GOVERNMENT OF INDIA
(Ministry of Home Affairs)
DIRECTORATE GENERAL
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066
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No. B.V-7/2018-19-C (ICAS) Dated, the 26th March '2019

To

DIG (Prov), SSB
East Block-V, R. K. Puram
New Delhi-66

Subject: **Regarding QRs/TDs of "Intelligence Collation & Analysis System (I-CAS) Software".**

Please find enclosed here with QRs and TDs in respect of "Intelligence Collation & Analysis System (I-CAS) Software" as per Annexure-A & Annexure-B respectively duly approved by the competent authority for further necessary action.

Encl: (QRs & TDs of Intelligence Collation & Analysis System (I-CAS) Software).

Received by HC(M) Rajeev Sharma only forwarding letter SSB FHQ N. DELHI 29/03/19

28/3

{P.R.Jha, DC (Comn)}
For DIG (Equipment)
Directorate General, CRPF

O/c Fwd 26/3/19

Annexure – "A"

1.1 Qualitative Requirements of Intelligence Collation & Gathering Analysis (I-CAS) Software

S No		Qualitative Requirements
1.		**General Specifications**:- To Collect Intelligence Inputs from different sources and build a centralized database to analysis & reporting, connects all frontiers and servers information at real time, centralization of disparate solutions for key Data and Seamless Integration of Multi-Party system, Design and build a Central solution across one complete hierarchy chain and the system will have a undisrupted workflow having maker & checker process at any stage.
2.		**Web Application**:-
	i	The overall vision of this application is to create a system that facilitates the Intelligence team to anticipate and find the relevant information of activities happened, people and organization involved in activities.
	ii	This web application will be hosted on two servers, the server with-in the network and also on the server outside the network. For security reasons the server outside the network will contain only two days information. A database sync utility will be manually run every day on a specific time (generally on a low traffic period) which will move daily activities information from outside server to inside server.
	iii	The intelligence team of SSB Head Quarter will review activities received through application on outside the server. They will do formatting of activities if needed, merging of activities if received from multiple sources on the basis of unique activity identity generated by system so that all the relevant information will be available at one place.
	iv	If the information is critical then they will share the information with DIG, IG, ADG and/or DG. All the officers will receive that information on application.
	v	The main purpose of this application is to feed the daily activities with details of people and organization involved in that activity and generates reports.
3		**The modules of web application are:-**
	i	**Dashboard**
		a) A page to see all the relevant information at one place
		b) This would be customized for different ranks/ designations.
	ii	**Feed events**
		a) This module is used to feed the events. Based on type of events there will be different forms to feed event information.
	iii	**Person**
		a) Maintain person profile.
		b) Tag events with person so that we will get all the events related to that person.
	iv	**Organization**
		a) Maintain Organization profile.
		b) Tag events with organization so that we will get all the events related to that organization.
	v	**Masters**
		a) This module will be used to manage important entities like event type. Sector Headquarter, Battalion Headquarter etc.

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S No		Qualitative Requirements
	vi	**Reports**
		a) Subjective Reports
		b) Analytical Reports
		c) Comparative Reports
		d) Geo Reports
		e) Graphical Reports
	vii	**User Management**
		a) Add/Modify User
		b) Assign rights to user
		c) Disable or Delete a user
4.	**DB Sync Utility**:-	
	i	The database sync utility will sync database of server outside the network and the database of server inside the network. During database sync both the application will be offline.
	ii	The database sync utility will both be fully automatic because of no communication between server within the network and the server outside the network. SSB network team member's needs to copy that backup from server outside the network to the server inside the network. The server inside the network will restore that information automatically form the differential backup copied by SSB network team.
5.	**Reports and Data Mining**:- Confidential information by the End user can be mined and modelled to create intelligent including followings:-	
	i	Reports pertaining
	ii	Inputs/Incidents.
	iii	People
	iv	Organizations (Crime)
	v	Area of effect
	vi	Such Reports will act as a feeder mechanism to enable action/decision making.
6.	**Technical Specifications :-**	
	i	Application is to create systems that facilitates the team to anticipate and find the relevant information of activities happened, people and organization 'involved in activities
	ii	User will review activities received through mobile application and able to do formatting of activities if needed, merging of activities if received from multiple sources on the basis of unique activity identity generated by system so that all the relevant information will be available at one place. Pin/pattern /biometric based application login. Application to corrupt after (n) number of wrong attempts where (n) is decided by the user.
	iii	User should able to share Critical information with Senior officers with mobile notification application.

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S No	Qualitative Requirements	
		Application to support • both android and ios • Device binding through IMEI • For Location ➢ Current location by using GPS ➢ Select location by using map ➢ Enter location • Upload photos or / and videos. • After user login. Frontier. Sector and Battalion information will populate automatically from the user profile. • User can save the event information or can enter more details • In more details current date will populate automatically • Based on role and area users will get the push notification whenever new event information entered like developed for the purpose. The application should capture metadata information associated the event like- ➢ Coordinates & Location
	iv	Application should have a user dashboard to facilitate the user to see all the relevant information at one place and user can customize dashboard as per need.
	v	Application should capable to feed the events. Based on type of events there will be different forms to feed event information.
	vi	Application should maintain person profile and Tag events with person so that we will get all the events related to that person
	vii	Application should maintain Organization profile and Tag events with organization so that we will get all the events related to that organization.
	viii	Application should mange important entities like event type, sector headquarter. Battalion headquarter etc.
	ix	Application should generate subjective Reports, Analytical Reports, comparative Reports and Graphical Report.
	x	Application should have the functionality to manage users like Add/Modify User, Assign rights to user and Disable or delete a user.
	xi	A database syncing process should be there to move daily activities information from local server to secure server.

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S No	Qualitative Requirements		
7	**SPECIFICATIONS OF AUTOMATED REPORTING & ANALYSIS SOLUTION:-**		
	i	Application should store and process the captured event information like coordinate, location, picture, video and textual information.	
	ii	Application should generate different reports and provide data mining. Report generation module should be capable of generating reports based on query / result to include at least the following – ➢ Time / Date based query ➢ Topics of relevance ➢ Location based ➢ Name of people / organization group.	
	iii	System should capable to input data from different sources	
	iv	Confidential information by the End user can be mined and modelled to create intelligent reports pertaining.	
		a	Incidents
		b	People
		c	Organizations (Crime)
		d	Area of effect
8.	**General Reports** :-		
	i	Daily Intelligence Report	
	ii	Daily Incident Report	
	iii	Weekly Intelligence Assessment report	
	iv	Monthly Intelligence Requirement Report	
	v	Monthly Intelligence Assessment Report	
	vi	Monthly report on Mosque/Madrasas	
	vii	Monthly details of OPS conducted on the basis of input submitted by 'G' setup	

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S No	Qualitative Requirements	
9.	**Reports on Coordination Meetings** :-	
	i	Coordination meeting with Counterpart (Bn& SHQ level)
	ii	LIA Meeting (SHQ & FTR Level)
	iii	SMAC Meeting
	iv	MAC Report
	v	HS Level Meeting report
	vi	Border district coordination meeting
	vii	Report on Coordination meeting between DG, SSB & Chief RGOB & Chief of Nepal Police.

