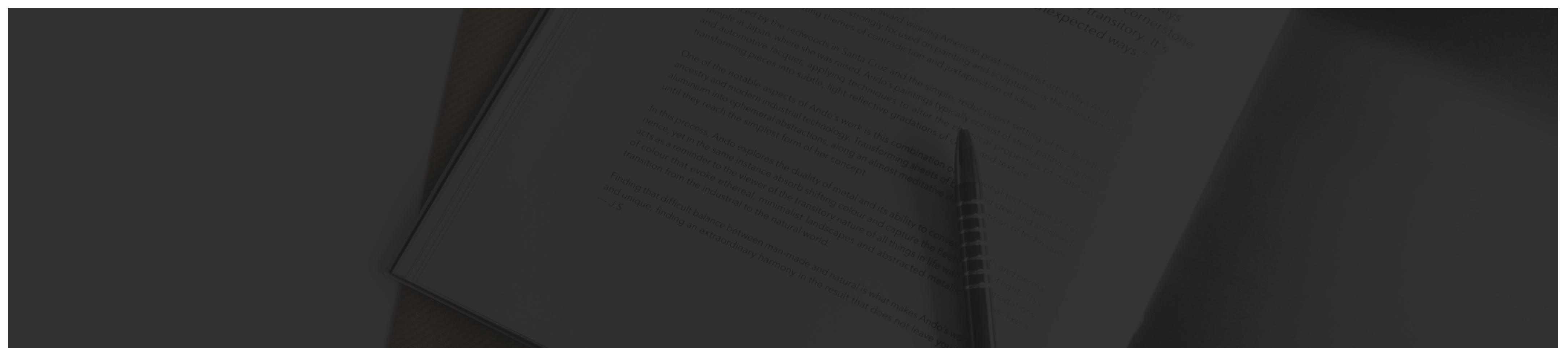




## Transformers, Inc.

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# Bar Inventory Database Upgrade

**Class:**

OPS 804

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# Executive Summary

## Problem Statement

The current inventory management processes that our bars conduct are inefficient and in need of an upgrade. Currently we experience shrinkage and loss in revenues due to a simplistic clipboard system that works off of pen and paper and relies on manual inventory estimations leading to a cycle of errors that continue to negatively impact the way our bars operate and ultimately lead to profit loss.

## Proposed Solution

Through the introduction of our recommended inventory database management system and technology that synthesizes and aids the data collection and reporting process we can eliminate the clipboard system and significantly reduce the inefficiencies and common errors that are hurting our business today. We provide two specific pieces of technology, Nectar Pour Spouts and the Bar-I Inventory System, along with our database solution. We continue to explain how upgrades in technology are necessary and will cut losses in revenue by allowing for quicker and more accurate data that will streamline seamlessly into our database. A visualization of our database structure is shown in an EER diagram to further illustrate how our data collection will be optimized and how we relate the data to each other. Also, for reference, we've included a Gantt chart as part of our deliverables and milestones which goes into the five phases of our plan.

## Value

The budget portion provides two differing budgets according to the two proposed choices in technology. The third portion provides two budget routes that align with the two technology choices given in the solutions portion with an in depth explanation as to the considerations taken into account and finishing with projected increases in return on investment (ROI) to illustrate how we view that our proposed solution would pay off the costs of the budget in no time at all.

# TO BEGIN...

## INTRODUCTION



Every business, no matter how big or small, eventually looks around wondering how they can become more efficient and as a result, more profitable. The food and beverage industries are no different. Managers focus a majority of their attention on making sure their servers and bartenders are more efficient, or their kitchen is more efficient. And yet, while focusing their attention on their employees, they frequently overlook the one thing that single handedly has one of the biggest impacts on the business and would also be the easiest to change. That one thing is inventory. The following proposal is our idea for how to make inventory processes more efficient and as a result the business more profitable. In the business world it is common practice to run SWOT analysis on your competitors. But what would happen if we actually ran a SWOT analysis on ourselves? As restaurant managers, we think that one of our biggest weaknesses and the biggest opportunity lies in our inventory management systems. Through our time here, we have noticed several areas of opportunity all relating to inventory and how it impacts every other facet of the business.

