

Forever Treasures Antique Shop



Summary

Forever Treasures is a small antique shop that wants to modernize by upgrading the current system related to its operations. Currently, Forever Treasures is using an old manual cash register and the store is not computerized in any way. Forever Treasures would like to begin selling merchandise online as well as through its brick and mortar location. The owner has questions about what computers to buy, internet connection speeds, and mobile device capabilities for inventory and sales. She is also concerned about hackers and online security when selling items online. She wants a completely new and upgraded system in place to track, sell, and ship her inventory within the next three months. In addition, she wants to expand globally as well.

Problems and Opportunities Task 1

Problem	Opportunity
There is a gap between organizational objectives and information requirements necessary for computerization.	1. There is an opportunity to bridge the gap between users and systems personnel that will design a system

	using a data flow diagram that will create a shared objective of developing the system in a logical manner (Kaiser & Bostrom, 1992).
The owner of Forever Treasures wants to begin selling merchandise online in order to expand the market globally.	<ol style="list-style-type: none"> 1. There is an opportunity to create an e-commerce website that can manage transactions in multiple currency configurations and multiple languages. 2. There is also an opportunity to create a website that is either created through a first-class website builder or through a design team.
Users will require training to operate the new computer system as well as the computerized point of sale system. In addition, management will require technical support and tutorials to build the website from an off-the-shelf website builder.	<ol style="list-style-type: none"> 1. Opportunity to create a training course that includes a spiral bound and tabbed booklet with screenshots that takes the store manager/owner and persons that will be involved as salespeople step-by-step through all of the steps necessary to operate the point of sale system as well as to upload new items to the web site as they arrive. 2. The reason that an off-the-shelf website developer is preferable to a website developed by a design team is that there would be a requirement for the developer to be part of the staff to constantly update the site with new items that arrive. 3. Using an off-the-shelf website developer would mean that the manager could add items herself as they are added to the inventory.
There is a need to track incoming and outgoing inventory more efficiently.	<ol style="list-style-type: none"> 1. There is an opportunity to choose a point of sale system that can keep track of inventory and allow for the addition of incoming and outgoing inventory as well as create a database of what is sold daily.
There is a need to determine what computers to buy and the associated operating system that will be used and to make sure that the	<ol style="list-style-type: none"> 1. The opportunity to choose computers that are compatible with the POS system such as a windows-based system that will also be compatible

<p>computers are compatible with the POS system.</p>	<p>with Microsoft's ERP system if Forever Treasures expands the number of locations and finds that it requires an enterprise resource planning system at a future date.</p> <ol style="list-style-type: none"> 2. The opportunity to create a local area network for computers within the store and a wide area network that allows for access to the database and inventory while traveling to antique shows to purchase new inventory or overseas to other markets.
<p>There is a need for a database that can keep track of customers and their purchases as well as product interests.</p>	<ol style="list-style-type: none"> 1. The opportunity for a loyalty program that rewards customers for multiple purchases. 2. The opportunity to hire a database administrator to use data mining to determine which customers to send promotional materials to when new merchandise arrives 3. The opportunity to send emails to online customers to let them know about related merchandise that is new online that is compatible with purchases they have already made
<p>There is a need to find an internet service provider that can provide the right services and internet speed at a competitive price preferably without a contract so that if the organization's needs change, the provider can change as well.</p>	<ol style="list-style-type: none"> 1. The opportunity to choose between cable internet vs. fixed wireless internet as well as DSL vs. Fiber or satellite and to choose a provider based on the type of service that is considered to be best as well as the internet speed provided by the internet service provider.
<p>The owner is concerned about hackers and internet security.</p>	<ol style="list-style-type: none"> 1. There is an opportunity to choose an internet security provider that can secure all the devices used by the organization including the POS system. 2. There is an opportunity to choose a security system that can prevent

	hackers and keep the entire system secure and that is compatible with her operating system and her computing software as well as her POS system.
The owner needs to choose a network configuration for her computers and decide whether to store her information on a server or in the cloud.	<ol style="list-style-type: none"> 1. The opportunity to choose between a point-to-point, star, full mesh, partial mesh or Bus configuration. 2. The opportunity to decide between storing information on a server or in the cloud. 3. The opportunity to decide whether to use a windows-based system or a Mac and whether to use Office 365 for her computing needs.