1.2 Qualitative Requirements of Machine Learning and Natural Language Processing

S No	Qualitative requirements	
1.	The solution should be able to ingest multiple documents, PDF's, text files etc at the same time. The system should accept the documents in a batch form or one at a time. The documents should be visible in a pipeline. The user should be allowed to drop the document as long as it's in the pipeline and hasn't been processed yet. The system should identify and remove duplicates. SSB gets a lot of reports in the form of word documents, excel sheets and other unstructured datasets. The solution should be able to ingest all unstructured data and automatically extract intelligence out of it.	
2.	The system should have different workflows for ingesting different type of documents. The workflows should be customized for different sort of documents available with the customer. System should treat different set of events with in the same documents as different documents and extract intelligence from each of it separately.	
3.	The system should automatically extract and store metadata against every document type uploaded. The metadata should be used to carry out analysis to link different documents together.	
4.	System should be able to run all machine automation algorithms on English, Hindi	
5.	The system should be able to extract the following from un- structured data:-	
	i	People
	ii	Organizations
	iii	Places
	iv	Events / Incidences
	v	Addresses
	vi	Images and Videos
	vii	Phone Numbers

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S No	Qualitative requirements	
	viii	IMEI's / IMSI / Phone Model
	ix	Vehicle Numbers
	x	IP Address
	xi	Credit Card / Debit Card Numbers / Bank Account Numbers
	xii	Dates and Timelines
	xiii	Mail ID's
6.	The system should have a pipeline of RPA (Robotic Process Automation) modules to cleanse the data	
7.	The system should have modules to ingest – • Passport Data • Vehicle registration data • License Card Holder data • CDR's • Interrogation reports • Intelligence inputs • FIR's • Travel related information • Crime related information • Other data sources available with the client	
8.	System should be able to run all machine automation algorithms on English, Urdu and Hindi.	
9.	System should have multiple Machine Automation models as an integrated frameworkand alsoshould have multiple modules for text classification using a supervised AI model. Any inputs by the end analyst should automatically cause the retraining of the AI model. The system should classify each event in one of the categories specified by the user.	
10.	System should classify the documents into multiple categories using statistical models.	
11.	System should extract all entities from unstructured data. The entities which need to be extracted have been defined as above.	
12.	System should extract and save themes from all unstructured data. The system should be able to form a conceptual and contextual understanding of all data.	
13.	System should be able to carry out entity disambiguation from large datasets. The threshold to distinguish two entities should be in the hands of the client.	
14.	System should carry out sentiment analysis on every document uploaded into the system. The system should also carry out sentiment against every entity mentioned in the document.	
15.	System should be able to automatically build relationships among entities.	
16.	System should have inbuilt metrics for similarity, regression, correlation and recommendations metrics.	

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S No	Qualitative requirements
17.	System should have options for 'What if' hypothesis. System should have provision to create a data shard for the generated query and be able to sort, filter or create pivots out of the data shard.
18.	The system should have capability to stack multiple regression modules into a pipeline – Stack one algorithm over another and subsequently carry out ensemble for predictive intelligence on threat alerts. Framework should have multiple modules for text classification sing a supervised AI model. Any inputs by the end analyst should automatically cause the retraining of the AI model. The framework should classify each event in one of the categories specified by the user.
19.	The system should have inbuilt AI models for Facial Biometrics. The facial biometrics should run across all images to identify individuals who are available in multiple images. The system should automatically detect images from the uploaded images and videos and match it against all the pictures available to the user.
20.	The system should have AI library for object identification and should be automatically able to identify objects out of the picture and tag them.
21.	The system should have modules and provisions to resolve entity collision and prompt the user for final decision to resolve a collision.
22.	The entire source code of application would have to be submitted to escrow account.

1.3 **Qualitative Requirements of Big Data Analytics** :-

S/No	Qualitative requirements
1.	The solution should be able to analyze TeraBytes of data. It should be able to hold as many documents as can be held in the database. The solution should be built on a Big Data Analysis framework such as Hadoop, MongoDb, GraphDB etc. Any other Big Data analysis framework may be used as well.
2.	The system should bring disparate datasets into a single library.
3.	Solution should have support for any structured and unstructured data sets and should build indexes efficiently for easy search, discovery and analysis, using compaction and indexing techniques.
4.	User should be able to configure alerts for any new update on their key analysis. The system should generate an automatic alert if any new input is available for user defined keywords.
5.	It should be possible to add new data sources to the existing data repository for increasing the scope of analysis.
6.	The system should be able to ingest mail dump in the form of Psd file and automatically extract intelligence from it.
7.	It should be possible to carry out a conceptual search across the entire data set.
8.	The solution should classify documents in specific categories. Should automatically relate or link multiple documents whereas files in different formats can be linked to each other.
9.	The solution should provide modules for a user to define his alerts in.
10.	Solution should have multiple searching algorithms including –

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S/No	Qualitative requirements
	▪ Fuzzy search – For matching meta-tags and return a list of most likely correction of given words. ▪ Boolean Search – Uses APCM (Adaptive Probabilistic Concept Modeling) like technique to rank the results that match the Boolean Query. Supported operators are AND, OR, NOT, XOR. ▪ Conceptual Search – Enable searches to be processed and retrieved conceptually on the concepts against the article. ▪ Keyboard Search – Prophecy conceptually matches queries that consist of a single keyword. It stems the keyword, and then it finds documents that contain words that have the same stem as the keyword. Support all document formats. ▪ Phrase Occurrence Search – Uses a phrase occurrence search to find documents containing a range of occurrences of a phrase. ▪ *Default Phrase search* – Uses quotation marks ("..") to treat the string as a phrase and return only documents in which a matching phrase occurs. ▪ Exact Phrase search – Querying with a term or a phrase in quotation marks, it matches them in their exact pre- stemmed form. ▪ Proximity Search – Looks for documents where two or more separately matching terms occur within a specified distance, where distance is the number of intermediate words or characters. Proximity search goes beyond the simple matching of words by adding the *constraints of proximity*. ▪ GIS Search : Ability to search for geotagged events and entities by drawing a polygon fence on the map.
11.	The system should allow manual and fully automatic linking between related pieces of information, regardless of their format. The concept in document should be linked to those in another file. They can also be linked to related concepts within video or email.
12.	System should support full text searching on the entire dataset available.
13.	System should have a visual link analysis platform to with multiple components – • Relationship graph to study co-relation among people, places and topics • Geospatial analysis • Timeline Analysis • Preconfigured analysis • Charts and Reports
14	System should allow the analyst multiple queries to retrieve data – • Simple 360 degree search • Complex Queries for structured filters • Multiple views to search for separate entities
15.	User should be allowed to view the entity related document, the search entities should be automatically highlighted. Users should be allowed to mark new entities in the document on the fly.
16.	Should be able to generate a relevancy graph for each of the various entities including location, name of person, name of organization, keywords etc..and all locations should automatically be matched with the lat long of the respective location. User should be allowed to add *lat/log wherever possible*.
17.	System should have multiple views for a user to be able to get a 360 degree view on a person, location, organization or an event. All analytical views should be tightly integrated with each other i.e. the user should be able to make changes in one view and see the change reflect in all the other views (Geospatial, Timeline etc)

