

AUDIT TRAIL DOCUMENT

GeM Project

(Document Id: GEM-PID-AUDIT-02)

VERSION 2.0

Record of Changes

Version No.	Change Reference No.	Author	Published Date	Description of changes	Reviewer
1.0		Subir Bandyopadhyay	-	Updated to include invocation from Admin and Buyer Screens	
2.0		Dr Rajesh Narang	20-11-2018	Revised to include implementation details for Admin and Buyer user roles	

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1. Introduction

Government e-Marketplace (GeM) platform allows business users to facilitate online procurement of common use Products & Services required by various Government Departments / Organizations / PSUs. GeM platform is built to enhance transparency, efficiency and accelerate procurement process.

For transparency in procurement process and auditing purpose GeM SPV has planned to introduce Audit Trail feature which will help Buyers, HOD , Approval Authority and GeM admin to validate each step of bidding process to identify any discrepancies.

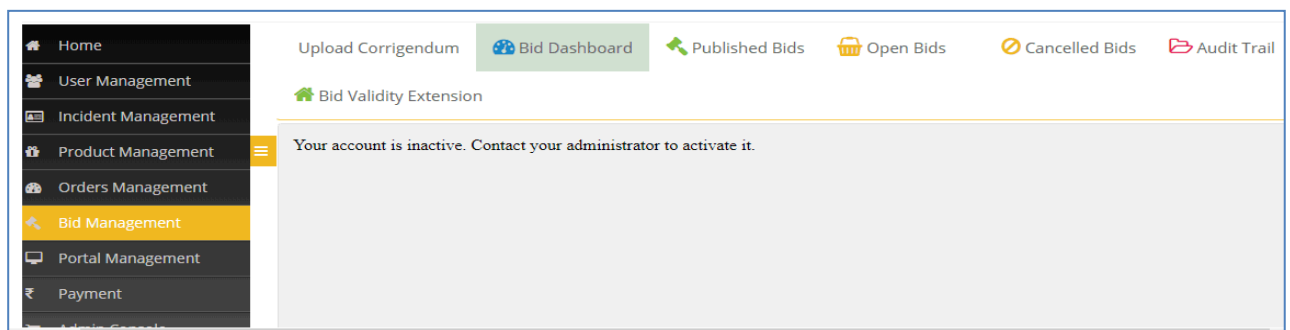
An audit trail includes the sequential list of steps that were required in order to begin a transaction and bring it to completion. Audit trail adds reliability on transparency in system to find out whether transactions are being conducted smoothly and truthfully as per business guidelines, while keeping the least necessary number of steps in the process. If discrepancies are discovered, audit trail is the best way to determine where the information is missing or where improper actions took place at the time of complete the business transaction.

GeM platform is built to maintain transparency in government procurement process, Audit Trail is the best tool to record business transaction activities to audit at any time in future, if any complain comes and data analysis to find fraud.

2. Scope of the Work

In order to bring transparency in the buying and selling process, a role based Audit Trail system is being developed which allows Admin Users, Approval Authority, HOD and Buyer to view end to end trail of activities for a bid starting from Bid creation to award and all intermediate stages for both GeM 2.0 and GeM 3.0. There are two defined roles which will have access to audit trail system.

- **Admin Users:** Audit Trail is available in Prod to Admin User; he will be able to view bids of any department, and any buyer. That is he can see all bids. Admin can view Audit Trail of any Bid in Admin Portal through the link **Bid Management-> Audit Trail which navigates Bid Plus** for the audit trail



- **Buyer:** Audit trail will be given to buyers, the buyers will be able to see only bids floated/published by him/her.

Bid Specific Details:

GeM admin can view Audit Trail for bids created by any buyer from government departments based on following criteria:

- Bid status (Not Evaluated, Technically Evaluated, Financially Evaluated, Awarded)
- Product/Service
- Bid Number or type
- Period by maintaining Bid Start date and End date
- Ministry Name
- Department Name
- Division Name