Task 2

- I. Problem: Gap between organizational objectives and information requirements necessary for computerization.

Proof that a problem exists:

- According to hubgets.com (2018), using the Myers Briggs Type Indicator, the most successful entrepreneurs are ENTPs, ESTJs, ENTJs, INTJs and ISTJs so it is likely that the owner of Forever Treasures is one of these personality types. Based on this assumption, it has been determined that she is one of the entrepreneur types mentioned here and will, therefore, be capable of using a high-quality off-the-shelf web site creator such as BigCommerce or Volusion, for example, to create her own web sites for each region or country she plans to enter.
- According to Kaiser and Bostrom (1982) the persons making the design decisions based on the Myers Briggs Type indicator tend to be of the ST (Sensing and Thinking) and NT (Intuitive and Thinking) temperaments while the users of these systems on a daily basis who are the salespeople, for example, tend to be SFs (Sensing Feelers) and NFs (Intuitive Feelers).
- In addition, people with a talent for information systems tend to be ESTs (Extroverted Sensing Thinkers) and the people with a talent for computer science tend to be INT (Introverted Intuitive Thinkers), IST (Introverted Sensing Thinkers) and ENT (Extroverted Intuitive Thinkers) (Reynolds, Adams, Ferguson & Leidig, 2016).

- What this means is that there are likely to be clear differences between the users of the system and the people making the design decisions. It appears that the design decisions should be made with the users in mind.

Solution:

- Involve the salespeople in the decision process by finding out which computer system they are most comfortable with and whether their choice is a Mac computer or a windows-based system. Also, find out which POS system is most compatible with their choice of operating systems, etc. In addition, the strategy will be to also consider what is more popular with most users since salespeople tend to be transient.

II. Problem: The owner of Forever Treasures wants to begin selling merchandise online in order to expand the market globally.

Proof that a problem exists:

- More and more consumers are buying online and expanding globally is a viable method for a small retailer to dramatically increase its consumer reach.

Solution:

- Design the system with the objective of targeting specific geographic areas in the global market and then design the system by asking consumers to create a profile that includes information such as an address, country of origin, etc. Target specific geographic areas and ship goods from a warehouse that is within that market.
- This would likely require the owner to hire dealers within the given market and contract with them to purchase goods and stock them in the warehouses within those markets and then pay them a commission when the goods are sold and shipped. This would require having a separate web site in each market such as Canada, Europe, and the United Kingdom, for example.
- This would also allow for customization based on the market for language differences and currency configurations, etc. It would also allow for merchandise that is compatible with a given market. In addition, it would help to limit the costs associated with shipping.
- This strategy would allow the owner to create her own website using an off-the-shelf web site creator and then customize the web site for each country she plans to enter. She could then add the merchandise she has in the warehouses in each country and ship orders within that country.

- This would prevent having to ship merchandise overseas, which would be prohibitively expensive and wouldn't allow for merchandise that is indigenous to each market. She could use digital images of each product she has for a given market and upload them to the site for a given region or country.

III. Problem: Users will require training to operate the new computer system as well as the computerized point of sale system.

Proof of the problem: Without training, it is unlikely that those individuals who tend to be of the NF (intuitive feeling) and SF (sensing feeling) temperaments will be able to use the new system effectively, as these types do not usually adapt to information systems and computer science applications without training (Kaiser & Bostrom, 1982).