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S/No	Qualitative requirements
	The user should be able to drag and drop data from one view to another to see a detailed comprehensive view.
18.	Should be able to depict the relation between various extracted entities in a graphical form with a representation of how strongly one is connected to other. The graph should be dynamic as clicking any link should open the relevant content.
19.	Investigators should be able to annotate reports, read and write comments/annotations on reports to aid in collaboration of work during investigative phase.
20.	Query templates should support entity based search and the time should be selectable on a timeline.
21.	System should have multiple widgets and dashboards. The user should be able to create his own dashboard using any of the multiple widgets available inside the system.
22.	Report generation module should be capable of generating reports based on query / result to include at least the following – • Time / Date based query • Topic Importance / Priorities • Location based • Name of people / organization / group
23.	Information should be displayed using advanced visualization and charts.
24.	The solution should have support for Association, network, link, temporal and statistical analysis to help build a comprehensive analytical picture, revealing relationships, patterns and trends in data.
25.	The system should allow analyst to carry out partitioning and sharding of data. The user should be able to join different data tables together and carry out excel like functions – filter, sort and pivot on the data set.
26.	User should be able to view any of the data in the Big data repository and dynamically create charts on the data set and solution should have inbuilt modules for generating charts on the fly. The user should be able to choose a X' axis and 'Y axis and choose the type of graphs (pie Graph, bar chart, line graph etc) which need to be generated.
27.	The system should have GIS capability of variety of GIS operations of simple mapping, indexing and Spatial analysis. System should be integrated with GIS Server Enterprises and should have the following functionality – ➢ Time series Data Analysis to visualize data changes over a period of time. ➢ Allow users to create buffers around districts. User should be allowed to change the parameters value and re-generate the analysis. User should be able to superimpose multiple analytics on the same GIS view or create different (as many as required) views that may be needed. Analyst should be able to form clusters on GIS view. User should be able to search on GIS (by creating a Geofenced search box)
28.	The system should have advance overview wizard for spatial analysis, Statistical analysis and suitability analysis. System should support drag and drop functionality (for ease of usage) to take a network analysis on GIS and vice versa.
29.	The system should have Geospatial search and analysis to leverage operational analytics.
30.	The system should plot data from classified and open source database to track activities.

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S/No	Qualitative requirements
31.	The system should have Analytics on – • Clustering • Scatter Plots graphs • Timeline Analysis • Query on map layers
32.	The system should have GIS data editor to use the map to add and update features to populate empty map layers.
33.	The system should have map layer to access analytic functions and to display and interact with the layers. It should contain facility to store, capture, query, analyze and display information on geographic layers. Provision should exist to create and save layers that encapsulate all of the GIS aspects necessary for map display, map analysis, data compilation and management. Sharing of map/ layer packages to adopt and share common views.
34.	The system should have Provision to create, display and edit military symbols on map and plot movement of unit / formation / group on map.
35.	Digital terrain and elevation data should be available for advanced analysis. There should be provision to further analyze in detail routes of interest with 3-D view.
36.	The system should have capability to manage multiuser databases that can be used and edited simultaneously by multiple users. This should be scalable to N number of users.
37.	The entire source code of application would have to be submitted to escrow account.

1.4 **Qualitative Requirements of Social Media Analytics**:-

S/No	Qualitative requirements		
	Classification	**Sub Category**	**Specifications**
1	Data Investors		Support for both Crawling and Scraping model as well as ability to ingest data from proprietary API's wherever available from the source end.
			Ability to Browser Based interactive scraping. This is for instances where there is a lot of Java Script based backend code and multilevel user interaction is mandatory.
			Ability to ingest data from multiple Social Media and Web platforms via their API's.
			The system should support for Twitter streaming API for real time (minimal latency) data retrieval.
			Ability to provide input filters in the form of Geographically bound polygon, Multiple keywords & Multiple Social media handles

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S/No	Qualitative requirements		
			System should have a provision for a user to add his own "twitter", "face book" profiles as Avatars. These profiles are used to get data off private profiles on face book.
		Twitter	The system should support for full time stack of Twitter REST API to extract extended information.
		Facebook	Support for full stack of Facebook Graph API for ingesting available information.
			Support for Scraping based Facebook data extraction to get access to FB data that is hidden from Graph API.
			Support for handling and creating multiple FB avatars to ensure scraping.
			Support for scheduling these FB avatars scraping periods and frequencies.
			Support for doing precision FB crawl by specifying or assigning Avatars to specific profiles or groups.
			System has a provision to monitor people profiles in Facebook.
			System has a provision to identify suspicious profiles on Face book based on users likes.
		Instagram	Scrapping of data from Instagram via specific scrappers created for Scrappers.
		YouTube	Support for full stack of YouTube API.
		News and Blogs via RS Feeds	The framework should be able to ingest data on real time basis from multiple RSS feeds. The framework should be intelligent enough to manage the update frequencies to ensure the sanctity of data.
		Dark Web	The system should be able to extract information from Dark Web marketplaces.
		WhatsApp	The system should be able to inject and analyze data from WhatsAPP via connecting the phone to the server. System can get data related to Group Name , Group Admin, Group Created On, Group Image, Group Status, Total number of contact ,msg, image, video, document in groups, List of all Participant, All Image of Group, All Video of Group, All Document Uploaded in Group, All Contact share in Group, All Location share in Group.
		Google Blogs, Tumbler & Word press	The system should ingest data from Google Blogs, word press and tumbler.
2	Big Data Repository		System should be built on Big Data repository to handle large amounts of data.
			System should have complete provision for proper and optimized indexing mechanisms to ensure fast response to analytical queries.
			Database should be scalable enough to ensure fast insertion of high volume streaming data.
			Properly managed to ensure de duplication and optimized storage capacity usage.

