



PACIFIC DEVELOPERS

ACN Tech Proposal

Prepared for:

Artisan's Co-op North

Prepared By:

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Pacific Developers

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EXECUTIVE SUMMARY

Ms. Weltz on behalf of Artisan's Co-op North has hired Pacific Developers to build a system and website to support sales. After careful and thorough consideration Pacific Developers has deemed this project feasible. Given the company's experience they will be able to provide Artisan's Co-op North not only with a system but also with the hardware needed to facilitate and modernize everyday business tasks.

The proposed system will be named ACN Tech. ACN Tech will provide Artisan's Co-op North with a sales support system that will modernize everyday business tasks. Due to the immediate need of a sales support system, Pacific Developers has decided to focus on that area of the development first. However, the online shopping site will be released as a later version. In order to accomplish this Pacific Developers will develop a web based application as well as a database management system.

The following document is a System Proposal in which Pacific Developers present(s) information on how the development of the system will be accomplished, the system's requirements, as well as any possible constraints that may occur and their solutions.

1.0 INTRODUCTION AND OVERVIEW

1.1 Problem Statement

Ms. Weltz represents Artisan's Co-op North a group of artists from all backgrounds interested in sharing their work with others. Recently the Co-op has grown to such an extent that a system is needed to facilitate and keep track of sales. Ms. Weltz has hired Pacific Developers to design and develop ACN Tech (the name of the system) for Artisan's Co-op North which includes a support sales system and a website. The system will be able to modernize and simplify the way sales and inventory are tracked.

Given Pacific Developer's background in business related systems they will be able to provide an efficient system that benefits Artisan's Co-op North. Their distinct methods will not only allow the different members of the Co-op to adopt the system but also profit from it. ACN Tech will insure a modernized and easier way of keeping track of paperwork and inventory.

1.2 Project Vision and Scope

The vision of ACN Tech is to modernize the way in which the artisans' sales and inventory are tracked. The system will encompass the ability to keep track of objects, computerize inventory, and allow artisans to track their own sales. This will be achieved through the implementation of barcodes. Artists will be able to record the items that are being brought to the warehouse thus simplifying the process for Ms. Weltz or any business facilitator. It will incorporate a method to simplify sales by providing barcode scanners, an automatic cash drawer, a card reader, and electronic receipts. In addition, a website will be implemented tailored to needs of the artisan members and customers.

Since a system or application to support sales is in urgent need it will be given priority. Thus, the online shopping website will be built at a later time or as the second version of the system. The system will be developed as a web based application. Meaning that it can be accessed by any phone or computer with internet access. This will ensure easy adoption of ACN Tech. The system will allow input from the artisan members and Ms. Weltz, thus, displaying relevant information based on the user. It will not allow artists to view each other's information. The system will provide all the necessary information needed to pay members their rightful amount however, ACN Tech will not make any actual payments to members. This means that it will not take part in any bank transactions.

1.3 Requirements Summary

The following list includes the major business requirements for ACN Tech:

- The system must allow business facilitators and artisans to keep track of objects by
 - Name of artisan
 - Type of art/craft
 - Description/name of the item
 - Price of item
- The system must computerize the record keeping of objects' current selling price.
- The system must have an automated method of tracking inventory and sales.
- The system must allow artisans to track their own object sales anytime they want to.
- The system should allow artisans to record objects as they arrive to the warehouse.
- The system must be secure to ensure that only artisans can see their relevant information such as sales made. No outsiders are allowed to access this personal or private information.
- During fairs the system should have good descriptions of products available at booths.
- The system must be able to handle payments more efficiently by using barcodes and electronic receipts.
- The system should have a separate or integrated modern website.
- That website could have interactive or automated cameras so that potential buyers can view an item as if they were in the store/warehouse.
- The system could have an easy approach for new artisan members to join.
- The system could have a way of allowing members to send pictures to Ms. Weltz or a business facilitator.
- The system could have an option to add or schedule events for the Co-op such as scheduling an upcoming craft fair.

1.4 Stakeholders and Interests

The following are people or organizations that play a major part in or will be influenced by the development of ACN Tech:

- **Artisan Members:**
 - Artisan members want an efficient and modern method to keep track of inventory, make and track sales.
- **Ms. Weltz/Business facilitators:**
 - Ms. Weltz and other business facilitators need a system that allows them to facilitate the business tasks and reporting to artisan members.
- **Customers:**
 - Customers want a shopping experience that allows them to browse through and buy handmade objects in a modern way.
- **Pacific Developers:**
 - Pacific Developers wants to develop ACN Tech. They want the system to succeed. Its success will provide profit and a good review for the company that could potentially influence the acquisition of future projects.
- **Artisan's Co-op North:**
 - The success of the system could create a well-known brand name for the company thus increasing sales and membership.
- **Pacific Developers' Shareholders:**
 - They are interested in the success of every Pacific Developers' projects.

1.5 Expected Costs and Benefits

Costs

The following lists expected costs of developing and maintaining the system:

- Pacific Developers will need funding from Artisan's Co-op North.
- The project will need design and development time. Throughout this time the team will need to focus completely on the project and will be unavailable to assist in other projects.
- ACN Tech will need a database to store relevant information such as members, items, and barcodes.
- Barcodes will need to be implemented into the system and added to its database. This may take more development time depending on the initial quantity of items.
- Artisan's Co-op North should purchase a phone or computer that belongs to the Co-op and can be taken to fairs. This way everyone can have access to the system.
- The system should be portable or able to be used on different computers and phones which may require more development time.
- ACN Tech will need to be integrated or connected with the online shopping website. This may take more development time.
- Pacific Developers will need to maintain and update the database, ACN Tech, and website.

Benefits

The following lists the expected benefits of ACN Tech for stakeholders:

- ACN Tech will be able to reduce the amount of paperwork. It will allow Ms. Weltz to provide enhanced information to the artisan members.
- The system will be able to reunite inventory and payments. This can prove beneficial for tax purposes.
- ACN Tech will improve the sales experience for customers and artisans.
- The system will expand or increase sales through internet shopping.
- ACN Tech will modernize business tasks allowing for accurate and efficient recording.