Solution:

- According to Raymond (1985), smaller firms tend to depend more heavily on external programming services. It has been determined that this organization will need to hire a database administrator to create and manage the database.
 - The database administrator can also serve as a trainer for the computer system and provide training for Microsoft applications including Word, Excel, and Access for management.
 - Salespeople will be trained to use the POS system using a step-by-step guide that contains screenshots that will take the salesperson through the steps necessary to complete a transaction at the store level. The POS system of choice will be ShopKeep which offers 24/7/365 customer technical support. This is an iPad-based POS system and includes customizable hardware and automates inventory and accounting (posproviders.com, 2019).
 - The management will need to learn to use the website builder through the tutorials included with the software as well as through choosing a website builder with 24/7 support. She should also choose a program that offers fraud protection and Secure Socket Layer encryption and the bandwidth and inventory features to fit her needs (top10ecommercesitebuilders.com, 2019). These requirements can be discussed with the vendor before deciding on a product.
- IV. Problem: There is a need to track outgoing and incoming inventory more efficiently.

Proof of the problem: The organization currently uses an old manual cash register and keeps track of inventory in a ledger or a spreadsheet in Excel.

Solution:

- The organization needs a point of sale system that can automate inventory control as well as accounting that has customizable hardware and software

capabilities. The owner will also be able to accept credit cards instead of only accepting cash at her brick and mortar location using this system.

- Customization capabilities are important from the standpoint that, in an antique business, the merchandise that comes in and is sold changes all the time. The objective of inventory control and purchasing requires a high level of technological sophistication in an environment such as this, particularly if the manager is managing inventory on a global basis.
- The management of inventory in the warehouses in the global marketplace can be handled through the implementation of a database that categorizes inventory by type using a database program such as Microsoft Access. A database can sort data and provide for the entering of antique items by type, find the items in the database to be indicated as sold as well as organize items by category and update the database with new inventory.
- The customizability of the point-of-sale system automates the inventory process, allowing the proposed warehouses and the brick and mortar location to be physically linked through a WAN (wide area network) through satellite communication. This would allow for inventory control and accounting to be centralized. This would be a workable option since the antique shop is also in a semi-rural location.
- The POS (point of sale) system would, therefore, be linked by satellite to the warehouses that will ship the merchandise to customers outside of the United States. The computers will also have satellite internet. It is felt that the antique shop will be willing to forgo top speed internet access for satellite due to the global nature of the proposed business and the fact that the store is currently in a semi-rural location. The satellite connection, however, might have to be only at the end of the month or weekly, etc. on an intermittent basis to send information to the owner regarding sales and items added to inventory due to the cost of satellite in overseas markets, this would cut way down on the cost.
- Satellite service averages 1.0 – 1.5 Mbps for slower speeds to 100 Mbps at the high end (ViaSat ISP) for downloads, but only 100 – 256 Kbps for uploads at the slower end and 25 Mbps at the high end. There can be a delay of a second or more in this case. This plan would be in place until such time that the organization relocates its brick-and-mortar location, but the owner feels that she must have control over the global marketplace, so satellite is the only option right now.

- V. Problem: There is a need to determine what computers to buy and the associated operating system that will be used and to make sure the computers are compatible with the POS system.

Proof that there is a problem: The owner uses a computer in her personal life but her staff has limited computer literacy beyond conducting basic searches on the internet and using email. Her salespeople tend to be older and have not had as much exposure to Microsoft Office. They have Windows-based computers, however, in their homes that are PCs and Macs.

Solution:

- While the owner is an intuitive thinker or a sensing thinker based on the entrepreneur profile, the sales staff is likely to be a mix of intuitive feelers and sensing feelers. These salespeople tend not to be as technically oriented and tend to be heuristic rather than analytical (Kaiser & Bostrom, 1982).
- While it is tempting to simply recommend PCs based on their price and the large community of users as well as the array of software available, Mac computers are easier to use and more intuitive (computerweekly.com, 2019).
- In addition, Mac Computers experience fewer issues related to viruses such as Trojans, Worms, etc. (computerweekly.com, 2019).
- In addition, there is an excellent resale value for these computers when Forever Treasures decides to upgrade (computerweekly.com, 2019).
- Another important factor is the technical support. Apple has excellent technical support (computerweekly.com, 2019).
- Also, the Apple laptop computers can use the windows-based operating system or the Mac OSX operating system, so employees and the manager will have their choice of which operating system they prefer as Macs are compatible with the Windows operating system according to computerweekly.com (2019).

VI. Problem: There is a need for a database that keeps track of customers and their purchases as well as product interests.