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S/No	Qualitative requirements		
3	Text Analytics		System should have inbuilt NLP capability to carry out entity extraction from unstructured data in the form of – • People • Places • Events • Organizations User should be allowed to search entities& should be automatically highlighted. Users should be allowed to mark new entities in the document on the fly.
			System should automatically calculate sentiment against a piece of text. Individual sentiment analytics should be done against entities defined in the text. The sentiment score should be carried out internally and not using a third party library over the internet. System should classify every piece of text and extract themes out of it. System should carry out text summarization on the data inside the system.
4	Data Analytics, Reports and Dashboard		User should be able to create views in the form of – • Geo Fenced data , Keywords or events & Persons
			From Whatsapp data system should do Classification Chart of all msg, Sentiment chart of all msg, Emotional chart of all msg, All msg time line, msg chart per week wise, negative users, positive users etc.
			System should have a custom query builder to carry out Boolean operations.
			System should have multiple widgets and allow a user to create his own dashboard using any of the widgets available to him. Dashboard view should provide information in visually rich form factors in terms of Maps, Charts, Tag Clouds, Sort lists etc.
			Dashboard view should collate data from all sources relevant to user's analysis and users should have option for a quick access time filter on a day, week and month basis.
			All analysis should be filterable by date range. All analysis should be filterable my multiple text filters.
			Filter data based on input keywords using multiple Boolean operations. Option to use multiple search option in combination with each other.
			System should give the user the capability to do Deep Dive analysis into each source separately and should have an event calendar.
			System should allow users to have multiple views in terms of trends, timelines, viral media, user views etc.
			System should have flexibility to do timeline/temporal analysis to understand the flow of events.
			System should have multiple reports for different platforms like user comparison, hashtagvirality, sentiment charts etc. Investigators should be able to annotate reports, read and write comments/annotations on

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S/No	Qualitative requirements		
			reports to aid in collaboration of work during investigative phase.
			Multiple analytical containers should be sharable among users and should have provision to identify suspicious profiles on Facebook based on users likes.
			System can identify people on social network based on mail ID, phone numbers etc and should identify trends, key influencers against a particular event.
			System identifies Geo Locations (wherever possible) for user checking, pictures, tags, tweets etc.
			System supports Fuzzy search, Proximity search, Conceptual search on the gathered.
			System supports cascading query results i.e. subsequent queries should be possible.
			System has a link analysis module to identify common followers / common following / friends etc of multiple profiles and should be scalable to add more Sources when available.
			Should provide a full system and Subsystem health overview, alerting system technicians to servers that are down or to services that are running.
			System should have a Two factor Authentication system for login access.
6	The entire source code of application would have to be submitted to escrow account.		

Note :- All the parameters specified above should be checked by constituted Board of Officer for functionality of software as per requirement.

Suman Dey, AC-III NSG	Vijit.R, SI/T CRPF	Ashok Kumar SI/GD CRPF	Nidhin T Simon, AC/IT BSF	K Ramana Raju, DC /Comn SSB	S S Sikarwar DC/EDP CISF	Lt Col A. Tripathi Assam Riffle

B S Jaswal DIG (Prov), SSB		A K Negi IG (Prov), SSB

(Jyotirmay Chakravarty, IPS)
Addl. Director General, SSB

Annexure – "A"

1.1 **Qualitative Requirements & Trial Directives of Intelligence Collation & Analysis System (I-CAS) Software**

S No		Qualitative Requirements	Trial Directives/ Functionality
1.		**General Specifications**:- To Collect Intelligence Inputs from different sources and build a centralized database to analysis & reporting, connects all frontiers and servers information at real time, centralization of disparate solutions for key Data and Seamless Integration of Multi-Party system, Design and build a Central solution across one complete hierarchy chain and the system will have a undisrupted workflow having maker & checker process at any stage.	The System should be able to collect data from all frontiers and build a central database which can be shared among all hierarchy. In addition to above, system should allow creation of new work flow and approval from the decision maker. Board of Officers checked the functionality of the software as per QRs.
2.		**Web Application**:-	
	i	The overall vision of this application is to create a system that facilitates the Intelligence team to anticipate and to find the relevant information and activities happened, people and organization involved in such kind of activities.	The applications should be user friendly and easy to use so that goal of gathered information can be analyzed and intelligence can be created. Functionality of software be checked by the Board of Officers.
	ii	This web application will be hosted on two servers, the server with-in the network and also on the server outside the network. For security reasons the server outside the network will contain only two days information. A database sync utility will be manually run every day on a specific time (generally on a low traffic period) which will move daily activities information from outside server to inside server.	The application must be a truly client server architecture with two database server, master & slave. Functionality of software be checked by the Board of Officers.
	iii	The intelligence team of SSB Head Quarter will review activities received through application on outside the server. They will do formatting of activities if needed, merging of activities if received from multiple sources on the basis of unique activity identity generated by system so that all the relevant information will be available at one place.	Software should provide access, editing, manipulation of gathered data at HQrs level can be manipulated accordingly as per relevancy and should have provision to send the data to multiple hierarchy accordingly. Board of Officers checked the functionality of the software as per QRs.
	iv	If the information is critical then they will share the information with DIG, IG, ADG and/or DG. All the officers will receive that information on application.	If information tagged with critical flag, then it must generate an alert for higher level hierarchy. Board of Officers checked the functionality of the software as per QRs.
	v	The main purpose of this application is to feed the daily activities with details of people and organization involved in that activity and generates reports.	Application must accept daily activity with details. Board of Officers checked the functionality of the software as per QRs.

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S No		Qualitative Requirements	Trial Directives/ Functionality
3	**Modules of web application:-**		
	i	**Dashboard**	
		a) A page to see all the relevant information at one place b) This would be customized for different ranks/ designations.	Widgets for marking important must be shown. Board of Officers checked the functionality of the software as per QRs.
	ii	**Feed events**	
		a) This module is used to feed the events. Based on type of events there will be different forms to feed event information.	A separate module must be provided to feed event. Board of Officers checked the functionality of the software as per QRs.
	iii	**Person**	
		a) Maintain person profile.	Each profile must be maintained separately. Board of Officers checked the functionality of the software as per QRs.
		b) Tag events with person so that we will get all the events related to that person.	Provision for persons can be tagged with events. Board of Officers checked the functionality of the software as per QRs.
	iv	**Organization**	
		a) Maintain Organization profile	Provision for maintaining organization profile. Board of Officers checked the functionality of the software as per QRs.
		b) Tag events with organization so that we will get all the events related to that organization.	Provision for Organization can be tagged with events. Board of Officers checked the functionality of the software as per QRs.
	v	**Masters**	
		a) This module will be used to manage important entities like event type. Sector Headquarter, Battalion Headquarter etc.	Provision for maintaining all itineraries in database separately. Board of Officers checked the functionality of the software as per QRs.
	vi	**Reports**	Provision for creating multiple reports & add on must be provided. Board of Officers checked the functionality of the software as per QRs.
		a) Subjective Reports b) Analytical Reports c) Comparative Reports d) Geo Reports e) Graphical Reports	
	vii	**User Management**	Module for managing users. Board of Officers checked the functionality of the software as per QRs.
		a) Add/Modify User b) Assign rights to user c) Disable or Delete a user	

