.00		
	Pickups per Week	6		



# The Retailer's Cash Cost is \$1.2 Million per Month

- Through automation, the retailer saves \$943K per month – a 77% reduction

Current Cost of Managing Cash	Current Cost of Managing Cash		One Store		All Stores	
	Cash Handling - General Cashier, Managers, & Accounting		Hours / Day	Cost / Month	Hours / Day	Cost / Month
	Total Daily Manager, Cash Room, & Accounting Time		3.08	\$2,897	1850	\$579,426
	Cashier Time - Cash Handling Per Day		6.50	\$1,909	3900	\$381,717
	Accounting / Audit Time for Cash Journaling & Over / Shorts		0.50	\$16	300	\$3,100
	Cost of Cash Shrink at .5%			\$962		\$192,360
	Bank Fees per Month			\$300		\$60,000
	<b>Total Cost of Cash</b>			<b>\$6,083</b>		<b>\$1,216,603</b>
	Labor Savings / Productivity Increase Summary		One Store		All Stores	
	Labor Savings / Productivity Increase Summary		Hours / Day	Savings / Month	Hours / Day	Savings / Month
	Reduction of Manager Time (see time savings detail)		2.8	\$2,631	560	\$526,181.60
	Cashier Labor Savings (see time savings detail)		5.5	\$1,615	1100	\$322,990.94
	Reduction of Centralized Accounting Over / Shorts, Cash Journaling, & Audit		0.50	\$470	100	\$93,961.00
	<b>Total</b>		<b>8.80</b>	<b>\$ 4,716</b>	<b>1760</b>	<b>\$943,133.54</b>



# The Net Benefits

- Implementing cash recycling and automated reconciliation saves \$959K in labor and fees
- Store floats reduced by 50% resulting in \$300K total reduction
- Productivity increased by over 52,000 labor hours per month

Saving Summary

Fee Savings Summary		One Store	All Stores
Fee Savings Summary		Savings / Month	Savings / Month
Reduction in Bank Fees for Deposits / Change Orders		\$75	\$15,000
Reduction of Courier Pickups		\$80	\$16,000.00
Total		\$80	\$16,000
Benefit Summary		One Store	All Stores
Benefit Summary		Total	Total
Net Benefit per Month		\$4,795.67	\$959,133.54
Reduction in House Float (additional CAPEX available)		\$1,500.00	\$300,000
Hours Saved / Labor Productivity Increase / Month		264	\$52,800
Automated Cash Reconciliation, Over / Short Management			
Control and Standardization, Removal of Manual Processes at Stores			





# A Large Retail / Grocery Example

# Large Retailer (Grocery)

- Our large retailer has 200 grocery stores with an average of \$20K in daily deposits

Summary of Client	Store Overview			
	Number of Registers	10		
	Accounting / Bookkeeping Time Daily for Cash Management	1		
	Total Store Float	\$15,000		
	Average Number of Tills In / Out Per Day	30		
	Average Daily Sales	\$51,742		
	Average Daily Deposit	\$20,177		
	Number of Stores	200		
	Labor Costs	Wage / Hour	Burdened Rate	Burdened / Hour
	Cashier Wage	\$7.75	25%	\$9.69
	Manager Wage	\$20.00	55%	\$31.00
	Cash Office / Accounting Wage	\$20.00	55%	\$31.00
	Courier Details			
	Courier Pickup Fee (per pickup)	\$40.00		
	Pickups Per Week	6		



