





Public tender No: ECIL/ISG/PUR/16-17/001 Dated 25.04.2016


**TENDER SCHEDULE-**


Sl. No.	Brief Description	Approximate estimate value (Rs. lakhs)	Tender Fees (Rs.)	EMD (Rs. lakhs)	Pre bid conference at ISG, ECIL, Hyderabad	Date of hosting of clarifications on web site	Due date for submission of bids up to 14.00 hrs on	Date of opening of techno commercial bids at 14.30 hrs on
1	Supply of Video Analytics Integration Platform(VAIP) software with 10 client workstation licenses for integration of various security sub systems as briefed in the scope of work of RFP:	1200.00	25000.00	24.00	07.05.2016	14.05.2016	28.05.2016	28.05.2016


## PUBLIC TENDER NO: ECIL/ISG/PUR/PT/16-17/001 DATED 25.04.2016


					
S. No.	Term	Clause No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
1	General Instructions	1.1	Electronics Corporation of India Ltd, a leading Public Sector Company with Head Office at Hyderabad and Branch Offices at Metropolitan Cities is engaged in design, development, manufacture, supply and installation of state-of-the-art technology-based solutions to core industrial, government and strategic sectors.		
		1.2	ECIL invites online 2-part bids through our e-Procurement portal from bona-fide, financially resourceful, reputed and experienced vendors to partner ECIL for executing the prestigious security surveillance project including video analytics integration platform for integration of video analytics , video management system, perimeter protection system, access control system, etc; at one of its prestigious customer at New Delhi.	Noted	
		1.3	The prospective partner must be an OEM having a product (video analytics integration platform) capable of integrating the best of the breed video analytics from various vendors with a command control facility and integration with industry standard IP based Video Management Systems	Noted	
		1.4	The solution provider should be willing to work hand in hand for joint development with ECIL and provide necessary assistance/support/training to ECIL engineers for development and integration of required applications for implementing the total solution.	Complied	
		1.5	The bidders are required to submit their online bids on the ECIL's e-Procurement portal <a href="https://ecil.etenders.in">https://ecil.etenders.in</a> using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the ECIL's e-Procurement portal, prepare their bids in accordance with the requirements and submitting their bids online on the ECIL's e- Procurement portal	Noted	
		1.6	This document is to be read with Terms and Conditions as per <b>RFP</b> . In case of any contradiction of the terms mentioned herein with those mentioned in terms and conditions of RFP, the term as mentioned the Terms and Condition of RFP will only prevail. However, decision regarding applicability or otherwise will be at the sole discretion of ECIL and ECIL decision will be final and binding in this regard.	Agreed	
		1.7	<b>Registration:</b>		
		1.7.1	Bidders are required to enroll on the e-Procurement portal of ECIL (URL: <a href="https://ecil.etenders.in">https://ecil.etenders.in</a> ) Enrollment on the Portal is free of charge.	Complied	
		1.7.2	As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts	Noted & Agreed	
		1.7.3	Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the Portal.	Noted & Agreed	


					
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		1.7.4	Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or higher Certificates with signing& encryption key usage separately) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode etc.),with their profile.	Noted	
		1.7.5	Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.	Noted	
		1.7.6	Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC/ e-Token	Agreed	
		1.8	<b>Preparation of Bids</b>		
		1.8.1	Bidder should take into account any clarification/corrigendum published on the tender document before submitting their bids.	Noted	
		1.8.2	Please go through the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.	Noted	
		1.8.3	Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF formats. Bid documents may be scanned with 200 dpi with black and white option.	Complied	
		1.9	Bidder should log into the site well in advance for bid submission for uploading the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.	Noted	
		1.9.1	The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.	Agreed	
		1.9.2	The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.	Noted	

					
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		<b>1.9.3</b>	All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured encryption technology. Data storage encryption of sensitive fields is done. The uploaded tender documents become readable only after the tender opening by the authorized bid openers. Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details. The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.	Noted	
		<b>1.10</b>	<b><u>Assistance to Bidders</u></b>		
		<b>1.10.1</b>	Any queries relating to the RFQ document and the terms and conditions contained therein should be addressed to Sri V. Kishore, Tech. Manager, Phone No. 04027182655 or igmmgt@ecil.co.in	Noted	
		<b>1.10.2</b>	Any queries relating to the process of online bid submission or queries relating to e-Procurement Portal in general may be directed to the Portal Helpdesk. The help desk nos. is provided under 'Contact Us' section on above mentioned portal.	Noted	
		<b>1.11</b>	<b>Online bid should be submitted on (URL <a href="https://ecil.etenders.in">https://ecil.etenders.in</a>) in the following manner:</b>	Noted	
		<b>1.11.1</b>	Scanned copy of EMD should be uploaded (PDF format) electronically and the hard copy shall be submitted physically at ISG/ECIL, Hyderabad as prescribed in the tender document.	Noted	
		<b>1.11.2</b>	Documents shall be uploaded as below:	Noted	
		<b>1.11.2.1</b>	Scanned copy of EMD in pdf format.	Noted	
		<b>1.11.2.2</b>	<b>Bid in the prescribed formats (Bid Templates) provided in the tender on online e-Procurement Portal shall only be filled and uploaded. Any deviations to the bid templates will make the bid liable for rejections.</b>	Noted	
		<b>1.11.2.3</b>	<b>Prices should be submitted by entering unit price online in the template provided on the above mentioned portal. Any other format/attachments for price bid will make the bid liable for rejections.</b>	Noted	
		<b>1.12</b>	<b>Bid Submission:</b> Bid should contain all Bid relevant Bid documents.:  The envelope must be super scribed with following information: Tender No., Date & Due Date, Name of the Bidder	Complied	


					
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		1.13	Request for extension of due date will not be considered. However, ECIL, at its sole discretion, may extend due date if warranted and the same will be notified through ECIL e- tendering portal.	Agreed	
		1.14	Bidder should furnish details of contact person with Mobile, Land Line Numbers and email ID on the covering letter to the techno commercial bid, prominently.	Noted	
		1.15	Bidders are advised to go through the tender document carefully before submitting the bid.	Noted	
		1.16	Bidder should confirm in the Bid (i) that every term and condition mentioned in the Tender is understood and accepted unqualifiedly and (ii) prices are quoted accordingly. Deviations, if any, found subsequently at any time including execution of order shall be treated as null and void.	Complied	
		1.17	ECIL reserves the right to accept the bids in full or in part or cancel the Tender in its entirety or any Tender in its entirety, at its sole discretion, without assigning any reasons, whatsoever	Agreed	
		1.18	Any misleading information furnished in the bid will render the bid liable for rejection. The decision of ECIL in this regard will be final and binding on all the Bidders.	Agreed	
		1.19	Selection bidders based on the selection criteria described in RFP document. The decision of ECIL is final and binding on the Bidders.	Agreed	
		1.20	Authorized and legally competent signatory of the Bidder's entity should sign the bid documents.	Complied	
		1.21	Tenders should be submitted to: Technical Manager (Purchase) Instruments & Security Systems Group Electronics Corporation of India Limited ECIL (P.O), Hyderabad – 500 062 Tel Nos. 040 2718 2391, 040 2718 2655, 040 2718 6571	Noted	
		1.22	Clarifications on the tender can be had by the Bidders before the time and date specified in the tender schedule. Requests for clarifications can be addressed to Shri V Kishore Kumar, Technical Manager, Purchase, Tel No. 040 2718 2655, email id: igmmgt@ecil.co.in (or) Shri K. SANTHAIAH, DGM, Tel No. 040 2718 6896, email ID: santhaiah@ecil.co.in.	Noted	
		1.23	Bidder should submit the Bids in Two-Parts. Part 1. Techno commercial Bid(unpriced) and Part 2. Price Bid.	Noted	
		1.24	Part1 (Techno commercial bid): (i) Tender Document Fees (ii) EMD (iii) Techno Commercial Bid and Part 2 (Price bid): (iv) Price Bid are to be submitted simultaneously.	Complied	
		1.25	Tender fee and EMD are to be kept in a separate cover and sealed, PROMINENTLY super scribing with Tender No. Date & Due Date and Name of the Bidder with contact particulars.	Complied	


					
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		1.26	Envelope containing non-refundable Tender Document Fees will be opened first. If Tender Document Fees is not furnished as per terms herein, the bid will not be evaluated further and will be returned to the bidder.	Noted	
		1.27	If the bid complies with the term on Tender Document Fees, then only the cover superscribed as "EMD" will be opened next. If the EMD is not furnished as per terms herein, Techno Commercial bid will not be opened and the bid in its entirety will be rejected and returned to the bidder; however Tender Document Fees, will not be refunded.	Noted	
		1.28	Techno Commercial Bids accompanied by Tender Document fees and EMD will only be processed for evaluation and non compliant bids will be returned to the bidders.	Noted	
		1.29	In any case, including the event of cancellation of the Tender, Tender Document Fees once furnished is non refundable.	Noted	
		1.30	Price bids of techno commercially qualified bidders only will be opened. The decision of ECIL on qualifying or otherwise of any bid is final and binding on the bidders. Price bids of unqualified bidders will be not opened and EMD will be returned .	Noted	
		1.31	Request for extension of due date will not be considered. However, ECIL, at its sole discretion, may extend due date and will be intimated through notification <u>only</u> through website www.ecil.co.in. The decision of ECIL on extension of due date is final.	Noted	
		1.32	Bids will be rejected summarily if price indications are made, either directly or indirectly in Part-1 i.e. Techno-commercial Bid.	Agreed	
		1.33	Techno commercial bids will be opened in the presence of Bidders who participated and interested to be present.	Noted	
		1.34	During evaluation of techno commercial bids, Bidder should visit ECIL, Hyderabad if called upon, for techno-commercial clarifications, for which purpose the bidder will be given advance email notice with the required clarifications. If the bidder upon such request fails to provide the required technical clarifications either in person or through email/fax within 3 days of such notice, such bids will be evaluated based on the available information. No correspondence /discussion /visits whatsoever will be entertained on the subject unless specifically called upon by this office after opening the tenders for technical discussion / price negotiations. Any violation of this will render the quotations invalid and the firm is liable to be blacklisted.	Agreed	
		1.35	Bdder should furnish details of contact person with Mobile/ Land Line Telephone Numbers and email ID on the covering letter to the techno commercial bid.	Complied	
		1.36	Bidder should confirm in the Techno-commercial Bid (i) that every term and condition mentioned in the Tender is understood and accepted unqualifiedly and (ii) prices are quoted against each line entry of the BOQ of the Price Bid. Deviations, if any, found in the bid at any time including execution of order when awarded shall be treated as null and void.	Agreed	


					
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		1.37	Bidders are advised to go through and pursue the Tender document carefully before submitting the bid including Annexures there to.	Pursued carefully	
		1.38	ECIL reserves the right to accept the bids in full or in part or cancel the Tender in its entirety, at its sole discretion, without assigning any reasons.	Noted	
		1.39	Any misleading information furnished in the bid will render the bid liable for rejection. The decision of ECIL is final and binding on all the bidders.	Noted	
		1.40	Authorized and legally competent signatory should sign the bid documents.	Complied	
		1.41	Bidder should furnish the Tender document in its entirety duly filling the Bidder's response column against each of the terms, signed and with the seal of the Bidder' and uploaded. Non compliant bids will be treated as non-responsive and will be rejected.	Complied	
		1.42	Bidder should sign and affix the seal on all pages of the Bid and upload	Complied	
		1.43	The bidder furnishes a bid on or before the due date will be treated as final bid.	Noted	
		1.44	Non-refundable Tender document fees of Rs.5,000.00 (Rupees Five thousand only) should be furnished through crossed demand draft payable at Hyderabad, favoring 'Electronics Corporation of India Limited, Hyderabad'.	Complied	
		1.45	Due date for uploading of bids is up to 15.00 hrs on the due date specified in the tender schedule.	Noted	
		1.46	Techno Commercial Bids will be opened at 15.30 hrs on the due date specified in the tender schedule.	Noted	
		1.47	Canvassing in any form will render the bid liable for rejection.	Noted	
		1.48	Clarifications on the tender can be had by the Bidders before the time and date specified in the tender schedule. Requests for clarifications can be addressed to Shri V Kishore Kumar, Technical Manager, Purchase, Tel No. 040 2718 2655, email id: igmmgt@ecil.co.in (or) Shri K. SANTHAIAH, DGM, Tel No. 040 2718 6896, +91 73829 32140 amd email ID santhaiah@ecil.co.in.	Noted	
		1.49	Bids Tender Document Fees (ii) EMD should be submitted at the following address with covering letter on or before specified due date & time. Sr. Dy. General Manager (Materials) Instruments & Security Systems Group Electronics Corporation of India Limited ECIL (P.O), Hyderabad – 500 062 Tel Nos. 040 2718 2391, 040 2718 2655, 040 2718 6571	Noted	


					
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		<b>1.50</b>	<b>Important Events for the RFP in chronological order:</b> i. Release of RFP on ECIL's e-procurement portal "ecil.etenders.in" and ECIL website "www.ecil.co.in" as per standard practice. ii. Pre-bid conference ar ISG, ECIL, Hyderabad iii. Hosting of clarifications in e-procurement portal. iv. Submission of bids v. Opening of Techno Commercial bids. vi. Assessment of qualification bid for responsiveness and eligibility. vii. Evaluation of Technical Bids by Tender Evaluation Committee, only for eligible bidders, as per evaluation methodology specified in RFP. viii. Opening of price Bids of technically qualified bidders. ix. Evaluation of price bids and assessment for Combined Bid Score. x. Award of contract to highest scorer in Combined Bid Score assessment.	Noted	
2	<b>Techno Commercial Bid – Part 1</b>	<b>2.1</b>	<b><u>Pre-Qualification Criteria</u></b> The following is the preliminary criteria for evaluation of the techno commercial bid for qualifying. Documents supporting the criteria should accompany the bid.	Noted	
		2.1.1	The bidder should be a Company registered under Companies Act, 1956 in India / firms registered in India and should be registered with the Service Tax Authorities Copy of Certificate of Incorporation/certificate of registration of firm and Copy of Central Sales Tax certificate, VAT, PAN & Service Tax Registration Certificates to be enclosed with the bid.	Complied	
		2.1.2	The bidder should be an individual organization/ Joint venture company. Consortium shall not be allowed. Self Certification/undertaking from the authorized signatory of the bidder to be enclosed with the bid.	Complied	
		2.1.3	Only firms that are registered or incorporated in India are eligible to bid. Forming a consortium or partnering with a subcontractor, to meet the eligibility requirement, is strictly prohibited and any such proposal would result in rejection of the Bid. The Bidder must submit a Power of Attorney authorizing the signatory of the bid to commit the bidder	Complied	
		2.1.4	Bidder shall not have a conflict of interest that may affect the Selection Process or the Solution delivery. Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, ECIL shall forfeit and appropriate the Bid Security, if available, as per mutually agreed, genuine, pre-estimated compensation and damages, payable to the ECIL for, inter alia, the time, cost and effort of the ECIL including consideration of such Bidder's complete Proposal, without prejudice to any other right or remedy that may be available to ECIL hereunder or otherwise.	Noted	





					
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		2.1.5	ECIL requires that the Implementation/solution providing Agency, which at all times hold ECIL's complete interests paramount, avoid conflicts with other assignments or its own interests, and act without any consideration for future work. The bidder shall not accept or engage in any assignment that would be in conflict with its prior or current obligations to other clients, or that may place it in a position of not being able to carry out the assignment in the best interests of ECIL. Without limiting the generality of the above, any Bidder shall be deemed to have a Conflict of Interest affecting the Selection Process, if:	Agreed	
		2.1.5.1	Such Bidder or its Associate receives or has received any direct or indirect subsidy or grant from any other Bidder or its Associate; or	Noted	
		2.1.5.2	Such Bidder has the same legal representative for purposes of this Application as any other Bidder; or	Noted	
		2.1.5.3	Such Bidder has a relationship with another Bidder, directly or through common third parties, that puts them in a position to have access to each other's information about, or to influence the Application of either or each of the other Bidder; or	Noted	
		2.1.5.4	There is a conflict among this and other Systems Implementation/Turnkey solution assignments of the Bidder (including its personnel and other members, if any) and any subsidiaries or entities controlled by such Bidder or having common controlling shareholders. The duties of the Systems Implementation Agency will depend on the circumstances of each case. While providing software implementation and related solutions to the (Nodal Agency) for this particular assignment, the Systems Implementation Agency shall not take up any assignment that by its nature will result in conflict with the present assignment.	Noted	
		2.1.6	The Bidder should be an OEM or OEM's authorized and certified channel partner. The OEM ( <u>whether bidding on its own or through channel partner</u> ) must have a "Video Analytics Integration Platform (VAIP)" with integrated Control & Command Centre. The VAIP must be capable of integrating any industrial standard third party systems like: 1. IP based Surveillance system 2. Access Control System 3. Fire Alarm System 4. Tetra Radio Integration System 5. Power Fence System 6. License Plate Recognition System 7. Panic Alarms 8. Glass Break and 9. Gun Shot Detection Sensors.	Complied	
		2.1.7	The Bidder must be in business for last 3 years and should have after sales service centers in India and the support facilities should be fully owned by the Bidder and managed by its employees. Certificate from the authorized signatory of the bidder shall be submitted.	Complied	


					
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		2.1.8	Bidder should confirm technical specifications as given in RFP document duly supported by Technical Literature. A copy of product catalogue/ datasheet/ technical literature must be invariably enclosed with the bid.	Complied	
		2.1.9	The bidder should have at least 1000 full time employees (in India or abroad), out of which at least 100 should be part of CCTV/Biometric analytics development, working in India. Certificate from In-charge / Head, HR certifying total strength and no. of resources dedicated for CCTV/Biometric analytics development work in India to be submitted.	Complied	
		2.1.10	At least 02 (VAIP) installations with 500 inputs & 01 installation of 200 IP camera should have been successfully supplied & installed by the Bidder in India or abroad with at least one installation in India. The Firm must be directly responsible for the implementation of the projects and not just consortium member.Copy of the installation certificate shall be submitted with bid.	Complied	
		2.1.11	The Bidder, or its OEM partner, should have earlier experience or should be currently in the process of executing large turnkey projects for a Central / State Government Organization in India/ Central/State PSUs. The Firm must be directly responsible for the implementation of the projects and not just as a member of a consortium.Work order copy and execution certificate issued in the name of bidder by bidder's customer shall be submitted with bid.	Complied	
		2.1.12	The bidder or its OEM partner should have implemented at least one Integrated Video Analytics assignment covering minimum 200 Camera (Digital and Analog) with minimum three areas/ scenario identified below: a. Crowd detection b. Left baggage detection c. Face recognition d. Intrusion detection (at perimeter) e. Counter flow of vehicles f. Illegal parking The Firm must be directly responsible for the implementation of the projects and not just a member of a consortium. Work order copy to be submitted with bid	Complied	
		2.1.13	The OEM (whether bidding on its own or through channel partner) should have IP rights for proposed Integrated Video Analytics Platform / Solution. Certificate from authorized signatory shall be submitted with bid	Complied	
		2.1.14	The bidder and its OEM partner should not currently have been blacklisted by any Government Agency or under a declaration of ineligibility for fraudulent or corrupt practices or inefficient/ineffective performance. Certificate from authorized signatory shall be submitted with bid	Complied	