1.6 Constraints

The following lists some potential constraints and their solutions for the implementation and use of ACN Tech:

- Ms. Weltz and Artisan's Co-op North need an efficient and inexpensive system.
 - Pacific Developers will make sure to deliver this by making sure that the system is well-defined and clear before implementation takes place. This will ensure that the system is delivered within budget.
- Members of the Co-op own different kinds of devices thus they require an application that can be used on different devices.
 - Pacific Developers will mitigate this by providing a portable system that can be used on different platforms.
- Members of the Co-op have different technological levels thus they need a system that is easy to use.
 - This will be achieved by developing a user-friendly system. As well as providing support, tutorials, or startup wizards that can guide users on their first use.
- Artisan's Co-op North are not on a tight schedule, but they would like a system that is available by Spring or Summer.
 - This can be accomplished by ensuring that all system requirements are clear and understood. Thus, the system can be developed without having to redo a certain area. This will enable the system to be delivered on time.
- The implementation of barcodes and a database are needed to ensure a modern sales support system.
 - Pacific Developers will mitigate this by setting up and maintaining a database. As well as establishing barcodes for items.
- Artisan's Co-op North needs a modern method to make sales.
 - Pacific Developers will achieve this by providing all the necessary hardware needed. For example, card readers and receipt printers.

1.7 Recommendation

Pacific Developers strongly advises that Artisan's Co-op North read through the following System Proposal and inform Pacific Developers of any necessary changes or revisions to the proposed system. Pacific Developers plans to work closely with Artisan's Co-op North to ensure that the system developed meets the needs of the Co-op.

1.8 Document Overview

The following lists the order for the rest of the system proposal:

1. **System Initiation:** Copies of System Request and Sales Letter.
2. **Feasibility Assessment:** An analysis of technical, resource, schedule, organizational, legal and contractual feasibility, and the risks associated with them.
3. **Requirements Definition:** An overview or description of the functional, nonfunctional, and data requirements.
4. **Requirements Model:** Use case diagram and related use case descriptions.
5. **System Evolution:** A section describing possible upgrades, additions, or future versions of the system.
6. **Conclusions and Recommendations:** A summary of the System Proposal with recommendations for the next phases or steps of the system.
7. **Appendices:** Copy of Q&A with Ms. Weltz.
8. **Glossary:** Provides definitions of technical or unknown terms.
9. **Bibliography:** Provides a list of the resources used to complete this document.

2.0 SYSTEM INITIATION

2.1 System Request

January 27, 2018

SYSTEM REQUEST – Artisan's Co-op North

Project Sponsor

Name: Elaine Weltz

Phone: x3639

E-mail: eweltz@spu.edu

Opportunity Statement:

I have been working with a talented group of part-time artists for a while now. They create amazing objects which are then sold at various venues. Currently they either bring or send their art to my home and I store this inventory in my basement between events. I also keep track of what is available – and what has sold – in a vaguely automated way. When there were only a couple of artists and we only exhibited at a few arts and crafts fairs, this worked just fine. However, we have a lot more members now and are taking part in a lot of fairs and shows...even talking about a weekend-open store front or market stall. We are going to need some technology to make *that* happen!

Proposed Product:

Background and Context:

Artisans' Co-op North isn't a "company" per se, but rather a group of part-time artists and craftspeople brought together by a shared desire to create and sell objects that are both beautiful and useful. They are homemakers, students, grandparents, and people with other fulltime day jobs. Their talents include woodworking, jewelry making, quilting and needlework, pottery, visual art...in other words the wide range of artistic items one finds at an arts fair, craft festival or even a county fair or farmer's market.

My (Ms. Weltz) role is as a type of business facilitator. The "warehouse" of objects is located in my basement. I coordinate fair booths, keep track of the inventory and make sure each artisan is paid for what is sold. Each member artisan pays annual dues, and a percentage of what is sold remains with the Co-op to cover expenses (including a small amount for my time and effort). Costs of participating in a given show are split among those wishing to be represented therein, and all members are expected to volunteer their time "manning the booth" at a few events each year.

Our record keeping and sales processing are SO last century. I hope you can build us a computer application that will bring us up to 2017!

Initial Vision and Scope:

➤ Automating the Co-op

I don't see this as particularly revolutionary. We need to be able to keep track of objects by type of art/craft, description/name of the item, and name of artisan. Each piece has a current selling price. Right now I use Excel as a kind of ledger to handle that; could that all become more computerized in some way? Similarly, I'd like to explore having inventory tracking, sales and paying artisans more automated. Maybe even introduce bar codes to our operation (?).

Another thing that we hope to gain by using a computer is the ability for each artisan to track their own object sales any time they want to. Currently they either need to call or email me and I have to

send them a listing, or they wait until I send them a monthly update. Several have said they would like to be able to check in more often, thus being able to make more of the items that are currently most popular (and avoiding making more of things that are selling more slowly). Artisans don't need to see each other's sales and we obviously don't want outsiders seeing our private business, but I know there are ways to handle that sort of thing on the Web.

➤ *Receiving Objects*

Right now I do all of the inventory check-in. What I'd like to see is some kind of app that would allow others to easily record new objects as they arrive. Or even allow artists to enter via the web what they are sending (or bringing) to the warehouse ahead of time. That way when the objects actually arrive all we'd have to do is check them in. That would save SO much time!

➤ *"In-store" Point of Sale support*

➤ *Sales Support via Tablet (and/or phone?)*

We need to be able to handle cash or credit card sales at events more efficiently. It would be great to get away from writing paper receipts, and into a situation where we could use mobile computing devices to support sales transactions. It would also be helpful to have good descriptions of products available to people working in our booth. Sometimes all one can say when asked for details about someone else's art is "Gee, I really don't know!"

I know there are devices and apps available. Could something like this be integrated into our processes?