# The Retailer's Cash Cost is \$2.6 Million per Month

- Through automation, the retailer saves \$1.8M per month – a 71% reduction

Current Cost of Managing Cash	Current Cost of Managing Cash		One Store		All Stores	
	Cash Handling - General Cashier, Managers, & Accounting		Hours / Day	Cost / Month	Hours / Day	Cost / Month
	Total Daily Manager, Cash Room, & Accounting Time		7.33	\$6,890	1467	\$1,378,095
	Cashier Time - Cash Handling Per Day		9.00	\$2,643	1800	\$528,531
	Accounting / Audit Time for Cash Journaling & Over / Shorts		1.00	\$31	200	\$6,200
	Cost of Cash Shrink at .5%			\$3,027		\$605,310
	Bank Fees Per Month			\$300		\$60,000
	<b>Total Cost of Cash</b>			<b>\$12,891</b>		<b>\$2,578,135</b>
	Labor Savings / Productivity Increase Summary					
	Labor Savings / Productivity Increase Summary		One Store		All Stores	
			Hours / Day	Savings / Month	Hours / Day	Savings / Month
	Reduction of Manager Time (see time savings detail)		6.6	\$6,186	1,317	\$ 1,237,153
	Cashier Labor Savings (see time savings detail)		7.0	\$2,055	1,400	\$ 411,079
	Reduction of Centralized Accounting Over / Shorts, Cash Journaling, & Audit		1.00	\$940	200	\$ 187,922
	<b>Total</b>		<b>14.58</b>	<b>\$ 9,181</b>	<b>2,917</b>	<b>\$ 1,836,155</b>



# The Net Benefits

- Implementing cash recycling and automated reconciliation saves \$1.8M in labor and fees
- Store floats reduced by 50% totaling \$1.5M
- Productivity increased by over 87,500 labor hours per month

Saving Summary	Fee Savings Summary		One Store	All Stores
	Fee Savings Summary		Savings / Month	Savings / Month
	Reduction in Bank Fees for Deposits / Change Orders		\$75	\$15,000
	Reduction of Courier Pickups		\$80	\$16,000
	Total		\$80	\$16,000
	Benefit Summary		One Store	All Stores
	Benefit Summary		Total	Total
	Net Benefit Per Month		\$ 9,261	\$ 1,852,155
	Reduction in House Float (additional CAPEX available)		\$ 7,500	\$ 1,500,000
	Hours Saved / Labor Productivity Increase / Month		438	87,500
	Automated Cash Reconciliation, Over / Short Management			
	Control & Standardization, Removal of Manual Processes at Stores			





# An Upscale Hotel Example

# Hotel Management Company

- Our hotelier has 200 upscale / luxury hotels with an average of \$10K in daily deposits

Summary of Client	Hotel Overview				
	Number of Banks	50			
	Accounting / Bookkeeping Time Daily for Cash Management	1.5			
	Total Hotel Float	\$90,000			
	Average Number of Banks In / Out Per Day	40			
	Average Daily Sales	\$95,961			
	Average Daily Deposit	\$10,250			
	Number of Hotels	200			
	Labor Costs	Wage / Hour	Burdened Rate	Burdened / Hour	
	Cashier Wage	\$11.00	25%	\$13.75	
	Manager Wage	\$23.00	55%	\$35.65	
	General Cashier / Accounting Wage	\$23.00	55%	\$35.65	
	Courier Details				
	Courier Pickup Fee (per pickup)	\$40.00			
	Pickups Per Week	5			



# Hospitality Company Cash Cost is \$4.3M per Month

- Through automation, the retailer saves \$3.5M per month – a 82% reduction

Current Cost of Managing Cash	Current Cost of Managing Cash		One Hotel		All Hotels	
	Cash Handling - General Cashier, Managers, & Accounting		Hours / Day	Cost / Month	Hours / Day	Cost / Month
	Total Daily Manager, General Cashier, and Accounting Time		8.58	\$9,275	5150	\$1,854,947
	Cashier Time - Cash Handling Per Day		21.58	\$8,995	12950	\$1,799,025
	Accounting / Audit Time for Cash Journaling and Over / Shorts		1.50	\$1,621	900	\$324,165
	Cost of Cash Shrink at .5%			\$1,538		\$307,500
	Bank Fees Per Month			\$300		\$60,000
	<b>Total Cost of Cash</b>			<b>\$21,728</b>		<b>\$4,345,637</b>
	Labor Savings / Productivity Increase Summary					
			One Hotel		All Hotels	
	Labor Savings / Productivity Increase Summary		Hours / Day	Savings / Month	Hours / Day	Savings / Month
	Reduction of Manager Time (see time savings detail)		8.3	\$8,915	1,650	\$ 1,782,910
	Cashier Labor Savings (see time savings detail)		18.9	\$7,884	3,783	\$ 1,576,751
	Reduction of Centralized Accounting Over / Shorts, Cash Journaling, & Audit		1.00	\$1,081	200	\$ 216,110
	<b>Total Productivity Increase</b>		<b>28.17</b>	<b>\$ 17,879</b>	<b>5,633</b>	<b>\$ 3,575,772</b>