## PROJECT DETAILS

The process, as it stands, requires the manager on duty to count, record and track the bar's inventory manually on a piece of paper attached to a clipboard as quickly as possible. Not only are the levels in open alcohol bottles guesstimated, but that guesstimate changes depending on who is counting as each manager has a different internal concept of where on the bottle/keg constitutes each corresponding fraction. This process is further complicated by the fact that the only way to do the inventory is to go down the paper list, one by one, and count as it's listed, which is in no particular order. This forces the manager to walk back and forth and in circles to not only search and find the particular bottle listed, but make sure that any spares are accounted for as well. Once fresh data is gathered, it is compared against previous order amounts and amounts sold to help inform what is no better than a gut reaction to what the par levels should be and how much to order for the next time period with the goal of keeping enough on hand to maximize profits while keeping mid month and end of month inventory low. Once the amount of paper overwhelms the clipboard's ability to hold on to it, old data is simply discarded. Although this manual inventory is used for ordering, it is also manually input into the back of house computer system twice a month to generate the Profit and Loss (P&L) statement which measure how successful and profitable the month was.

# DETAILS, CONT.



While the clipboard system has been used for many years, it has many challenges associated with it. By utilizing a manager to manually count inventory, not only are there a lot of inconsistencies between different manager's counts, but the simple process of inventory takes that manager away from the task of running the business. If customer issues arise during inventory, valuable time is wasted while the server attempts to find the manager, get them to the table and fix the problem. This leads to poor customer service and a negative perception of the restaurant. This managerial absence also allows employees freer rein to chat, goof off, or work slower thereby milking their time on the clock and increasing the amount you will have to pay them.

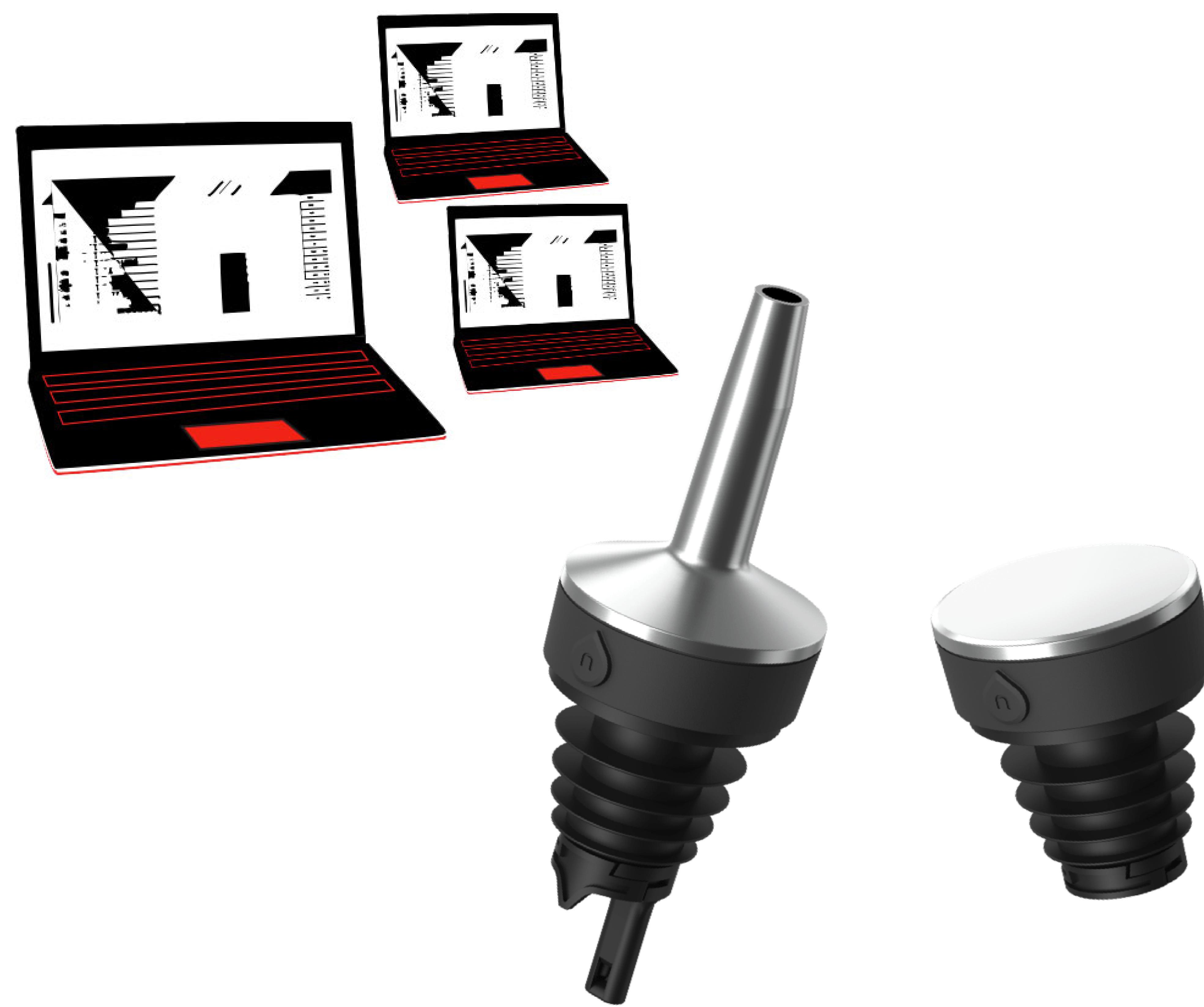
Another issue that arises from this inefficient method of inventory comes in the form of simple human error. As mentioned above, each manager has a different perception of volume in each bottle or keg. However, the trouble with guesstimating is that these differences in perception significantly impact the accuracy of the profit and loss statements and each time that a different manager counts, the impact gets more and more drastic. And yet, this is not the only chance for human error or wasted time. One main example of human error comes from manually inputting the inventory counts into the back of the house computer to generate the P&L statement. While some are fast and accurate at entering data via a 10 key, not everyone is. This simple data entry can be time consuming and filled with errors whether it's a decimal in the wrong place, hitting the wrong key or accidentally double tapping a key so that an inventory of 5 turns into 55. When this happens, not only does it throw off the P&L, but when caught, the manager must then spend untold amounts of time scouring page after page of inventory to find the error and fix it. Finally, throwing away old data simply because the clipboard can no longer hold it loses valuable information of trends year over year, as well as trends during specific holidays, community events, or even just trends seen in season changes. The result is that precious time, energy, resources and profit are wasted as a result of the many inefficiencies of the current inventory management system.



