i) Six key artifacts of the process hierarchy:

1) Monitoring of water usage on the internet, Water Utility Corporation, information of the use of water, portal which can be accessed by the customer, water meters which are wireless and a structure of data analytics.

ii) Explanation of the key artifacts:

1) Monitoring of water usage on the internet: the customer accessible portal allows customers to be able to closely look at how they use their water thereby ensuring them to be economical.

2) Water Utilities Corporation: this is the company which supplies the residents of Francistown with water.

3) Information on the use of water: this is information obtained from the wireless meters which reads how much water is used by the customer.

4) Portal which is accessed by the customer: This portal is used by the customer to track how they use their and to let them know when there is an increase in water usage.

5) Water meters which are wireless: These are meters which reads how much water is used by customers per hour. It provides the town with accurate data of water usage in Francistown which facilitates in the plan of expanding water plants.

6) Structure of data analysis: this is a system of SAS which manages to keep large amounts of water data points. This system helps the water utility corporation to manage data precisely.

iii) 4 examples of key artifacts identified:

1) Structure of data analytics: SAS tool

2) Water Utilities Corporation: Company which deals with water issues

3) Water meters which are wireless: The Aquastar wireless meter

4) Portal which can be accessed by the customer: Portal found online through which customer use to monitor how they utilize their water

B) Identification of actors and customers found online

1. Actors are: Finance director of Water Utilities Corporation, businesses which are customers of Water Utilities Corporation, Water Resource Manager, data analysts, customers of Water Utilities Corporation who stay in Francistown and workers of Water Utilities Corporation

2. The customer are the people who stay in Francistown and businesses

C) Value which the process deliver to its customers are:

1. Customers are notified when there is a rise in water usage

2. Customers can monitor how they use water through their online portal

3. Customers can know well on time when water is being wasted

D) Possible outcomes which may take place in the process:

1. Precision of the data

2. Satisfaction of the customer

3. Speed in detection of water leakage

4. Cutting of costs for the customer

5. Future planning of how water is going to be used due to accurate data

ii) Six performance metrics identified above are:

1. Precision of water usage

2. Time taken to discover water leakages

3. Reduction of costs

4. Rate of infrastructure planning

5. Rate of wise usage of water

6. Quickness of customer when responding to water problem

iii) Explanation of key performance metrics:

1. Precision of water usage: how accurate and quickly water usage is recorded in the wireless water meters

2. Time taken to discover water leakages: how quickly the customer is notified when there is a leakage

3. Reduction of costs: how does the customer accessible portal helps Francistown residents and businesses to reduce costs of water leakages

4. Rate of infrastructure planning: how does the billing and the meter reading database aid the town to increase water plants in future

5. Rate of wise usage of water: how quickly customers save water after tracking its usage online through the customer accessible portal

6. Quickness of customer when responding to water problem: how efficiently customer act towards being notified of a spike in water usage through customer accessible portal