# The Net Benefits

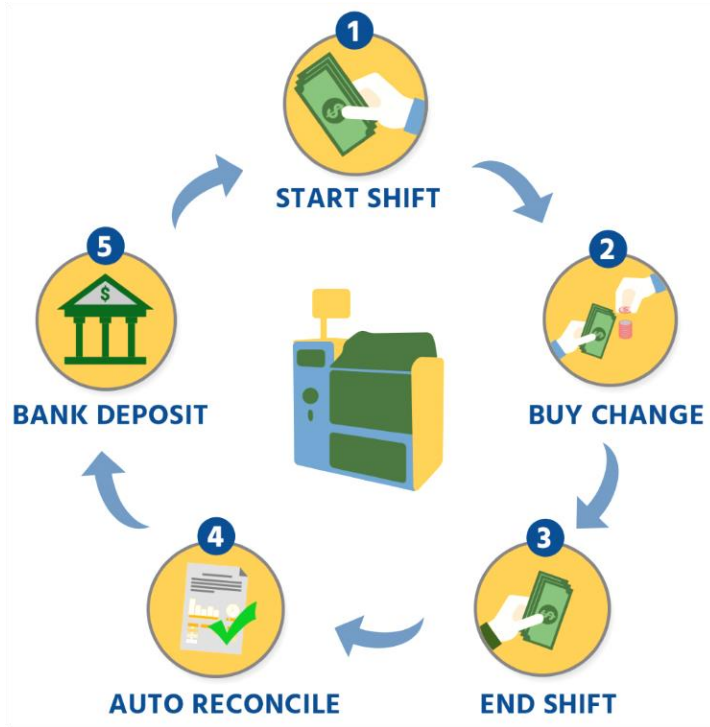
- Implementing cash recycling and automated reconciliation saves \$3.5M in labor and fees
- Store floats reduced by 50% (equivalent to \$9M)
- Productivity increased by over 169,000 labor hours per month

Saving Summary	Fee Savings Summary	One Hotel		All Hotels	
	Fee Savings Summary		Savings / Month		Savings / Month
	Reduction in Bank Fees for Deposits / Change Orders		\$75		\$15,000
	Reduction of Courier Pickups		\$120		\$24,000
	Total		\$120		\$24,000
		One Hotel		All Hotels	
	Benefit Summary	Total			Total
	Net Benefit Per Month		\$ 17,999		\$ 3,599,772
	Reduction in House Float (additional CAPEX available)		\$ 45,000		\$ 9,000,000
Hours Saved / Labor Productivity Increase / Month		845		169,000	
Automated Cash Reconciliation, Over / Short Management					
Control and Standardization, Removal of Manual Processes at Hotel					





# EVENTION

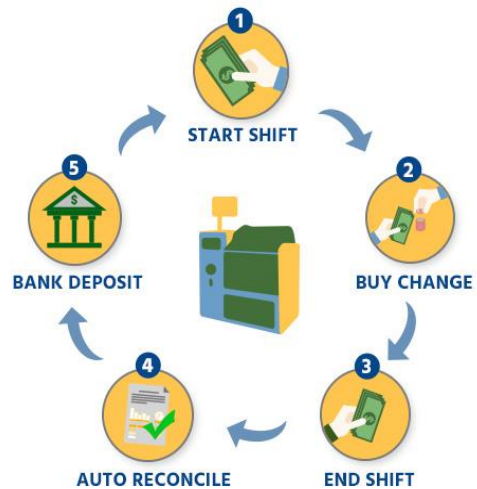


Evention's reimagining cash operations management with its Cash Recycling & Automated Reconciliation. We're setting the standard for *what cash operations management should look like*.