Solution:

- Hire a database administrator who is also well versed in data mining to determine which customers to send promotional materials to when new merchandise arrives.
- Start a computer-based loyalty program with a database that keeps track of customer purchases, customer preferences, and tailors promotions to customer needs (Cengage Learning, Inc., 2018).
- Use the POS system to enter customer email addresses into the database that is connected to the POS system.

- Use the database to create a mail merge and send out promotional postcards that feature popular items and offer a 15% discount at key times during the year for in-store purchases and purchases over the web.
- Use email addresses as customer IDs and to contact customers about sales and incentives (Cengage Learning, Inc., 2018).
- Have warehouse sales for the proposed warehouses in the U.S. as well as outside the U.S. in the proposed markets such as the United Kingdom, Canada, and Europe and use the database to find customers who are in the vicinity of the warehouses who can come to the sales as VIP customers. Use this plan to sell merchandise that isn't moving online and to make room for new merchandise as well to provide the right services and the internet speed at a competitive price preferably without a contract so that if the organization's needs change, the provider can change as well.

VII. Problem: There is a need to find an internet service provider that can provide the right services and the necessary internet speed at a competitive price, preferably without a contract so that if the organization needs to make changes, the provider can change as well.

Proof that a problem exists: Some businesses might run their operations using a business model that does not link all their locations together. Most entities that are outside of the United States would be better off if they were to be operated, in these cases, as a separate unit. Operating in a configuration in which overseas operations are not connected in real-time would allow for an internet choice such as cable or fixed wireless internet as well as a choice between DSL and Fiber, particularly if the brick and mortar location relocated to a more urban area that offers more choices of internet providers.

Solution:

- The only viable option currently, due to the global nature of the business plan and the owner's desire to get information in real-time about the overseas operations, is to use satellite internet. However, getting information in real-time is too expensive using satellite, and the overseas operations should connect intermittently on a weekly or monthly basis to drastically cut the cost of satellite. In addition, the organization should set up a VPN at the brick and mortar location set up through the modem and router (See Roman Numeral IV. for a full explanation regarding satellite internet).
- Consider Fiber if the brick and mortar location moves to a more urban location in the future and the owner wants to run her operations outside the U.S. without a constant real-time connection.

VIII. Problem: The owner is concerned about hackers and internet security.

Proof that a problem exists: According to Cengage Learning, Inc. (2018), nearly 1,000 companies experience a data breach each year. Data breaches allow for organizations to experience unauthorized access to their information and to have their data viewed, accessed, or retrieved by individuals who will use this information to harm the individuals that exist in the database.

Solution:

- Forever Treasures should use https encryption due to the need for secure transactions over its site by consumers using credit cards to purchase merchandise. This process prevents those individuals who are trying to steal the credit card information of Forever Treasure's customers from doing so. According to Cengage Learning, Inc. (2018), a public key associated with an https site prevents hackers from stealing an organization's data that is being transmitted over the internet.
- Forever Treasures should use a program such as Carbonite Endpoint 360 protection which has been designed specifically for a mobile workforce (carbonite.com, 2019). Carbonite software can be deployed on the organization's mobile devices, including the POS system as well.
- Carbonite can easily restore Office 365 data and offer secure remote data access from any device anywhere. This is important when the owner travels, including overseas to other markets outside of the U.S.
- Protection also includes data loss due to employees who have been terminated and the ability to recover data or to remotely destroy data if a device is lost or stolen (carbonite.com, 2019).

IX. Problem: The owner needs to choose a network configuration for her computers and decide whether to store the information on a server or in the cloud.

Proof that a problem exists: The owner needs a network configuration that will support her staff as well as the dealers overseas and outside of the U.S. that will help to find antiques to sell in these markets. She also needs to choose a method of saving her data either in the cloud or on servers.

Solution:

- Even though the owner prefers a star topology, which connects multiple devices to her device, she has determined that she should instead consider using a mesh topology.
- Because she is going into multiple locations with her business, however, and because she wants to add antique dealers to her network in the overseas market and markets outside of the U.S., the network can be expanded infinitely to include her partners in these locations using a mesh topology.