					
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		2.1.15	The bidder and its OEM should be prepared for joint collaboration / development with ECIL so as to meet additional analytics requirement or future needs which are otherwise not part of original Analytics Integration Platform and must share APIs, SDKs and other technical documents relevant to the proposed application and provide necessary assistance/support/training to ECIL engineers for further up-gradation/enhancement of the application or for integration with other applications. An undertaking from the authorized signatory from both bidder and OEM (in case bidder is OEM's channel partner), shall be submitted with bid	Complied	
		2.1.16	The bidder and/or OEM should arrange demonstration of the proposed solution/system to the technical evaluation committee at any working site in India or anywhere in the world. All the expenditure towards travel, boarding & lodging for the committee members will be borne by ECIL. Bidder has to specify the site details along with the bid.	Complied	
		<b>2.2</b>	<b>Annual Turnover and Net Worth:</b>		
		2.2.1	The bidder's annual turnover towards CCTV business / solution should be at least Rs 100 crores in each of the last three financial years (2013-14, 2014-15 & 2015-16(Provisional)). Duly certified statement from appointed statutory auditor for the last three financial years indicating the amount of turnover during these years shall be submitted with bid.	Complied	
		2.2.2	The bidder's net worth should be positive for each of the last three financial years (2013-14, 2014-15 & 2015-16) Duly certified statement from appointed statutory auditor confirming positive network for the last three financial years shall be submitted with bid.	Complied	
		<b>2.3</b>	<b>Certification:</b>		
		2.3.1	The OEM (whether bidding on its own or through channel partner) responsible for product customization and implementation should have ISO 9001 certification <b>OR</b> a SEI CMMi (Capability Maturity Model) level -3 or higher certification. Copy of the Certificate Valid as on the last date of submission of bid to be submitted.	Complied	
		<b>2.4</b>	<b>OFFICES / DEVELOPMENT CENTER</b>		
		2.4.1	The OEM (whether bidding on its own or through channel partner) should have Development center in India. Declaration by authorized signatory shall be submitted with bid with address and contact details	Complied	
		2.4.2	The decision of evaluation committee constituted for evaluating the bids with respect to assessment of bids and allotment of scores will be final and binding on all bidders. Undertaking by the authorized signatory shall be submitted with bid	Complied	

					
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		2.4.3	The bidder should submit (self-attested) documentary proof in support of the above conditions, with Techno-commercial offer. As there is an urgency to set up the system, the bidders are requested to submit all the required documents along with the offer. <b><u>Offers without supporting documents / certifications / undertakings will be summarily rejected.</u></b>	Complied	
		2.4.4	Copies of Excise, VAT, CST, Service Tax Registration, PAN particulars shall be uploaded	Complied	
		2.4.5	Bidder should have solvency for a minimum amount of Rs.200.00 Lakhs. Certificate from a Scheduled Bank of repute issued after the date of the tender should accompany the techno commercial bid. The certificate should indicate the name, contact no. and email id of the issuing Signatory of the Bank.	Complied	
		<b>2.5</b>	<b>Disqualification:</b> The bidder shall be disqualified if:		
		2.5.1	The bidder or any of its constituents have been blacklisted / having banned business dealings for all Government Departments or by any Ministry or by ECIL at any time, except in cases where such blacklisting/banning has been withdrawn by Competent Authority or have ceased on the deadline for submission of the bid, for which satisfactory evidence is to be produced. Certificate from authorized signatory shall be submitted with bid	Noted & Complied	
		2.5.2	Any previous contract of the bidder or any of its constituents had been terminated / rescinded for contractor's complete failure by ECIL or any other public sector company during the period of last 2 years before the deadline for submission of bid. Provided, however, there is no stay or declaration by any Court order against such termination or rescission of the Contract by ECIL. Certificate from authorized signatory shall be submitted with bid	Noted & Complied	
		2.5.3	The bidder or any of its constituents have suffered bankruptcy/insolvency or it is in the process of winding-up or there is a case of insolvency pending before any Court on the deadline of submission of bid Certificate from authorized signatory shall be submitted with bid	Noted & Complied	
		2.5.4	The bidder is found ineligible by ECIL and has been declared to be a poor performer and the period of poor performance is still in force on the deadline for submission of bid. The decision of ECIL is final on deciding the performance of the Bidder.	Noted & Complied	
		<b>2.6</b>	<b>Currencies of Bid and Payment</b>		
		2.6.1	The bidder shall quote the unit rates and the prices entirely in the Indian Rupees	Noted & Complied	
		<b>2.7</b>	<b>Scope of work:</b>		
		2.7.1	ECIL is looking for a solution provider willing to partner the prestigious project of implementing surveillance, video analytics at a vital installation of national importance.	Noted	
		2.7.2	The prospective partner must be an OEM having a product (video analytics integration platform) capable of integrating the best of the breed video analytics from various vendors with a command control facility and integration with industry standard IP based Video Management Systems.	Noted	


					
S. No.	Term	Cluase No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
		2.7.3	The solution provider should be willing to work hand in hand for joint development with ECIL and provide necessary assistance/support/training to ECIL engineers for development and integration of required applications for implementing the total solution.	Agreed	
		2.7.4	As part of the overall solution, Video Analytics Integration Platform is required to meet specific Surveillance and security purposes This section details the project requirements that the system integrator chosen to implement the content analytics integration Solution must integrate in order to fulfill the objectives as listed in the functional requirements section RFP document.	Noted	
		2.7.5	Installation, configuration, customization of the content (video) analytics solution and integration with any additional systems as required.	Agreed	
		2.7.6	The Solution should be robust, vendor-agnostic, open standard Video Analytics platform that taps into existing or new video surveillance cameras and provides real-time situational awareness for security and operations	Noted	
		2.7.7	An integrated command and control application enables visualization of geo-coded alerts in a map interface.	Complied	
		2.7.8	The system should be able to take direct CCTV camera feeds across digital and analog formats as well as VMS system and create a centralized command and control center which allows various Video & predictive Analytics use cases, till such time, the analog cameras are replaced with digital ones.	Complied	
		2.7.9	Implementation in accordance with the acceptance criteria as per RFP document.	Complied	
		2.7.10	Change management methodology and procedural adherence in change management	Complied	
		2.7.11	Training to be imparted to ECIL/end users to be able to use the system for intended purposes	Agreed	
		2.7.12	Adherence to approved project plan and project governance structure.	Complied	
		2.7.13	The VAIP solution should be able to address at a minimum functional use case / Scenarios and deploy, customize and adapt different algorithms from different OEM for Video analytics and have the facility to build different operational and predictive algorithms and simulations.	Complied	
		2.7.14	Apart from above requirements, the successful bidder must be prepared to work hand in hand with ECIL for joint development of the required application.	Agreed	
		2.7.15	The bidder must share all technical details, without reservations whatsoever, that may be required for the joint development activity for enhancement or up-gradation of the product for 'seem less integration with any other new applications that will be required to be developed for meeting the solution in entirety	Agreed	


					
S. No.	Term	Cluase No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
		2.7.16	The Bidder is expected to incorporate necessary changes in the supplied applications to achieve customization and must share the work flow for such enhancements.	Agreed	
		2.7.17	The bidder must provide all required assistance in the form of APIs, SDKs, Work Flow/ flow charts for facilitating the understanding of the application	Agreed	
		2.7.18	The Bidder is also expected to assess the training needs for the project and impart necessary training to ECIL engineers to familiarize them with the product as well as associated tools required for up-gradation, customization, development, integration and implementation. The training should also include necessary classroom presentation as well as hands on practical on the product	Complied	
		2.7.19	Apart from the above training, imparted at the beginning of the project, 'need based' training session shall be organized by the bidder based on requirement arising during execution	Agreed	
		2.7.20	The bidder shall quote separately for each component of the solution including but not limited to the following: a. Video Analytics Integration Platform. b. Video Analytics for each category. c. Customization effort in terms of total man days required and cost per man day. d. Training to the ECIL engineers involved in the customization/ integration/ up-gradation activity. e. Special Development tools required, if any. f. Video Management System, component wise. g. Any other component required for meeting the RFP functional requirements	Complied	
		2.7.21	The bid should cover the total scope in RFP document. Bids for part scope will be rejected summarily.	Complied	
		2.7.22	A bidder can tender one bid only. Multiple bids from the same bidder will be rejected summarily.	Noted	
		2.7.23	Detailed technical Specification of solution is as per RFP document	Noted	
		2.7.24	Bidder should confirm to provide configuration, installation,operation & maintenance manuals along withservice tips for the entire solution, along with supply.	Complied	
		2.7.25	The scope of supply should include in toto to meet the above scope of work. Additional tolls/modules if any, it will be the responsibility of the bidder.	Complied	
		2.7.26	In case, no accessories or devices or special tools are required, the same shall be indicated so. In the absence of response in the bid to this condition, it will be presumed and evaluated that the Bidder agreed to include such accessories and devices and special tools.	Agreed	
		2.8	The following documents shall be furnished as part of Techno Commercial Bid.	Noted	
		2.8.1	Copy of Tender Document Fees as specified.	Complied	
		2.8.2	Copy of EMD as specified.	Complied	

					
S. No.	Term	Cluase No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
		2.8.3	Un priced price bid format, duly signed, and stamped, as per Annexure C1.	Complied	
		2.8.4	Pointwise/parawise compliance to RFP document	Complied	
		<b>2.9</b>	<b>Technical Scoring Methodology</b>		
		2.9.1	Bidders who meet responsiveness and pre-qualification requirements would be considered for next stage of Technical and Financial evaluations. An expert technical evaluation committee will be constituted by the competent authority to evaluate the technical proposals submitted by bidders who meet responsiveness and pre-qualification requirements. criteria <b>specified in RFP document</b> shall be used to evaluate the Technical Proposals and for assessing the Technical Score (Ts).	Complied	
		<b>2.10</b>	<b>Bid Evaluation Procedure</b>		
		2.10.1	In the first stage, each proposal shall be evaluated to ascertain whether it fulfils the criteria for responsiveness. Thereafter, the proposals would be checked for the pre qualification criteria. The proposals which meet the criteria of responsiveness and also that of pre-qualification will be evaluated for ascertaining the total Technical score of the proposal.	Complied	
		2.10.2	The minimum qualifying score at the stage of Technical Evaluation of Proposals will be 70 out of 100. If the number of firms who have obtained a minimum of 70 marks is minimum of 2, the same shall be selected for opening of Price proposals. In the eventuality of less than two bidders securing more than 70 marks in technical evaluation, ECIL reserves the right to scrap the tender and re-float the same.	Complied	
3	<b>Validity</b>	3.1	Bids shall be valid for a minimum period of 90 days from the due date of submission of Tender. Bids with conditions/riders such as ' <b>subject to</b> ' will be rejected summarily. In case any delay in the finalization of the bid, the bid validity must be extened as and when it is requested.	Complied	
4	<b>Delivery Schedule</b>	4.1	Delivery of the ordered solution should be supplied and installed to meet system GO LIVE within 2 months from the date of firm purchase order. ECIL will provide all the necessary inputs to make the system GO LIVE. Any delay from ECIL will not be attributable to the bidder's delivery period and the same will not be considered for computation of LD. The project has to be completed in toto and obtaining SAT acceptance certificate within 4 months form the GO LIVE.		
		4.2	Solution shall be implemented and SAT shall be conducted within 15 working days from the date of email notice from ECIL for which purpose ECIL will provide 15 days notice in advance i.e. SAT shall be completed within 30 days from the date of email notice. However SAT is subject to ECIL providing facilities.	Agreed	
5	<b>SAT Inspection</b>	5.1	Final inspection including SAT will be carried out at site in New Delhi. Acceptance or otherwise of the solution will be communicated with in 2 weeks from the date of implementation. SAT procedure shall be submitted along witht the supplies for approval.	Agreed	


					
S. No.	Term	Cluase No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
		5.2	In case, if any user requirment is not met, the bidder should undertake to provide onsite modifications/upgradations within 15 days from the time/date of intimation of such requirment for modification, with all associated costs borne by the bidder for delivery of acceptable solution.	Agreed	
		5.3	Modifications, if any required, during SAT, the bidder should undertake to provide the solution onsite without any price implication within 7 days from the time/date of complaint log., with all associated costs borne by the bidder for implementing the solution		
6	<b>Onsite warranty and post warranty spares /service support</b>	6.1	Bidder should provide on-site warranty at New Delhi for a period of 36 months from NBD of acceptance of solution at site, New Delhi.	Agreed	
		6.2	Bidder should provide Warranty Certificate as per format in Annexure C3.		
		6.3	In case of breakdown/malfunctioning of software during warranty period, the Bidder should undertake to provide the solution within 4 hrs. from the time of email notice/complaint logged.	Agreed	
		6.4	ECIL will levy penalty @ Rs.10000.00 per day per component for non-performance of the system attributable to the the supplied software within 4 hrs. If Bidder fails to restore even during the penalty period, BG will be invoked including invoking risk purchase. The decision of ECIL is final and binding on bidders.	Agreed	
		6.5	<b>Compliance to warranty clause is mandatory</b>	<b>Complied</b>	
7	<b>Training</b>	7.1	A detailed training program will be conducted by the solution provider for all end users to familiarize them with the functionality of the implemented solution. A study of training needs analysis will be conducted by the successful bidder and based on the findings of this analysis, training content will be finalized by the solution provider.	Complied	
		7.2	The training will be delivered in classroom mode to the end users and copies of the training manuals, both soft and physical, will be provided. A post training evaluation exercise is to be mandatorily conducted for all attendants of the training program to measure the efficacy of the training program. The solution provider must include their plan and methodology for conducting training needs analysis and the training itself as part of their technical bid	Complied	
		7.3	Bidder should undertake to train 10 ECIL engineers and personnel nominated by ECIL for 5 working days on all aspects of equipment at OEM's works, like functioning, installation, testing, commissioning, trouble shooting, system operation, maintenance and repair, at no additional cost.	Agreed	
		7.4	Cost of travel, boarding and lodging of ECIL personnel shall be borne by ECIL.	Agreed	
8	<b>Dispatch documentation</b>	8	The following documents shall be furnished:		
			All Tax invoices shall be raised on ECIL, New Delhi in triplicate and all ink signed		
		8.1	<b>1<sup>st</sup> stage payment:</b> To ECIL, Hyderabad: Supply part for initial 70% payment:	Agreed	





					
S. No.	Term	Clause No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
			(a) Delivery Challan in duplicate certified by Stores, ECIL, New Delhi that 'received vide GR No., GR Date' and the certificate for GO-Live from the project team.		
			(b) Original Invoice for 70% in triplicate indicating Excise Duty/VAT/CST as applicable attested by ECIL, New Delhi as 'received, and original invoice retained'.		
			– all ink signed drawn in favor of Electronics Corporation of India Ltd, B2, Local Shopping Center, DDA, B7, "A" Block, Ring Road, Naraina, New Delhi 110 028 and delivered at this address.		
			(c) SAT procedure, Configuration, Operation, Maintenance, support manuals in English with Acknowledgement from ECIL, New Delhi confirming submission of Manuals.		
		8.2	<b>2<sup>nd</sup> stage payment:</b> Balance 30% of the PO value along with applicable taxes will be released subject to submission of invoice , as built system documents, final configuration details, installation manuals, SAT acceptance and handing over certificate from ECIL site incharge/project leader/end user.	Agreed	
			Every invoice shall indicate Serial No. of PO, Description, Unit, Quantity, and Unit Rate, strictly as per Purchase order.	Agreed	
9	<b>Prices</b>		Financial loss to ECIL due to non-compliance of above requirements shall be to the account of Bidder. ECIL will not be responsible for delay in payment due to non compliance invoices of bidder.	Agreed	
		9.1	Un priced price bid format as per Annexure C1 should form part of Techno-commercial Bid, indicating against each line entry, all the applicable types of taxes and corresponding rates. The make and model nos. should be indicated against the respective line entries.	Complied	
		9.2	Prices shall be quoted for 'Free Delivery at Site, ECIL, New Delhi' and should include all charges towards packing, forwarding, freight, transit insurance, unloading and other incidentals if any etc.	Complied	
		9.3	Bidders should submit the offer indicating clearly Basic price inclusive all against each line of the BOQ in the price bid format as per Annexure C2.	Complied	
		9.4	Prices should be indicated both in figures and words in the Price Bid format Annexure C2.	Complied	
		9.5	Bidder shall note that in case of disagreement in rates and prices and between words and figures, the lesser/least of the values only will be considered for the purpose of evaluation which shall be binding on the bidder.	Agreed	
10	<b>Negotiations</b>	9.6	Prices shall remain firm till execution of the order/contract, including additional quantities as per terms hereunder.	Agreed	
		10.1	Negotiations will not be conducted with Bidders as a matter of routine. However, ECIL reserves the right to conduct negotiation with L1 as per bid ebaluation criteria. Hence, Bidders are advised to quote competitive prices considering the fact that price negotiations, if any, will be held only with the techno-commercially qualified lowest Bidder.	Agreed	