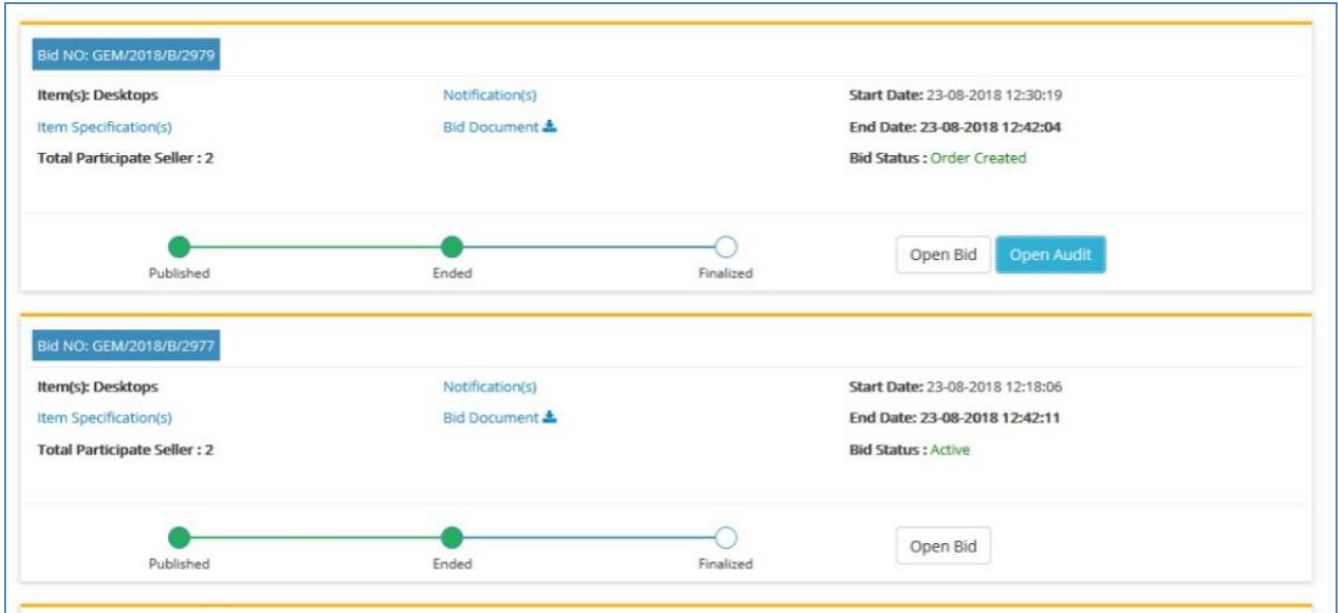
Can buyer retrieve bids on any of the above criteria?

GeM buyer can view the trails for bids created by him. S/he can search for trail based on following criteria:

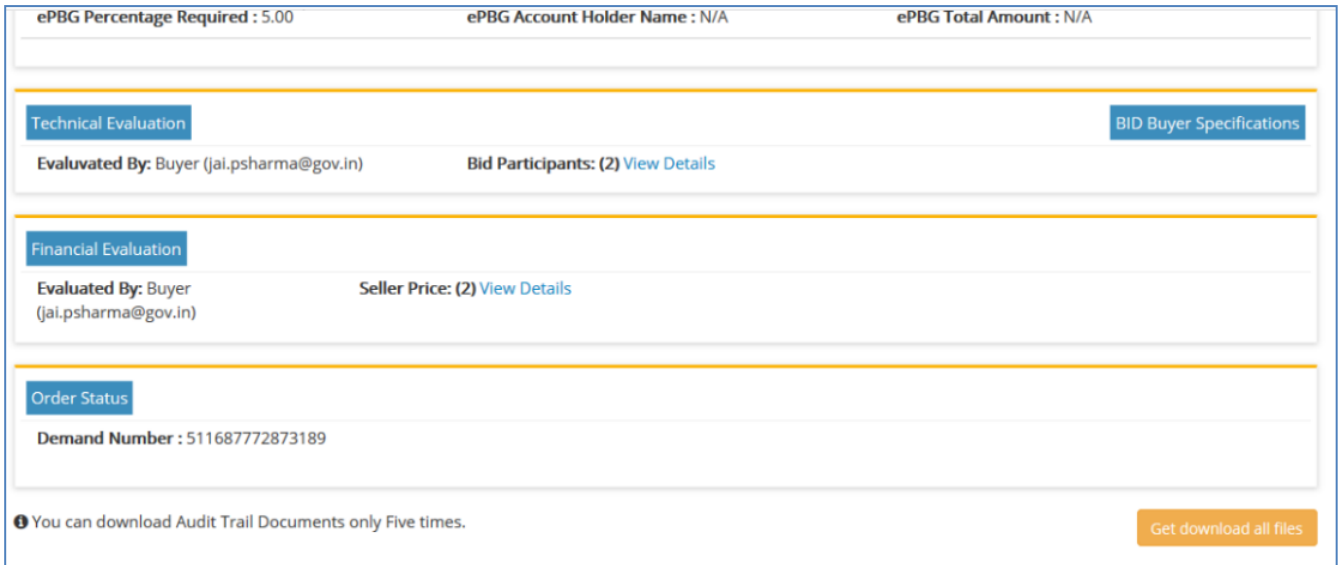
- Bid status (Awarded)
- Product/Service
- Bid Number or type

- **Buyer Users:** Buyer users can view the Audit Trail of Closed Bids () after Login as a buyer in GeM. Buyers check the link below to see list of bids with status **order_placed**.