# PROPOSED SOLUTION

Our plan is to use a database to not only keep track of this data for longer periods, but also use it to analyze trends and set a more informed par system to help with keeping ordering in line. By streamlining this and setting a more educated par system, this would allow us to keep end of month inventory low while having enough on hand to maximize profits. Utilizing historical data would also allow us to be better prepared for future trends and promotions by analyzing the success and failures of previous promotions.

Our original plan was to suggest a big name product such as 'BarVision' and 'Accubar'. However, after researching those and similar products currently on the market, we realized that those big name products would not suit the business needs as they currently stand. Instead, we advise getting a system like either the 'Nectar' pour spouts or the 'Bar-I' inventory system.



# PROPOSED SOLUTIONS



## SOLUTION 1

### 'Nectar' Pour Spouts

While 'BarVision' is a similar type of product to 'Nectar', 'Nectar' won out with some key additional features that BarVision simply couldn't compete with, one of which is 'Nectar's' use of ultrasound technology.

This technology is used to measure not only how many ounces are being poured at any given moment, but also how much volume is left in any given bottle at any given time. But the benefits don't stop there. Once the data is gathered through the pour spout, it uses bluetooth to automatically send all information to a set database in the back of the house computer, runs an analysis on key metrics and sends all this information to management cell phones. On top of all of this, 'Nectar' tracks when bottles start to run low and sends a text to the manager so they can be ready with a fresh bottle without being asked. Also, once a bottle is empty, 'Nectar' automatically subtracts that bottle from the current inventory count.

Another benefit to 'Nectar' is how easy it makes the ordering process. Since 'Nectar' can be paired with most point-of-sale (POS) systems, it automatically tracks sales and trends and uses that to create more accurate pars. These new pars will be based on actual data analytics rather than gut feeling. And to make it even easier 'Nectar' partners with vendors to track price changes and discounts and allows you to place orders with the press of a button. And from what we can find, the system is so easy and intuitive that there isn't much training necessary in order to hit the ground running, just a simple plug and play.