					
S. No.	Term	Cluase No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
11	<b>Liquidated Damages (LD)</b>	11.1	<p>Stage1: LD will be levied and recovered @ 1% per week of delay or part there on the order value including taxes, when the Bidder fails to deliver the ordered requirement as per mutually agreed delivery schedules subject to issue of ECIL inputs. The later date of ECIL input will be reckoned as start date of delivery period. Date of delivery at site shall be treated as discharge of delivery obligation for the purpose of arriving at LD, if any for stage 1 LD.</p> <p>Stage2: Also LD at the above rates will levied and recovered on the value of the PO together with Taxes if fail to conduct SAT successfully within the mutually agreed time as specified in the clause on delivery schedule from the date of email notice for conducting SAT as per SAT procedure. However SAT is subject to ECIL providing facilities. For the purpose of stage 2 LD the start date for SAT shall be the later date of email notice from ECIL or ECIL providing facility for conducting SAT. Date of successful completion of SAT as certified by site project team shall be reckoned for arriving LD if any for stage2 LD.</p> <p>Stage 3: If the bidder fails to submit the SAT acceptance certificate along with final documents as specified in the dispatch documentation 2nd stage within the agreed completion schedules i.e. project complete schedule of 6 months from the date of award of Purchase Order., LD will be levied and recovered @ 1% per week of delay or part there on the order value</p> <p><b>Compliance to LD is mandatory.</b></p>	Agreed	
12	<b>Terms of payment</b>	12.1	1 <sup>st</sup> stage payment: 70% with 100% Taxes & Duties will be released within 60 days from the date of supply of proposed solution and making live the solution, subject to submission of dispatch documentation as specified furnishable to ECIL, Hyderabad.	Agreed	
		12.2	2 <sup>nd</sup> stage payment: Balance 30% will be released within 30 days from the date of submission of SAT certificate and acceptance of total solution by end user subject to furnishing documents as specified in stage 2 of dispatch documentation.	Agreed	
		12.3	All payments will be released from ECIL, Hyderabad	Noted	
		12.4	No advance payments will be made.	Agreed	
		12.5	<b>Bids with counter terms for payment will be rejected summarily.</b>	Noted	
		12.6	ECIL shall not be held responsible for delay in payment due to Bidder's delay in submitting the documents as per terms of PO.	Agreed	
		12.7	<b>Compliance to this clause is Mandatory</b>	Complied	
		13.1	Bidder should undertake to furnish PBG within 10 days from the date of notification of Tender Acceptance from ECIL through email. Formal PO will be awarded only upon receipt of PBG. In the event of bidder's failure to comply this condition on PBG, the bidder is liable to forfeit EMD and the bid will be rejected in its entirety. In such event, in addition, ECIL reserves the right to impose LD and invoke Risk Purchase Clause, without further notice.	Agreed	

S. No.	Term	Cluase No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
13	<b>Performance cum Warranty Bank Guarantee (PBG)</b>	13.2	The PBG should be for 10% of the value of to be specified in Tender Acceptance as per format in Annexure C4 valid for 42 months from the date of issue, with additional claim period of one month to cover the bidder's obligations on performance on the PO and warranty. The PBG should be from a Scheduled Bank of repute and shall be extended from time to time, within 7 days of email notice, to cover intended obligations as demanded by ECIL; failing which ECIL reserves the right to invoke the PBG.	Agreed	
		13.3	In the event of Bidder's failure to discharge Bidder's obligations as per the terms and conditions of PO including performance and warranty, all the costs incurred by ECIL will be recovered through encashment of PBG and any other means available to ECIL.	Agreed	
		13.4	Penalty of Rs.10,000.00 per day will be levied if fail to furnish BG on or before the time schedule specified at 13.1 and will be recovered from EMD if delayed beyond the specified time.. <b>Compliance to this clause is Mandatory.</b>	Agreed	
14	<b>Arbitration</b>	14.1	Every effort shall be made to settle all the disputes or differences arising during the execution of the purchase order through mutual conciliation. If this conciliation fails, the disputes/differences shall be addressed to as per the Provisions Arbitration & Conciliation Act 1996.	Agreed	
		14.2	The venue for Arbitration proceedings shall be at Hyderabad.	Agreed	
		14.3	Cost of arbitration proceedings shall be shared equally by the contending parties.	Agreed	
		14.4	In the event of failure of Arbitration proceedings, either party shall have recourse to law, in which event, only courts in Hyderabad/Ranga Reddy District, Telangana shall have exclusive jurisdiction, notwithstanding concurrent jurisdiction of other courts	Agreed	
15	<b>Assignment</b>	15.1	The bidder should undertake not to assign any of the obligations of the purchase order when awarded, to any third party or agency, either in whole or in part, except with prior written consent of ECIL.	Agreed	
16	<b>Earnest Money Deposit (EMD)</b>	16.1	Techno-commercial Bid shall accompany interest-free EMD for Rs. 24,00,000.00 (Rupees twenty four Lakhs only) in the form of Demand Draft, drawn on any scheduled bank in favor of 'Electronics Corporation of India Limited' and payable at Hyderabad. Bank Guarantee in lieu of DD is acceptable, if furnished on a Scheduled Bank of repute, strictly as per format in Annexure C5, valid for 90 days from the due date for submission of bids on the Tender with additional claim period of 30 days.	Complied	Details of EMD _____
		16.2	EMD, whether in the form of Demand Draft or Bank Guarantee, should be put in a separate sealed cover, superscribed as "EMD" indicating Tender No. & Date. Scanned copy EMD instrument should be uploaded in the portal.	Complied	

					
S. No.	Term	Cluase No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
		16.3	EMD will be returned to the technically un qualified bidders within 2 weeks from the date of finalization of techno-commercial evaluation. EMD will be returned to the technically qualified, but not L1 (as per evaluation criteria) bidders within 10 days from the date of award of purchase order. EMD will be returned to successful Bidder upon furnishing PBG after award of Tender Acceptance. As part of Techno Commercial Bid, Bidder should furnish name of the Bank, Branch, Type of Account and Account No. for return of EMD, if EMD is furnished through Demand Draft.	Noted	
		16.4	If the Bidder revokes, withdraws and modifies the Bid with in the validity period of the Bid, Bidder will forfeit the EMD submitted.	Agreed	
		16.5	<b>Compliance to EMD clause 17.1 is mandatory.</b>	<b>Complied</b>	
17	<b>Risk Purchase</b>	17.1	In the event of Bidder's failure to execute the order as per agreed schedule and as per ordered terms and conditions, ECIL shall have the right to cancel the purchase order and procure these ordered solution from alternate sources, in which event, the Bidder will be liable to bear all extra cost/costs, whatsoever, which may be incurred by ECIL for such alternate procurement. All such costs will be recovered from bills/payables and/or by invocation of Bank Guarantee/s and/or through other means of law.	Agreed	
		17.2	ECIL reserves the right to invoke Risk Purchase Clause, without further notice, when (i) the bidders fails to furnish PBG as specified upon award of Tender Acceptance (ii) the bidder fails to execute the order as per agreed specifications and deliver or (iii) when the Bidder fails, to comply with agreed service levels as specified in the warrantee clause during the warranty period.	Agreed	
18	<b>Confidentiality – cum Non Disclosure</b>	18.1	All the terms and conditions, including Drawings, Site Plans, details provided for development of software shall be confidential and should not disclose to any third party, without the written consent of ECIL. After execution of the order supplier should give an undertaking that all the files furnished by ECIL are destroyed.	Agreed	
		18.2	Bidder should not advertise or publicize through media on the scope and execution of the purchase order, when awarded. ECIL reserves the right to prosecute and/or claim damages for non-compliance.	Agreed	
19	<b>Termination Clause</b>	19.1	ECIL reserves the right to cancel the purchase order in part or in full if the bidder (i) fails to execute the order as per the agreed specifications or (ii) if the delay in execution is attributable to supplier other than Force Majeure beyond any agreed delivery extensions or (iii) if the bidder is declared bankrupt or insolvent.	Agreed	
20	<b>Exclusivity</b>	20	The Bidder shall undertake in the bid that Bidder shall not offer any supply, service or consultancy to the end user, either directly or indirectly, either in full or in part, w.r.t. the scope of this tender, without the express written consent of ECIL.	Agreed	

					
S. No.	Term	Clause No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
21	<b>Force Majeure</b>	21.1	Neither party shall bear responsibility for the complete or partial non-performance of any of its obligations (except for failure to pay any sum which has become due on account of services rendered), if the non performance results from such force majeure circumstances as flood, fire, earth quake and other acts of God as well as war, military operations, blockade, acts or action of state authorities or acts of terrorism or any other circumstances beyond the parties' control that have arisen during the course of the contract, either the contract period will be extended accordingly or notify in writing to ECIL, the beginning and cessation of the above circumstances, not later than 10 days from the date of beginning.	Agreed	
		21.2	If the impossibility of complete or partial performance lasts for more than 3 months, either party hereto reserves the right to terminate the contract upon giving prior 15 days notice, without any liability other than reimbursement on the terms provided in the agreement for the services rendered.	Agreed	
22	<b>Additional requirement</b>	22.1	Item quantities as mentioned in Bill of material is likely to change at the time of execution		
		22.2	Agreed prices together with all the terms and conditions shall remain firm, fixed and valid, for any additional quantities for entire period of project execution, without any restriction on the minimum quantity or value per item.		
23	<b>Part 2: Price Bid</b>	23.1	<b>Evaluation of Price Proposals will be as per the criteria given in RFP document</b>	Noted	
		23.2	Prices for all the line entries as per price bid format shall be quoted. Bids with partial scope will be rejected summarily.		
		23.3	Price Proposals will be reviewed to ensure that – The figures provided therein are consistent with the details of the corresponding Technical Proposal (e.g. Bill of Material, Deployment of Personnel etc);	Complied	
		23.4	The financial terms in each proposal in financial document will be checked for compliance set forth in and other clauses of the RFP document	Noted	
		23.5	The Evaluated Total Price for each Proposal will be determined as under:-		
		23.6	Price Proposals shall be checked for computational errors. The evaluation committee shall correct arithmetical errors on the following basis:-	Noted	
		23.7	If there is discrepancy between the unit price and the total price that is obtained by multiplying the unit price and the quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the evaluation committee, there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;	Noted	
		23.8	If there is an error in the total, corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and	Noted	

					
S. No.	Term	Clause No	Condition	Compliance required	Bidder's response (Yes/ No) Deviations / notes / Remarks if any
		23.9	<u>If there is discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to above.</u>	Noted	
		23.10	Price proposals that are less than 50% of the average bid price will be disqualified (the average bid price is computed by adding all Price proposal values of ALL the qualified bidders and dividing the same by the number of bidders).	Noted	
		23.11	The bidder with lowest Evaluated Total Price (L1) will be awarded 100% score (amongst the bidders which did not get disqualified on the basis of point above). Financial Scores for other than L1 bidders will be evaluated using the following formula: Financial Score of a Bidder (Fs) = {(Price proposal of L1 bidder/Commercial Bid of the other Bidder) X 100}% (Adjusted to two decimal places)	Noted	
		23.12	Basic Prices should be offered in INR against each line entry of the BoQ, on FoR, site, New Delhi basis inclusive of packing, forwarding, freight, insurance, unloading at site, New Delhi and including all other incidentals, as per price bid format in Annexure C2.	Complied	
		23.13	The Price Bid should contain only price information; and shall not contain any other term, condition or note(s).	Complied	
		23.14	Additional terms, conditions, notes, remarks etc if any in the priced price bid will be summarily ignored.	Agreed	
24	Combined and Final Evaluation criteria	24.1	<b>Combined and Final Evaluation of the bid will be as per the criteria given in RFP document</b>	Agreed	
		24.2	The financial and technical scores secured by each bidder will be added using weight age of 30% and 70% respectively to compute a Composite Bid Score.	Noted	
		24.3	The bidder securing the highest Composite Bid Score will be adjudicated as the most responsive and Highest Ranking Bidder for award of the Project. The overall score will be calculated as follows:- Bs = 0.30 * Fs + 0.70* Ts Where Bs = overall score of bidder Ts = Technical score of the bidder (out of maximum of 100 marks) Fs = Normalized financial score of the bidder	Noted	
		24.4	In the event the composite bid scores are 'tied', the bidder securing the highest technical score will be adjudicated as the Best Value Bidder for award of the Project. After such final ranking, the Best value bidder will be invited for contract negotiations.	Agreed	
25	Integrity Pact	25.1	Bidder should furnish integrity pact as per Annexure -C6	Accepted	

**PUBLIC TENDER NOTIFICATION No. ECIL:ISG:PUR:PT:16-17/001 DTD 25.04.2016**

***RFP Document for IP based Video  
Analytics Integration Platform (VAIP),  
Video Content Analytics (VCA)  
&  
Video Surveillance System (VMS)  
for  
ECIL's customer at New Delhi***

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## 1.0 INTRODUCTION:

Electronics Corporation of India Limited (ECIL) is a Public Enterprise under the Department of Atomic Energy. Established in 1967 primarily to meet the Control and Instrumentation requirements of India's nuclear power program, ECIL has played a pioneering role in spurring the growth of indigenous electronics industry in the country. Ranging from miniature components to complex systems and encompassing Instrumentation, Communication and Computer technologies, ECIL is a multi-product, multi-disciplinary and multi-technology organization providing cutting-edge technology solutions to the strategic users in Defence, Atomic Energy, Aerospace, Electronic Security and IT & e-Governance.

### **Security Systems and Solutions:**

ECIL is India's premier security systems integrator and solutions architect. Systems designed and engineered by ECIL protect vital installations and premises all around the country. The integrated security systems include IP camera based video surveillance with advanced analytics, personnel and vehicle access control and anti-terrorist gadgetry.

ECIL is looking for a solution provider willing to partner the prestigious project of implementing surveillance, video analytics at a vital installation of national importance.

The prospective partner must be an OEM having a product (video analytics integration platform) capable of integrating the best of the breed video analytics from various vendors with a command control facility and integration with industry standard IP based Video Management Systems.

The solution provider should be willing to work hand in hand for joint development with ECIL and provide necessary assistance/support/training to ECIL engineers for

development and integration of required applications for implementing the total solution.

1.1 Important Events for the RFP in chronological order:

- i. Release of Request For Proposal(RFP) in leading newspapers and on ECIL website as per standard practice.
- ii. Pre-bid conference.
- iii. Queries and Replies.
- iv. Submission of bids
- v. Opening of Qualification and technical bids.
- vi. Assessment of qualification bid for responsiveness and eligibility.
- vii. Evaluation of Technical Bids by Tender Evaluation Committee, only for eligible bidders, as per evaluation methodology specified in RFP.
- viii. Opening of Commercial Bids of technically qualified bidders.
- ix. Evaluation of commercial bids and assessment for Combined Bid Score.
- x. Award of contract to highest scorer in Combined Bid Score assessment.

## 2.0 PRE-QUALIFICATION CRITERIA

Criteria Requirement	Documents Submission Requirements
<b>Resources and strength</b>	
The bidder should be a Company registered under Companies Act, 1956 in India / firms registered in India and should be registered with the Service Tax Authorities.	Copy of Certificate of Incorporation/certificate of registration of firm and Copy of Central Sales Tax certificate, VAT, PAN & Service Tax Registration Certificates

<b>Criteria Requirement</b>	<b>Documents Submission Requirements</b>
The bidder should be an individual organization/Joint venture company. Consortium shall not be allowed.	Self Certification/undertaking from the authorized signatory of the bidder.
<p>The Bidder should be an OEM or OEM's authorized and certified channel partner. The OEM (whether bidding on its own or through channel partner) must have a "Video Analytics Integration Platform (VAIP)" with integrated Control &amp; Command Centre. The VAIP must be capable of integrating any industrial standard third party systems like:</p> <ol style="list-style-type: none"> <li>1. IP based Surveillance system</li> <li>2. Access Control System</li> <li>3. Fire Alarm System</li> <li>4. Tetra Radio Integration System</li> <li>5. Power Fence System</li> <li>6. License Plate Recognition System</li> <li>7. Panic Alarms</li> <li>8. Glass Break and</li> <li>9. Gun Shot Detection Sensors.</li> </ol> <p>The Bidder must be in business for last 3 years and should have after sales service centers in India and the support facilities should be fully owned by the Bidder and managed by its employees.</p>	Certificate from the authorized signatory of the bidder. A copy of product catalogue/ datasheet/ technical literature must be invariably enclosed with the bid.
The bidder should have at least 1000 full time employees (in India or abroad), out of which at least 100 should be part of CCTV/Biometric	Certificate from In-charge / Head, HR certifying total strength and no. of resources dedicated for

<b>Criteria Requirement</b>	<b>Documents Submission Requirements</b>
analytics development, working in India.	CCTV/Biometric analytics development work in India.
At least 02 (VAIP) installations with 500 inputs & 01 installation of 200 IP camera should have been successfully supplied & installed by the Bidder in India or abroad with at least one installation in India. The Firm must be directly responsible for the implementation of the projects and not just consortium member..	Copy of the installation certificate
The Bidder, or its OEM partner, should have earlier experience or should be currently in the process of executing large turnkey projects for a Central / State Government Organization in India/ Central/State PSUs. The Firm must be directly responsible for the implementation of the projects and not just as a member of a consortium.	Work order copy to be produced
The bidder or its OEM partner should have implemented at least one Integrated Video Analytics assignment covering minimum 200 Camera (Digital and Analog) with minimum three areas/ scenario identified below: <ul style="list-style-type: none"> <li>a. Crowd detection</li> <li>b. Left baggage detection</li> <li>c. Face recognition</li> <li>d. Intrusion detection (at perimeter)</li> <li>e. Counter flow of vehicles</li> </ul>	Work order copy to be produced

Criteria Requirement	Documents Submission Requirements
<p>f. Illegal parking</p> <p>The Firm must be directly responsible for the implementation of the projects and not just a member of a consortium.</p>	
<p>The OEM (whether bidding on its own or through channel partner) should have IP rights for proposed Integrated Video Analytics Platform / Solution.</p>	<p>Certificate from authorized signatory</p>
<p>The bidder and its OEM partner should not currently have been blacklisted by any Government Agency or under a declaration of ineligibility for fraudulent or corrupt practices or inefficient/ineffective performance.</p>	<p>Certificate from authorized signatory</p>
<p>The bidder and its OEM should be prepared for joint collaboration / development with ECIL so as to meet additional analytics requirement or futures needs which are otherwise not part of original Analytics Integration Platform and must share APIs, SDKs and other technical documents relevant to the proposed application and provide necessary assistance/support/training to ECIL engineers for further up-gradation/enhancement of the application or for integration with other applications.</p>	<p>An undertaking from the authorized signatory from both bidder and OEM((in case bidder is OEM's channel partner).</p>
<b>Annual Turnover and Net Worth:</b>	
<p>The bidder's annual turnover towards <b>CCTV business / solution</b> should be at least Rs 100 crores in each of the last three</p>	<p>Duly certified statement from appointed statutory auditor for the last three financial years indicating</p>

Criteria Requirement	Documents Submission Requirements
financial years (2013-14, 2014-15 & 2015-16(Provisional)).	the amount of turnover during these years.
The bidder's net worth should be positive for each of the last three financial years (2013-14, 2014-15 & 2015-16)	Duly certified statement from appointed statutory auditor for the last three financial years indicating the amount of turnover during these years.
<b>Certification:</b>	
The OEM (whether bidding on its own or through channel partner) responsible for product customization and implementation should have ISO 9001 certification OR a SEI CMMi (Capability Maturity Model) level -3 or higher certification.	Valid copy of the Certificate as on the last date of submission of bid.
<b>OFFICES / DEVELOPMENT CENTER</b>	
The OEM (whether bidding on its own or through channel partner) should have Development center in India.	Declaration by authorized signatory.
<b>Bid Evaluation Methodology</b>	
The decision of evaluation committee constituted for evaluating the bids with respect to assessment of bids and allotment of scores will be final and binding on all bidders.	Undertaking by the authorized signatory

The bidder should submit (self-attested) documentary proof in support of the above conditions, with Techno-commercial offer. As there is an urgency to set up the system, the bidders are requested to submit all the required documents along with the offer. **Offers without supporting documents / certifications / undertakings will be summarily rejected.**

The proposals meeting the 'Pre-qualification criteria', shall be evaluated further in the second stage as under:

Two-part bid systems shall be adopted for evaluation:

Part-I	Techno-commercial offer and
Part-II	Price offer.