➤ *Virtual Arts and Crafts Fair* – We have a web site (ACoOpNorth.com), but it is currently minimal: information on who we are, what we do and where, and how to contact us via email. Oh yes, and a few pictures to introduce us and give people an idea of what we sell. We think now might be a good time to *really* move into the 21st Century with Internet shopping, but have a feeling that some of our needs (dreams?) might be a bit unusual.

Our shoppers are browsers. They might come to the booth hoping to see certain types of objects ("I'd love to pick up a wooden paper towel rack or some knitted dishcloths this year."), but mostly are "just looking". They want to look around the booth in a leisurely manner. If something catches their eye, well that's a sale about to be made. The problem with a lot of typical Web shopping sites is that they are geared towards looking at a single product (or product type) at a time. It seems to me they even assume shoppers know pretty much what they want to buy before they ever visit the site. That is efficient shopping, to be sure, but is just not the way an arts and crafts show works. What we're looking for is more the ability to move around the display area, view objects far away or close up, and then select what you want to buy.

What about the possibility of doing something with cameras that would allow an online customer to view the range of currently available items as if they were in the store? The room we currently use to warehouse objects can likely be used for this, although I realize things will have to be more "on display" than they are right now. (My husband and I can handle that end of things as long as we know what is important for the camera.) What I don't know is exactly how the automation would be accomplished. Would it be multiple cameras that people would control with their mouse? One of our artisans suggested small robots that could move a camera around the room. I'm not familiar with that sort of thing, but thought I'd pass along his idea. I also don't know how people would

actually select an item, although I know that is done all the time with a simple mouse-click on typical Web shopping sites.

Stakeholders Identified:

- Artisan Members – who would like a more efficient and modern way to track inventory, make sales, and track sales.
- Myself and others who help out on the business end. We need to be more efficient (and accurate).
- Our customers – people who enjoy browsing through and buying beautiful things.

Expected Benefits:

- Opportunity 1 – preserve my sanity; reduce paperwork; provide better reporting to member artisans. Make it easier to reconcile inventory and payments with artists at the end of each year (for income tax purposes, for example).
- Opportunity 2 – improve our sales experience.
- Opportunity 3 – “seize the day”; widen the scope of our sales via Internet shopping.

Special Issues or Constraints:

We’re not made of money. Member artisans are willing to contribute to the cost of new equipment and programs, but we’re talking a few hundred (not thousand) dollars each from maybe 15 – 20 people. Similarly, I'm not sure everyone is going to be excited to run out and buy a new phone or tablet computer just to manage sales or use this system. (Although maybe we could handle that with a few purchases "by the co-op".)

Also, our artisans represent a wide range of computer skills and types of computers they know and use. Some are really into their smartphones and others aren't. And some are Macs and others are Windows. Pretty typical people.

I don't think we are on a particularly tight time schedule. We've missed the Christmas craft season already, so the goal for fairs and events is the Spring or Summer season. The sales-via-web piece could be more down the road if that would mean the rest could be finished sooner.

2.2 Sales Letter

October 11, 2017

Ms. Weltz

Artisan's Co-op North

241 Miller St.

Seattle, WA 98119

Artisan's Co-op North's New Era

Ms. Weltz I am glad you reached out to us. I am familiar with the work process of an artist or craftsperson. From designing the item to finally having the finished product. I know that one of the most important things for artists is being able to share their talent with others. I am certain that Pacific Developers will be able to use the most current technology to bring Artisan's Co-op North up to date thus facilitating the paperwork process while improving the sales experience and increasing sales through online shopping.

Due to the growth of Artisan's Co-op North keeping track of objects and their artists can prove to be a lot of work. Computerizing this can prove to be more efficient. We can definitely make this happen. As you mentioned barcodes can prove to be extremely helpful. With the barcodes, objects can be tracked as well as the name of the artists and their descriptions. They can also assist in keeping track of inventory.

In addition, Ms. Weltz you mentioned that allowing artists to record objects as they arrive would be helpful. Pacific Developers can accomplish this by creating a system in which all members of Artisan's Co-op North have different accounts where they can access all their relevant information while using barcodes to record what is being brought to you. We can also tailor a website suited for the needs of the artisans.

Pacific Developers has successfully helped several businesses integrate technology to facilitate their everyday tasks while improving their company's sales. I can assure you that we will make sure Artisan's Co-op North incorporates technology to reduce paperwork, improve the sales experience, and provide online shopping.

I will call you in a few days to see how Pacific Developers can help you.

Monica Guevara

Pacific Developers, Software Developer

3.0 FEASIBILITY ASSESMENT

3.1 Introduction

In order to ensure that Pacific Developers creates a system that will meet the needs, budget, and schedule of Artisan's Co-op North a feasibility report was created. It addresses several potential areas of risk. Below is the scale of the types of risks that could be encountered:

- **Ideal:** Means that completion or development of the system is highly achievable with insignificant or no risk.
- **Feasible:** Means that development of ACN Tech is certainly achievable with little risk. Development can continue after a short analysis and solution for the risk.
- **Risky:** Means that development of the system is possible but there is some apparent risk. It is recommended that cautionary measures are taken before continuing development.
- **Very Risky:** Due to the amount of risk that is present the development of the system will be unlikely to continue. Further analysis may be required before continuing.

3.2 Feasibility Analysis:

3.2.1 Technical Feasibility – Feasible

- *User Familiarity with Application Area* - **Feasible**
Artisan's Co-op North does not have any current system in place except for their website. Thus, the system should be easy to learn and to allow for effortless adoption.
 - Pacific Developers could provide tutorials, walkthrough wizards, or interactive runs.
 - Pacific Developers should have continuous communication with Artisan's Co-op North to ensure that the system meets the artisans needs.