All of this completely eliminates the need for full inventory counts, reducing it down to random spot checks to ensure accuracy and comes with a full range of benefits including: more accurate data to put in the database, no longer relying on any one person's perception of how full a bottle is or their data entry accuracy, allowing management to hold bartenders accountable, provides stats to show who needs further training, ensures drinks are consistent while maximizing profits, provides analysis on trends, informs management when new bottles are needed, cuts down the number of extra bottles behind the bar which reduces the potential for theft, allows management the time and freedom to be able to run the business and since it tracks beer pours and levels as well, it reduces the risk of injury when attempting to figure out the volume left in kegs.

# PROPOSED SOLUTIONS

## SOLUTION 2

### 'Bar-I' Inventory Systems

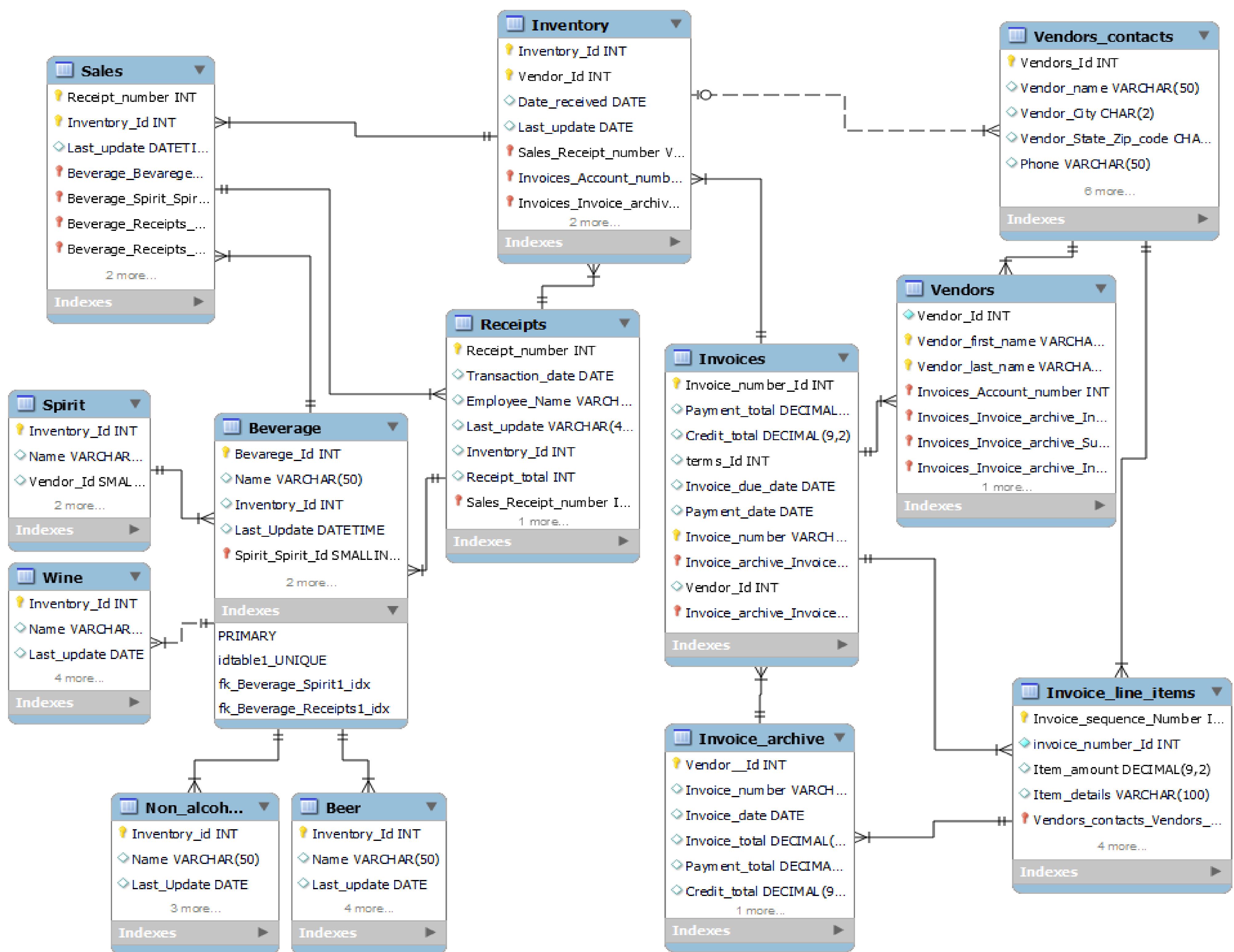
Alternately, the 'Bar-I' Inventory System (BIIS) is a little closer to a product like 'Accubar' where it is more concerned with being a faster, more accurate inventory management system.