With this automation we can truly transform physical cash into digital currency.

# Fully Automated Cash Operations for Retail / Hospitality

Evention provides a cash operations management solution truly focused on the needs of the hospitality and retail industries.



WITH POS INTEGRATION

Employee Over/Short Notification  
The following employees had cash violations of over \$20.00 on 1/21/2015:

Employee	Dept	Drop Amt	Audit Amt	Over / Short	Status	Comments
Schrute, Dwight	Biz Ctr	\$0.00	\$50.00	(\$50.00)	Cleared - No Violation	Wash with previous day
Franklin, Ben	F&B	\$43.12	\$93.12	(\$50.00)	Cleared - Violation	Discussion held
Bernard, Andy	Bar	\$80.00	\$50.00	\$30.00	Violation	

For the detailed over/short violation forms, please click on the following link - [Evention Over/Short Violation Details](#).  
Additionally, to manage the cash violation, please click [here](#).

SecureDrop by Evention LLC  
We serve up clarity and reliability  
210 W. Hubbard Street, Suite 200  
Chicago, IL 60604  
Sales: +1 877 273 5600 Support: +1 773 733 4206

General Ledger  
Posting and  
Provisional  
Credit  
Transmission

## Self-Banking via Machine

- Banks Issued/Returned
- Drops Auto-Verified
- Self-service Dueback or Paid-out Processing
- Self-service Change Replenishment

## SecureDrop Automated Reconciliation

- Auto Import from POS
- Cash Journaling Automated
- Over / Short Reporting

## Over / Short Workflow

- Automated Emails to Managers
- Automated Discussion Forms

## Upload to G/L

- Cash Journal Generated
- Upload to G/L
- Export Flexible for any System
- Provisional Credit (Optional) Transmitted to Bank