- *Analyst Familiarity with Application Area – Ideal*
Pacific Developers has extensive experience in creating applications that facilitate or modernize everyday business-related tasks. They have suppliers that can provide the necessary hardware to make sure any business succeeds.
- *Development Groups Familiarity with target technology – Ideal*
Pacific Developers has experience in creating business applications and websites. The developers have knowledge in integrating hardware and software systems. Thus integrating the necessary hardware for ACN Tech will be easily attainable.
- *Project Size – Feasible*
The size of ACN Tech will not inhibit its development. Since Pacific Developers is a moderate sized company it will likely accommodate 5-10 people for the development of the system.
- *Project Structure – Ideal*
Since Artisan's Co-op North does not have a current system in place Pacific Developers will provide all the necessary hardware and software. They will make sure all external hardware is implemented to the system.

3.2.2 *Resource Feasibility – Ideal*

Pacific Developers has significant experience in business related applications. Our developers can create software for sales support. Many of our developers have gained their knowledge by working on mobile and web applications here or in other companies. Many developers have experience incorporating hardware to the system. This will prove useful for connecting barcode scanners to inventory and receipt printing. In addition, from its many years of industry experience Pacific Developers has suppliers that can provide them with the necessary hardware for any system.

3.2.3 *Schedule Feasibility – Feasible*

Due to the immediate need of the sales support system Pacific Developers will focus on the completion of ACN Tech for the spring/summer season. Meaning the development of the website will be delayed. Since the requirements are clear the website completion should be considered feasible.

3.2.4 *Organizational Feasibility* – Feasible

Artisan's Co-op North needs a modern way of keeping track of inventory and making sales. ACN Tech will facilitate this process guaranteeing the adoption of the system.

The need for the system is apparent since the Co-op has grown to the extent that modernizing certain aspects of the business tasks will prove beneficial.

The project sponsor or project champion, Ms. Weltz is highly invested in the success of ACN Tech. Being the project sponsor and the Co-op's business facilitator, she wants to reduce paperwork and have a more efficient and accurate method of running the Co-op.

Artisan members are also interested in the success of the system. They would like to be more involved or have greater control in their business. Since there is no current system in place some members might embrace the new system while others might have a slight resistance to it or be reluctant adopters.

Customers for the most part are familiar with modern shopping and online shopping. They will quickly become accustomed to Artisan's Co-op North new methods for making sales during craft fairs as well as their online shopping. In addition, they will be content that they can now purchase the Co-op's products online.

Lastly, Artisan's Co-op North does not have a current system or application in place. Integrating a system will require familiarizing current members to the new system. In addition, new practices need to be put into place since the system will be able take care of most of the manual work.

3.2.5 *Legal and Contractual Feasibility* – Feasible

Legal

- ACN Tech will ask for personal information from members such as name and address. Processing and storing this information needs to be done correctly or with caution to avoid data or privacy breach.
- ACN Tech will also ask for personal information from customers such as name, payment, and address. Processing and storing this information needs to be done correctly or with caution to avoid data or privacy breach.

Contractual

- Pacific Developers and Artisan's Co-op North have entered a contract where Pacific Developers will own the software and hardware for a period of 3 years. Afterwards Artisan's Co-op North may purchase it for a negotiable amount.
- Pacific Developers will continue to maintain the ACN Tech, database, and website for a yearly fee. Artisan's Co-op North can decide to have another company maintain these after 3 years with Pacific Developers.
- Pacific Developers has also signed a contract with Artisan's Co-op North in which they will not create a similar system or use unique aspects of the system for another company.

3.3 Additional Comments

- Since Artisan's Co-op North does not have a current system in place Pacific Developers will need to provide training to both business facilitators and members. Ensuring that they can use both the system and hardware.
- Pacific Developers recommends that Artisan's Co-op North may need to hire a person with 360 camera or virtual tour implementation experience for the website.
 - Once the website is running Artisan's Co-op North will be in charge of advertising it with their customers.

3.4 Conclusion

After careful and thorough analysis Pacific Developers has concluded that the development of ACN Tech is feasible. Due to the company's experience and need for the system there are few areas that are considered risky. One plausible area that could be considered risky could be schedule due to the delay of the website. Since, there are clear requirements set in place its development should begin relatively after the launch or delivery of ACN Tech. However, constant communication with Artisan's Co-op North should still be in place to update them of developments and learn of any possible requirement changes.

4.0 REQUIREMENTS DEFINITION

4.1 Introduction

This section describes the requirements for ACN Tech. Requirements are things that the application must accomplish, include, or behave like in order to satisfy organizational goals. Requirements are separated into three categories: functional requirements, data requirements, and nonfunctional requirements. Functional requirements state or describe a process or service. Data requirements are the format, structure, type, and allowable values for input/output and stored data. Finally, nonfunctional requirements are descriptions of the characteristics and attributes of the system.

4.2 Functional Requirements

Adding New Members or Registering Them [Use Case 1]

- ACN Tech must allow users to create a user name and password for their account after the business facilitator or administrator has added them as a member.

Managing the Creation of Barcodes [Use Case 2 and 3]

- ACN Tech must allow for the creation of new barcodes for objects.
- Barcodes must provide relevant information about the product such as type, description, and name of artisan.
- Barcodes must be linked to inventory.
- The printing of barcodes must be available.

Adding Items to Inventory [Use Case 4]

- ACN Tech must allow artisans to enter or record items that are ready to be added to inventory thus entering a pending state.
- It must allow the business facilitator to officially accept the inventory once it arrives to the warehouse and change it to a received state.

Tracking Inventory [Use Case 5]

- ACN Tech must be able to display how many objects are in stock.
- It must display how many objects have sold over a certain period.
- The system must tell relevant members how many items they have in stock.
- It must also display the price and the objects that are in stock for an artist

Managing Artisans and Craft Items [Use Case 6]

- ACN Tech must provide support to organize, manage, view, add, or remove craft items

During Craft Fairs [Use Case 7 and 8]

- The system must:
 - Scan barcodes
 - Have good descriptions of items on display or on sale by scanning the relevant barcode.
 - Handle purchases and thus decrease the relevant item inventory as necessary.
 - Handle cash or credit card purchases.
 - Print receipts and save a copy to the database.

Paying Artisans [Use Case 9]

- The system must generate a monthly report that lets the business facilitator know how much to pay each artisan.