While BIIS is not as fancy as some other options on the market, it makes up for it in many other ways. Similar to 'Nectar', BIIS offers POS integration, automated orders organized by distributor, and creates reports on analytics of sales and trends. However, BIIS's claim to fame is the speed of their counting system which utilizes barcode scanners and a scale to quickly identify which bottle and then measure it based on weight instead of a guesstimation. This cuts down the count time of open bottles to approximately two seconds per bottle and up to 500 bottles per hour and precisely measures to the 100th of an ounce.

Additionally you can record full bottle counts using your voice. But what really set BIIS apart was the fact that you could set up your inventory sheet (in the app of course) by zones, which improves efficiency and cuts down on some human error. And once that information is entered into the app for one store, its a simple process to basically copy and paste for other locations. This means that aside from a few minor adjustments for store based preferences, getting set up with new locations is a snap. On top of this, the app has a checks and balance system built in to ensure any potential errors are caught before the information is even sent to the database. This ensures 100% accurate information is entered and eliminates the long and stressful nights spent trying to find where you went wrong. Additionally, while professional installation and training is an option, training and installation videos are available for free on their website making it easy to not only get up and running, but teach new managers as well.



# EER DIAGRAM



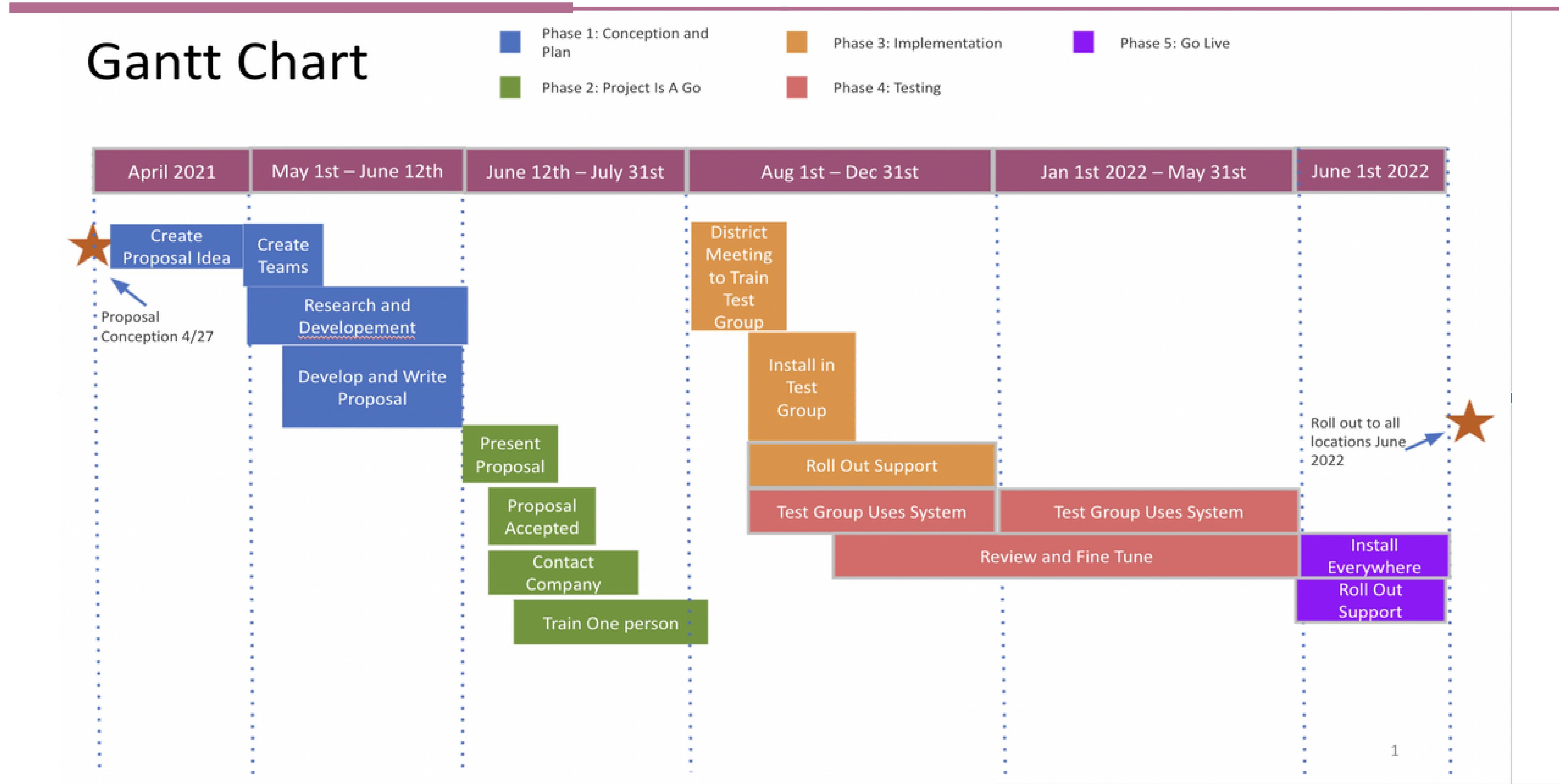
In order to help visualize how the data will link and could potentially be used, we have provided a sample EER diagram to use as a visual presentation of our Inventory database model. This diagram shows the definitions of the columns and the relationships between tables. In order to reduce the data redundancy and query efficiency, we have normalized the data into 13 tables that are connected to one another via primary and foreign keys. The diagram starts with the **Inventory** table which connects with the **Beverage**, **Vendor**, **Invoices** and **Sales** tables. Within **Beverage**, **Vendor**, **Invoices** and **Sales** categories, we break down the data further to include following tables:

1. **Beverage** table includes Spirit, Wine, Beer and Non-alcoholic tables.
2. **Vendor** table includes Vendor and Vendor\_contacts.
3. **Invoices** table includes Invoices, Invoice\_archive and Invoice\_line\_item tables.
4. **Sales** table includes receipts table.

By connecting the tables in this way, we will easily be able to input new inventory orders and count information, track vendor invoices, price changes, credits and discounts, and generate reports on trends. While it may look busy and confusing in this format, this is luckily not something we will have to train managers on since each solution we provided utilizes this diagram to store, track and automatically run reports on all of this information for you.

# MILESTONES & DELIVERABLES

## Gantt Chart



To give a better idea of the timing and requirements to execute this proposal we have created a Gantt chart to help visualize and track the tasks & time projections needed to see this proposal to fruition. Specifically, we break down the project into five stages which include:

- Phase 1:** Conception and Planning,
- Phase 2:** Project is a Go
- Phase 3:** Implementation
- Phase 4:** Testing
- Phase 5:** Go Live.

While we have already been working on the first phase since April, we are officially set to kick off Phase 2 starting June 12, 2021 with our presentation of our proposal to the necessary shareholders. Once the proposal is accepted, we anticipate it will take just over a month to contact the chosen company, negotiate terms, draw up and sign contracts and the training coordinator will learn to install and work with the new technology. After this is completed, we start Phase 3, which should begin in August 2021. This Phase consists of choosing a test group who will meet during a routine district meeting during which the training coordinator will teach all managers in the test group. From here managers at test locations will be able to install and utilize the new technology themselves, with support on stand-by for smooth implementation.

Once installation is complete, for the rest of Phase 3 and all of Phase 4, test locations will be working with the new technology, working out any bugs, and consistently providing feedback to the support team and district managers who will then be able to help troubleshoot and/or disseminate that information to other locations. We've allotted approximately 9 months cumulatively for both Phases 3 and 4 to take place. We understand that while this amount of time may be a bit excessive, it allows leeway in case any other step takes longer than expected. However, all dates are adjustable. Finally, in Phase 5 we roll out the initiative to all locations with support on standby just in case.

# BUDGET

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Given our proposed solutions, we present the following budgets, one which focuses on utilizing ‘Bar-I’ and one which focuses on ‘Nectar’, to provide a choice for consideration as, while our team believes that both of these options are equally beneficial, we believe that providing a choice in moving forward matters as we value the opinions and consideration of all parties involved in this process. The budgets provide the average monthly and annual costs per store for implementation of the two systems.

