| Process name | Stakeholders | Concerns (Problems) | Analysis  (Reason of the problem) | Proposed solution |
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| 1.Data entry and validation | 1. Data Collector   B.Data entry manager | 1. Data collector collects Datas from the data sources, which is mostly done by manually, and there is possibility to get faulty datas. At the same time this is very time consuming.   1.This is a lengthy procedure and time consuming as they have to wait for data Analysts. And there is no activity for faulty datas(after the data analyst analyzes datas). | 1.The existing system gets the datas in two steps from the data sources ,it makes the procedure lengthy and it might be faulty in some cases. Firstly the data collectors collect datas and then give it to the data analyst to analyze the data then the data entry manager pushes it to the system.  2. There is no direct procedure for data collectors where they can entry datas directly to the system  3. They collect data in manual form which causes faulty datas.  1. In the existing AQM system Data entry managers first get the data from data Analyst and then have to format it in a file from manual pdf of data. This is time consuming .  2.Entering thousands of data records manually requires a lot of time and unnecessary labour work.Also, AQM system is not validating, verifying the new data being entered as a result there is no surety of the new data being fetched into the system. | 1. Re-built the AQM system data entry modules as per need of the system , where data manager will get the datas from the data source as csv file and will enter the datas to the system.  2. Data providers from the data sources can also enter datas directly to the AQM system.  3, There will be no manual data collection, everything will happen in an automated version.  1. Re-built the AQM system data entry modules as per need of the system , where the data manager will get the datas from data sources in a csv file and then they can directly push the datas to the system.  2. 1. Re-built the AQM system data entry modules as per need of the system , where data providers from different data sources can enter data directly to the system. |
| 2. Data verification and update | A. Data analyst  C. Data Source/ Data Collector | 1.Identifies and manually jots down the particular timestamp in a physical document where data is found faulty and manually informs the Data Collector.  2. Upon receiving a message about the new changes made to the faulty data, he will again search for his physical document, manually compare each timestamp listed earlier with the new updated data trend.Hence, slower and insignificant way of verification of data.  3. The communication done about the faulty data from Data Analyst to Data Source is done via phone calls, email etc which is very inefficient as this delays the process of instant verification of the data in the system.  1. Collecting data from multiple sources is time consuming and very tedious.  2. Data is not available all the time.  3. Data source  organizations are at times unhelpful, uncooperative to share data. | 1. Unable to directly indicate the problematic timestamp.Manually informing the Data collector slows down the process of verification. Again, manually jotting down each faulty data is a tedious process.  2. The whole process of manually searching and comparing for the particular timestamp from the updated data trend/ graph is time consuming. He can easily miss a particular timestamp as a result data particularly there will still remain unchecked and unverified.  3.Data Analyst did not have any visual representation of the faulty data in a particular timestamp. Manually Searching and accumulating faulty data is a huge task. The AQM system did not play any role in detecting that particular faulty data.  1. Data searching and gathering from multiple data sources is a tedious process. Stuff limitation also makes the process slower. .Additionally, data collectors are always receiving data from the data sources in a compiled physical document which is not a validated, verified process as there remains a high possibility of corrupted data. | 1. There is an in-built function in the AQM system which will directly notify users of concerns about the problem without any delay.  2. The faulty data in a particular timestamp will be received when a request for error data will be sent to the system which will be easily identified by the user.  3. AQM system will directly convert the CSV file(which consists of data) provided by the Data collector and the system will automatically update the particular timestamp where data was found faulty. Additionally, the AQM system will immediately show error and not let unvalidated data get into the database.Hence, data will always be validated.  1. Able to directly flag/ mark the particular timestamp in the data trends / graphs where data is found faulty. This is a much faster and efficient way of indication of the faulty data.  2. AQM system using its in-built function will automatically update the particular timestamp where data was found faulty. As a result, when Data Analyst observes the absence of flags in the updated datatrend/ graphs, it simply means that the system is updated, validated and verified.  3. AQM system’s in-built function allows Smart weather stations like IQ air, AirNow(data sources) to directly input data in the AQM system.As a result, the role of data collector is not required. This is both faster and beneficial for all the stakeholders. Also, there is no risk of inputting unvalidated data by data source as AQM immediately bounces back unvalidated data by showing error/warnings. Other data sources also provide the data in a CSV form which is a much faster way rather than physically documenting it. |
| 3.Report Generation | A. Researcher and viewer | 1. Report generation was lengthy procedure 2. No records of previous data reports | 1. Report generation purpose they have to call the assistance and then they work on the report generation and they talk to the software developers for making changes.  2. There is no record of previous datas in the existing system.  . | 1. Re-built AQM system has a direct option for users to download the report;they have access to the system .  2. Users can search the report by the date also, it helps to find the previous records as well. |
| 4. Viewing | A. Researcher and General Viewer | 1.The user can only receive the report and download them from the system. | 1.The Users cannot see any dash board or data graphs from where they can  Analyze the data visually. | 1.More advanced interface where user can see the visual representation of data and can Research it. |