<https://bidplus.gemorion.org/list-of-bids>



Once buyer click button “Open Audit”, can check Audit Trail of the selected Bid details as below



Buyer and IP Specific details:

GeM Audit Trail allows viewing activity log as well which captures all the activities during the bidding process.

For each activity, it captures client site information below

- Browser Used
- IP Address
- Page URL
- Activity Done
- Activity Date & Time

Generating Artifacts:

GeM Audit Trail also allows to download Artifacts (in PDF) below associated with Bid –

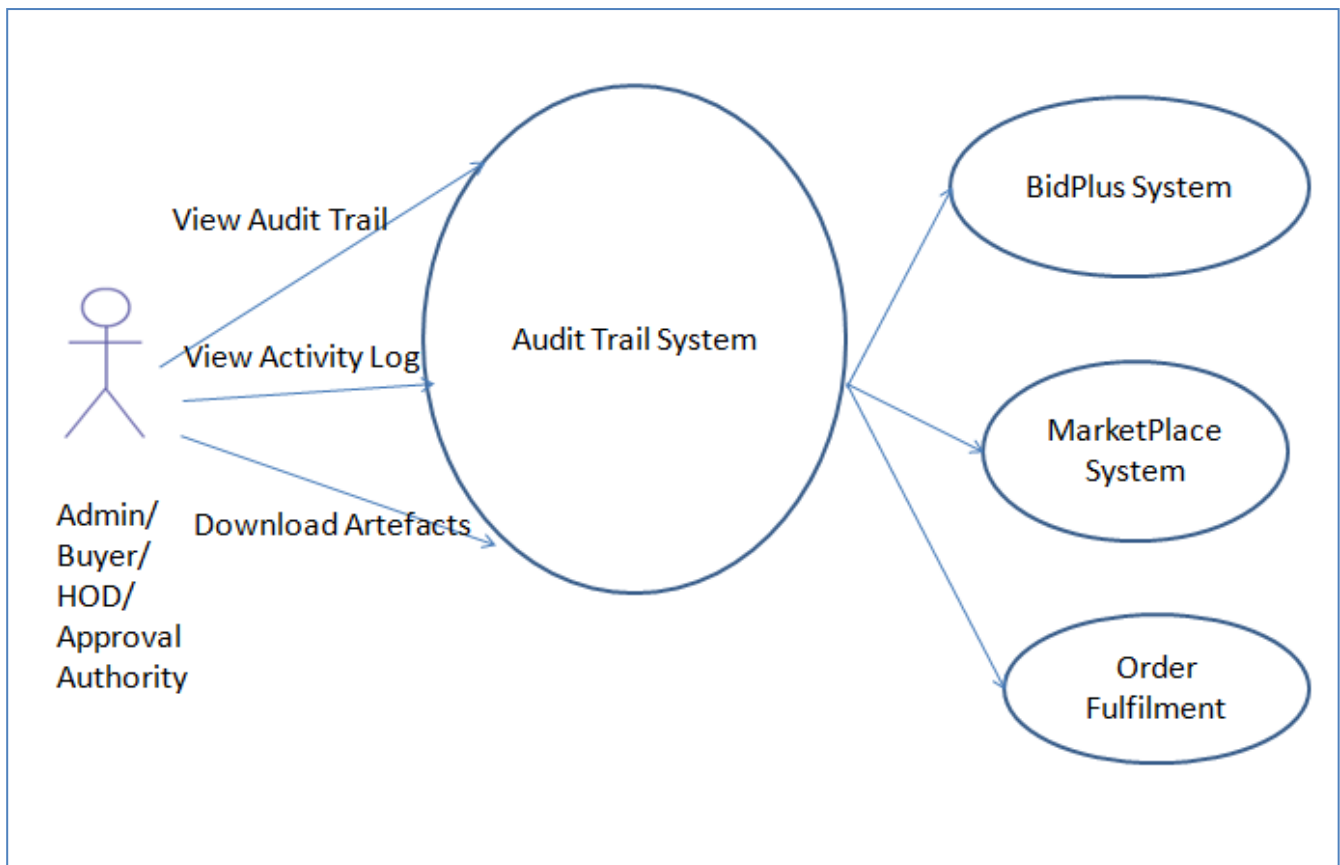
- Bid Document
- Buyer Detail & Consignee List Document
- Bid Details with ePBG & EMD Information Document
- Technical Evaluation Document
- Financial Evaluation Document
- Corrigendum Document