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S No	Qualitative Requirements		Trial Directives/ Functionality
4.	**DB Sync Utility**:-		
	i	The database sync utility will sync database of server outside the network and the database of server inside the network. During database sync both the application will be offline.	The architecture of data must support master slave or master. Board of Officers checked the functionality of the software as per QRs.
	ii	The database sync utility will both be fully automatic because of no communication between server within the network and the server outside the network. SSB network team member's needs to copy that backup from server outside the network to the server inside the network. The server inside the network will restore that information automatically form the differential backup copied by SSB network team.	The architecture of data must support master slave or master. Board of Officers checked the functionality of the software as per QRs.
5.	**Reports and Data Mining**:- Confidential information by the End user can be mined and modeled to create intelligence including followings:-		
	i	Reports pertaining	A separate module must be provided for pertaining reports, manage inputs and other itineraries. Board of Officers checked the functionality of the software as per QRs.
	ii	Inputs/Incidents.	
	iii	People	
	iv	Organizations (Crime)	
	v	Area of effect	
	vi	Such Reports will act as a feeder mechanism to enable action/decision making.	
6.	**Technical Specifications :-**		
	i	Application is to create systems that facilitates the team to anticipate and find the relevant information of activities happened, people and organization, involved in such activities.	The system should be capable to create intelligence out of the input data. Board of Officers checked the functionality of the software as per QRs.
	ii	User will review activities received through mobile application and able to do formatting of activities if needed, merging of activities if received from multiple sources on the basis of unique activity identity generated by system so that all the relevant information will be available at one place. Pin/pattern /biometric based application login. Application to corrupt after (n) number of wrong attempts where (n) is decided by the user.	The system should be capable to create intelligence out of the input data and application should provide second factor authentication through finger print identification/creating pin/pattern and should deny usage after a set number of wrong attempts. Board of Officers checked the functionality of the software as per QRs.

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S No		Qualitative Requirements	Trial Directives/ Functionality
	iii	User should able to share Critical information with Senior officers with mobile notification application. Application to support the following:- • both android and ios • Device binding through IMEI • For Location ➢ Current location by using GPS ➢ Select location by using map ➢ Enter location • Upload photos or / and videos. • After user login. Frontier. Sector and Battalion information will populate automatically from the user profile. • User can save the event information or can enter more details • In more details current date will populate automatically • Based on role and area users will get the push notification whenever new event information entered like developed for the purpose. The application should capture metadata information associated the event like- ➢ Coordinates & Location	Module for sharing critical information with higher hierarchy. In addition it should support all modern mobile functionality like IMEI binding, location access, facility to upload videos/images etc. and also it should automatically populate already available data into the screen. Board of Officers checked the functionality of the software as per QRs.
	iv	Application should have a user dashboard to facilitate the user to see all the relevant information at one place and user can customize dashboard as per need.	The Applications should be user friendly & can be customized as per user. Board of Officers checked the functionality of the software as per QRs.
	v	Application should be capable to feed the events. Based on type of events there will be different forms to feed event information.	The System should be capable to feed the events & different forms based on type of events. Board of Officers checked the functionality of the software as per QRs.
	vi	Application should maintain person profile and Tag events with person so that we will get all the events related to that person.	Provision for persons can be tagged with events. Board of Officers checked the functionality of the software as per QRs.

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	vii	Application should maintain Organization profile and Tag events with organization so that we will get all the events related to that organization.	Provision for Organization can be tagged with events. Board of Officers checked the functionality of the software as per QRs.
	viii	Application should mange important entities like event type, sector headquarter. Battalion headquarter etc.	Provision for maintaining all itineraries in database separately. Board of Officers checked the functionality of the software as per QRs.
	ix	Application should generate subjective Reports, Analytical Reports, comparative Reports and Graphical Report.	Provision for creating multiple reports & add on must be provided. Board of Officers checked the functionality of the software as per QRs.
	x	Application should have the functionality to manage users like Add/Modify User, Assign rights to user and Disable or delete a user.	Provision for Add, Delete, Modify, Assign or disable rights to user must be provided. Board of Officers checked the functionality of the software as per QRs.
	xi	A database syncing process should be there to move daily activities information from local server to secure server.	The architecture of data must support master slave or master. Board of Officers checked the functionality of the software as per QRs.
7	**Specifications of automated reporting & analysis solution:-**		
	i	Application should store and process the captured event information like coordinate, location, picture, video and textual information	Board of Officers checked the functionality of the software as per QRs.
	ii	Application should generate different reports and provide data mining. Report generation module should be capable of generating reports based on query / result to include at least the following – ➢ Time / Date based query ➢ Topics of relevance ➢ Location based ➢ Name of people / organization group.	Board of Officers checked the functionality of the software as per QRs.
	iii	System should capable to input data from different sources.	Board of Officers checked the functionality of the software as per QRs.
	iv	Confidential information by the End user can be mined and modelled to create intelligent reports pertaining. a Incidents b People c Organizations (Crime) d Area of effect	Board of Officers checked the functionality of the software as per QRs.

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8.	**General Reports** :-		
	i	Daily Intelligence Report	System / Software should be able to generate reports as per requirement. Board of Officers checked the functionality of the software as per QRs.
	ii	Daily Incident Report	
	iii	Weekly Intelligence Assessment report	
	iv	Monthly Intelligence Requirement Report	
	v	Monthly Intelligence Assessment Report	
	vi	Monthly report on Mosque/Madrasas	
	vii	Monthly details of OPS conducted on the basis of input submitted by 'G' setup	
9.	**Reports on Coordination Meetings**:-		
	i	Coordination meeting with Counterpart (Bn& SHQ level)	System / Software should be able to generate reports as per requirement. Board of Officers checked the functionality of the software as per QRs.
	ii	LIA Meeting (SHQ & FTR Level)	
	iii	SMAC Meeting	
	iv	MAC Report	
	v	HS Level Meeting report	
	vi	Border district coordination meeting	
	vii	Report on Coordination meeting between DG, SSB & Chief RGOB & Chief of Nepal Police.	

1.2 **Qualitative requirements & Trial Directives of Machine Learning and Natural Language Processing**

S No	Qualitative requirements	Trial Directives / Functionality
1.	The solution should be able to ingest multiple documents, PDF's, text files etc at the same time. The system should accept the documents in a batch form or one at a time. The documents should be visible in a pipeline. The user should be allowed to drop the document as long as it's in the pipeline and hasn't been processed yet. The system should identify and remove duplicates. SSB gets a lot of reports in the form of word documents, excel sheets and other unstructured datasets	Solution should be able to upload documents in the PDF, Document & Text files Formats. System should upload the same word document again. . The solution should be able to ingest all unstructured data and automatically extract intelligence out of it.. It should only be accepted once. System should provide functionality to convert unstructured data for intelligence prepuces. The system should insure the even in the same document different events are captured and analyze separately. Board of Officers checked the functionality of the software as per QRs.
2.	The system should have different workflows for ingesting different type of documents. The workflows should be customized for different sort of documents available with the customer. System should treat different set of events with in the same documents as different documents and extract intelligence from each of it separately.	