4.3 Data Requirements

Member Information

- The system must store member information such as name, address, username, email, and password.

Customer Information

- The system must store customer information such as name, address, and payment information.

Object Information

- System must store object information such as type, name, description of item, price, and name of relevant artisan.

Sales Support

- System must store sales made either in a crafts fair or online.
- The system must store how much income an artisan generated from sales.
- The system should store sale receipts for future reference.

4.4 Nonfunctional Requirements

Operational Requirements

- The system must be compatible on several platforms. Such as Windows, Mac, Android, iOS. It should also be compatible with different web browsers such as Chrome, Safari, and Firefox.
- During Craft Fairs the system must be connected to a:
 - Barcode Scanner
 - Card Reader
 - Cash Drawer
 - Barcode printer
- The system must automatically create a backup at the end of each craft fair.

Performance Requirements

- During Craft Fairs, ACN Tech must perform sales transactions in under 5 seconds. This includes the time after scanning items but between processing payments and printing receipts.

Security and Control Requirement

- Only business facilitators or administrators are allowed to add new members to the database or system.
- Only business facilitators or administrators are allowed to create or add new barcodes to the system or database.
- Only business facilitators or administrators are allowed to change the state of pending inventory to a received or accepted state.
- Members must only be able to see information relevant to their business or sales.

Cultural, Political and Legal Requirements

- The online web shopping could be available in different languages to reach a broader market.

Service Requirements

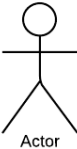




- The system should include a tutorial or walkthrough wizard for members who are using the system for the first time.
- The system needs to be reliable since it will be used to make and keep track of sales.

5.0 REQUIREMENTS MODEL

5.1 Introduction

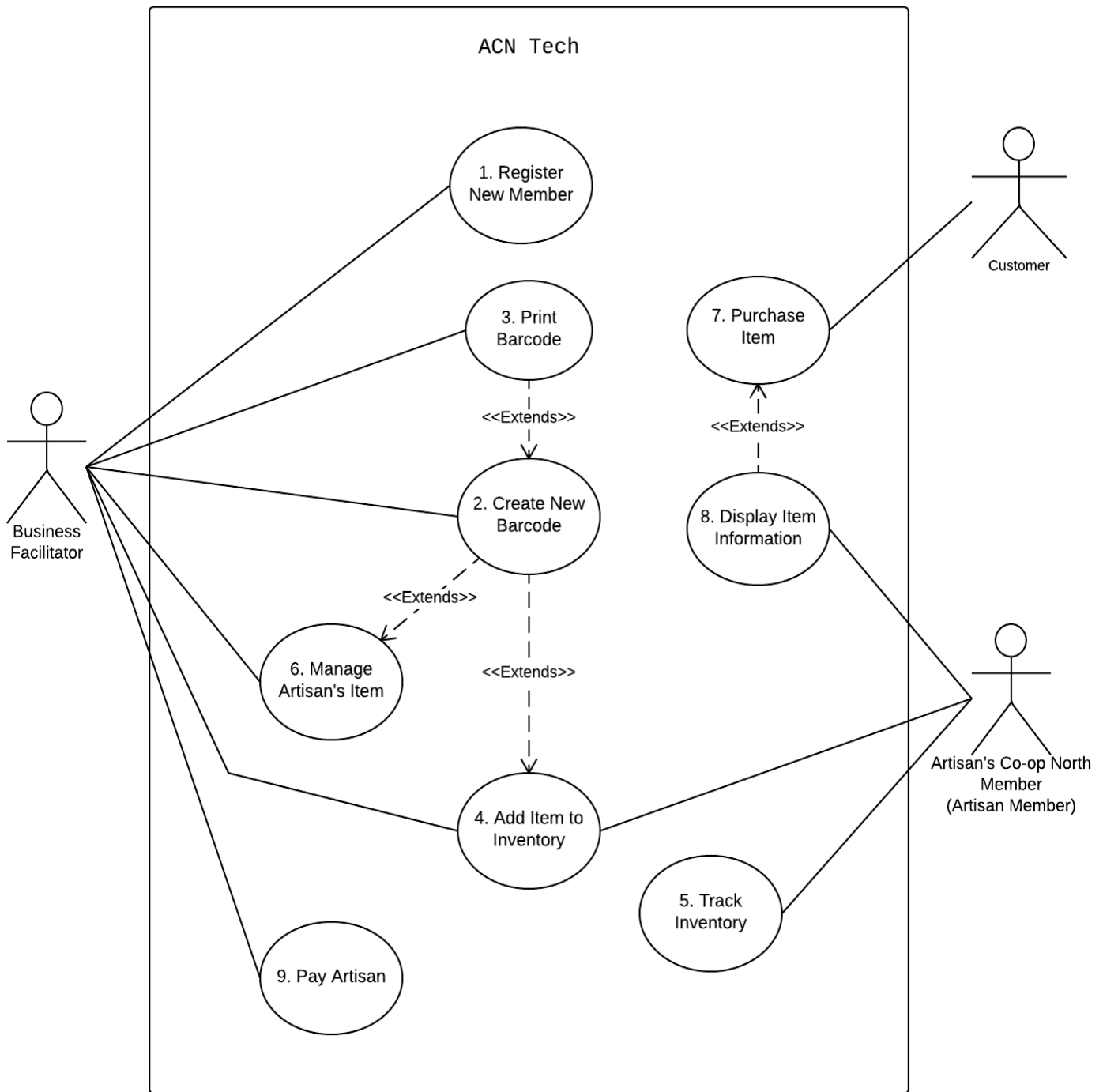
The following section states the association between the different requirements of the system and their actors. The diagram will be displayed in the Unified Modeling Language or UML. UML uses a set of lines and shapes to display or visualize the design of a system.

The following are the major parts of the system:

	An actor is a user that interacts with the system. They represent a role a user can have when interacting with the system.
	A use case represents different scenarios of ACN Tech. A number and name identify each use case.
	A line or association is a connection between use cases and actors. They show the interaction between an actor and a use case.
	An include relationship represents the inclusion of the functionality of one use case within another. They are drawn from the base use case to the used use case.
	An extend relationship shows the extension of the use case to include optional behavior. It is drawn from the extended use case to the base use case.