GeM Audit Trail allows downloading artifacts for bids published in last 1 year.

Use Case

Use Case Diagram of GeM Audit Trail system is presented below. It is used by different Actors – Buyer, Admin, HoD and Approval Authority. Based on access privilege, Actor is able to view Audit Trail of Bids which he owns.

1. Admin has super access privilege who can view Audit Trail of Bids published in last Six months
2. Buyer can view Audit Trail of Bids which he published, awarded in last Six months and download all artifacts.
3. HoD can view Audit Trail of Bids created by buyers managed by him.



Use Cases for actor **Buyer** is presented below. Buyer is able to view Audit Trail of Bids

- **Use Case-1: Audit - Bid published on GeM**

Actor	Buyer
Pre-Condition	Buyer registers on GeM Buyer login into Gem and view bids created by him last Six months
Main Flow	<ul style="list-style-type: none"> • Buyer Clicks on a specific Bid No. which is awarded. • Buyer views <ol style="list-style-type: none"> 1. Buyer Details – Name, User Name, Address, Email, 2. PAC information – Brand and Model (optional) 3. Indent buying information (optional) <ol style="list-style-type: none"> 2. Search Product/Service – Golden Parameter for Product and Core Parameter for Service 3. Search Result 4. Consignee Details – Name, User Name, Address, Delivery Days, Quantity 5. Cart Data – Type, Base Price, Product Name/Model/Brand/Quantity, Seller Criteria • Bid Details – Bid No, Base Price, Status, Bid Document, Consignee List
Post Condition	Buyer can download Bid document

- **Use Case-2: Audit – Bid Technically Evaluated on GeM**

Actor	Buyer
Pre-Condition	Buyer registers on GeM Buyer login into Gem and view bids which are awarded
Main Flow	<ul style="list-style-type: none"> • Buyer Clicks on a specific Bid No which is awarded. • Buyer selects Technical Evaluation Section and view number of Bid participants

	<ul style="list-style-type: none"> • Buyer clicks on “View Details” and view list of sellers who qualified with information below – Seller Name, Company Name, Technical Spec, Turnover in Lakhs, Experience, Status • Buyer selects “View” to view Technical Spec offered by a Seller
Post Condition	Buyer can download Technical Evaluation document

• **Use Case-3: Audit – Bid Financially Evaluated on GeM**

Actor	Buyer
Pre-Condition	Buyer registers on GeM Buyer login into Gem and view bids which are awarded Buyer can view Technical Evaluation document
Main Flow	<ul style="list-style-type: none"> • Buyer Clicks on a specific Bid No which is awarded. • Buyer Selects Financial Evaluation Section and view number of Seller Participants who qualified in Financial Evaluation • Buyer clicks on “View Details” and view list of sellers who qualified with information below. Seller Name, Offered Item, Total Price and awarded details
Post Condition	Buyer can download Financial Evaluation document

• **Use Case-4: Audit – Download all artifacts on Demand**

Actor	Buyer
Pre-Condition	Buyer registers on GeM Buyer login into Gem and view bids which are awarded Buyer can view Technical Evaluation document Buyer can view Financial Evaluation document
Main Flow	<ul style="list-style-type: none"> • Buyer clicks on a specific Bid No which is awarded. • Buyer selects Folder icon and click it to download all documents

Post Condition	<p>Buyer can download documents below associated with Bid in Zip</p> <ul style="list-style-type: none"> • Bid Information Document in PDF format • Technical Evaluation in PDF • Financial Evaluation in PDF • Buyer Detail and Consignee List in PDF • Bid Details with ePBG & EMD spec in PDF • All artifacts are available in folder < > (Specify folder name)
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When a specific Bid is selected by BuyerGeM Admin and its Audit Trails is opened, following data is visible