- For these reasons, it has been determined that a mesh topology is a better choice despite the possibility that the risk of a security breach rises as the number of devices increases using this topology (Cengage Learning, Inc., 2018).
- The solution is also to use cloud computing since this reduces the cost of a wide area network.

Task 3

Costs for the proposed plan on a yearly basis

Cost of Satellite Internet Service (Viasat satellite Internet Service)	\$1,800.00
Cost of Warehouses (6,000 sq. ft.) 4	116,000.00
Cost of yearly carbonite subscription	\$288.00
Cost of Apple laptops	\$6,495.00
Cost of yearly MS Office 365	\$750.00
Cost of Cloud storage/yearly	\$2,880.00
Cost of website developer	\$550.00
Cost of web hosting/MS Azure Free	\$0.00
Cost of POS Systems (7 registers)	\$11,992.00
	\$ 140,755.00
	(total cost)

Tasks

(2020)	January	February	March	April	May	June	July	August	September
Task A					(Build a customized web site for each of the markets) (January – April)				
Task B	Build and stock prefabricated warehouses (January – September)								
Task C	Train Salespeople and management on the POS system and computers (June-September)								
Task D	Train management/owner to use MS Office Excel and Access (January – September)								
Task E	Locate and train antique dealers in the markets where Forever Treasures has warehouses (Jan. – Sept)								

The warehouses can be purchased at \$29,000/6,000 square feet and they are steel prefabricated structures.



<https://www.arcosteel.com/building-types/10000-sq-ft-steel-building-cost/>

Timeline:

It has also been determined that the timeline goal of 3 months could not be met due to the time needed to train the manager and salespeople including training related to MS Access and Excel at an advanced level for the owner/manager. In addition, the website will take 4 months to develop and the warehouses and stocking of at least enough merchandise to represent some of the categories that will eventually be included, which encompasses furniture, lighting fixtures, nick knacks of all types, sewing machines, etc. as well as collectibles of all types, will take at least 9 months. It will be necessary to find antique dealers outside the U.S. who can provide merchandise to be sold in these markets for which the dealers will share the profits with Forever Treasures. Forever Treasures will feature the items on its web site and store the items until they are sold as well as pay for shipping in exchange for a percentage of the profits. Forever Treasures will also hold warehouse sales at key times throughout the year including holidays.

References

- Carbonite. (2019). *Carbonite Endpoint 360*. Retrieved from Carbonite.com: <https://www.carbonite.com>
- computerweekly.com. (2019). *What computer should I buy?* Retrieved from computerweekly.com: <https://www.computerweekly.com/opinion/mac-vs-pc-which-should-I-buy>
- hubgets.com. (2018, February 1). *5 most successful types of entrepreneurs and personality testing*. Retrieved from www.hubgets.com: <https://www.hubgets.com/blog/3-most-successful-types-of-entrepreneur-personality-testing/>
- Kaiser, K. M., & Bostrom, R. P. (1982, December). Personality characteristics of MIS project teams: An empirical study and action-research design. *MIS Quarterly*, 43-60. Retrieved from https://www.researchgate.net/publication/242389051_Personality_Characteristics_of_MIS...
- Raymond, L. (1985, March). Organizational characteristics and MIS success in the context of small business. *MIS Quarterly*, 37-52. Retrieved from <https://pdfs.semanticscholar.org/a9d6/b0b742e9df879e743e5073b98e8bbd9b11bc.pdf>
- Reynolds, J. H., Adams, D. R., Ferguson, R. C., & Leidig, P. M. (2016). The personality of a computing major: It makes a difference. *Proceedings of the EDSIG Conference* (pp. 1-6). Las Vegas: Information Systems & Computing Academic Professionals. Retrieved from <http://iscap.info>
- shopkeep.com. (2019). *The #1 rated IPAD Pos for a reason*. Retrieved from shopkeep.com: <https://www.shopkeep.com/Official-Site>
- Top10.com. (2019). *Best online store builders of 2019 get up and running in just a few clicks*. Retrieved from Top10.com: <https://www.Top10.com>