# Goodbye Cash Counting, Bank Audits, and Spreadsheet Reconciliation



MANUAL DROP  
ENVELOPES



UNNECESSARY  
COURIER FEES



MANUAL  
RECONCILIATION



MANUAL  
DUEBACKS &  
PETTY CASH



GENERAL  
CASHIERING  
TIME

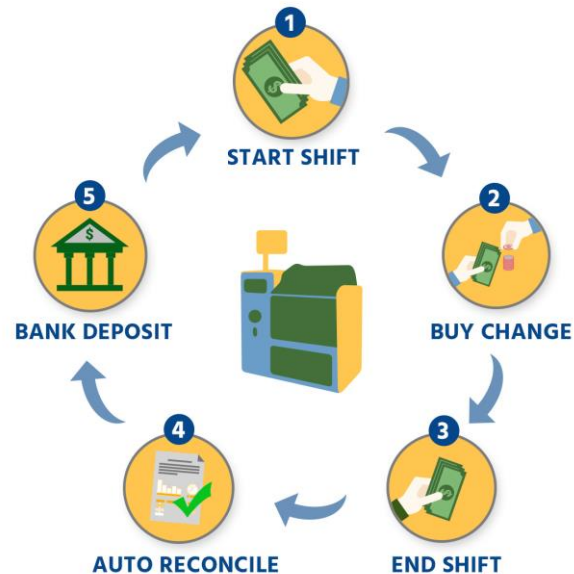


EXCESSIVE  
HOUSE FLOAT



ARCHAIC HOUSE  
BANK VAULTS &  
AUDITS

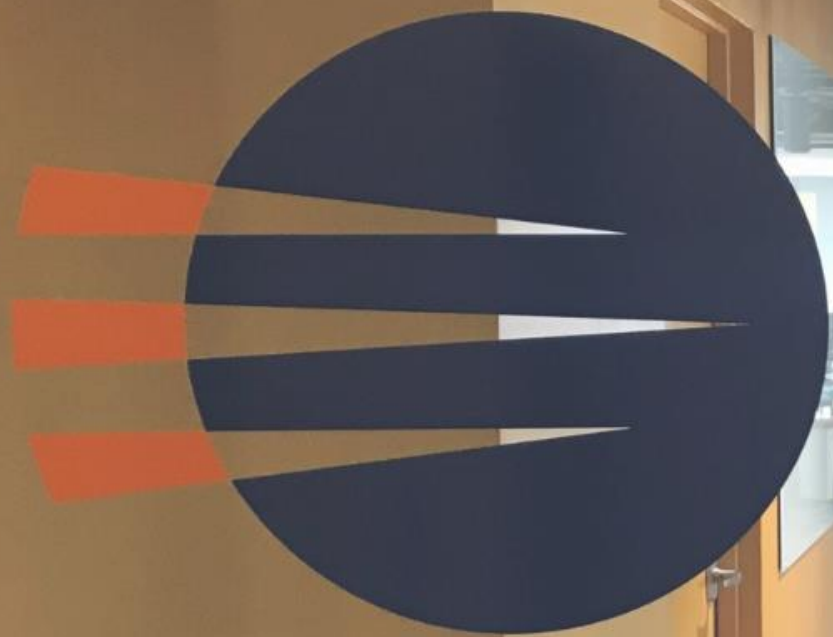
## Hello Employee Self-Banking and Detailed Web-Based Reporting



**TOTAL CASH CONTROL  
with Evention**

# Thank you!

3200



# EVENTION

For more information, please contact us at [www.eventionllc.com](http://www.eventionllc.com)

# Research References

---

- <sup>1</sup> Currency Fair Blog Team. “The History of Money Exchange,” July 1, 2014. Accessed September 2018. Web. <<https://www.currencyfair.com/blog/brief-history-of-currency-exchange-infographic/>>
- <sup>2</sup> Kusimba, Chapurukha. “Making Cents of Currency’s Ancient Rise,” *The Conversation*. June 20, 2017. Accessed August 2018. Web. <<https://www.smithsonianmag.com/history/making-cents-currencys-ancient-rise-180963776/>>
- <sup>3</sup> Kusimba, Chapurukha. “Making Cents of Currency’s Ancient Rise,” *The Conversation*. June 20, 2017. Accessed August 2018. Web. <<https://www.smithsonianmag.com/history/making-cents-currencys-ancient-rise-180963776/>>
- <sup>4</sup> Currency Fair Blog Team. “The History of Money Exchange,” July 1, 2014. Accessed September 2018. Web. <<https://www.currencyfair.com/blog/brief-history-of-currency-exchange-infographic/>>
- <sup>5</sup> Kusimba, Chapurukha. “Making Cents of Currency’s Ancient Rise,” *The Conversation*. June 20, 2017. Accessed August 2018. Web. <<https://www.smithsonianmag.com/history/making-cents-currencys-ancient-rise-180963776/>>
- <sup>6</sup> Kusimba, Chapurukha. “Making Cents of Currency’s Ancient Rise,” *The Conversation*. June 20, 2017. Accessed August 2018. Web. <<https://www.smithsonianmag.com/history/making-cents-currencys-ancient-rise-180963776/>>
- <sup>7</sup> Beattie, Andrew. “The History of Money: From Barter to Banknotes,” Accessed September 2018. Web. <[https://www.investopedia.com/articles/07/roots\\_of\\_money.asp](https://www.investopedia.com/articles/07/roots_of_money.asp)>
- <sup>8</sup> Usmint.gov. “History of the US Mint,” Accessed September 2018. Web. <<https://www.usmint.gov/learn/history/overview>>
- <sup>9</sup> Usmint.gov. “History of the US Mint,” Accessed September 2018. Web. <<https://www.usmint.gov/learn/history/overview>>
- <sup>10</sup> The Editors of Encyclopaedia Britannica. “Greenback movement – United States History,” Accessed October 2018. Web. <<https://www.britannica.com/event/Greenback-movement>>
- <sup>11</sup> Beattie, Andrew. “The History of Money: From Barter to Banknotes,” Accessed September 2018. Web. <[https://www.investopedia.com/articles/07/roots\\_of\\_money.asp](https://www.investopedia.com/articles/07/roots_of_money.asp)>
- <sup>12</sup> The Editors of Encyclopaedia Britannica. “Greenback movement – United States History,” Accessed October 2018. Web. <<https://www.britannica.com/event/Greenback-movement>>
- <sup>13</sup> The Editors of Encyclopaedia Britannica. “Greenback movement – United States History,” Accessed October 2018. Web. <<https://www.britannica.com/event/Greenback-movement>>
- <sup>14</sup> Best, Richard. “How the U.S. Dollar Became the World’s Reserve Currency,” Accessed October 2018. Web. <<https://www.investopedia.com/articles/forex-currencies/092316/how-us-dollar-became-worlds-reserve-currency.asp>>
- <sup>15</sup> Nguyen, Janet. “Why Do We No Longer Use \$1,000 Bills?” December 23, 2015. Accessed September 2018. Web. <<https://www.marketplace.org/2015/12/23/economy/thousand-dollar-bills>>