Use case descriptions then follow the diagram. They provide detailed steps, relationships, and outcomes of each individual use case. Each use case in the diagram has a use case description.

5.2 Use Case Diagram



5.3 Use Case Descriptions

Use-Case name: Login		ID: 0	Importance: High
Primary actor: Business Facilitator, Artisan's Co-op North Member		Use-Case type: Detail, Essential	
Stakeholders and interests: Business Facilitator and Artisan Member want a safe login to access the system.			
Brief description: This use case describes the process of logging into the system. By signing in, the system will be able to recognize the user's account and will display the appropriate information and features.			
Trigger: The user clicks "Login" on the ACN Tech application			
Type (circle one): External Temporal			
Relationships: Association: Business Facilitator and Artisan's Co-op North Member Include: --- Extend: 1-Register New Member Generalization: ---			
Normal flow of events: <ol style="list-style-type: none"> 1. User clicks "Login" button on the ACN Tech interface. 2. User inputs email and password 3. ACN Tech recognizes the type of user account and displays the appropriate information. 			
Subflows: None			
Alternate / exceptional flows: <ol style="list-style-type: none"> 2a. If the email entered is not associated with a user <ol style="list-style-type: none"> 1. Inform the user that they need to contact Artisan's Co-op North to obtain a member account. Business Facilitator performs use case 1-Register New Member 2b. If the email or password are incorrect <ol style="list-style-type: none"> 1. Inform the user that the email or password are incorrect 2. Prompt the user to re-enter their information. 3a. The system recognizes that it is the first time an Artisan Member has logged in <ol style="list-style-type: none"> 1. Prompt the user to change their password 2. Prompt the user to verify their personal information 			

Use-Case name: Register New Member		ID: 1	Importance: High
Primary actor: Business Facilitator		Use-Case type: Detail, Essential	
<p>Stakeholders and interests: Business Facilitator wants Artisan Members to have access to the system.</p> <p>Artisan Member wants to be able to view relevant information about their business.</p>			
Brief description: This use case describes the process of creating an account for a new or current Artisan Member.			
<p>Trigger: Business Facilitator clicks on “Register New Member” in the ACN Tech application</p> <p>Type (circle one): External Temporal</p>			
<p>Relationships:</p> <p>Association: Business Facilitator</p> <p>Include: ---</p> <p>Extend: ---</p> <p>Generalization: ---</p>			
<p>Normal flow of events:</p> <ol style="list-style-type: none"> 1. Business Facilitator clicks on “Register New Member” in the ACN Tech interface. 2. Business Facilitator inputs member information such as the member’s name, email, temporary password, and the type of art or craft they make. 3. Business Facilitator and the relevant new member will receive an email stating that a new account has been created for that member. 			
Subflows: None			
Alternate / exceptional flows: None			

Use-Case name: Create New Barcode		ID: 2	Importance: High
Primary actor: Business Facilitator		Use-Case type: Detail, Essential	
Stakeholders and interests: Business Facilitator wants to be able to organize and keep track of items. Artisan Member wants to have their craft items organized in an efficient way.			
Brief description: This use case describes the Business Facilitator’s ability to add new items to the database through the web based application. In return the system will create a unique barcode for that item.			
Trigger: Business Facilitator clicks on “Create New Barcode” button on the ACN Tech interface			
Type (circle one): External Temporal			
Relationships: Association: Business Facilitator Include: --- Extend: 3 - Print Barcode Generalization: ---			
Normal flow of events: <div>1. Business Facilitator clicks on “Create New Barcode” within the interface.</div> <div>2. ACN Tech opens a Create New Barcode Form</div> <div>3. Business Facilitator enters/selects relevant information about the item and its artisan.</div> <div>4. The system will produce a unique barcode for the item</div> <div>5. The system will store the item barcode and relevant information about the artisan and item in the database.</div>			
Subflows: S-3: Business Facilitator selects/enters relevant information about the item <div>1. Business Facilitator selects the artisan’s name from a list</div> <div>2. Business Facilitator enters the type, description, and current selling price of the item</div> <div>3. If applicable, Business Facilitator enters current items in stock</div>			
Alternate / exceptional flows: S-3, 2a: If the entered name of the item, type, and artisan name match an item that has a barcode: <div>1. Let the Business Facilitator know that the item has been assigned a barcode</div> <div>2. The system should then prompt the user for the option to print a barcode. Perform use case 3-Print Barcode if the user would like to print a barcode.</div>			

4a: If the system is unable to produce a barcode save information and mark item as having a pending barcode.

Use-Case name: Print Barcode		ID: 3	Importance: High
Primary actor: Business Facilitator		Use-Case type: Detail, Essential	
Stakeholders and interests: Business Facilitator wants an efficient way to keep track of items. Artisan Member wants craft items to be organized.			
Brief description: This use case describes the process of printing existing barcodes.			
Trigger: Business Facilitator clicks on “Print Barcode” on the ACN Tech interface.			
Type (circle one): External Temporal			
Relationships: Association: Business Facilitator Include: --- Extend: --- Generalization: ---			
Normal flow of events: <ol style="list-style-type: none"> 1. Business Facilitator clicks on “Print Barcode” on the ACN Tech interface 2. Business Facilitator can then choose to lookup an item by name or artisan 3. Business Facilitator is then prompted to choose how many barcodes to print 4. The system then prints the necessary barcodes 			
Subflows: None			
Alternate / exceptional flows: None			