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S No	Qualitative requirements	Trial Directives / Functionality
3.	The system should automatically extract and store metadata against every document type uploaded. The metadata should be used to carry out analysis to link different documents together.	Board of Officers checked the functionality of the software as per QRs.
4.	System should be able to run all machine automation algorithms on English & Hindi.	Board of Officers checked the functionality of the software as per QRs.
5.	The system should be able to extract the following un- structured data:-	
	i People	Vendor should upload a document with all the information in a standard word document. The system should automatically identify and extract the information to an accuracy of 60% or more. Board of Officers checked the functionality of the software as per QRs.
	ii Organizations	
	iii Places	
	iv Events / Incidences	
	v Addresses	
	vi Images and Videos	
	vii Phone Numbers	
	viii IMEI's / IMSI / Phone Model	
	ix Vehicle Numbers	
	x IP Address	
	xi Credit Card / Debit Card Numbers / Bank Account Numbers	
	xii Dates and Timelines	
	xiii Mail ID's	
6.	The system should have a pipeline of RPA (Robotic Process Automation) modules to cleanse the data and should automatically replace the abbreviations in the text with grammatically correct from a dictionary. The system should also pick up names of organizations and locations from the dictionary and match it against the document to ensure that no organizations or locations are missed by Natural language processing.	Board of Officers checked the functionality of the software as per QRs.
7.	The system should have following modules to ingest:- • Passport Data • Vehicle registration data • License Card Holder data • CDR's • Interrogation reports • Intelligence inputs • FIR's	Vendor should show that different types of data such as internal documents, images, videos, news articles and OSINT data can be merged in the same system. Board of Officers checked the functionality of the software as per QRs.

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S No	Qualitative requirements	Trial Directives / Functionality
	• Travel related information • Crime related information • Other data sources available with the client	
8.	System should be able to run all machine automation algorithms on English, Urdu and Hindi.	Vendor should upload documents in different languages and show that the user can search in different languages. Board of Officers checked the functionality of the software as per QRs.
9.	System should have multiple Machine Automation models as an integrated frame work and also should have multiple modules for text classification using a supervised AI model. Any inputs by the end analyst should automatically cause the retraining of the AI model. The system should classify each event in one of the categories specified by the user.	
10.	System should classify the documents into multiple categories using statistical models.	Board of Officers checked the functionality of the software as per QRs.
11.	System should extract all entities from unstructured data. The entities which need to be extracted have been defined as above.	
12.	System should extract and save themes from all unstructured data. The system should be able to form a conceptual and contextual understanding of all data.	
13.	System should be able to carry out entity disambiguation from large datasets. The threshold to distinguish two entities should be in the hands of the client.	
14.	System should carry out sentiment analysis on every document uploaded into the system. The system should also carry out sentiment against every entity mentioned in the document.	Against every entity in the document, the system should give sentiment for that entity in that document. Board of Officers checked the functionality of the software as per QRs.
15.	System should be able to automatically build relationships among entities. On the network graph system should show entities connected to each other.	Board of Officers checked the functionality of the software as per QRs.
16.	System should have inbuilt metrics for similarity, regression, correlation and recommendations metrics. Vendor commitment to train the models on user's data.	Board of Officers checked the functionality of the software as per QRs.
17.	System should have options for 'What if' hypothesis. System should have provision to create a data shard for the generated query and be able to sort, filter or create pivots out of the data shared.	Vendor commitment to train the regression models on users data and should support horizontal partitioning or slicing. Board of Officers checked the functionality of the software as per QRs.
18.	The system should have capability to stack multiple regression modules into a pipeline – Stack one algorithm over another and subsequently carry	

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S No	Qualitative requirements	Trial Directives / Functionality
	out ensemble for predictive intelligence on threat alerts. Framework should have multiple modules for text classification & supervised AI model. Any inputs by the end analyst should automatically cause the retraining of the AI model. The framework should classify each event in one of the categories specified by the user.	Board of Officers checked the functionality of the software as per QRs.
19.	The system should have inbuilt AI models for Facial Biometrics. The facial biometrics should run across all images to identify individuals who are available in multiple images. The system should automatically detect images from the uploaded images and videos and match it against all the pictures available to the user.	Board of Officers checked the functionality of the software as per QRs.
20.	The system should have AI library for object identification and should be automatically able to identify objects out of the picture and tag them.	Vendor should upload videos / images of weapons and system should identify that there is a weapon in the image. Board of Officers checked the functionality of the software as per QRs.
21.	The system should have modules and provisions to resolve entity collision and prompt the user for final decision to resolve a collision.	
22.	The entire source code of application would have to be submitted to escrow account.	

1.3 **Qualitative requirements & Trial Directives of Big Data Analytics**

S/No	Qualitative requirements	Trial Directives / Functionality
1.	The solution should be able to analyze Tera Bytes of data. It should be able to hold as many documents as can be held in the database. The solution should be built on a Big Data Analysis framework such as Hadoop, MongoDb, GraphDB etc. Any other Big Data analysis framework may be used as well.	Vendor should provide details of the database being used and provide evidences from the net that the databases in use are not Relational DB. Board of Officers checked the functionality of the software as per QRs.
2.	The system should bring disparate datasets into a single library	Board of Officers checked the functionality of the software as per QRs.
3.	Solution should have support for any structured and unstructured data sets and should build indexes efficiently for easy search, discovery and analysis, using compaction and indexing techniques.	
4.	User should be able to configure alerts for any new update on their key analysis. The system should generate an automatic alert if any new input is available for user defined keywords.	
5.	It should be possible to add new data sources to the existing data repository for increasing the scope of analysis.	Vendor to provide undertaking in this regard.

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S/No	Qualitative requirements	Trial Directives / Functionality
6.	The system should be able to ingest mail dump in the form of Psd file and automatically extract intelligence from it. System can automatically extract email ID's from it apart from text on which classification will take place.	Board of Officers checked the functionality of the software as per QRs.
7.	It should be possible to carry out a conceptual search across the entire data set.	Vendor should be able to showcase different types of searches as defined. Board of Officers checked the functionality of the software as per QRs. Board of Officers checked the functionality of the software as per QRs.
8.	The solution should classify documents in specific categories. Should automatically relate or link multiple documents	
9.	The solution should provide modules for a user to define his alerts in.	
10.	Solution should have multiple searching algorithms including – ▪ **Fuzzy search**:- For matching meta-tags and return a list of most likely correction of given words. ▪ **Boolean Search**:- Uses APCM (Adaptive Probabilistic Concept Modeling) like technique to rank the results that match the Boolean Query. Supported operators are AND, OR, NOT, XOR. ▪ **Conceptual Search**:- Enable searches to be processed and retrieved conceptually on the concepts against the article. ▪ **Keyboard Search**:- Prophecy conceptually matches queries that consist of a single keyword. It stems the keyword, and then it finds documents that contain words that have the same stem as the keyword. Support all document formats. ▪ **Phrase Occurrence Search**:- Uses a phrase occurrence search to find documents containing a range of occurrences of a phrase. ▪ **Default Phrase search**:- Uses quotation marks ("..") to treat the string as a phrase and return only documents in which a matching phrase occurs. ▪ **Exact Phrase search**:- Querying with a term or a phrase in quotation marks, it matches them in their exact pre- stemmed form. ▪ **Proximity Search**:- Looks for documents where two or more separately matching terms occur within a specified distance, where distance is the number of intermediate words or characters ▪ **GIS Search**:- Ability to search for geotagged events and entities by drawing a polygon fence on the map.	Vendor should be able to showcase different types of searches as defined. Board of Officers checked the functionality of the software as per QRs.