## **2.1 Technical requirements**

- 1) **Technology independence:** The solution offered by the bidder should be open standards based and should be able to work with a range of technologies and should not be limited by the choice of technologies, including but not restricted to, the choice of server and storage technology vendors, camera equipment vendors, networking vendors.
- 2) **Scale:** The solution should not be limited by the number of camera feeds that it can accept. Similarly, the solution should be able to meet the functional requirements specified in the subsequent sections of this RFP and should not be restricted by the number of peripheral devices, number of people and vehicles being monitored. The solution should include a flexible site configuration and management that enables addition of CCTV elements (cameras, encoders, decoders, NVR's) as well as configuration of the existing CCTV elements. It must be capable of configuring analytics applicable for each sensor.
- 3) **Independence of solution components:** The various components of the solution catering to the functional requirements provided should be independent of each other. The solution should allow for differential workloads to be handled by the various components. It should also be possible for implementing technology upgrades in hardware or analytical algorithms for individual components with minimal impact on the rest of the solution.
- 4) **Performance metrics:** The solution should be available for 99.9% of the scheduled uptime given the rest of the infrastructure is operational. Planned downtime should not exceed more than 2 hours in a month and should be planned outside of working hours.

## **2.2 Training requirements:**

- 1) A detailed training program will be conducted by the solution provider for all end users to familiarize them with the functionality of the implemented solution. A study of training needs analysis will be conducted by the successful bidder and based on the findings of this analysis, training content will be finalized by the solution provider.

- 2) The training will be delivered in classroom mode to the end users and copies of the training manuals, both soft and physical, will be provided. A post training evaluation exercise is to be mandatorily conducted for all attendants of the training program to measure the efficacy of the training program. The solution provider must include their plan and methodology for conducting training needs analysis and the training itself as part of their technical bid.



### 3.0 General Terms and Conditions

<b>Eligible Bidders</b>	<p>a. Only firms that are registered or incorporated in India are eligible to bid. Forming a consortium or partnering with a subcontractor, to meet the eligibility requirement, is strictly prohibited and any such proposal would result in rejection of the Bid. The Bidder must submit a Power of Attorney authorizing the signatory of the bid to commit the bidder.</p> <p>b. Bidder shall not have a conflict of interest that may affect the Selection Process or the Solution delivery. Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, ECIL shall forfeit and appropriate the Bid Security, if available, as per mutually agreed, genuine, pre-estimated compensation and damages, payable to the ECIL for, inter alia, the time, cost and effort of the ECIL including consideration of such Bidder's complete Proposal, without prejudice to any other right or remedy that may be available to ECIL hereunder or otherwise.</p> <p>c. ECIL requires that the Implementation Agency provides solutions which at all times hold ECIL's complete interests paramount, avoid conflicts with other assignments or its own interests, and act without any consideration for future work. The bidder shall not accept or engage in any assignment that would be in conflict with its prior or current obligations to other clients, or that may place it in a position of not being able to carry out the assignment in the best interests of ECIL.</p> <p>Without limiting the generality of the above, any Bidder shall be deemed to have a Conflict of Interest affecting the Selection Process, if:</p> <p>d. Such Bidder or its Associate receives or has received any direct or indirect subsidy or grant from any other Bidder or its Associate; or</p>
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	<p>e. Such Bidder has the same legal representative for purposes of this Application as any other Bidder; or</p> <p>f. Such Bidder has a relationship with another Bidder, directly or through common third parties, that puts them in a position to have access to each other's information about, or to influence the Application of either or each of the other Bidder; or</p> <p>g. There is a conflict among this and other Systems Implementation/Turnkey solution assignments of the Bidder (including its personnel and other members, if any) and any subsidiaries or entities controlled by such Bidder or having common controlling shareholders. The duties of the Systems Implementation Agency will depend on the circumstances of each case. While providing software implementation and related solutions to the (Nodal Agency) for this particular assignment, the Systems Implementation Agency shall not take up any assignment that by its nature will result in conflict with the present assignment.</p>
<b>Disqualification</b>	<p>i. The bidder shall be disqualified if:</p> <p>a) The bidder or any of its constituents have been blacklisted / having banned business dealings for all Government Departments or by any Ministry or by ECIL at any time, except in cases where such blacklisting/banning has been withdrawn by Competent Authority or have ceased on the deadline for submission of the bid, for which satisfactory evidence is to be produced.</p> <p>b) Any previous contract of the bidder or any of its constituents had been terminated / rescinded for contractor's complete failure by ECIL or any other public sector company during the period of last 2 years before the deadline for submission of bid. Provided, however, there is no stay or declaration by any Court order against such termination or rescission of the Contract by ECIL.</p>

	<p>c) The bidder or any of its constituents have suffered bankruptcy/insolvency or it is in the process of winding-up or there is a case of insolvency pending before any Court on the deadline of submission of bid.</p> <p>d) The bidder is found ineligible by ECIL and has been declared to be a poor performer and the period of poor performance is still in force on the deadline for submission of bid.</p>
Currencies of Bid and Payment	<p>j. The bidder shall quote the unit rates and the prices entirely in the Indian Rupees.</p>

## 4.0 Technical Scoring Methodology

Bidders who meet responsiveness and pre-qualification requirements would be considered for next stage of Technical and Financial evaluations. An expert technical evaluation committee will be constituted by the competent authority to evaluate the technical proposals submitted by bidders who meet responsiveness and pre-qualification requirements. Following criteria shall be used to evaluate the Technical Proposals and for assessing the Technical Score (Ts):

S. No	Criteria	Requirements	Max Marks	Supporting Documents
<b>I</b>	<b>COMPANY PROFILE</b>		<b>10</b>	
1.	Annual turnover in Technology implementation towards <b>CCTV business / solution</b> (Turnover from Design, Software Development, Implementation and Maintenance etc) in each of the last three financial years.	<p>Equal to or more than INR 100 Crs but less than 200 crs.: 2 marks</p> <p>Equal to or more than INR 200 Crs but less than 400 crs.: 3 marks</p> <p>Equal to or more than INR 400 Crs but less than 600 crs.: 4 marks</p> <p>More than INR 600 Crs.: 5 marks</p>	5	<p>Extracts from the audited Balance sheet and Profit &amp; Loss; OR</p> <p>Certificate from the statutory auditor</p>

S. No	Criteria	Requirements	Max Marks	Supporting Documents
2.	<p>2.1 Full-time professional staff engaged in Application Development services (Number of Staff) who have expertise in CCTV</p> <p>2.2 Full-time professional staff engaged in Application Development services (Number of Staff) who have expertise in Facial Biometric Analytics.</p>	<p>Equal to or more than 100 but less than 300: 3 marks</p> <p>Equal to or more than 300 but less than 500: 4 marks</p> <p>More than 500 :5 marks</p>	5	Certificate by the authorized HR signatory / company secretary along with summary of experience details of concerned staff.
II	<b>RELEVANT PAST EXPERIENCE</b>		<b>10</b>	
3.	<p>Experience relevant to this project as listed below to be demonstrated in engagements that have either been completed or are ongoing projects with similar skills put to use in India:</p> <p>Application development for large implementation project and program management</p> <p>Expertise in integrating and analyzing third party security systems like Fire Alarm, glass break detection system, etc</p>	<p>Equal to or more than 5 projects : 5 marks</p> <p>3 Projects : 4 marks</p> <p>2 Projects : 3 marks</p> <p>1 Project : 2 marks</p>	5	<p>Completion Certificates from the client; OR</p> <p>Work Order + Phase Completion Certificate (for ongoing projects) from the client</p>
4.	Experience relevant to this Analytics implementation as	Equal to or more than 5	5	Completion Certificates from

S. No	Criteria	Requirements	Max Marks	Supporting Documents
	<p>listed below to be demonstrated in terms of assignments that have either been completed or are ongoing projects with similar skills put to use in India or abroad</p> <ul style="list-style-type: none"> <li>• Crowd detection</li> <li>• Left baggage detection</li> <li>• Face recognition</li> <li>• Intrusion detection (at perimeter)</li> <li>• Counter flow of vehicles</li> <li>• Illegal parking</li> </ul>	<p>projects : 5 marks</p> <p>3 Projects : 4 marks</p> <p>2 Projects : 3 marks</p> <p>1 Projects : 2 marks</p>		<p>the client; OR</p> <p>Work Order + Phase Completion Certificate (for ongoing projects) from the client</p>
III	<b>RESOURCE PROFILE</b>		<b>10</b>	
5.	Qualifications and competence of Key Professional staff available with the firm for this project with relevant CCTV / Video Analytics / Analytics implementation experience at all levels in India.	<p>No. of professionals with minimum qualification of B. Tech/M. tech or eqvt. and minimum 5 years experience:</p> <p>25 or more : 10 marks</p> <p>20 or more: 8</p>	10	<p>CVs and past experience of CCTV / Video Analytics implementation certified by the authorized signatory. (OEM should provide the certification to the employees for specific or part of analytic )</p>

S. No	Criteria	Requirements	Max Marks	Supporting Documents
		marks  10 or more: 6 marks		
IV	<b>Understanding of requirements, Approach Methodology, Technical Presentation &amp; Live Demonstration</b>		<b>70</b>	
6	Understanding of the scope		03	Solution walkthrough / case study of successful Project implementation / Technical presentation and demonstration to the committee <b>at end customer premises in New Delhi.</b> Note: The marks are indicative and the screening committee can change the marks / scoring methodology at any stage.
7	Approach Methodology & Project Implementation		03	
8	Technical Presentation		04	
9	<b>Knowledge Transfer</b>  1. Sharing of entire product details/documentation including source code/SDKs/APIs/other documentation including training to ECIL engineers.  2. Sharing of SDKs/APIS/other documentation including training to ECIL engineers	10 marks  05 marks	<b>10</b>	
10	<b>Live Demonstration</b> covering following points:  1. The VAIP Application shall be an Open architecture system that allows integration with external sensors and third party	2 marks	50	

S. No	Criteria	Requirements	Max Marks	Supporting Documents
	<p>systems.</p> <p>2. VAIP Application should have interfaces to plug in Video Analytics from different vendors.</p> <p>3. The Vendor shall able to integrate at least 5 of following Alarms from third party systems</p> <ul style="list-style-type: none"> <li>➤ <b>Video Management System (mandatory)</b></li> <li>➤ Fire Alarm System</li> <li>➤ Gunshot Detection</li> <li>➤ <b>Video Content Analytics (mandatory)</b></li> <li>➤ Glass break System</li> <li>➤ Panic Button</li> <li>➤ Power fence</li> <li>➤ <b>License plate Recognition (Mandatory)</b></li> <li>➤ Access Control System</li> </ul> <p>4. VAIP System should have API / SDK</p>	<p>2 marks</p> <p>2 marks</p> <p>02 marks</p>		



S. No	Criteria	Requirements	Max Marks	Supporting Documents
	support for integrating the third party Systems.			
	5. VAIP System should allow multiple video analytics alarms Display on Workstation.	02 marks		
	6. VAIP System dash board should show health/status of all other systems and failure of any camera/NVR etc should automatically generate an alarm along with a brief note of failure/generate an alert to concerned person.	02 marks		
	7. VAIP System should support MAP (GIS Modules) to show multilayer Graphical Representation of all the resources.	02 marks		
	8. VAIP System should provide search capabilities based on events and alarms.	02 marks		
	9. VAIP System should integrate access control system (Boom Barriers, Road Blockers, and Tyre	02 marks		

S. No	Criteria	Requirements	Max Marks	Supporting Documents
	Killers) alarms due to malfunctioning or breach of security; it should be displayed on VAIP Workstation.			
	10. System should integrate Glass break Detector to detect and differentiates the sound pattern created when breaking glass framed in wall. The pre-defined camera video can be seen in the VAIP Workstation.	02 marks		
	11. System should support playing live/recorded video of IP cameras/ encoders (in case of Analog Cameras).	02 marks		
	12. System should support tamper proof export of a search result to an .avi file.(Mandatory)	02 marks		
	13. System should support video processing from any ONVIF camera			
	14. System shall be able to show at least 4 types of Video	Max 05 marks		

S. No	Criteria	Requirements	Max Marks	Supporting Documents
	<p>analytics mentioned below with <b>90% accuracy</b>:</p> <p>Counter flow Detection(01 mark)</p> <p>Illegal parking(01 mark)</p> <p><b>Perimeter Intrusion Detection System (Mandatory)</b> 02 marks</p> <p>Crowd Detection(01 mark)</p> <p><b>Face Recognition (Mandatory)</b> 02 marks</p> <p>Left/Unclaimed Babbage detection (01 mark)</p>	01 mark		
	15. System shall provide GUI to configure rules for analytics using a wizard			
	16. System should only recognize violations as per User defined rules and in the specified Region of interest.	02 marks		
	17. System shall provide operators to configure rule parameters based on target size, target	02 marks		

S. No	Criteria	Requirements	Max Marks	Supporting Documents
	speed, distance of movement.			
	18. SDK Support for integrating with any other third party system.	02 marks		
	19. System should support object classification to differentiate between objects like person or vehicle etc.	02 marks		
	20. System should have sophisticated algorithm which adapts and neutralize effects of environmental changes.(light, wind, shadow)	02 marks		
	21. System should support elimination of noise to avoid false alarms.	02 marks		
	22. System should work satisfactorily in both controlled and uncontrolled environmental conditions.	02 marks		
	23. System should be able to differentiate day and night conditions based on	02 marks		

S. No	Criteria	Requirements	Max Marks	Supporting Documents
	lighting conditions and suitably analyze the view to generate optimal alarm.  24. System should eliminate object shadows, swaying of trees sunlight, rain, snow, reflections, wildlife, flying birds to reduce false alarms.	02 marks		

## 5.0 Bid Evaluation Procedure

### 5.1 General

5.1.1 In the first stage, each proposal shall be evaluated to ascertain whether it fulfils the criteria for responsiveness. Thereafter, the proposals would be checked for the pre qualification criteria. The proposals which meet the criteria of responsiveness and also that of pre-qualification will be evaluated for ascertaining the total Technical score of the proposal.

5.1.2 The minimum qualifying score at the stage of Technical Evaluation of Proposals will be 70 out of 100. If the number of firms who have obtained a minimum of 70 marks is minimum of 2, the same shall be selected for opening of Price proposals. In the eventuality of less than two bidders securing more than 70 marks in technical evaluation, ECIL reserves the right to scrap the tender and re-float the same.

#### **PRICE:**

### 5.2 Evaluation of Price Proposals

5.2.1 Price Proposals will be reviewed to ensure that –

- a) The figures provided therein are consistent with the details of the corresponding Technical Proposal (e.g. Bill of Material, Deployment of Personnel etc);
- b) The financial terms in each proposal in financial document will be checked for compliance set forth in and other clauses of the RFP document.

5.2.2 The Evaluated Total Price for each Proposal will be determined as under:-

- a) Price Proposals shall be checked for computational errors. The evaluation committee shall correct arithmetical errors on the following basis:-
  - i) If there is discrepancy between the unit price and the total price that is obtained by multiplying the unit price and the quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the evaluation committee, there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

- ii) If there is an error in the total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- iii) If there is discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (i) and (ii) above.
- b) In the case of material omissions, for evaluation purpose, the cost of the relevant Proposal will be increased by application of the highest unit cost and the quantity of the omitted item as provided in other submitted proposals.
- c) Price proposals that are less than 50% of the average bid price will be disqualified (the average bid price is computed by adding all Price proposal values of ALL the qualified bidders and dividing the same by the number of bidders).
- d) The bidder with lowest Evaluated Total Price (L1) will be awarded 100% score (amongst the bidders which did not get disqualified on the basis of point c above). Financial Scores for other than L1 bidders will be evaluated using the following formula:  
Financial Score of a Bidder (Fs) =  
 $\{(Price\ proposal\ of\ L1\ bidder / Commercial\ Bid\ of\ the\ other\ Bidder) \times 100\} \%$   
(Adjusted to two decimal places)

### 5.3 Combined and Final Evaluation

5.3.1 The financial and technical scores secured by each bidder will be added using weight age of 30% and 70% respectively to compute a Composite Bid Score.

5.3.2 The bidder securing the highest Composite Bid Score will be adjudicated as the most responsive and Highest Ranking Bidder for award of the Project. The overall score will be calculated as follows:-

$$Bs = 0.30 * Fs + 0.70 * Ts$$

Where

Bs = overall score of bidder

Ts = Technical score of the bidder (out of maximum of 100 marks)

Fs = Normalized financial score of the bidder

5.3.3 In the event the composite bid scores are 'tied', the bidder securing the highest technical score will be adjudicated as the Best Value Bidder for award of the Project. After such final ranking, the Best value bidder will be invited for contract negotiations.

5.3.4 **Sample Evaluation Methodology**

Technical Score is denoted as : Ts

Financial Score is denoted as : Fs

Normalized Bid Score is denoted as : Bs

**Highest Bid Scorer (Bs) will be the awarded the contract.**

(A) Minimum Qualifying marks for technical qualification is 70 marks.

(1) Consider that 3 firms, M/s A. B and C have technically qualified and have scored (Ts) as follows:

Ts for A = 72 marks and Commercial Bid is (L1) is Rs 95 crores

Ts for B = 85 marks and Commercial Bid is (L2) is Rs 107 crores

Ts for C = 90 marks and Commercial Bid is (L3) is Rs 124 crores

Their financial score (Fs) is calculated as given below:

For A: Fs = 100 (since A is L1 bidder)

For B: Fs =  $(95/107) \times 100 = 88.785$

For C: Fs =  $(95/124) \times 100 = 76.613$

The total Bid score Bs (30% of commercial bid score (Fs) plus 70% of technical score (Ts) for each of the bidders is calculated as given below:

For A: Bs =  $(0.3 \times 100) + (0.7 \times 72) = 80.400$

For B: Bs =  $(0.3 \times 88.785) + (0.7 \times 85) = 86.136$

For C: Bs =  $(0.3 \times 76.613) + (0.7 \times 90) = 85.983$

Thus from Bs above, 'B' is the highest scorer and hence, the successful bidder for the RFP is 'B'.