Use-Case name: Add Item to Inventory		ID: 4	Importance: High
Primary actor: Business Facilitator, Artisan's Co-op North Member		Use-Case type: Detail, Essential	
<p>Stakeholders and interests: Business Facilitator wants an efficient and accurate way to add items to inventory.</p> <p>Artisan Member wants to add items to inventory to facilitate the process of the Business Facilitator.</p>			
Brief description: This use case describes the process of adding new items to inventory.			
<p>Trigger: Artisan Member or Business Facilitator clicks on "Add Inventory" on the ACN Tech interface.</p> <p>Type (circle one): <u>External</u> Temporal</p>			
<p>Relationships:</p> <p>Association: Business Facilitator, Artisan Member</p> <p>Include: ---</p> <p>Extend: 2 – Create New Barcode</p> <p>Generalization: ---</p>			
<p>Normal flow of events:</p> <ol style="list-style-type: none"> 1. Artisan Member clicks on "Add Inventory" on the ACN Tech interface 2. System displays a list of items made/registered to the artisan member 3. Member selects the item and how many he/she wants to add to inventory 4. Inventory enters a pending state 5. Once the items arrive to the warehouse a Business Facilitator checks it and officially accepts it. Items are now in a received state. 6. Business Facilitator and Artisan Member are notified via email of the received state of the inventory 			
Subflows: None			
<p>Alternate / exceptional flows:</p> <p>2a: If an Artisan Member wants to add an item to inventory and it is not on the list it may need to be added by a Business Facilitator. Business Facilitator needs to perform use case 2-Create New Barcode.</p>			

Use-Case name: Track Inventory		ID: 5	Importance: High
Primary actor: Artisan's Co-op North Member		Use-Case type: Detail, Essential	
<p>Stakeholders and interests: Business Facilitator wants Artisan Members to be able to track their inventory.</p> <p>Artisan Member wants to be able to track their craft items and sales.</p>			
<p>Brief description: This use case displays relevant information about a member's craft items. It determines what items a member has in stock, how many have sold, the item's selling price, and the total sales a member has made over a certain period.</p>			
<p>Trigger: Artisan Member selects "Track Inventory" on the ACN Tech interface</p> <p>Type (circle one): <u>External</u> Temporal</p>			
<p>Relationships:</p> <p>Association: Artisan's Co-op North Member</p> <p>Include: ---</p> <p>Extend: ---</p> <p>Generalization: ---</p>			
<p>Normal flow of events:</p> <ol style="list-style-type: none"> 1. Artisan Member clicks on "Track Inventory" on the ACN Tech interface 2. Artisan Member can select one of the following <ol style="list-style-type: none"> a. Select "View Total Sales" b. Select "View Inventory" c. Select "Most Popular Item" d. Select "View All Items" 			
<p>Subflows:</p> <p>S-2, 1: View Total Sales</p> <ol style="list-style-type: none"> 1. Artisan Member can view how many of each item have been sold 2. Artisan Member can also view the total sales <p>S-2, 2: View Inventory</p> <ol style="list-style-type: none"> 1. Artisan Member can view what items they currently have in stock <p>S-2, 3: Most Popular Item</p> <ol style="list-style-type: none"> 1. Artisan Member can view which item has sold the most and least <p>S-2, 4: View All Items</p> <ol style="list-style-type: none"> 1. Artisan Member can view all items that they have registered under their name 			
<p>Alternate / exceptional flows: None</p>			

Use-Case name: Manage Artisan's Item		ID: 6	Importance: High
Primary actor: Business Facilitator		Use-Case type: Detail, Essential	
Stakeholders and interests: Business Facilitator wants to efficiently manage Artisan's items. Artisan Members want their craft items to be organized.			
Brief description: This use case describes the ability of the Business Facilitator to view, organize, add, or remove craft items from the database.			
Trigger: Business Facilitator clicks on "Manage Artisan's Item"			
Type (circle one): <u>External</u> Temporal			
Relationships: Association: Business Facilitator Include: --- Extend: 2-Create New Barcode Generalization: ---			
Normal flow of events: <ol style="list-style-type: none"> 1. Business Facilitator clicks on "Manage Artisan's Item" 2. Business Facilitator has the option to select one of the following: <ol style="list-style-type: none"> a. Selects "View Items in Stock" b. Selects "Add Item" c. Selects "Remove Item" d. Selects "Organize Item" e. Selects "Update Item" 			
Subflows: S-2, 1: View Items in Stock <ol style="list-style-type: none"> 1. The user can select an artisan and view all items that an artisan has registered. After selecting an item relevant information should be displayed such as type, description, price, and current stock for that item S-2, 2: Add Item <ol style="list-style-type: none"> 1. Business Facilitator preforms use case 2-Create New Barcode S-2, 3: Remove Item			

1. Business Facilitator selects an item to remove
2. Business Facilitator clicks “Delete” and the item is removed from the database

S-2, 4: Organize Item

1. Business Facilitator selects item to organize/categorize
2. Business Facilitator creates a new category for the type/kind of item such as yarn or cherry wood or selects from an existing list of categories

S-2, 5: Update Item

1. Business Facilitator selects an item to update
2. Business Facilitator changes or adds additional information for the item
3. Business Facilitator selects “Save” and ACN Tech updates the Craft Item in the database

Alternate / exceptional flows: None

Use-Case name: Purchase Item		ID: 7	Importance: High
Primary actor: Customer		Use-Case type: Detail, Essential	
Stakeholders and interests: Artisan Member wants to efficiently sell items at craft fairs. Customer wants to purchase items in a timely manner.			
Brief description: This use case describes the process of selling items at a crafts fair.			
Trigger: Customer expresses interest in purchasing an item.			
Type (circle one): <u>External</u> Temporal			
Relationships: Association: Customer Include: --- Extend: 8-Display Item Information Generalization: ---			
Normal flow of events: <ol style="list-style-type: none"> 1. The customer wants to purchase an item 2. An Artisan Member scans the item's barcode 3. The customer provides payment either with cash or credit card 4. The system decreases the purchased item's inventory accordingly 5. A receipt is printed, and the system stores a copy 			
Subflows: None			
Alternate / exceptional flows: 1a: The customer wants more information on an item. Perform use case 8-Display Item Information. 3a. If credit card information is invalid <ol style="list-style-type: none"> 1. Let the customer know that they can try another payment option 2. If customer is unable to provide alternative payment cancel transaction 			