# Research References

---

- <sup>16</sup> Nguyen, Janet. “Why Do We No Longer Use \$1,000 Bills?” Accessed September 2018. Web. <<https://www.marketplace.org/2015/12/23/economy/thousand-dollar-bills>>
- <sup>17</sup> Nguyen, Janet. “Why Do We No Longer Use \$1,000 Bills?” Accessed September 2018. Web. <<https://www.marketplace.org/2015/12/23/economy/thousand-dollar-bills>>
- <sup>18</sup> Gillespie, Patrick. “Cash is Still King in the Digital Era,” November 20, 2017. Accessed April 2018. Web. <<https://money.cnn.com/2017/11/20/news/economy/cash-circulation-payment/index.html>>
- <sup>19</sup> Buzek, Greg. “Cash Multipliers: How Reducing the Costs of Cash Handling Can Enable Retail Sales and Profit Growth,” IHL Group. July 12, 2018. Accessed July 2018. Webinar.
- <sup>20</sup> G4S. “Global Cash Report,” April 17, 2018. Accessed September 2018. Web. <<http://www.g4s.com/en/media-centre/news/2018/04/17/global-cash-report>>
- <sup>21</sup> G4S. “Global Cash Report,” April 17, 2018. Accessed September 2018. Web. <<http://www.g4s.com/en/media-centre/news/2018/04/17/global-cash-report>>
- <sup>22</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>23</sup> McGee, Tom. “How Millennials Are Changing Retail Patterns,” *Forbes*. January 23, 2018. Accessed October 2018. Web. <<https://www.forbes.com/sites/tommcgee/2017/01/23/the-rise-of-the-millennial/#423d9bb65f74>>
- <sup>24</sup> Fu, Lisa. “Debt-Conscious Millennials Are a Threat to Credit Cards,” *Bloomberg*. February 27, 2018. Accessed April 2018. Web. <<https://www.bloomberg.com/news/articles/2018-02-27/debt-conscious-millennials-ditch-credit-cards-threaten-industry>>
- <sup>25</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>26</sup> Chakravorti, Bhaskar. “The Hidden Costs of Cash,” *Harvard Business Review*. June 26, 2014. Accessed July 2018. Web. <<https://hbr.org/2014/06/the-hidden-costs-of-cash>>
- <sup>27</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>28</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>