## 6.0 Scope of work in brief:

As part of the overall solution, Video Analytics Integration Platform is required to meet specific Surveillance and security purposes.

This section details the project requirements that the bidder chosen to implement the content analytics integration Solution must integrate in order to fulfill the objectives as listed in the functional requirements section.

- 1) Installation, configuration, customization of the content (video) analytics solution and integration with any additional systems as required.
- 2) The Solution should be robust, vendor-agnostic, open standard Video Analytics platform that taps into existing or new video surveillance cameras and provides real-time situational awareness for security and operations.
- 3) An integrated command and control application enables visualization of geo-coded alerts in a map interface.
- 4) The system should be able to take direct CCTV camera feeds across digital and analog formats as well as VMS system and create a centralized command and control center which allows various Video & predictive Analytics use cases, till such time, the analog cameras are replaced with digital ones.
- 5) Implementation in accordance with the acceptance criteria.
- 6) Change management methodology and procedural adherence in change management.
- 7) Training to be imparted to end users to be able to use the system for intended purposes.
- 8) Adherence to approved project plan and project governance structure.
- 9) The above mentioned solution should be able to address at a minimum functional use case / Scenarios and deploy, customize and adapt different algorithms from different OEM for Video analytics and have the facility to build different operational and predictive algorithms and simulations.
- 10) Apart from above requirements, the successful bidder must be prepared to work hand in hand with ECIL for joint development of the required application.
- 11) The bidder must share all technical details, without reservations whatsoever, that may be required for the joint development activity for enhancement or up-gradation of the product for 'seamless integration'

with any other new applications that will be required to be developed for meeting the solution in entirety.

- 12) The Bidder is expected to incorporate necessary changes in the supplied applications to achieve customization and must share the work flow for such enhancements.
- 13) The bidder must provide all required assistance in the form of APIs, SDKs, Work Flow/ flow charts for facilitating the understanding of the application.
- 14) The Bidder is also expected to assess the training needs for the project and impart necessary training to ECIL engineers to familiarize them with the product as well as associated tools required for up-gradation, customization, development, integration and implementation. The training should also include necessary classroom presentation as well as hands on practical on the product.
- 15) Apart from the above training, imparted at the beginning of the project, 'need based' training session shall be organized by the bidder based on requirement arising during execution.
- 16) The bidder shall quote separately for each component of the solution including but not limited to the following:
  - a. Video Analytics Integration Platform.
  - b. Video Analytics for each category.
  - c. Customization effort in terms of total man days required and cost per man day.
  - d. Training to the ECIL engineers involved in the customization/ integration/ up-gradation activity.
  - e. Special Development tools required, if any.
  - f. Video Management System, component wise.
  - g. Any other component required for meeting the RFP functional requirements.

## 6.1 Functional use case /Scenarios in brief:

1. **Content (Video) Analytics:** The user console of the solution should have a feature of displaying all the various forms of alerts along with the video of the incident causing the alert to the users. It should allow the user to choose from a list of activity options. The various kinds of incidents and the capabilities required for the user to act upon an alert are listed below. In addition the user should be allowed to centrally retrieve any of the video feeds as required and act on them in similar fashion to the alerts.

## **2. Identification of vehicles and persons of interest**

### **a. Vehicle Number Plate Detection and Recognition:**

- i. Suitable cameras to be identified and installed in parking areas for number plate recognition which would work in varying light conditions, varying vehicle speeds and varying height at which the License plates are fixed with vehicle. The solution provider can suggest the type camera suitable for the best recognition of ANPR in all the lighting conditions and considering the Head Lights of the vehicle during the night.
- ii. The solution should monitor and recognize number plates on camera and should compare them with watch-lists to alert users on positive identification of any vehicle against such watch-list.
- iii. Officials/Members use Vehicles of different types, makes and models. In these vehicles there is no fixed standard adopted in the license plate and the plates are fixed at different heights and written in different fonts and languages. In some cases bumpers are placed at height which practically blocks clear view of the number plates. Solution shall be catering to all the above scenarios to detect and recognize number plates.

### **b. Face Detection and Recognition:**

- i. Suitable cameras to be identified and installed for detection and capture of faces at the most appropriate angle to be processed by the facial recognition system. Reconstruction of front view of a face where such a view is not captured by the camera would be required.
- ii. Captured faces are to be compared with a watch-list of images that will be provided at the time of development and a match should trigger an alert with all relevant information leading to the match including live image, watch-list image and details from the watch-list.
- iii. Bidder is required to provide a comparison of commonly used algorithms and software available in the market with success rate in similar installations and provide information on adoption elsewhere.

3. **Abnormal activity detection and alerts with appropriate categorization:** Provided below is a list of abnormal activities envisaged for video analytics and the requirements pertaining to the same. The bidder is required to propose any additional abnormal events that can be considered for triggers.
- a. **Crowd Detection:** The accurate count of people in identified areas within the premises is to be monitored and alerts are to be triggered when the count of people exceeds threshold levels. The threshold levels might vary for the same designated area depending on factors like working hours and non working hours.
  - b. **Counter Flow Detection:** On identified routes for vehicle movement, any vehicles traversing in the opposite direction should be accurately identified and alerts triggered off to the concerned authorities along with a category of aberrant vehicle as a two-wheeler, car, truck etc. The system should not generate false alarms against birds, shadow, vegetation branch oscillation (due to wind) etc.
  - c. **Illegal Parking:** Vehicles not authorized for parking and vehicles parked outside the designated areas should be identified accurately and alerts triggered off to concerned authorities. Illegal parking would be required to be distinguished from incidental vehicle stoppages to drop and pick-up passengers.
  - d. **Intrusion Detection:** Cameras set up along the perimeter should be monitored by the solution to identify perimeter breaches by individuals or objects and requisite alarms are to be raised. The following should be adequately addressed:
    - i. Algorithms are required to be sophisticated enough to ignore animals and movement of foliage and puddles of water etc. and the solution should allow incorporation of better algorithms when available.
    - ii. Distance to, the size and speed of the object or person of interest are to be automatically calculated and alarms to be triggered in case of either parameter crosses the threshold levels prescribed.
  - e. **Left/Unclaimed Baggage Detection:** The solution should accurately identify unclaimed/left baggage and objects and trigger alerts for baggage and objects left unattended beyond threshold time.

- f. **Compound alerts:** The solution should be able to build customized rules with customized levels of severity and protocols. For instance, in case of a vehicle watch-list match and an unclaimed foreign object happening within minutes of each other, the level of alert should be of higher severity than the two events happening independently and might follow a different automated escalation matrix.

#### **4. Tracking capabilities**

- a. **Vehicle Tracking and Management:** The solution should be able to track vehicles across multiple cameras from entry to exit. Post triggering of alert in cases of abnormal activity or watch-list match, the solution should identify and transmit the location of the vehicle on a map. The solution should allow for any given vehicle to be tracked back across recordings from multiple cameras.
- b. **Persons of interest tracking:** The solution should be able to track individuals across multiple cameras from the point of entry to point of exit. Post triggering of an alert, the solution should be able to identify and transmit the location of the individual on a map. In case of alerts due to reasons other than the watch-list, the solution should also be able to track the person across recordings from multiple cameras.

#### **5. Other key features**

- a. **User-friendly interfaces:** The solution should be intuitive to use and user-friendly with minimal learning time to understand the comprehensive feature list of the solution.
- b. **Real-time alerts:** The solution should trigger all alerts on a real-time basis as soon as the incident leading to the trigger occurs.
- c. **Camera malfunction alerts:** Any instance of a camera malfunction or loss of data feed is to be highlighted to the maintenance team immediately.
- d. **Handling camera malfunction:** The solution should skip a malfunctioning camera to show the image from the next camera with near-zero waiting time.
- e. **Stitching of images:** The solution should allow multiple images from overlapping cameras to be stitched to create larger views of the premises.
- f. **Visualization of camera feeds:** The solution should enable automatic viewing of live feeds from various cameras both

sequentially as well as simultaneously over multiple screens or split screens.

- 6. Analytical Reports:** The solution should enable the user to configure and generate various reports as detailed below from archived information.
- a. Vehicle movement report:** The solution should allow the user to generate a report based on vehicle movement patterns of interest such as abnormal halts, halt duration etc.
  - b. Parking utilization:** The user should be able to generate a periodical report on the utilization of parking space that can aid in better planned parking management.
  - c. Illegal parking report:** The user should be able to generate a periodical report on incidents of illegal parking at regular intervals that would analyze the trends of illegal parking over time etc.
  - d. Peak hour crowd analysis report:** The user should be able to generate a periodic report on the number of people assembling at specified locations at various times of day.
  - e. Unclaimed baggage report:** A user should be able to generate a periodic report on the incidents of unclaimed baggage identified.
  - f. False alarm analysis:** The user should be able to generate a period report on false alarms thus aiding a root cause analysis for the false alarms and help in improving the solution performance.
  - g. Uptime analysis of CCTV components:** The user should be able to generate a periodic report on the uptime of individual CCTV components.
  - h. Audit trail and log analysis:** The solution should be enable generation of periodic reports on audit trails. Audit trails should comprehensively capture all details of individual transactions including user id, time stamps, action performed. Access to the audit trails is to be restricted to the super system administrator who should be able to generate reports on various kinds of transactions such as unauthorized login attempts etc.
  - i. Stored device configuration:** The system is required to generate reports of stored device configuration. The control software is required to provide alarm and alarm log. The log shall be able to be archived, printed and displayed using a device filter, a device group filter and/or a time window.

- 7. Leveraging other data sources:** The solution should be capable to accept data sources other than video feeds such as inputs via appropriate interface etc. to identify correlations with identified alerts to build predictive capabilities.
- 8. Performance metrics:** The number of false alarms should not be more than 10% of all alerts triggered.

## **6.2 Video Analytics Specifications:**

### **1. Vehicle Tracking and Management**

If there is any violation of norms by any of the vehicle, the system should generate alarm immediately so that action can be initiated on a near real time basis. In any case alarm should be generated within 5 seconds of the event, that is the violation happened and also that the number of false alarms should not exceed more than 10% of the total alarms.

### **2. Incident tracking:**

The system should offer facility to track vehicular movement of VVIPs happened in the end user site area in a real time basis and also offer facility to play back later on. For example, the VIP movement which might take place in dedicated routes may be tracked in a real time basis. The operator or any authorized official should be in a position to track the movement of the vehicles from the designated entry point up to the exit gate of the site. As the vehicles generally moves at a high speed, the system should be capable of switching cameras at faster pace. The changeover time for cameras should be bare minimum. The entire tracking module should be an automated process and should not involve any manual intervention. In case of any camera malfunctioning due to any unforeseen reason the system should automatically identify the issue and move on the next camera with near zero waiting time. An acceptable threshold level needs to be worked out for camera switching time, skipping of malfunctioning camera, etc. in case of failure of any camera ALERTS should be sent to the maintenance group and to the controller in a near real time basis along with the kind of alarm. Stitching of multiple camera views to create virtual cameras with much larger views.

The system should offer two types of incident tracking, viz. (i) a quick launch system by which all the cameras are to be displayed on the same display unit sequentially without any human intervention, (ii) display the tracking on multiple screens/split-screens of the same user

so that even if any of the camera mal-functions the others does not get affect.

### **3. Counter Flow Detection**

There are certain routes identified for VIP movements. For security reason in those designated routes vehicles are allowed to traverse in a unidirectional mode. The system should detect any vehicle traversing in the opposite direction, generate alarm, and broadcast to all the concerned officials for remedial action. Flying birds or any other small objects should not be detected as counter flow movement. Except the moving vehicles all other objects may be ignored by analyzing/calculating the size of the object and its duration of presence in the camera coverage area. If any bird crisscross along the counter flow route that also should be ignored.

### **4. Vehicle Number Plate detection and Recognition**

There are two phases in the vehicle number plate detection and recognition system. First, the system should detect the license number of the vehicle entering the end user site. A perfect process should be evolved so as to detect the right number at the correct angle. Once the license number is detected it needs to be matched with the entries in the black listed vehicle database. In case the detected number matches with any of the stored entries in the black listed vehicle database an alert should be generated on a near real time basis. The database of suspected and blacklisted vehicle registration numbers would be made available at the time of development. Suitable cameras should be installed in the general parking areas so as to capture the Vehicle License Number Plates so that the vehicles can be easily tracked from its entry into end user site till it leaves the site area.

### **5. Illegal Parking**

Authorized vehicles are allowed to park at designated places only. For different level of officials and VVIPs/MPs separate designated parking areas are assigned. If any vehicle is parked in any other location the system should identify that vehicle, using the help of Camera feed analytics and License Plate Reader, and immediately generate alarms. If a vehicle travels for some time/distance and then halt in the no parking area so as to drop a VVIP/VIP/MPs/officials and then moves out of that area then it should not be treated as illegal parking. In case the halt time exceeds a defined level say, two minutes then raise an alarm.

Any object kept at the parking area should not be detected as illegal parking. If more than one vehicle enters (at different time period) and halts at the Illegal Parking area at a given range of time period then the



vehicle which halted for more than the allowed time limit need to be identified for its evacuation. This could be possible with the help of LPR and tracking the vehicle from the time it enters into the end user site and up to the present halting point.

## **6. Intrusion Detection**

In the perimeter area cameras should be fixed so as to capture any object or human intruding into the secured areas. In the present setup the system generates large numbers of false alarms due to foliage, tree branch oscillation, shadow, water patches, headlights of vehicles passing by during night, and birds/monkey movement etc.

In order to have an efficient Intrusion Detection system it should have better filtering algorithms built in it and should also have provision to add new and improvised filtering algorithms. Before generating alarms the system should first determine the distance (focal length) between the object and camera, using distance calculate the actual size of the object. If the size and distance are less than threshold levels, ignore it, else generate alarm.

If an object is thrown or a living thing jumps from the outer side of the wall at a much higher position than the height of the wall (say, jumps at a height of one meter above the wall height) the camera should capture the image and content analytics performed on that image. Based on the analysis it should decide whether the object crossing the periphery is a threat or not.

In the present setup cameras are positioned at the wall level and capture the images only at a horizontal level. In the proposed approach cameras should be positioned at much higher level than the height of the wall so that it will have a wider coverage area.

## **7. Crowd Detection**

There are certain areas within the end user site where the number of people assembles at any given point of time needs to be monitored. For each of the identified area the maximum number of people allowed is fixed and the number may vary from time to time and area to area. The camera should capture the numbers, do the analysis, and generate alarm, if the number exceeds the acceptable level. In order to capture the exact number of assembled people in the said area cameras should be positioned at the right place so that shadows or any other objects are not part of the final count. Shadows of human being assembled in the said area should not be counted as crowd. There must be a provision to specify the maximum numbers of people allowed to assemble at any given point of time in the identified areas.

## **8. Face Detection and Recognition**

There are two phases in the face detection and recognition system. First, the system should detect the face of the person visiting the premises. A perfect process should be evolved so as to detect the face at the correct angle. The system may also detect the person's face front view or side view at varied angles. Once a face is detected it needs to be matched with the existing database. In case the detected face matches with any of the stored entries in the database an alert should be generated on a near real time basis. The database of suspected and blacklisted people's photographs would be made available at the time of development. This module requires a detailed analysis of the algorithms/software available in the market, its success rate in other CCTV applications elsewhere, and exact requirement in the current scenario in the premises.

## **9. Left/Unclaimed Babbage Detection**

Any unclaimed object lying for more than a specific time should be identified and alarm generated. Shadows, water patches, distinct colored 2-dimensional objects should not be detected as unclaimed objects. At most care should be given before deciding on the object. Improvised 3-dimensional models could be used for identifying the objects so that minimal numbers of alarms are generated in the process. The positioning of camera also should be at a decent height so that shadows won't be counted as objects.

## 7. VIDEO ANALYTICS INTEGRATION PLATFORM (VAIP)

### 7.1. ARCHITECTURE:

1. The (VAIP) shall use a flexible, open platform architecture built on accepted industry standards that facilitate integration with leading IT infrastructure.
2. The (VAIP) shall support running on COTS computer server, from a leading manufacturer (including IBM, Hewlett-Packard and Dell) with processors at minimum speed of 2.8 GHz from a leading manufacturer (including Intel or AMD); with a network-interface card with a minimum speed of 1GBPS. Hard-disk drive requirements should be identified during the system design preparations and be aligned accordingly.

**Bidder to specify the required configuration of VAIP servers and quantity along with techno commercial bid**

3. The (VAIP) shall have a flexible, open architecture, and be able to migrate from a single site into a multisite system, e.g. components/servers comprised in the solution are deployable in a geographically disperse fashion.
4. The (VAIP) shall support a Workgroup Microsoft Windows Environment.
5. The (VAIP) shall have a flexible, open architecture built on accepted industry standards that supports an Active Directory Domain Environment.
6. The (VAIP) shall support single sign on (SSO).
7. The (VAIP) shall optionally be able to be installed in a Virtual Environment and be recognized by VMware as VMware Ready.
8. The (VAIP) shall offer redundancy solutions using the industry standard architecture like Marathon Ever Run or VMware ESXi platforms. The following possible solutions shall be supported:
  - The solution shall be redundant, using two separate servers, and achieve a fault tolerant, zero downtime environment and zero data loss, however may require manual or automatic start of the application on the secondary server.

- The solution shall provide a disaster recovery option, using a third separate server at a secondary location which would assume primary responsibility in the event of a catastrophic event at the primary location.
- 9. The (VAIP) shall possess an internal watchdog to detect and recover from the unlikely occurrence of a system lockup.
- 10. The (VAIP) Server component shall support latest version of Microsoft Windows.
- 11. The (VAIP) Client component shall support Windows 8 (64 bit) operating systems for workstations.

## **7.2. (VAIP) INTEGRATIONS**

1. The (VAIP) shall be an open architecture system allowing simple integration to external modules, sensors and systems, and allowing future scalability.
2. The VAIP application shall be able to integrate Alarm Videos from multiple Analytics application and display on user workstation on a single screen.
3. The VAIP application will get seamlessly plugged in from different vendors of Video Analytics.
4. The (VAIP) shall be vendor agnostic and have the ability to interface with any type of security, safety or other business systems including, and not limited:
  - a. CCTV Surveillance Systems
  - b. Fire, Smoke and Gunshot Detection Systems
  - c. Panic button systems
  - d. Access Control Systems and Badging systems
  - e. Perimeter and Intruder Detection Systems
  - f. Face recognition/detection systems
  - g. License plate recognition systems
  - h. GPS tracking systems

i. CAD Systems

The bidder should spell out in their techno commercial bid the necessary interfaces such as API, SDK, protocols, interface hardware, etc; required for integration of the above systems.