F) Identifying three potential causes that lead to water wastage using the 6MS

1. Machines: the wireless water meters might malfunction thereby giving inaccurate measurement of ware usage

2. Materials: old and rusted water taps may cause water leakages

3. Manpower: the customer may lag in checking for water spikes in the customer accessible portal

G) AS-IS process report for process of managing water usage

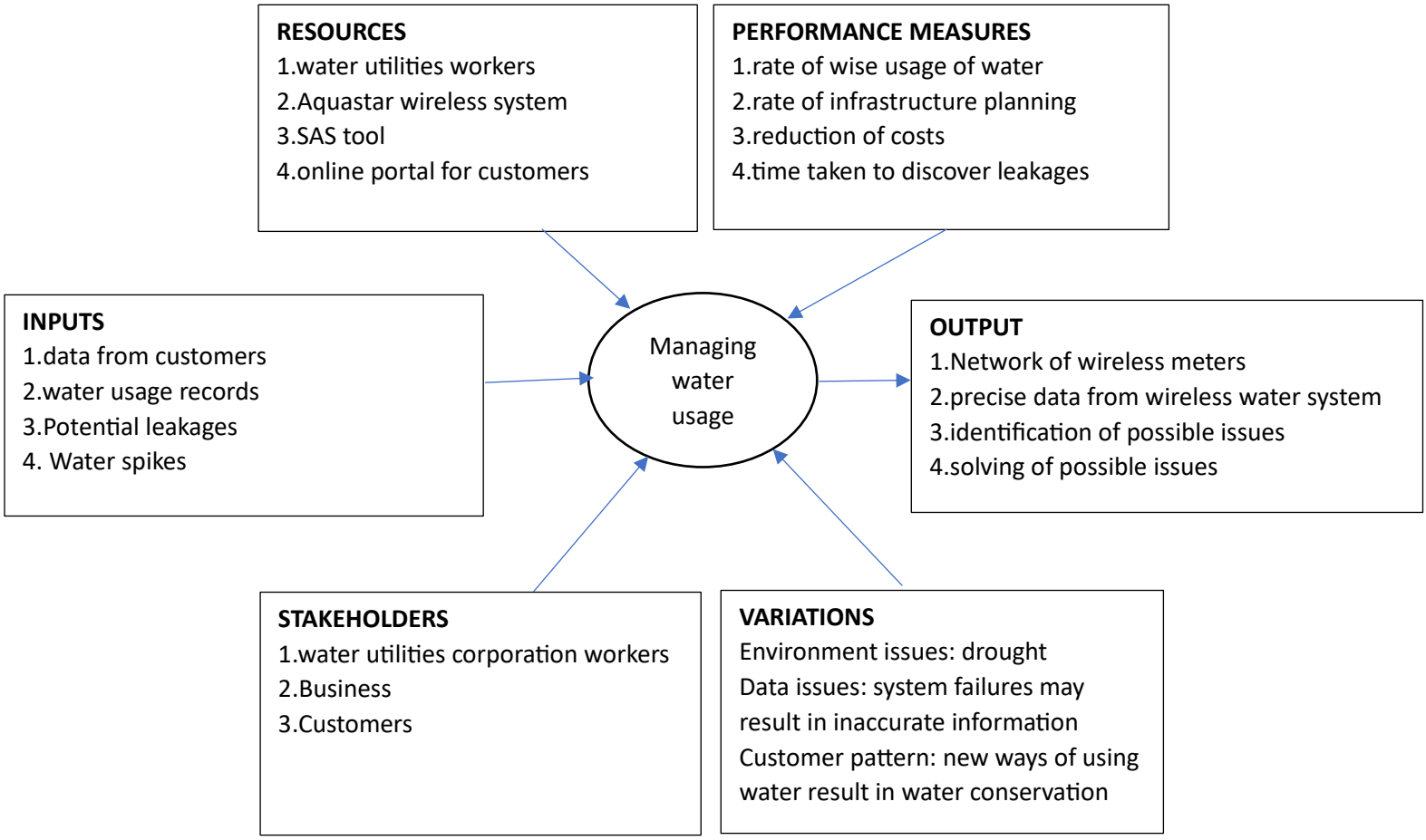
Customers and stakeholders: customers are the people who live in Francistown as well as businesses found there while stakeholders are Leila Goodwill who is the water resource manager for Water Utilities Corporation, Karen Mills who is the finance director for Water Utilities Corporation and the Water Utilities Corporation company.

Scope: this involves handling and tracking of data which shows the

Process summary: In this managing water usage process wireless water meters and customer accessible portal are utilized by the customer to track their water usage. Alongside them are workers of Water Utility Corporation who help to analyze their water usage data and let them know of a spike in water usage which can result from leaky faucet, malfunctioning dish washer and a cracked sprinkler head.

Narrative: Managing water usage process starts when customers wireless meters are set up which will then collect data about their water usage. This data will then be processed by SAS which is a tool for organizing and managing water data. Furthermore, SAS helps to link the billing and the meter reading database together to make a presentable database. In case of a potential leak the data analysts in the Water Utilities Corporation will notify the customer through the customer accessible portal. Customers use this portal to track their usage of water and it aids them to wisely manage their use of water. Overall, this process helps to reduce costs and provide precise information for the

TURTLE DIAGRAM


RESOURCES
1.water utilities workers
2.Aquastar wireless system
3.SAS tool
4.online portal for customers
PERFORMANCE MEASURES
1.rate of wise usage of water
2.rate of infrastructure planning
3.reduction of costs
4.time taken to discover leakages
INPUTS
1.data from customers
2.water usage records
3.Potential leakages
4. Water spikes
Managing water usage
OUTPUT
1.Network of wireless meters
2.precise data from wireless water system
3.identification of possible issues
4.solving of possible issues
STAKEHOLDERS
1.water utilities corporation workers
2.Business
3.Customers
VARIATIONS
Environment issues: drought
Data issues: system failures may result in inaccurate information
Customer pattern: new ways of using water result in water conservation

Step	Activities
1.	Conduct pre-installation site assessment
2.	Plan and schedule meter installation
3.	Communicate installation plan to customers
4.	Distribute educational materials to customers
5.	Install wireless water meters
6.	Configure Aquastar wireless system
7.	Establish data storage infrastructure
8.	Set up SAS analytics solution
9.	Conduct employee training on the new system
10.	Implement hourly data collection
11.	Monitor data integrity and accuracy
12.	Conduct routine system maintenance
13.	Run SAS analytics on water consumption
14.	Generate reports on water consumption
15.	Identify potential leaks in the data
16.	Send notifications to customers about leaks
17.	Implement customer alert system
18.	Develop and launch online customer portal
19.	Educate customers on portal usage
20.	Analyze water usage by household
21.	Analyze water usage by commercial customer
22.	Monitor data for equipment malfunctions
23.	Verify water efficiency hunch

24.	Evaluate the effectiveness of customer alerts
25.	Integrate billing and meter-reading databases
26.	Conduct regular system performance reviews
27.	Calculate estimated water savings
28.	Update water conservation initiatives
29.	Collaborate with SAS for system upgrades
30.	Monitor variations in water usage patterns
31.	Communicate with stakeholders on system updates
32.	Review and update the installation plan
33.	Conduct post-implementation customer survey
34.	Assess impact of the system on water efficiency
35.	Update customer education materials
36.	Evaluate energy efficiency of the system
37.	Assess system scalability for future growth
38.	Develop a disaster recovery plan