## Bar-I

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	<i>One-Time</i>	<i>Monthly</i>	<i>Annual</i>
<i>Equipment</i>	\$1,000		
<i>New System</i>		\$ 200	\$ 2,400
<i>Wi-Fi Upgrade</i>		\$ 65	\$ 780
<b>Total</b>	<b>\$ 1,000</b>	<b>\$ 265/mo.</b>	<b>\$ 3,180/yr.</b>

## Nectar

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	<i>One-Time</i>	<i>Monthly</i>	<i>Annual</i>
<i>Equipment</i>		\$ 200*	\$ 2,400*
<i>Application</i>		\$ 20	\$ 240
<i>Wi-Fi Upgrade</i>		\$ 65	\$ 780
<b>Total</b>	<b>N/A</b>	<b>\$ 285/mo.</b>	<b>\$ 3,420/yr.</b>

\*Of note for Nectar, the service offers a 50% discount when companies sign on for an annual versus a monthly contract. We feel this is the most pragmatic option and thus provided these costs rather than the full price month-to-month plan costs. Additionally, the timing of the phases in our milestones and deliverables, in which we implement and utilize the new systems, also aligns perfectly with the continual annual discount offer that Nectar provides.

# BUDGET, DETAILS

## ADDITIONAL HOURS?

Of course, we also took into account the potential cost and consideration of extra labor hours from our team and those involved with the implementation and process of rolling out the new inventory management system. With regards to this, we found that we can seamlessly introduce all phases of our plan into the pre-existing hours scheduled for the salaried employees involved. No hourly employees would be utilized in inventory practices, only salaried managers, so there is no need to account for additional labor under our plan. Training would take place during the pre-scheduled monthly meetings wherein the corporate training coordinator would utilize part of the given time, time that is already allotted in these meetings to include training such as this, in which to explain the systems and show how to install and use them. This would take no more than 2 hours, after which managers could go on to use these systems and deliver this information to their individual stores. These individual training sessions could also occur during pre-scheduled meetings so as not to add any additional need for time or budgetary concerns.

## WI-FI UPGRADE?

Upgraded Wi-Fi is included as part of our costs because some of our locations do not have the Wi-Fi capabilities to be able to garner the full potential of both of the systems discussed as they both require Wi-Fi access. However, one thing we do not need to upgrade is the POS system we use, as both options integrate with most major POS systems including the one we currently use. We feel this is worth mentioning as it is a common issue within the industry whenever new system integrations are introduced as part of sales. It is also an important consideration when trying to keep the budget low.



# PROFIT

We want to emphasize how upgrading our inventory management system would pay for itself and help us maximize our profits after full implementation. We project that both options would show an approximate increase of **4x or more in ROI** based upon the increase in accountability and reduction in shrinkage that would come from these upgrades. We currently, along with most bars, experience a shrinkage rate of 15% and with a better inventory management system we believe that we can **increase accountability and reduce shrinkage to 5%**. Based upon our average monthly purchases at \$7,800 we can calculate that we experience a monthly shrinkage of \$1,170 in wholesale loss. Should we increase our accountability rate to the 95% we believe our improved inventory management system would provide us, we project a savings of \$780 a month as a result. To be further conservative, considering situations where drinks aren't simply being given away but also due to accidents or drinks spilled, we can estimate real loss at 2 times the wholesale loss which would make the result of savings even higher at \$1,560 per month per store. To calculate ROI, we take the additional money we would net from our improved inventory management database system and divide it by the total cost of the system. Thus, we would see \$1,360/\$200 giving us a great **increase of over 6x ROI, an additional \$16,320**. We do fully recognize the theoretical aspect of this ROI calculation however we firmly believe that with our new inventory management database system we will see a significant reduction in shrinkage for the reasons we have discussed thus far. This is not even including the money saved from fewer comped meals from customer complaints and the ability to get employees off the clock at a reasonable hour.



# CONCLUSION



While we understand that committing to any new technology or initiative is not an easy process and some managers might be hesitant to embrace the change, the fact remains that the current inventory system is costing all of us time, energy and money.

By upgrading to one of the aforementioned systems, we would reduce time spent counting and completely eliminate the need for manual entry into the back of the house computer. This in turn would eliminate most if not all human error, streamline ordering processes, allow managers to successfully identify promotable items, keep managers where they can do the most good and reduce the risk of possible injury, all of which positively impacts the bottom line. Thanks to the inefficiencies of the current system, implementing the new technology doesn't just pay for itself, it essentially pays us to use it. And since this system will already be in the back of the house computer, adding in all food inventory in the future to streamline both back and front of house inventory would be a piece of cake.



# *Are you ready to bring inventory into the 21st century?*

## LETS GET IN TOUCH

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