### 7.3. (VAIP) CLIENT COMPONENTS

1. The PC workstation used to operate the (VAIP) client application shall use equipment from a leading manufacturer.

**Bidder to specify the required configuration of VAIP workstation client along with techno commercial bid**

2. System administration components
  - a. User management
  - b. Assets/Integrated system management
  - c. Maps management
  - d. Response planning
  - e. Audit trails
  - f. Dispatch planning
3. (VAIP) operator Client
  - a. Supervisor Dashboard
  - b. Assets Monitoring
  - c. Video Surveillance
  - d. Alarm management
  - e. Incident management
  - f. Search facility

### 7.4. (VAIP) FUNCTIONS

1. User Management

- a. The system shall support native authentication (e.g. against its own servers and stored credentials).
- b. The system shall support authentication against Active Directory.
- c. The system shall have the ability to order users in hierarchal groups structure.
- d. The system shall have the ability of disabling\enabling existing user account without deleting it.
- e. The system shall allow capturing user's data (include name, e-mail and phone number) as part of the user account creation.
- f. The system shall provide for the definitions of roles where each role has a set of configurable privileges.
- g. The system should group privileges based on modules and functionality areas and allow multi selection of all privileges in a group.
- h. The system shall have the ability to assign a role to a user and define the devices scope that this role applies to.
- i. The system shall have the ability to effectively assign multiple sets of privileges on multiple sets of resources/devices to a single user.

2. Integrated systems management (assets)

- a. The system shall allow managing integrations servers from a central administration application.
- b. The system shall support multiple integrations servers working with the same application and database servers.
- c. The system shall allow adding new system adaptors to integration server from a central administration application.
- d. The system shall allow configuring the system adaptor connection information (IP, user, password) from a central administration application.
- e. The system shall allow discovering the devices of the integrated system and allow the administrator to define/select which devices should be monitored by the system.

- f. The system shall allow viewing the discovered device in a list and enable sorting of that list based on device type, name, monitoring state.
  - g. The system shall allow selective monitoring of subset of all available devices of a specific integrated system.
  - h. The system shall allow assigning a display name and a description for the integrated device.
  - i. The system shall allow ordering the monitored devices in a multi-level tree structure that represents the organizations operation hierarchy.
  - j. The system shall show icon, next to each device entry, that represents the device type.
  - k. The system shall allow filtering the monitored devices tree by device type.
  - l. The system shall allow searching the monitored devices tree by device name.
  - m. The system shall allow creating relationships between devices of same or different systems. These relationships shall be used for automation, accessibility, etc.
  - n. The system shall allow creating relationships between a device and a PTZ camera and specific preset.
  - o. The system shall monitor and ensure that enabled system adaptors are up and running...
3. Maps management
- a. The system shall allow definition of multiple maps.
  - b. The system shall allow ordering the maps in a hierarchal tree structure.
  - c. The system shall allow adding multiple layers to a map.
  - d. The system shall provide the administrator with a feature-rich map control and browsing capabilities.

- e. The system shall allow adding layers from service sources including Open Street Map, ArcGIS online and ArcGIS servers.
- f. The system shall allow adding layers from registered file formats as well as unregistered file formats.
- g. The system shall allow having online service layers and local files layers on the same map.
- h. The system shall allow ordering the layers in a hierarchal tree structure.
- i. The system shall allow adding monitored devices layers and place devices on them.
- j. The system shall enable searching for a device by name or type in order to select it for placing.
- k. The system shall allow interacting with the device (play video for cameras, close relays) from the map management module.
- l. The system shall allow removing a device from a specific layer.
- m. The system shall allow editing device's GIS location by locating it on the map or by inputting its exact GIS coordinates.
- n. The system shall allow viewing the layer that the device is included in from the device icon on the map.
- o. The system shall save the map context (extent, layers selection) when browsing between maps.
- p. The system shall allow defining zoom-in and zoom-out levels per layer. Such customization will allow showing layers of different details level at the right context.
- q. The system shall allow defining cameras and devices coverage area. Coverage area should include coverage area range, angle and orientation.
- r. The system shall display device coverage area as a semitransparent polygon on the map.
- s. The system shall allow showing\hiding the coverage area for a single or all devices.



- t. The system shall allow adding point of interest markers that can also include links to other maps and will be used as on-map hyperlinks.
  - u. The system shall enable administrator to grant privileges to manage maps and/or place devices.
4. Incident response planning
- a. The system shall allow management (Add, delete, modify and rename) of incident types.
  - b. The system shall support management of response procedures.
  - c. The system shall support adding to-do tasks in the response procedures.
  - d. The system shall support adding decision tasks with multiple options in the response procedures.
  - e. The system shall support adding manually initiated device command tasks in the response procedures. Device command tasks should include sending camera to preset, control doors, dispatch, etc.
  - f. The system shall allow selecting which device to apply the command to. Automatic device selection (based on event that triggered the incident) or manual selection should be supported.
  - g. The system shall support adding automatically initiated system command tasks in the response procedures. System command tasks should include sending e-mail (optionally).
  - h. The system shall support automatic initiation of device and system commands upon incident creation.
  - i. The system shall enable associating response procedures to incident types. The associated procedures should be available for selection to operators upon manual incident creation.
  - j. The system shall allow configuring and executing incident triggering rules.
  - k. The system shall allow setting up multiple triggering rules per incident type.

- l. The system shall allow enabling\disabling rules and this change should take effect on the fly.
  - m. Incident triggering rules should include conditions referring to the following data event details: event type, event sub type, event source device, event description.
  - n. The system shall enable setting the severity and the response procedure that will be associated with the automatically triggered incident.
  - o. The system shall allow adding dispatch commands as part of the response procedures.
- 5. Audit trails
  - a. The system shall retain/store all user activity audit records for a period of 2 years.
  - b. The system shall provide an application for searching these records.
  - c. The system shall provide audit record search capability based on date & time, user name, user full name, action description and IP address.
  - d. The system shall display audit records search results in a tabular structure that supports sorting, grouping and searching within results.
  - e. The system shall allow exporting the audit search results into a tabular file format (e.g. XML).
- 6. Dispatch Incident
  - a. The system shall allow mapping incident/mission dispatch.
  - b. The system shall allow different dispatch missions based on incident severity.
  - c. The system shall allow automatic system initiated and/or manual operator incident dispatch request.
  - d. The system shall report upon successful dispatch request.
  - e. The system shall allow request of mission abort.

- f. The system shall update the incident record on all dispatch system reports including dispatch ongoing status and responders allocation and ongoing handling reports.
- g. The system shall support responders initiated alarms (e.g. panic alarm).
- h. The system shall allow manual dispatch of responders to an active incident.
- i. The system shall automatically close the dispatch mission upon closure from all responders and fulfillment of the dispatch rule.
- j. The system shall validate completion of an active dispatch upon incident closure.

#### 7. Supervisor Dashboard

- a. The system shall provide supervisors with a KPI driven dashboard that measures the performance of the control room.
- b. The dashboard should include performance visualization related to alarm handling and follow alarm response time KPI, number of active alarms.
- c. The dashboard should include performance visualization related to incident handling and follow average incident response time KPI, active incident resolution time KPI.
- d. The dashboard should include counters and graphs displaying number of alarms and incidents and also by severity and by type distribution graphs.
- e. The dashboard should include a map for laying out the information geographically. User should be able to set the map and its extent.
- f. The dashboard should allow drilling down to the relevant module (alarms or incidents) from a specific graph /gauge /Time.
- g. The system shall allow administrators and/or Supervisor to setup the customer specific KPI numbers.
- h. The system shall allow the user to order the dashboard components.

8. Assets monitoring

- a. The system should present the operator with a logical tree that contains devices from different types.
- b. The system should enforce that each operator sees only the defined device scope.
- c. The system shall allow searching the device tree by device name or device type.
- d. The system shall indicate the device type by an icon.
- e. The system shall allow sending commands to a device from its tree entry or its map icon. Sending commands privilege should be configurable as part of the user role.
- f. The system should display the related devices for the selected device.
- g. The system should display the devices on maps as icons that correspond to the device type.
- h. The system should display a pop-up for a device with its details.
- i. The system should allow zooming the map to a device location from the device entry in the tree.
- j. The system shall update the maps of all logged in operators with location change that is received from GPS tracked devices.
- k. The system shall display an icon for each device that is placed on map.
- l. The assets map should allow pan, zoom, and rotation via standard mouse operations (e.g. wheel for zoom-in\out) and on map control.
- m. The system shall enable to operator to show\hide background or devices layers.
- n. The system shall cluster devices whose icons overlap so that the map is not cluttered when zooming out.
- o. The system shall allow operator to set the device icons clustering sensitivity.
- p. The system shall allow operators to show\hide devices coverage area.

- q. The system shall allow operators to request to see live video from cameras whose coverage area is covering a point on the map selected by the operator.
- r. The system shall support playing live video of cameras or for devices associated camera.
- s. The system shall support geo-association; pinning an area of interest on the Map and as a result, automatically showing all the devices which have coverage on the pinned area and for the relevant camera devices, play live video.

9. Alarm management

- a. The system shall display all alarms in a unified grid.
- b. The system shall support sorting and filtering of the alarms grid based on every displayed column.
- c. The system shall support text based searching in the alarms grid.
- d. The system shall visually notify operators upon receiving new alarms in a non-blocking manner. The visual notifications can be turned on/off per operator's preference.
- e. The system shall allow clearing alarms. Cleared alarm should be visually different from active alarms.
- f. The system should update the alarm record on all operators workstations when an operator clears an alarm.
- g. The system should log and display the time and the user name of the operator that cleared the alarm.
- h. The system should display the alarm details upon alarm selection. Details should include source device and its related devices, alarm meta data, alarm attached images.
- i. The system shall allow zooming in on the alarm location.
- j. The system shall allow viewing recorded video from the time of the alarm. System should deduce the relevant camera based on the alarmed device and its related cameras.
- k. The system shall enable opening all alarm related video (live and recorded) in the video workspace.
- l. The system should display the alarm record, its details, its location and related video in a single screen.

10. Incident management

- 1) The system shall display all active incidents in a unified list.
- 2) The system shall support sorting and filtering of the incident list based on every displayed column.
- 3) The system shall visually notify operators upon receiving new incidents in a non-blocking manner. The visual notifications can be turned on/off per operator's preference.
- 4) The system shall update the incident record on all operators workstation for any activity done by the operator on the incident ensuring consistent common operational picture.
- 5) The system shall allow creation of new incident with/without geographical context.
- 6) The system shall allow the user to set the type, severity, description, time, response procedure of the manually created incident.
- 7) The system shall capture as much information from the new incident creation context and populate it to the incident (time, description, location).
- 8) The system shall allow the user that creates incident to auto assign it to him/her.
- 9) The system shall allow taking ownership of unhandled incidents. This action should be managed by a dedicated privilege.
- 10) The system should log and display the time and the user name of the operator that accepted the incident.
- 11) The system shall allow editing the incident severity, timestamp and description. Upon editing incident severity, user that is viewing this incident should get visual notification that the severity was changed.
- 12) The system shall allow setting and changing incident location.
- 13) The system shall allow the owning user to close the incident.
- 14) The system shall suggest the user to add incident summary upon incident closure.
- 15) The system shall allow exporting an incident summary report in pdf format, saving and viewing it. The incident summary

report should include the incident details, attachments and their image preview, chronological activity timeline with the main incident lifecycle information.

- 16) The system should display the incident details upon incident selection. Details should include relevant response plan, logged activities performed on the incident, attachments (including source alarm) and incident source device and its related devices.
- 17) The system shall allow zooming in on the incident map location. The selected incident map icon should be highlighted.
- 18) The system shall include full map capabilities in the context of the incident where user can select map, layers, interact with on-map items, etc.
- 19) The system shall allow viewing recorded video from the time of the incident. The system should deduce the relevant camera based on the alarmed device and its related cameras.
- 20) The system shall enable opening all incident related video (live and recorded) in the video workspace. Recorded and live video from the same camera should be displayed side by side.
- 21) The system should display the incident record, its details, its location and related video in a single screen.
- 22) The system shall allow attaching map & video snapshots to the incident.
- 23) The system shall allow attaching video tags to the incident.
- 24) The system shall allow viewing incident attachments including maps and video snapshot in its default viewer. In case of video tags, the system shall allow viewing the tagged video in the video workspace.
- 25) The system shall allow attaching/removing events/alarms to an incident.
- 26) The system shall allow viewing incident attached alarms details. Details should include source device and its related devices, alarm meta data, alarm attached images.

- 27) The system shall allow zooming in on the attached alarms location and playback of alarm related video.
- 28) The system shall allow adding comments to the incident. Each comment shall be logged with the operator user name and the comments time stamp.
- 29) The system shall allow operator to execute the incident response plan.
- 30) The system shall display for each of the response plan tasks its description.
- 31) The system shall log all response plan tasks executed by the operator.
- 32) The system shall present response plan execution overall progress.
- 33) In case of decision point tasks, the system shall allow the operator to review the different optional routes before taking the decision.
- 34) In case of command tasks, the system shall allow operator to continue working while command is being executed.
- 35) The system shall support multitasking between incidents. When browsing between incidents, the incident form state (map, video, selections) should be persisted so the user will continue operation from same place.
- 36) The system shall allocate a video workspace per incident so videos not related to that specific incident tasks (e.g. routine monitoring, alarm assessment) will not be mixed.
- 37) The system shall persist the video workspace of the incident when multitasking between incidents so user will not lose the video context when browsing between incidents.
- 38) The system shall support incident response collaboration between multiple operators. Multiple operators should be able to mark tasks as done, add comments, and add attachments to the incident. Every change in the incident should be populated across all workstations.
- 39) The system shall enforce that operators are getting visibility for incidents based on their visibility to the device that triggered the incident.



- 40) The system shall enable visibility for incidents that are not associated with a device based on the defined organizational tree hierarchy. Colleague users in the same group and users higher in the hierarchy of the incident creating user should gain visibility to that manually created incident.

#### 11. Search Facility

- a. The system shall provide search capabilities on all event, alarms and incident records.
- b. The system shall provide Incident record search capability based on Incident ID, type, description, time and severity.
- c. The system shall display incident records search results in a tabular structure that supports sorting, searching within results.
- d. The system shall allow viewing selected incidents details.
- e. The system shall allow exporting the Incident /event search results into a tabular file format (e.g. CSV).
- f. The system shall provide events record search capability based on event type, sub type, time and severity and source devices.
- g. Based on the event type, the system shall provide type specific custom fields as search parameters.
- h. The system shall allow creating new incidents from the event record.
- i. The system shall allow attaching of an event record to an active incident.

## **8.0 Video Content Analytics**

### **8.1 General Analytics Requirements**

The requirements listed in this section apply to both real-time video detection and video Search & analysis, unless stated otherwise.

### **8.2 Architecture**

1. The system shall be a client-server architecture that distributes the processing of the video image between edge devices and servers.
2. The system shall support processing video from any IP Cameras/ edge devices.
3. Analysis of video shall be performed over a distributed architecture, separating processing of video from analysis of data between the edge device and a central server.
4. Server: Feature data received from the edge device shall be received and analyzed based on the rules configured by the user for real-time detection, or by settings automatically configured by the solution for video search & analysis. The VAIP application shall be able to integrate Alarm Videos from multiple Analytics application and display on user workstation on a single screen. The VAIP application will get seamlessly plugged in from different vendors of Video Analytics.
5. In addition to video analysis distribution between the edge and a server, the solution shall provide an option to support IP cameras for which Cameras based Analytics is available.
6. The solution shall be easily scalable: the customer shall be able to add servers to the network to enable analytics on an unlimited number of additional cameras (without downtime).
7. The solution shall support full server redundancy, i.e., automatic switchover to backup components if the primary components fail. The capability is available in deployments of both the embedded feature extractor and the proxy feature extractor.

## 8.3 Hardware & Software

1. The solution shall run on computer networks using industry-standard equipment.
2. The analytics software shall be compatible with COTS equipment and common operating systems like Microsoft Server 2008 and Windows 7 or higher.
3. The system shall have the ability to traverse both LAN and WAN network topologies.
4. The solution shall use an industry standard database such as Microsoft SQL 2008/2012 for indexing alerts and storing configuration data.

## 8.4 Performance

1. The solution shall be capable of delivering analytics to large-scale deployments comprising thousands of video cameras.
2. The solution shall be capable of detecting objects whose height is at least 5% of the Field of View (FOV).
3. The system shall function in diverse environments such as low light, rain, fog, snow and clouds without loss of performance or significant increase in false real-time detection or false search results.

## 8.5 Edge Devices

1. The solution shall be capable of analyzing video streams originating from IP video Surveillance cameras: fixed cameras; overheads; thermal/infrared.
2. The solution shall enable video analytics on edge devices deploying an embedded feature extractor, from at least five different manufacturers.
3. For selected PTZ cameras that deploy an embedded feature extractor the solution shall enable real-time motion detection as well as enable search and analysis to be performed on a single PTZ preset.

## 8.6 Configuration and Setup

1. The solution shall automatically detect all compatible edge devices (IP cameras and video Servers / encoders featuring an embedded analytics firmware module) present in the network:

- Automatically detecting local sub-networks
  - Allowing the operator to specify any network subnet and IP address range
  - Detecting the type of the edge device
  - Automatically resolving IP addresses to the host name (of the detected edge devices)
  - Allowing the operator to select which of the discovered edge devices should be added to the analytics management system
2. The GUI shall enable the customer to configure bandwidth usage per camera in order to reduce network bandwidth consumption when viewing live video.
  3. The solution shall be capable of automatically learning the camera scene, to enable optimal analytics performance, including:
    - a. The geometry of the field of view in terms of the pixel-to-meter measurement, in different areas
    - b. The environment in which the camera is located - indoor or outdoor
    - c. The camera orientation – angled or overhead

## **8.7 Video Standards and Formats**

1. The solution shall be capable of processing a variety of video resolutions, including: CIF, 4CIF, QVGA, VGA, HD 720P and HD 1080P or higher.
2. The solution shall be capable of processing a variety of compression standards, including: Motion JPEG, MPEG-4 and H.264.
3. The solution shall be capable of processing a variety of video aspect ratios, including 4:3 and 16:9.