# Research References

---

- <sup>29</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>30</sup> Buzek, Greg. “Cash Multipliers: How Reducing the Costs of Cash Handling Can Enable Retail Sales and Profit Growth,” IHL Group. July 12, 2018. Accessed July 2018. Webinar.
- <sup>31</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>32</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>33</sup> Huebsch, Russell. “What is the Profit Margin for a Supermarket?” Accessed August 2018. Web. <<https://smallbusiness.chron.com/profit-margin-supermarket-22467.html>>
- <sup>34</sup> FMCG and Retail. “Curb Appeal: Are You Ready for Click and Collect?” February 14, 2018. Accessed September 2018. Web. <<https://www.nielsen.com/us/en/insights/news/2018/curb-appeal-are-you-ready-for-click-collect.html>>
- <sup>35</sup> Stern, Neil. “3 Things Retailers Can Do to Compete with Amazon,” August 1, 2017. Accessed October 2018. <<https://www.retaildive.com/news/3-things-retailers-can-do-to-compete-with-amazon/448333/>>
- <sup>36</sup> Stern, Neil. “3 Things Retailers Can Do to Compete with Amazon,” August 1, 2017. Accessed October 2018. <<https://www.retaildive.com/news/3-things-retailers-can-do-to-compete-with-amazon/448333/>>
- <sup>37</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>

# Research References

---

- <sup>38</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>39</sup> FMCG and Retail. “Curb Appeal: Are You Ready for Click and Collect?” February 14, 2018. Accessed September 2018. Web. <<https://www.nielsen.com/us/en/insights/news/2018/curb-appeal-are-you-ready-for-click-collect.html>>
- <sup>40</sup> FMCG and Retail. “Curb Appeal: Are You Ready for Click and Collect?” February 14, 2018. Accessed September 2018. Web. <<https://www.nielsen.com/us/en/insights/news/2018/curb-appeal-are-you-ready-for-click-collect.html>>
- <sup>41</sup> Huebsch, Russell. “What is the Profit Margin for a Supermarket?” Accessed August 2018. Web. <<https://smallbusiness.chron.com/profit-margin-supermarket-22467.html>>
- <sup>42</sup> Toriello, Monica. “The Future of Grocery - In Store and Online,” June 2017. Accessed July 2018. Podcast. <<https://www.mckinsey.com/industries/retail/our-insights/the-future-of-grocery-in-store-and-online>>
- <sup>43</sup> Kusek, Kathleen. “Retail’s New Battleground: The I Want What I Want When I Want It Generation,” October 20, 2014. Accessed October 2018. <<https://www.forbes.com/sites/kathleenkusek/2014/10/20/i-want-what-i-want-when-i-want-it-special-delivery-mandatory/#6da0a7cc15d1>>
- <sup>44</sup> Gustafson, Krystina. “Retailers Are Losing \$1.75 Trillion Over This,” November 30, 2015. September 2018. <<https://www.cnn.com/2015/11/30/retailers-are-losing-nearly-2-trillion-over-this.html>>
- <sup>45</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>46</sup> Pappas, Lorna. “U.S. Retailers Lose \$54 Billion a Year to Shrink,” November 4, 2013. September 2018. <<https://www.retailtouchpoints.com/retail-store-ops/3033-us-retailers-lose-54-billion-a-year-to-employee-theft>>
- <sup>47</sup> Hofbauer, Randy. “Cash Transactions Still Strong in Grocery: Cardtronics,” *Convenience Store News*. October 25, 2016. Accessed August 2018. <<https://csnews.com/cash-transactions-still-strong-grocery-Cardtronics>>