Use-Case name: Display Item Information		ID: 8	Importance: High
Primary actor: Artisan's Co-op North Member		Use-Case type: Detail, Essential	
Stakeholders and interests: Customer is interested in an item and wants more information. Artisan Member wants to provide accurate information on an item because it could mean a sale.			
Brief description: This use case describes the process of displaying an item's description during a crafts fair.			
Trigger: Customer asks for more information on an item.			
Type (circle one): <u>External</u> Temporal			
Relationships: Association: Artisan's Co-op North Member Include: --- Extend: --- Generalization: ---			
Normal flow of events: <ol style="list-style-type: none"> 1. Customer asks for more information on an item during a crafts fair 2. Artisan Member scans the item's barcode 3. The item's description is displayed on the Artisan's Co-op North's computer or tablet 			
Subflows: None			
Alternate / exceptional flows: None			

Use-Case name: Pay Artisan		ID: 9	Importance: High
Primary actor: Business Facilitator		Use-Case type: Detail, Essential	
<p>Stakeholders and interests: Business Facilitator wants to provide accurate payments to Artisan Members</p> <p>Artisan's Co-op North Member wants to receive accurate checks</p>			
Brief description: This use case determines the sales made by each member and how much each member should be paid.			
<p>Trigger: Business Facilitator clicks on "Pay Artisans" on the ACN Tech interface</p> <p>Type (circle one): <u>External</u> Temporal</p>			
<p>Relationships:</p> <p>Association: Business Facilitator</p> <p>Include: ---</p> <p>Extend: ---</p> <p>Generalization: ---</p>			
<p>Normal flow of events:</p> <ol style="list-style-type: none"> 1. Business Facilitator clicks on "Pay Artisans" 2. The system will calculate how much a member sold from the start of the previous month to the end of the previous month. 3. The system will also calculate member fees for belonging to the Co-op. 4. The system will display the total sales a member made and then break it down to the items sold. 5. The system will display the total sales a member made during the month and how much they need to be paid after membership deductions. 6. The payment report is stored in the database if needed for future reference. 			
Subflows: None			
Alternate / exceptional flows: None			

6.0 SYSTEM EVOLUTION

As ACN Tech is used by Artisan's Co-op North it is probable that Artisan Members and Business Facilitators will need some changes or additions to the system. These can be integrated as they are discovered or proposed. However, there are some changes or additions that may be planned for in advance.

System Modification

- The initial system will consist of a sales support system. In addition, an online shopping site will be developed and implemented into the system as part of the second version.

Environmental Changes

- Since this system will be a web based application, supporting technologies are likely to change and a few features may not be functional. The system will need to be routinely updated in order to remain functional.

Physical Environment

- The server must be fully accessible in the current operating state of the Co-op. Since Artisan's Co-op North has the potential to handle members outside the current operating state it is essential for the server to be accessible throughout the United States.

Resource and Management Issues

- Based on the contract agreed upon, Pacific Developers will be responsible for ongoing maintenance and support for ACN Tech within the timeframe established in the contract.
- Pacific Developers will handle bug fixes and enhancement requests.

7.0 CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

The primary goal of ACN Tech is to provide a sales support system while later implementing an online shopping website. The system will be accessible through a web based application. It will also incorporate a database to efficiently perform its functions. After a thorough feasibility analysis of the system, Pacific Developers has concluded that they are capable of delivering the needed system on time and within budget. Pacific Developers has created specific requirements that the system must have in order to be useful for Artisan's Co-op North's stakeholders.

Additional features have also been planned for later versions of the system. In summary, ACN Tech will be beneficial to Artisan Members and Business Facilitators. Pacific Developers is certain that with continued communication with Artisan's Co-op North, ACN Tech will be a successful and profitable system for Artisan's Co-op North.

7.2 Recommendations

- Pacific Developers recommends hiring a 360-degree camera or virtual tour specialist to assist with the online shopping website.
- Pacific Developers also recommends to continually evaluate risks throughout the development process.
- Pacific Developers recommends a high level of communication between the development team and Artisan's Co-op North. This will ensure that new requirements can be implemented into the system.

APPENDICES

Q&A with Ms. Weltz

1. What feature of the system is most important right now?

We really need the support for all sales. The website may be a little separate. The support for sales is needed immediately.

2. Would you like artisans to send you pictures of the products before they arrive to the warehouse?

I think it would be great for artisans to be able to post pictures themselves.

3. Do you have any particular preference for database storage?

Not at the moment. Cloud storage is fine.

4. What would you really like the system to have?

Anything that the system can accomplish during a crafts fair that does not have to be done later is good. The system must also be easy to use for people running the booth.

5. Are there any additional features or requirements?

I would like to have an easy way for future artisans to join.

6. How would you like items to be displayed for the online shopping portal?

I would like to have one or more cameras in the basement to show people how the warehouse looks like. Making the warehouse more high tech could be part of the system.

7. How do you handle payments to artisans?

I pay artisans on a monthly basis. I have to do the end of the month calculating to make sure everyone is paid correctly. My goal is to have the checks ready by the fifth of month and having this be more automated would be much easier.

GLOSSARY

1. **Accepted State** – in this document an accepted state refers to when the items have arrived at the warehouse and a business facilitator has accepted and added them to inventory.
2. **ACN Tech** – is the name of the system that will be developed.
3. **Barcode** – machine readable code in a form of numbers and parallel lines.
4. **Barcode reader/scanner** – is an electronic device that can read and output barcodes to a computer.
5. **Data Requirements** - are the format, structure, type, and allowable values for input/output and stored data.
6. **Database** – is an assortment of data that is easily accessed, managed, and updated.
7. **Functional Requirements** - state or describes a process or service.
8. **Nonfunctional Requirements** - descriptions of the characteristics and attributes of the system.
9. **Pending state** – in this document a pending state will be considered as the phase in which a member wants to add items to inventory but requires approval.
10. **Portable** – means that a system or application can be used on various platforms regardless of the operating system.

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