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S/No	Qualitative requirements	Trial Directives / Functionality
11.	The system should allow manual and fully automatic linking between related pieces of information, regardless of their format. The concept in document should be linked to those in another file. They can also be linked to related concepts within video or email.	Vendor should be able to showcase different types of searches as defined. Board of Officers checked the functionality of the software as per QRs.
12.	System should support full text searching on the entire dataset available.	System should support full text indexing. The user should be able to search for any keyword available in the text. Board of Officers checked the functionality of the software as per QRs.
13.	System should have a visual link analysis platform to with multiple components – • Relationship graph to study co-relation among people, places and topics • Geospatial analysis • Timeline Analysis • Preconfigured analysis • Charts and Reports	System should have inbuilt capabilities for analysis on Link graph, GIS, Timeline analysis, reports. The user should be able to create his charts on the fly. Board of Officers checked the functionality of the software as per QRs.
14	System should allow the analyst multiple queries to retrieve data – • Simple 360 degree search • Complex Queries for structured filters • Multiple views to search for separate entities	User should be able to search data through multiple ways as defined. Board of Officers checked the functionality of the software as per QRs.
15.	User should be allowed to view the entity related document, the search entities should be automatically highlighted. Users should be allowed to mark new entities in the document on the fly.	Vendor should be able to showcase that the entities in the ingested documents are already highlighted. Board of Officers checked the functionality of the software as per QRs.
16.	Should be able to generate a relevancy graph for each of the various entities including location, name of person, name of organization, keywords etc..and all locations should automatically be matched with the lat long of the respective location. User should be allowed to add lat/log wherever possible.	Vendor should be able to showcase that the entities in the ingested documents are already highlighted and all the location should allow plotting on a GIS map along with manual input of lat/long. Board of Officers checked the functionality of the software as per QRs.
17.	System should have multiple views for a user to be able to get a 360 degree view on a person, location, organization or an event. All analytical views should be tightly integrated with each other i.e. the user should be able to make changes in one view and see the change reflect in all the other views (Geospatial, Timeline etc). The user should be able to drag and drop data from one view to another to see a detailed comprehensive view.	User should be able to search for a person or an organization or location and get all information about that entity (from multiple uploaded documents) in one single view and system will allow multi-dimensional analysis of a set of data. Board of Officers checked the functionality of the software as per QRs.

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S/No	Qualitative requirements	Trial Directives / Functionality
18.	Should be able to depict the relation between various extracted entities in a graphical form with a representation of how strongly one is connected to other. The graph should be dynamic as clicking any link should open the relevant content.	Network link analysis between entities. On clicking any entity the relevant content should be shown on the right. Board of Officers checked the functionality of the software as per QRs.
19.	Investigators should be able to annotate reports, read and write comments/annotations on reports to aid in collaboration of work during investigative phase.	User should be able to create a report from within the software itself by choosing multiple things which need to come into the report. Board of Officers checked the functionality of the software as per QRs.
20.	Query templates should support entity based search and the time should be selectable on a timeline.	Vendor should show timeline analysis. Board of Officers checked the functionality of the software as per QRs.
21.	System should have multiple widgets and dashboards. The user should be able to create his own dashboard using any of the multiple widgets available inside the system.	User should be able to create his own dashboard. Board of Officers checked the functionality of the software as per QRs.
22.	Report generation module should be capable of generating reports based on query / result to include at least the following – • Time / Date based query • Topic Importance / Priorities • Location based • Name of people / organization / group	User should be able to create a report from within the software itself by choosing multiple things which need to come into the report. Board of Officers checked the functionality of the software as per QRs.
23.	Information should be displayed using advanced visualization and charts.	Board of Officers checked the functionality of the software as per QRs.
24.	The solution should have support for Association, network, link, temporal and statistical analysis to help build a comprehensive analytical picture, revealing relationships, patterns and trends in data.	Vendor should show timeline analysis. Board of Officers checked the functionality of the software as per QRs.
25.	The system should allow analyst to carry out partitioning and sharding of data. The user should be able to join different data tables together and carry out excel like functions – filter, sort and pivot on the data set.	User should be able to do pivots or filters on the dataset. Board of Officers checked the functionality of the software as per QRs.
26.	User should be able to view any of the data in the Big data repository and dynamically create charts on the data set and solution should have inbuilt modules for generating charts on the fly. The user should be able to choose a X' axis and 'Y axis and choose the type of graphs (pie Graph, bar chart, line graph etc) which need to be generated.	User should be able to create charts and reports on the fly. Board of Officers checked the functionality of the software as per QRs.
27.	The system should have GIS capability of variety of GIS operations of simple mapping, indexing and Spatial analysis.	

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S/No	Qualitative requirements	Trial Directives / Functionality
	System should be integrated with GIS Server Enterprises and should have the following functionality – ➢ Time series Data Analysis to visualize data changes over a period of time. ➢ Allow users to create buffers around districts. User should be allowed to change the parameters value and re-generate the analysis User should be able to superimpose multiple analytics on the same GIS view or create different (as many as required) views that may be needed. Analyst should be able to form clusters on GIS view. User should be able to search on GIS (by creating a Geofenced search box).	System should have inbuilt GIS modules with capabilities as defined. Board of Officers checked the functionality of the software as per QRs.
28.	The system should have advance overview wizard for spatial analysis, Statistical analysis and suitability analysis. System should support drag and drop functionality (for ease of usage) to take a network analysis on GIS and vice versa.	User should be able to search for events on GIS and also have the facility of drag and drop. Board of Officers checked the functionality of the software as per QRs.
29.	The system should have Geospatial search and analysis to leverage operational analytics.	User should be able to search for events on GIS. Board of Officers checked the functionality of the software as per QRs.
30.	The system should plot data from classified and open source database to track activities.	Vendor's commitment to include databases relevant to the customer. Vendor should be able to showcase some open source databases that have been scrapped and data available. Board of Officers checked the functionality of the software as per QRs.
31.	The system should have Analytics on – • Clustering • Scatter Plots graphs • Timeline Analysis • Query on map layers	User should be able to cluster events on GIS together. Board of Officers checked the functionality of the software as per QRs.
32.	The system should have GIS data editor to use the map to add and update features to populate empty map layers.	User should be able to mark locations on GIS. Board of Officers checked the functionality of the software as per QRs.

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S/No	Qualitative requirements	Trial Directives / Functionality
33.	The system should have map layer to access analytic functions and to display and interact with the layers. It should contain facility to store, capture, query, analyze and display information on geographic layers. Provision should exist to create and save layers that encapsulate all of the GIS aspects necessary for map display, map analysis, data compilation and management. Sharing of map/ layer packages to adopt and share common views.	User should be able to cluster events on GIS together. Board of Officers checked the functionality of the software as per QRs.
34.	The system should have Provision to create, display and edit military symbols on map and plot movement of unit / formation / group on map.	User should be able to mark locations on GIS. Board of Officers checked the functionality of the software as per QRs.
35.	Digital terrain and elevation data should be available for advanced analysis. There should be provision to further analyze in detail routes of interest with 3-D view.	Vendor's certificate to upload GIS tiles available with the client. Board of Officers checked the functionality of the software as per QRs.
36.	The system should have capability to manage multiuser databases that can be used and edited simultaneously by multiple users. This should be scalable to N number of users.	Vendors to provide undertaking in this regard. Board of Officers checked the functionality of the software as per QRs.
37.	The entire source code of application would have to be submitted to escrow account.	Vendors to provide undertaking in this regard. Board of Officers checked the functionality of the software as per QRs.