# Research References

---

- <sup>48</sup> Huebsch, Russell. “What is the Profit Margin for a Supermarket?” Accessed August 2018. Web. <<https://smallbusiness.chron.com/profit-margin-supermarket-22467.html>>
- <sup>49</sup> Hofbauer, Randy. “Cash Transactions Still Strong in Grocery: Cardtronics,” *Convenience Store News*. October 25, 2016. Accessed August 2018. <<https://csnews.com/cash-transactions-still-strong-grocery-Cardtronics>>
- <sup>50</sup> Buzek, Greg. “Cash Multipliers: How Reducing the Costs of Cash Handling Can Enable Retail Sales and Profit Growth,” IHL Group. July 12, 2018. Accessed July 2018. Webinar. <https://www.retailmarketing.com/2018-year-technology-retail-dont-forget-customer-experience/>
- <sup>51</sup> Retail Marketing Group. “2018 is The Year for Technology in Retail, But Don’t Forget the Customer Experience,” March 2, 2018. Accessed October 2018. <<https://www.retailmarketing.com/2018-year-technology-retail-dont-forget-customer-experience/>>
- <sup>52</sup> Retail Marketing Group. “2018 is The Year for Technology in Retail, But Don’t Forget the Customer Experience,” March 2, 2018. Accessed October 2018. <<https://www.retailmarketing.com/2018-year-technology-retail-dont-forget-customer-experience/>>
- <sup>53</sup> Retail Marketing Group. “2018 is The Year for Technology in Retail, But Don’t Forget the Customer Experience,” March 2, 2018. Accessed October 2018. <<https://www.retailmarketing.com/2018-year-technology-retail-dont-forget-customer-experience/>>
- <sup>54</sup> Duncan, Roger. “In Retail, Brand Expertise Equals Leadership,” *Forbes*. May 24, 2014. Accessed October 2018. <<https://www.forbes.com/sites/rodgerdeanduncan/2014/05/24/in-retail-brand-expertise-equals-leadership/#5e7e62b2e0f5>>
- <sup>55</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>56</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web. <<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>

# Research References

---

- <sup>57</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web.  
<<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>58</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web.  
<<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>59</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web.  
<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>
- <sup>60</sup> Baldinger, Mike. “Top 10 Questions About Cash Operations Management and Cash Recycling,” Accessed September 2018. Web.  
<<https://www.hospitalityupgrade.com/getmedia/6a1c5494-bce8-4a0e-9b5c-a1fbe0dade15/Top-10-Questions-about-Cash-Operations-Management-White-Paper-by-Evention-LLC.PDF?ext=.pdf>>
- <sup>61</sup> Solomon, Micah. “Three Customer Service Secrets of the Hospitality Industry that you Should Borrow Today,” *Forbes*. November 7, 2016. Accessed September 2018. Web.  
<<https://www.forbes.com/sites/micahsolomon/2016/11/07/three-customer-service-secrets-from-the-hospitality-industry-you-should-borrow-today/#2ea55a596e58>>
- <sup>62</sup> Solomon, Micah. “Three Customer Service Secrets of the Hospitality Industry that you Should Borrow Today,” *Forbes*. November 7, 2016. Accessed September 2018. Web.  
<<https://www.forbes.com/sites/micahsolomon/2016/11/07/three-customer-service-secrets-from-the-hospitality-industry-you-should-borrow-today/#2ea55a596e58>>
- <sup>63</sup> Solomon, Micah. “Three Customer Service Secrets of the Hospitality Industry that you Should Borrow Today,” *Forbes*. November 7, 2016. Accessed September 2018. Web.  
<<https://www.forbes.com/sites/micahsolomon/2016/11/07/three-customer-service-secrets-from-the-hospitality-industry-you-should-borrow-today/#2ea55a596e58>>
- <sup>64</sup> Yu, Howard. “Marriott and Hilton Say Ahead of the Sharing Economy, Proving that Airbnb is not the Only Uber of Hotels,” *Forbes*. February 16, 2017. Accessed September 2018. Web.  
<<https://www.forbes.com/sites/howardhyu/2017/02/16/marriott-and-hilton-stay-ahead-of-the-sharing-economy-proving-that-airbnb-is-not-the-uber-of-hotels/#7fb9d8e276b3>>

## Photo Credits:

Wikimedia.com ([https://commons.wikimedia.org/wiki/File:1000\\_USD\\_note;\\_series\\_of\\_1934;\\_obverse.jpg](https://commons.wikimedia.org/wiki/File:1000_USD_note;_series_of_1934;_obverse.jpg))

Wikipedia.com ([https://en.wikipedia.org/wiki/Greenback\\_\(1860s\\_money\)](https://en.wikipedia.org/wiki/Greenback_(1860s_money)))

Shutterstock – Number 1411

Pexels – Artists & Sources include: Bruce Serangaon, Marcus Spiske, Pixabay.com, Lukas, Fancycrave.com, Oleg Magni, Stokpic.com