## **8.8 Demo Capability**

- The solution shall feature the capability of importing video clips into the application for the purpose of testing, evaluating and demonstrating the quality of the analytics.

## 8.9 Real-Time Detection Capabilities

- The requirements listed in this section apply to real-time detection capabilities.

### **a) Configuration & Setup**

1. The solution shall feature a GUI enabling operators to quickly and easily set up analytics detection rules using a wizard type function.
2. The solution shall enable operators to configure operational analytics parameters (such as activation time and duration) versus continuous analysis.
3. The solution shall provide the capability of configuring multiple analytics rules in bulk.

### **b) Behavior Detection**

1. The solution shall offer a suite of analytics rules to provide automatic detection of a range of motion and non-motion behaviors of persons, objects and vehicles:
2. Person moving in area (alerts to movement of a person in a sterile zone)
3. Person crossing a line (alerts to a person crossing a virtual line / wrong direction of movement)
4. Crowding (alerts if crowd size reaches a user-defined threshold for a user-defined length of time)
5. Loitering (alerts to persons sojourning for an operator-defined length of time and behaving in a way that warrants belief that their purpose is to carry out an illegal activity such as vandalism or theft)
6. Grouping (alerts if the number of people in a detection region exceeds a user-defined threshold)
7. Measure person stickiness
8. Suspicious object (alerts if an object is added to a scene, meets the operator-defined size, and stays for longer than the operator-defined time)
9. Traffic obstacle (alerts to an object of operator-defined dimensions that remains stationary for an operator-defined time on a road)

10. Assets protection (alerts if a specific object is removed from an operator-defined region for longer than a defined time)
11. Vehicle moving in area (alerts to vehicle movement)
12. Vehicle crossing a line (alerts to a vehicle crossing a virtual line / wrong direction of movement)
13. Stopped vehicle (monitors 'No stopping zones')
14. Tailgating vehicle (alerts if a second vehicle crosses a line after the vehicle that crossed before, within a user-defined time)
15. Count vehicles (counts vehicles moving directionally)

**c) Event Generation**

1. The solution shall provide real-time generation of events to alert operators to irregularities.
2. The solution shall support simultaneous tracking of an unlimited number of targets within the detection regions and/or the cross lines.
3. The solution shall enable event on non-detection, i.e., for an alarm to be generated when a rule does not perform detection within a predefined period of time.

**d) Rules Capabilities**

1. The solution shall enable any combination of analytics rules to run on the same camera simultaneously, without limitations.
2. The solution shall enable the operator to define an unlimited number of detection regions per camera.
3. The solution shall enable the operator to define analytics rules that will be activated when other rules and/or digital inputs and/or scheduled times are activated. Chaining rules will be without limitation; it will be possible for each rule to activate and deactivate an unlimited number of rules on a single video camera and/or across multiple cameras. It shall be possible to activate all rule types simultaneously.

4. The solution shall provide operators the ability to configure rule parameters based on target size, target speed, aspect ratio or distance of movement. Operators shall be able to set these parameters per rule and per sensor.

**e) Counting Capabilities**

1. The solution shall offer analytics rules to provide automatic counting of persons and Vehicles:
2. Count the number of persons or vehicles moving directionally, i.e., crossing a virtual line/s that is operator-defined in the camera's field of view.
3. Count an unlimited number of persons or vehicles moving in any direction within the camera's field of view.
4. Optimize precise counting of targets by distinguishing individual targets in a cluster. If a cluster of 4 people crosses a line (for example), a count of 4 will occur rather than 1.
5. Feature the capability to reset the counter to 0 at an operator-defined time or when an operator-defined count is reached.
6. Feature a definable minimum distance that the target must cross before and after the line in order to qualify as a count.
7. Count as 'sticky' the behavior of a person who remains in an operator-defined detection region for more than an operator-defined time (in seconds) after entering the region, and perform a count.

**f) Management**

1. The solution shall feature an alarm management system enabling operators to view video feeds streamed from multiple video cameras, from any PC on the network.
2. The solution shall enable managing multiple sensors simultaneously and will be capable of:
  - ✓ Viewing multiple sensors meeting user-specified matching criteria (filtering)
  - ✓ Applying common configuration settings on multiple sensors at a time
  - ✓ Capturing a frozen image for multiple sensors.

3. The solution shall display a reference image with reference points for each camera, to facilitate camera identification if there's no live video stream and to align the camera back to its original position if it is moved.
4. The solution shall provide an events history.
5. The solution shall be capable of periodically purging the event database based on the events age or on a limited number of stored events. Purged events shall be stored to external files for later viewing with a viewing or reporting mechanism.
6. The solution shall be capable of distributing event notifications to external applications (optional) - email notifications, SMS/MMS.
7. The solution shall allow generating reports of multiple types:
  - ✓ For counting people and vehicles and for stickiness, listing all counting events and the reported count at each time interval.
  - ✓ For counting people and vehicles and for stickiness, a report that compares multiple counters during a period of time.
  - ✓ For counting people and vehicles and for stickiness; a report that aggregates the results of multiple counters.
  - ✓ For counting people and vehicles and for stickiness, an extended Excel report can be generated that includes absolute and comparative views for each day, month and year.
  - ✓ Extended Excel reports indicated above shall be producible offline, on the basis of a schedule, without requiring constant operator involvement.
  - ✓ For all event types, a report that contains the details of each event and also includes a captured image of the event.

**g) 3rd Party VMSs**

- The solution shall be integratable with 3rd party VMS through an open standards, bi-directional, XML-based API, enabling the VMSs to receive events as XML strings, to parse the events, and to extract information such as source camera, event type, event snapshot.



## 8.10 Video Search & Analysis Capabilities

The requirements listed in this section apply to video search & analysis capabilities, providing forensic search and business intelligence capabilities for recorded video of a surveillance system. The specifications below apply to a typical deployment of a surveillance system, in which video is recorded by a Video Management System (VMS), as well as to offline search on video clips.

### **a) Configuration and Setup**

1. The solution shall not allow the operator to apply any rule or behavior configuration.
2. The solution shall allow the administrator to enable or disable generation of video indexing per sensor.
3. The solution shall allow the administrator to specify the maximum duration (minimum 30 days recording) to store the video index per sensor. When the specified time limit is reached, the solution shall purge the oldest index data from the database.
4. The solution shall not allow deletion of any previously stored video.
5. The solution shall provide the capability to configure multiple sensors via a single GUI operation.

### **b) Search Capabilities**

1. The solution shall offer a suite of search options in the range of motion and non-motion behaviors of persons, objects and vehicles (search targets):
2. Person moving for a specified time, in the entire FOV or in a specified AOI (area of interest)
3. Person crossing a line.
4. People crowding for a specified time, in the entire FOV or in a specified AOI (based on a user-defined crowd size percentage threshold).
5. Persons occupying for a specified time the entire FOV or a specified AOI (based on a user defined occupancy threshold).

6. Vehicles that moved for a specified time, in the entire FOV or in a specified AOI.
7. Vehicle crossing a line.
8. Vehicle that stopped for a specified time, in the entire FOV or in a specified AOI.
9. Object that was added for a specified time, in the entire FOV or in a specified AOI.
10. The solution shall allow searching based on target characteristics:
  - Person height. The solution shall provide predefined presets for Adult, Child and Any person.
  - Vehicle size. The solution shall provide predefined presets for Small, Medium, Large and Any vehicle.
  - Object size. The solution shall provide predefined presets for Small, Medium, Large and Any object.
  - Target color. The solution shall provide a predefined palette of colors to choose from. It shall be possible to specify up to two colors to be matched. The solution shall enable searching for targets that match the specified color(s) or targets that don't match the specified color(s).
11. The solution shall be capable of searching over various time range options:
  - Over the past N minutes, hours or days (e.g., over the past 3 hours; past 7 days).
  - From a start date and time to an end date and time
  - Over a recurring time interval across a date interval (e.g., between 8-9 a.m., every day between Jan 1-10).
12. The solution shall enable adjusting the search parameters tolerance to yield fewer or more search results (while decreasing or increasing the probability for true and false matches).

13. The solution shall provide the capability to Search for Similar Targets. If a target is found, another search can be performed in the recorded video (generated from the same camera or any group of cameras) to find targets that are the same as or similar to the found target.

### **c) Viewing Search Results Capabilities**

1. The solution shall provide a fundamental capability to display video playback for any search result around the time that the search target / behavior was found:
  - The solution shall continuously display a bounding box over the target (target tracking).
  - The solution shall display the video playback in an infinite loop.
  - The solution shall present a progress bar, including a graphic indication showing the time at which the search criteria were met.
  - The solution shall enable the user to Pause and Re-Play the video playback.
  - The solution shall enable the user to use the progress bar to navigate to any time position along the playback segment.
  - The solution shall be capable of zooming into the original video source so that users shall be able to optimally view tracked targets in video playback.
  - The solution shall feature playback windows of at least two possible sizes and with an aspect ratio that correlates to the original video recording, such as 4:3 or 16:9.
  - The solution shall feature video playback extracted from either the integrated VMS or from the video clip, depending on the deployment.
  - The playback capability should be further incorporated with several viewing options as described below.
2. The solution shall provide multiple options for viewing search results.
3. Event Thumbnails: After searching cameras, the solution shall be capable of displaying thumbnail results, each of which shows a found person, vehicle or object behavior. It shall be possible to play back the video of each thumbnail. The solution shall be capable of zooming into the original video source so that users shall be able to optimally view tracked targets within the

displayed thumbnail. The thumbnail will be extracted from either the integrated VMS or from the video clip, depending on the deployment.

4. Statistics Report: The solution shall enable counting the search results and presenting the information as:
  - Graphic statistics report by time intervals
  - Graphic statistics report by sensor (allowing comparison of search results across cameras)
  - Graphic statistics report exported to PDF file
  - Raw counts exported to Microsoft Excel file
5. Target Path / Location: After searching, the solution shall be capable of displaying all motion paths in a scene over the field of view reference image. For non-motion behaviors (such as suspicious object and stopped vehicle), the solution shall present the bounding rectangle in the location that the target was found. It shall be possible to immediately play back the video of each target path or target location.
6. Video Summary: After searching, the solution shall be capable of displaying multiple search results in a single condensed, segmented clip. It shall be possible to easily navigate from one video segment to another as well as to directly navigate to any position in the condensed clip.
7. Site Map: The solution shall enable viewing search results on a graphic image representing a site map:
  - The solution shall enable viewing Target Path on the site map.
  - The solution shall be capable of presenting the results of searches on multiple Cameras, on a single site map.
  - The solution shall allow navigating to the video playback directly from the site map for a given cell or a given Path.
  - The solution shall enable viewing a maximal size of the site map image showing the Search results.
  - The solution shall allow defining multiple site maps and associating them with a subset of cameras.
  - Image files shall support the following formats: *bmp*, *jpg*, *gif* and *png*.
  - The solution shall provide a simple method to correlate between the camera coverage area and the site map graphic image.

**d) Offline Search on Video Clips**

1. The specifications in this section are an extension of the above general specifications, for offline search on video clips.
2. The solution shall allow the operator to import video clips that were exported from other NVR/DVR systems.
3. The following video file containers shall be supported: *avi, asf, wmv, mjpeg, dat* and *mpg*
4. The solution shall allow the operator to specify the original recording date and time so that search results appear with the actual date and time when that an event took place.
5. The indexing process (i.e., creating searchable metadata) shall be executed as fast as possible subject to PC resources. A typical time acceleration factor for 4CIF resolution shall be X10.
6. The solution shall allow indexing multiple video clips in parallel.
7. The solution shall enable the operator to view the indexing progress of all clips being indexed.
8. The solution shall enable the operator to search the video clip as soon as the indexing process starts.
9. All query and viewing capabilities outlined in the general section (above) apply to offline search on video clips.

**e) Process and Investigation Capabilities**

The solution shall provide the following process and investigation capabilities:

- **Save Search Query:** Users shall be able to save a search query with a given name for later reuse.
- **Save Search Results:** Users shall be able to save search results with snapshots of the detections and the results' identifying information (camera ID, time). Multiple results from a single search or from multiple searches can be saved under a single or multiple names (as required by the user) and can be retrieved as a reference later.

- **Export Clip:** The solution shall enable users to export a search result to an .avi file, for a single result as well as for a complete video summary. The exported clip will include the target tracking display.

**f) Performance**

- The solution shall be capable of a query time average of 5 seconds per camera per 24 hours of recorded metadata.
- The solution shall be capable of providing search results on any new target entering the field of view.

**g) 3<sup>rd</sup> Party VMS**

- The solution shall be Integratable with 3rd party VMSs through a VMS provided API that the solution shall use to retrieve images and video playback for the search results.

**h) Client Access**

1. The solution shall be capable of handling concurrent GUI clients that access the solution and perform video search & analysis.
2. The solution shall support at least two levels of user access allowing full search and viewing capabilities and a sub-set of these capabilities.

## **8.11 GENERAL GUIDELINES FOR CONFIGURING THE VIDEO CONTENT ANALYTICS TO GET BETTER PERFORMANCE**

Video surveillance systems shall typically installed to record video footage of areas of interest within a facility, around its perimeter or in outdoor areas which require observation, with a view to “catching” (allowing the user to be able to observe) and recording events related to security, safety, loss prevention, operational efficiency and even business intelligence.

Video Analytics System shall enhance video surveillance systems by performing the tasks of real-time event detection as well as post-event analysis, and increasing the effectiveness of the surveillance system operation.

The System accuracy will depend on the intended application of the analytics. Therefore it is important first to have a common understanding of customer expectations. The following environmental and computational factors are important to understand when setting appropriate expectations.

## **1. Environmental Factors that Affect the Video Analytics Performance:**

- **Camera Angle:** The angle of the camera can influence several factors used in video analytics, including perspective, occlusion and segmentation of objects. As a result, the type of camera and its placement should be carefully selected.
- **Distance to Object:** The object's pixel size is an important element to video analytics. Most video analytics require a minimum pixel size (e.g., 15 x 15). Conversely, if the pixel sizes of the objects are too large, that too can distort the performance of the analytics (e.g., reflecting light into the camera).
- **Lighting Level:** Lighting can influence video analytics in a few ways. First, for video analytics to detect objects, there must be some minimum light available (unless infrared or thermal cameras are being used). Second, abrupt changes in lighting (e.g., opening of doors) can cause false conclusions. Once again, consider the use of outside lighting, day/night cameras and/or infrared or thermal cameras, depending upon the application and environment.
- **Degree of Activity:** The degree of activity or “busyness” of an environment has influence over the performance of video analytics. Generally, the higher the level of activity, the more false conclusions will be drawn by the video analytics algorithm. That's why loitering and left-item applications are less suited for heavy traffic areas such as airports and train stations.
- **Weather:** The volatility and variance of weather (sun, rain, snow, wind, trees, clouds, shadows, etc.) can cause false conclusions for video analytics, especially in outdoor environments. Weather also has an impact on video analytics in indoor environments where there exist large glass windows and doors and the mentioned conditions create changes to the scene viewed by the indoor camera. Some sophisticated cameras can compensate for these variable conditions.

- **Backgrounds:** The degree of change to the background of a camera view can impact the performance of video analytics.

## **2. Computational Factors**

The System shall have following Computational factors for the Analytics System performance.

- **Processing Power:** There are many different analytics engines. One can require 10 times as much CPU as another. More CPU is usually required if you want to detect small objects moving quickly. This is because to accomplish this, engines need to run more quickly to run at both a high resolution (to detect small objects) and a high frame rate (to track fast objects).
- **Resolution:** Normally you can record video at 4CIF (704 x 480 resolution) and do analysis at CIF (352 x 288 resolution) to save CPU. But to detect very small objects during analysis, you may have to run video at 4CIF.
- **Frame Rate:** Most analytics engines need between five and eight frames per second (FPS), with a record rate even higher. Faster moving objects require higher FPS for tracking. Even left item detection analytics often use motion tracking to cut down on false positives. Higher frame rates also result in more network traffic and storage requirements.
- **Hard Disk:** If you want to be able to search through analyzed footage (e.g., objects moving near a car), you will need to store the XML metadata produced by the analytics engine. This is normally a negligible amount of storage space - a few percent of video storage requirements.
- **Memory:** An analytics engine usually requires an additional 10MB to 100MB when run on a PC. Higher resolutions need more memory. Video analytics algorithms can vary greatly on the amount of computational power needed to perform adequately.

## **3. Parameters & Rules:**



Video analytics is the use of sophisticated algorithms applied to a video stream to detect predefined situations and parameters. These can include but are not limited to the following.

- Motion Tracking - Following a moving object across the cameras view
- Object detection - Detect a moving object in the cameras view
- Object classification – Identify the type of object moving (Person, Vehicle)
- Direction Flow – Identify the direction of a moving object
- Loitering – Alert if object stationary beyond a predefined time
- Left/Removed object – Alert if an item is left or removed from a predefined area
- Face detection – Detect and record faces
- People Counting – count people in and out of a defined area

Systems should have enough information to make intelligent decisions based on the pre-set rules and parameters set in the software. It can then either ignore or raise alarm depending on these rules.

#### **4. Requirements for Video Analytics:**

##### **a) High Sensitivity Detector:**

- Analytics system should have a high accuracy of detection and classification of significant events for the subsequent reaction, regardless of environmental conditions (weather, lighting conditions). Algorithms for detecting and tracking should take account of volume to the scene and provide multi-scale work in the foreground and the background.

##### **b) High-speed detection**

- The analysis should be performed in real time (or within a short period of time) for immediate notification of the threat. This provides the necessary level of security.
- To increase the speed of video processing, algorithms that can cope with the increasing workload and changing conditions.
- Video Analytics systems often face the problem of false positives. Sometimes their number in the tens per hour, which leads to inappropriate use of such systems. Video analytics should be able to filter out the activity, no interest, which is important in the application of systems with many cameras.