1.4 **Qualitative requirements & Trial Directives of Social Media Analytics**:-

S/No	Qualitative requirements		Trial Directives / Functionality
1	**Data Investors**	Support for both Crawling and Scraping model as well as ability to ingest data from proprietary API's wherever available from the source end.	Vendor to provide certificate in this regard. Board of Officers checked the functionality of the software as per QRs.
		Ability to Browser Based interactive scraping. This is for instances where there is a lot of Java Script based backend code and multilevel user interaction is mandatory.	
		Ability to ingest data from multiple Social Media and Web platforms via their API's.	
		The system should support for Twitter streaming API for real time (minimal latency) data retrieval.	
		Ability to provide input filters in the form of: • Geographically bound polygon • Multiple keywords	Board of Officers checked the functionality of the software as per QRs.

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S/No	Qualitative requirements	Trial Directives / Functionality
	• Multiple Social media handles	
	System should have a provision for a user to add his own "twitter", "face book" profiles as Avatars. These profiles are used to get data off private profiles on face book.	
	Twitter:- The system should support for full time stack of Twitter REST API to extract extended information.	
	Facebook:- Support for full stack of Facebook Graph API for ingesting available information. Support for Scraping based Facebook data extraction to get access to FB data that is hidden from Graph API. Support for handling and creating multiple FB avatars to ensure scraping. Support for scheduling these FB avatars scraping periods and frequencies. Support for doing precision FB crawl by specifying or assigning Avatars to specific profiles or groups. System has a provision to monitor people profiles in Facebook. System has a provision to identify suspicious profiles on Face book based on users likes.	Vendor to show scrapping of a private profile as a demonstration. Board of Officers checked the functionality of the software as per QRs.
	Instagram:- Scrapping of data from Instagram via specific scrappers created for Scrappers.	Board of Officers checked the functionality of the software as per QRs.
	YouTube:- Support for full stack of YouTube API.	Vendor to show demonstration of getting data from YouTube. Board of Officers checked the functionality of the software as per QRs.
	News and Blogs via RS Feeds:- The framework should be able to ingest data on real time basis from multiple RSS feeds. The framework should be intelligent enough to manage the update frequencies to ensure the sanctity of data.	
	Dark Web:-The system should be able to extract information from Dark Web marketplaces.	Vendor should be able to connect a phone to the system and show WhatsApp data on the server. Board of Officers checked the functionality of the software as per QRs.
	WhatsApp:- The system should be able to inject and analyze data from WhatsAPP via connecting the phone to the server. System can get data related to Group Name , Group Admin, Group Created On, Group Image, Group Status, Total number of contact ,msg, image, video, document in groups, List of all Participant, All Image of Group, All Video of Group, All Document Uploaded in Group, All Contact share in Group, All Location share in Group.	
	Google Blogs, Tumbler &Word press:- The system should ingest data from Google Blogs, word press and tumbler.	Board of Officers checked the functionality of the software as per QRs.

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S/No	Qualitative requirements		Trial Directives / Functionality
	Big Data Repository	System should be built on Big Data repository to handle large amounts of data, should have complete provision for proper and optimized indexing mechanisms to ensure fast response to analytical queries, database should be scalable enough to ensure fast insertion of high volume streaming data. Properly managed to ensure de duplication and optimized storage capacity usage. system should have inbuilt NLP capability to carry out entity extraction from unstructured data in the form of – • People • Places • Events • Organizations User should be allowed to search entities& should be automatically highlighted. Users should be allowed to mark new entities in the document on the fly.	Vendor to show architecture. Board of Officers checked the functionality of the software as per QRs.
3	**Text Analytics**		Vendor to demonstrate the system is able to extract people, places and organizations from OSINT data. Board of Officers checked the functionality of the software as per QRs.
		System should automatically calculate sentiment against a piece of text. Individual sentiment analytics should be done against entities defined in the text. The sentiment score should be carried out internally and not using a third party library over the internet. System should classify every piece of text and extract themes out of it. System should carry out text summarization on the data inside the system.	Board of Officers checked the functionality of the software as per QRs.
4	**Data Analytics, Reports and Dashboard**	User should be able to create views in the form of – • Geo Fenced data • Keywords or events • Persons i) From Whatsapp data system should do Classification Chart of all msg, Sentiment chart of all msg, Emotional chart of all msg, All msg time line, msg chart per week wise; negative users, positive users etc. ii) System should have a custom query builder to carry out Boolean operations and should have multiple widgets, user to create his own dashboard using any of the widgets available.	Board of Officers checked the functionality of the software as per QRs.

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S/No	Qualitative requirements	Trial Directives / Functionality
	iii) Dashboard view should provide information in visually rich form factors in terms of Maps, Charts, Tag Clouds, Sort lists etc. Dashboard view should collate data from all sources relevant to user's analysis. iv) Users should have option for a quick access time filter on a day, week and month basis. v) All analysis should be filterable by date range. All analysis should be filterable my multiple text filters. Filter data based on input keywords using multiple Boolean operations. Option to use multiple search option in combination with each other. vi) System should give the user the capability to do Deep Dive analysis into each source separately. System should have an event calendar. vii) System should allow users to have multiple views in terms of trends, timelines, viral media, user views etc. System should have flexibility to do timeline/temporal analysis to understand the flow of events. viii) System should have a link analysis module to understand the interrelations amongst many entities and have multiple reports for different platforms like user comparison, hashtagvirality, sentiment charts etc. ix) Investigators should be able to annotate reports, read and write comments/annotations on reports to aid in collaboration of work during investigative phase. Multiple analytical containers should be sharable among users. System has a provision to identify suspicious profiles on Facebook based on users likes. x) System can identify people on social network based on mail ID, phone numbers etc. System should identify trends, key influencers against a particular event. System identifies Geo Locations (wherever possible) for user checking, pictures, tags, tweets etc. System supports report generation in terms of graphs, documents, xls, pdf etc. System supports Fuzzy search, Proximity search, Conceptual search on the gathered. xi) System supports cascading query results i.e. subsequent queries should be possible.	Board of Officers checked the functionality of the software as per QRs.

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S/No	Qualitative requirements		Trial Directives / Functionality
5	**System overview**	System should be scalable to add more Sources when available. Should provide a full system and Subsystem health overview, alerting system technicians to servers that are down or to services that are running. System should have a Two factor Authentication system for login access.	Vendor to provide undertaking in this regard. User should have provision of OTP for access. Board of Officers checked the functionality of the software as per QRs.
6	The entire source code of application would have to be submitted to escrow account.		Vendor to provide undertaking in this regard.
Note :- All the parameters specified above should be checked by constituted Board of Officer for functionality of software as per requirement.			

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