Transaction Data	Data Format	Data Description
Bid No	GEM/[0-9]+4/B/[0-9]+4	Bid Number generated by system
User Name	[a-zA-Z0-9]+	Buyer User Name
Login Date & Time	DD:MM:YY HH:MM:SS	Buyer Login Date & Time at the time of Bid Creation
Buyer eKYC Status	Success/Failed	Buyer is authenticated with OTP at the time of procurement
Bid Creation Date & Time	DD:MM:YY HH:MM:SS	
Product/Service Search at Marketplace	String	Product/Service Name with Golden Parameters(optional)
Search Result	String	Link to Product/Service Compare Sheet
Bid Reference Price	[0-9]+	Amount
Bid Creation Date	DD:MM:YY HH:MM:SS	
Bid Publication Date	DD:MM:YY HH:MM:SS	
Bid Status	Bid current status	Not evaluated, Technical Evaluation, Financial Evaluation, Awarded
Bid Reference Price	[0-9]+	
Bid Details		Link to Bid Document
Notifications List		List of Sellers, received Notification qualifying the Product procurement

Transaction Data	Data Format	Data Description
		criteria.
ePBG & EMD		Link to ePBG & EMD Document
Bid Opening Date	DD:MM:YY HH:MM:SS	Date and time of BID is opened
Bid Cancellation Date	DD:MM:YY HH:MM:SS	Date and time of BID is cancelled
Bid Cancellation Reason	String	Reason of Bid Cancellation
Bid Extended Date	DD:MM:YY HH:MM:SS	
Bid Technical Evaluation Date	DD:MM:YY HH:MM:SS	Date and Time Bid is evaluated with reference to Bid specification(Golden Parameter) and product specification sheet offered by sellers
Bid Financial Evaluation Date	DD:MM:YY HH:MM:SS	Date and time of BID evaluation opened, L1...Ln Selected Seller, Price.
Final order Awarded to Seller		Link to order file
CRAC		

Above information is visible in GeM UI in structured way,

- Audit Trail captures basic Bid information below
 - Bid Number
 - Item Selected for Bid
 - Quantity Required
 - Department Name and Address
 - Bid Start Date and Bid End Date
 - Bid Status
- Audit trail captures the Buyer Profile Information below who initiated bid process
 - Buyer Name
 - Buyer Email ID
 - User Name
 - Address
 - Designation

to check buyer's profile information, registered into GeM system, authenticated through E-KYC Status

- Product Searched (Products/Service) in Market - by buyer to identify which Item searched and Golden Parameters set at the time of procurement.
- Compare Product at Market – Based on Search result, compare different Product parameters with reference to Golden Parameter
- After comparison, Product added on Cart and following data will be visible at audit trail
 - Product Type
 - Product Brand
 - Product Category
 - Product Model
 - Product Name
 - Quantity
 - Seller Criteria - Government Experience(in years, Annual Turnover(in Lakhs)
 - Product added on Cart - Date,
- List of Consignee details
 - Consignee Name
 - Consignee User Name
 - Quantity
 - Delivery Address
 - Delivery Days
- Audit trail captures the following data , generated after Bid creation,
 - Bid Number
 - Bid Created by – buyer user name
 - Category Searched,
 - Base price
 - Product Quantity
 - Bid Validity period
 - Bid Status
 - Bid Start Date
 - Bid End Date
 - Consignee List

- Bid Document
- EMD and ePBG Information
- Audit trail captures data below for Technical Evaluation process followed by buyer,
 - Seller Name
 - Company Name
 - Technical spec against the Golden Parameters
 - Turnover in Lakhs,
 - Seller's Experience With Government ,
 - Qualification Status (Qualified or not)
- Audit trail captures following data used by buyer at the time of Financial Evaluation
 - Seller Name
 - Offered Item,
 - Total Price
 - Awarded Status
- E-KYC Status – to validate proper Authentication through OTP

3. Non Functional Requirements

Security

Audit Trail verifies underlying security of GeM platform maintained at the time of Procurement

- Buyer is authenticated using Aadhaar and captures eKYC
- Seller Quote Price is encrypted using RSA 2048 Public Key
- All Documents are OTP verified ?

Performance

- Design of Audit Trail systems ensures, not slowing down BidPlus application
- Data Model ensures audit data will not be overflowed BidPlus Database by considering monthly archival policy
- For space optimization, All attached documents in Audit Trails (Bid document, Product Specification, Seller Specification, Order Number, ePBG, Consignee List...) specific to Bid, are stored in dedicated Folder in NFS <give folder name> Currently All files are stored in Local Server. Team is working on this to migrate to NFS server.

Appendix:

For traceability, current Bid process is documented below

Buyer Process

1. Buyer Search Product/Service in Marketplace with reference to Golden parameters
2. Select product/service for comparison based on Search Result
 - a. For Bid, compare three product/service or click bid intent to avoid comparison
3. Select Product/Service
4. Select Consignee List or Upload an Excel File upload filling with consignee name, id, address, number of products and delivery dates
5. Select Procurement Process – Direct Purchase or Bid
6. At the time Bid Creation, buyer can apply two admin filters – Experience with Government and Turnover of the Seller which helps to filter the appropriate sellers
7. System identifies the Sellers who offering same product Seller participating in bid process
8. Select any Product and Click on “Add to Cart”
9. Click on Proceed to Checkout
10. Page Opens with Option of Direct Purchase/Bid
 - a. If Total Amount less than 50,000 rupees then Buyer goes to Direct Purchase or Bid Otherwise Bid is mandatory.
 - b. If Buyer choose system generated L1 of desired category product/service he can purchase up to Thirty Lakhs without Bid
11. Click on Bid button which initiates Bid process
12. The product Icon appears and buyer has to authenticate it (Item specification)
13. Select Consignee – or amend consignee, Quantity of Product and Delivery Date and confirm
14. Open Bid Details Page and Buyer has to select End Date & Time of Bid, Bid Validity days , Terms of delivery, Average Turnover of the seller and experience of seller, buyer can ask to seller to upload document in PDF format related to experience with government and turnover and save
15. Buyer requests for EMD if he allow sellers to participate in bid for minimum 10 days.
16. Buyer can decide EMD (Earnest Money Deposit) and ePBG (Electronic Performance Bank Guarantee) where he can select Advisory Bank name and EMD percentage and Amount of EMD will be calculated automatically. Buyer has to enter his Bank details like Bank name, account holders name, IIFSC code of the bank and account number and confirm the account number by reentering it.
To select ePBG, buyer has to select Advisory Bank Name, ePBG % which is 2 to 10% of L1 amount and He has to declare also for how many months the ePBG will remain on hold in the buyer bank. Out of this he provides also Bank name, account holders name, IIFSC code and save.
17. Buyer can choose splitting of Bid into 3 parts(max) and suggest percentage to L1(50%),

L2(30%),L3(20%) which finds the Quantity automatically

18. If the STC are associated with product it would appear below T&C. Buyer can add additional T&C
19. Click “Agree T &C of GeM” then PDF document appear and Just below eSign and publish document appear
20. For eSign, click to continue. System interacts with NSDL and buyer requests for OTP generation. Buyer receives OTP and authenticates for eSign generation and publishes the bids. After Bid publish it is visible to Sellers with Bid Number, Product, Quantity, End Date,
21. Bid Creation Done

Seller Process

1. Seller Login into System (order fulfillment) and click on menu item Bids where list of Bids are available
2. Seller Participate on a selected Bid and view Technical Bid part and select the product which he wants to offer
3. Click “Choose Item” which opens the Technical specification of the product which are required by the buyer and offered by the seller
4. Seller can chose save & continue or cancel the Offering
5. If seller continue, Seller has to offer price on per unit basis
6. Encrypt the price and save the data
7. If documents are required seller experience with government and turnover need to be uploaded
8. Seller has to EMD amount in his bank after downloading EMD format and submits the same into his bank(offline process)
9. After submission of EMD in the Bank buyer has to upload the PDF of the same document and fill the name of the bank , IFSC code of bank, branch managers name and branch managers id where he has submitted the EMD amount(offline process)
10. In online process, the Advisory Bank informs the GeM through SFNS that EMD is deposited.
11. Seller has to verify eSign
12. For eSign OTP has to be generated which sellers put into system and click on eSign
13. Seller participation compete with status “Participated”
14. Simultaneously Seller can withdraw from Bid

Buyer Process

1. After the Bid End date, Buyer has to Open the Bid and evaluate technically
2. In Technical evaluation, he has to compare with requirement and offerings and select/reject the seller
3. In Financial evaluation , buyer has to open financial offerings of the seller where he can find L1, L2, L3 which is automatically by the system

4. Buyer can award the Bid to L1 or can split the bid as per predefined criteria, if ePBG is required by the buyer then first buyer has to request to seller to submit the performance bank guarantee in his bank as he has submitted the EMD.

*****END OF DOCUMENT*****