### **c) Event Detection Capabilities**

- Object Classification: Differentiation in all events between a person, vehicle or other object.
- Tripwire: Detects when the specified object moving in a specified direction crosses over a line (tripwire) drawn within the camera's field of view. For example, if the object is a person, the person's feet must cross over the line in the specified direction to trigger an alert. Tripwires can be uni-directional or bi-directional.
- Multi-line Tripwire: Permits building rules with association between two video tripwires with respect to crossing one before the other and relative time between crossing both. For example, the Multi-line Tripwire can detect illegal turns or traffic flow (vehicles or people) and indicate speeding.
- Enters and Exits: Detects when the specified object type enters and exits an Area of Interest from any direction within the camera's field of view respectively.
- Appears: Detects when the specified object appears in an Area of Interest without appearing within the camera's field of view previously. For example, by walking through a doorway that exists inside the Area of Interest.
- Disappears: Detects when the specified object disappears from the camera's field of view without exiting the Area of Interest.
- Inside of: Detects the specified object moving inside of a designated area of interest within the camera's field of view.
- Loitering: A moving object remains within an area of interest for a user-specified period of time. A different loitering time can be specified for each event.
- Leave Behind: Detects when an object has been left behind or inserted in the full view of a camera, or a designated area of interest. For example, a Leave Behind rule will trigger an alert when a suspicious object is left on the ground.
- Take Away: Detects when an object has been removed from the full field of view, or from a designated area of interest. For example, a Take Away rule will trigger an alert when a picture is removed from a wall.

- **Scene Change:** Detects event that significantly change the field of view of the camera, such as the camera being panned away from a known view, a camera lens being painted, a camera being covered up, turned off or unplugged, or the lights being turned on or off.
- **Multi-View:** The ability to store multiple views and rule sets for a give camera. This enables operation with a PTZ camera with multiple pre-set stops.

#### **d. Calibration**

It is important to calibrate analytics for use with camera. If it is not properly calibrated the analytics will not function correctly. It is important to have the tools to ensure the optimal calibration.

- The height of camera from the ground.
- The angle the camera is tilted towards the ground.
- Once your Analytics is calibrated you may add classifications to object that will appear e.g. a person or a car. This allows you to customize rules for different classifications
- Software should allow you to assign values to the classification.
- **Name:** Enter the name you would like to give your classification
- **Min Area:** Assign the minimum area your classification will occupy.
- **Max Area:** Assign the maximum area your classification will occupy.
- **Min Speed:** Assign the minimum speed your object will be traveling.
- **Max Speed:** Assign the maximum speed your object will be traveling

#### **5. General Parameters for Video Analytics:**

Function Block	Description	Parameters
Incident tracking	Automatically track the movement of vehicles from the designated entry point up to exit gate.	<ul style="list-style-type: none"><li>➤ sensitivity</li><li>➤ region</li><li>➤ min/max size of object</li></ul>
Counter Flow Detection	Automatic detection of people/vehicles moving in the wrong direction in a security-critical	<ul style="list-style-type: none"><li>➤ sensitivity</li><li>➤ region</li><li>➤ directions, velocity, min/max size of</li></ul>

	location and immediate notification of security officers of a possible problem.	object
Vehicle Number Plate detection and Recognition on entry/exit gates, parking bays and specified locations.	<ul style="list-style-type: none"> <li>➤ Detect License Plates on moving or stationary vehicles</li> <li>➤ Recognize characters on license plates</li> <li>➤ Search for similar license number</li> <li>➤ Compare detected plates against a Watch List database to find matches</li> <li>➤ Real-time alerts on plate matches.</li> </ul>	<ul style="list-style-type: none"> <li>➤ data base of vehicle number plates</li> <li>➤ standardized font on license plates for recognition</li> <li>➤ speed of the vehicle</li> </ul>
Illegal Parking	Automatic detection and alert for vehicles parked in predefined restricted areas beyond permissible time limits.	<ul style="list-style-type: none"> <li>➤ sensitivity region</li> <li>➤ min/max size of object</li> <li>➤ minimum movement time</li> </ul>
Intrusion Detection	Detect human movements within specified areas Trigger alerts when human movements are detected	<ul style="list-style-type: none"> <li>➤ sensitivity</li> <li>➤ region</li> <li>➤ minimum time to trigger &lt; 1sec</li> </ul>
Crowd Detection	Raises an alarm when more than a defined number of people enter a scene	<ul style="list-style-type: none"> <li>➤ sensitivity</li> <li>➤ region</li> <li>➤ Percentage Occupancy</li> </ul>

	within a preconfigured time.	➤ Minimum Time of occupancy
Face Detection and Recognition	Detects, recognizes and records people's faces that appear in a camera's field of view. It identifies /verifies one or more persons in the scene using a stored database of faces. The product's detection capability allows it to identify and extract human faces in a camera's field of view and record them for future retrieval and forensic analysis.	<ul style="list-style-type: none"> <li>➤ Sensitivity</li> <li>➤ Lighting Conditions</li> <li>➤ Camera Height and angle</li> <li>➤ Fast Induction of New Face</li> </ul>
Left/Unclaimed Baggage Detection	Left Object Detector continuously monitors an area to detect objects or baggage that has been left unattended for too long in the scene. It looks for objects that are not part of the "normal" scene and issues real-time alerts upon detecting exceptions.	<ul style="list-style-type: none"> <li>➤ sensitivity</li> <li>➤ region</li> <li>➤ minimum object "existence" time</li> <li>➤ object rigidness</li> <li>➤ min/max size of object )</li> </ul>

## 6. Video Analytics Specifications:

### a) Vehicle Tracking and Management

If there is any violation of norms by any of the vehicle, the system should generate alarm immediately so that action can be initiated on

a near real time basis. In any case alarm should be generated within 5 seconds of the event, that is the violation happened and also that the number of false alarms should not exceed more than 10% of the total alarms.

**b) Incident tracking:**

The system should offer facility to track vehicular movement of VVIPs happened in the end user site area in a real time basis and also offer facility to play back later on. For example, the VIP movement which might take place in dedicated routes may be tracked in a real time basis. The operator or any authorized official should be in a position to track the movement of the vehicles from the designated entry point up to the exit gate of the site. As the vehicles generally moves at a high speed, the system should be capable of switching cameras at faster pace. The changeover time for cameras should be bare minimum. The entire tracking module should be an automated process and should not involve any manual intervention. In case of any camera malfunctioning due to any unforeseen reason the system should automatically identify the issue and move on the next camera with near zero waiting time. An acceptable threshold level needs to be worked out for camera switching time, skipping of malfunctioning camera, etc. in case of failure of any camera ALERTS should be sent to the maintenance group and to the controller in a near real time basis along with the kind of alarm. Optionally, Stitching of multiple camera views to create virtual camera with much larger views.

The system should offer two types of incident tracking, viz. (i) a quick launch system by which all the cameras are to be displayed on the same display unit sequentially without any human intervention, (ii) display the tracking on multiple screens/split-screens of the same user so that even if any of the camera mal-functions the others does not get affect.

**c) Counter Flow Detection**

There are certain routes identified for VIP movements. For security reason in those designated routes vehicles are allowed to traverse in a unidirectional mode. The system should detect any vehicle traversing in the opposite direction, generate alarm, and broadcast to all the concerned officials for remedial action. Flying birds or any other small objects should not be detected as counter flow movement. Except the moving vehicles all other objects may be ignored by analyzing/calculating the size of the object and its

duration of presence in the camera coverage area. If any bird crisscross along the counter flow route that also should be ignored.

**d) Vehicle Number Plate detection and Recognition**

There are two phases in the vehicle number plate detection and recognition system. First, the system should detect the license number of the vehicle entering the end user site. A perfect process should be evolved so as to detect the right number at the correct angle. Once the license number is detected it needs to be matched with the entries in the black listed vehicle database. In case the detected number matches with any of the stored entries in the black listed vehicle database an alert should be generated on a near real time basis. The database of suspected and blacklisted vehicle registration numbers would be made available at the time of development. Suitable cameras should be installed in the general parking areas so as to capture the Vehicle License Number Plates so that the vehicles can be easily tracked from its entry into end user site till it leaves the site area.

**e) Illegal Parking**

Authorized vehicles are allowed to park at designated places only. For different level of officials and VVIPs/MPs separate designated parking areas are assigned. If any vehicle is parked in any other location the system should identify that vehicle, using the help of Camera feed analytics and License Plate Reader, and immediately generate alarms. If a vehicle travels for some time/distance and then halt in the no parking area so as to drop a VVIP/VIP/MPs/officials and then moves out of that area then it should not be treated as illegal parking. In case the halt time exceeds a defined level say, two minutes then raise an alarm.

Any object kept at the parking area should not be detected as illegal parking. If more than one vehicle enters (at different time period) and halts at the Illegal Parking area at a given range of time period then the vehicle which halted for more than the allowed time limit need to be identified for its evacuation. This could be possible with the help of LPR and tracking the vehicle from the time it enters into the end user site and up to the present halting point.

**f) Intrusion Detection**

In the perimeter area cameras should be fixed so as to capture any object or human intruding into the secured areas. In the present

setup the system generates large numbers of false alarms due to foliage, tree branch oscillation, shadow, water patches, headlights of vehicles passing by during night, and birds/monkey movement etc. In order to have an efficient Intrusion Detection system it should have better filtering algorithms built in it and should also have provision to add new and improvised filtering algorithms. Before generating alarms the system should first determine the distance (focal length) between the object and camera, using distance calculate the actual size of the object. If the size and distance are less than threshold levels, ignore it, else generate alarm.

If an object is thrown or a living thing jumps from the outer side of the wall at a much higher position than the height of the wall (say, jumps at a height of one meter above the wall height) the camera should capture the image and content analytics performed on that image. Based on the analysis it should decide whether the object crossing the periphery is a threat or not.

In the present setup cameras are positioned at the wall level and capture the images only at a horizontal level. In the proposed approach cameras should be positioned at much higher level than the height of the wall so that it will have a wider coverage area.

#### **g) Crowd Detection**

There are certain areas within the end user site where the number of people assembles at any given point of time needs to be monitored. For each of the identified area the maximum number of people allowed is fixed and the number may vary from time to time and area to area. The camera should capture the numbers, do the analysis, and generate alarm, if the number exceeds the acceptable level. In order to capture the exact number of assembled people in the said area cameras should be positioned at the right place so that shadows or any other objects are not part of the final count. Shadows of human being assembled in the said area should not be counted as crowd. There must be a provision to specify the maximum numbers of people allowed to assemble at any given point of time in the identified areas.

#### **h) Face Detection and Recognition**

There are two phases in the face detection and recognition system. First, the system should detect the face of the person visiting the premises. A perfect process should be evolved so as to detect the face at the correct angle. The system may also detect the person's face front view or side view at varied angles. Once a face is detected



it needs to be matched with the existing database. In case the detected face matches with any of the stored entries in the database an alert should be generated on a near real time basis. The database of suspected and blacklisted people's photographs would be made available at the time of development. This module requires a detailed analysis of the algorithms/software available in the market, its success rate in other CCTV applications elsewhere, and exact requirement in the current scenario in the premises.

**i) Left/Unclaimed Baggage Detection**

Any unclaimed object lying for more than a specific time should be identified and alarm generated. Shadows, water patches, distinct colored 2-dimensional objects should not be detected as unclaimed objects. At most care should be given before deciding on the object. Improvised 3-dimensional models could be used for identifying the objects so that minimal numbers of alarms are generated in the process. The positioning of camera also should be at a decent height so that shadows won't be counted as objects.

**Table Detailing Expected Performance Accuracy for Various Analytics**

Sr. No.	Type OF Analytics	Expected Performance Accuracy
1	Incident Tracking	100%
2	Counter Flow Detection	99%
3	Standard Vehicle Number Plate detection and Recognition	95%
4	Illegal Parking	95%
5	Intrusion Detection	90%
6	Crowd Detection	95%
7	Face Detection and Recognition	90%
8	Left/Unclaimed Baggage Detection	70%

**Detection of Alarms / Events from Third party Systems:**

Sr. No.	Alarms/event from Third party systems	Expected Performance Accuracy
1	Fire Alarm	100%
2	Panic Button	100%
3	Gunshot Detector	100%
4	Access control System	100%

5	Glass Break system	100%
6	Power fence	100%

## 7. Basic key parameters for performing video Analytics

- a) **Input:** The solution should work with a wide range of IP cameras from multiple vendors like Bosch, Axis, Pelco, Honeywell, Panasonic, Sony, DSC, DVTel, Arecont Vision, Verint etc. It should also take video input from many DVR and NVR / video management solutions. The software should support MPEG4, MJPEG, DAT and H.264 video formats.
- b) **User Defined Rules and Regions of Interest**  
Analytics should only recognize violations as per User defined rules and in the specified Region of interest.
- c) **Calibration:**  
Analytics systems should be easy to calibrate and should involve distance and object measuring through:
- **Height:** The height of camera from the ground.
  - **Tilt Angle:** The angle the camera is tilted towards the ground.
  - **Vertical FOV (Field of View):** The vertical field of view of the camera being used.
  - **Reference Object size**
- d) **Back Ground Subtraction for elimination of noise to avoid false alarms**
- Moving background (e.g. swaying of trees)
  - Temporarily stationary objects
  - Object shadows, sunlight, water patches, rain, snow, reflections, wildlife, flying birds.
  - Illumination variation and environmental conditions
- e) **Object classification** - Analytics systems should be able to differentiate between objects, a person, a car, a motorbike, animal etc and even the characteristics of that object.
- f) **Indoor or Outdoor (Controlled vs Uncontrolled environment)**  
Analytics should work satisfactorily in both controlled and uncontrolled environmental conditions.
- g) **Day/Night**  
Analytics should be able to differentiate Day and night conditions based on the lighting conditions and suitably analyze the view to generate optimal alarm.

- h) Output:** System shall provide real-time event outputs and alerts. Event information includes event type and priority, object type and location, time, images and provision to add more user required fields. The system should support extensive alerting and output capabilities:
- Output relay I/O and contact closures
  - Output to databases or files (XML, Excel, TXT, CSV)
  - Customized Reports
  - Local voice/visual notification
  - Powerful search tools should offer an instantaneous method of searching and locating incident video from DVR/NVR
  - Flexible query system allows the user to specify a combination of alarm or event types, object types or cameras, within any target time range.

## **9.0 Video Management System (VMS)**

### **10.1 APPROVAL**

The VMS shall be approved either by US Department of Homeland Security or any other international accredited certificate.

### **10.2 VIDEO MANAGEMENT SOFTWARE (VMS) ARCHITECTURE**

The VMS shall have a flexible, open video, over IP architecture built on accepted industry standards that facilitate integration with IT infrastructures. The VMS should have the below mentioned features:

1. The VMS shall have a flexible, open architecture built on accepted industry standards that supports a Workgroup Microsoft Windows Environment, DNS/DHCP; Windows based authentication and an Active Directory Domain Environment.
2. The VMS shall be able to be installed in a Virtual Environment and be recognized by VMware as VMware Ready. A certificate of collaboration with VMware is to be attached.
3. The recorders shall use standard Commercial Off-The-Shelf (COTS) server technology and storage systems.
4. The VMS shall facilitate Firewalls Traversing for the Review application, Web Review, and Client Software Development Kit (SDK) connections.
5. The VMS shall facilitate video resolution transcoding, in order to stream video in a low bandwidth environment to the Review, Web Review, and Client SDK applications.
6. The VMS shall have flexible throttling technology that facilitates video streaming support for both software and hardware VPN, as well as for Review, Web Review and Client SDK remote applications' connections.
7. The VMS shall support Multiple NIC for Servers from different networks, which allows Client SDK applications to reach the Video LAN.

**Redundancy of the System:**

1. The VMS shall offer redundancy solutions like Marathon EverRun or VMware, ESXi platforms or equivalent platforms by supporting the following:
  - a) The solution shall be redundant, using two separate servers, and achieve a fault tolerant, zero downtime environments.
  - b) The solution shall provide a disaster recovery option, using a third separate server at a secondary location which would assume primary responsibility in the event of a catastrophic event at the primary location. The solution shall be redundant, using two separate servers, and achieve a high availability, minimal downtime environment. This design should not result in any data loss, however may require manual or automatic start of the application on the secondary server.
2. The VMS shall support multicast capability to allow client applications to receive live streams from multicast groups through Switch/router instead of Recorder to provide live streaming continuously even when Recorders or the Server become unavailable.
3. The recorder shall offer a redundancy solution using a Dual Recording feature, with distributed architecture that allows each subsystem to operate independently, without affecting video recording or live viewing.
4. The VMS shall possess an internal watchdog to detect and recover from the unlikely occurrence of a system lockup.
5. The VMS shall provide support for IP (network) cameras from multiple third-party manufacturers using various codecs, including H.264, MPEG-4, and MJPEG.
6. The VMS shall be able to support video motion detection. This operation can be executed by the edge device, the IP Camera or the server. Enabling motion detection shall be performed either:
  - i. On a continuous basis
  - ii. As scheduled for particular times, dates, days, months, etc.
  - iii. For defined areas of interest, defined using an easy-to-use user interface and simple editing tools
  - iv. At a defined sensitivity level
7. The VMS Server component shall support software designed for the Microsoft Windows latest server platforms (64 bit).
8. The VMS Client component shall support Microsoft Windows 8 or higher (64 bit) operating systems for workstations.

9. The VMS shall support both single and multi-site deployments.
  - i. For multisite deployments, a multisite directory shall store information for all sites. A copy of the multisite directory shall also reside on each site in the multisite configuration, avoiding any single point of failure. In the event of a multisite directory disconnection, each user shall still be able to execute multisite functionality.
  - ii. The VMS multisite system shall have the ability to simultaneously view multiple cameras (live or recorded), alarms, bookmarks, and investigations, from any site, with a single sign-on for authorized users.
  - iii. Sites can cross connect as required at any time by a simple configuration with a passkey.
  - iv. The VMS shall have a flexible, open architecture that allows alarm event and response creation, whether for a single site or multisite, through an event and response manager that supports schedules and custom scripts.

### 10.3 VMS INTERFACES

1. The VMS shall support third-party IP cameras from at least 10 reputed manufacturers, using auto discovery functionality.
2. The VMS shall be Conformant to the ONVIF profile S standard for Network Video Client (NVC). The VMS shall be listed on the ONVIF.org web site list of conformant NVC products
3. The VMS shall support H.264, MPEG-4, and MJPEG compression from edge devices and IP cameras on a camera-by-camera basis.
4. The VMS shall support an unlimited number of dry-contact inputs and an unlimited number of relays outputs.
5. The VMS shall support any third party Keyboard/joystick
6. The Recorders shall use standard Ethernet connection for video input via TCP/UDP/IP.
7. The VMS shall support either or both unicast or multicast over the enabled network.
8. The VMS shall generate alerts on disabled camera inputs based on loss of communication signal or device being off-line.
9. The VMS shall support multiple frame rates ranging from 1 to 25 fps

10. The VMS shall support the following video resolutions:
  - a. QCIF
  - b. CIF
  - c. 2CIF
  - d. VGA
  - e. 4CIF
  - f. HD720
  - g. HD1080
  - h. 2MP
  - i. 3MP
  - j. 5MP
  - k. 10MP

## 10.4 VMS VIDEO DEVICE SUPPORT

1. The VMS shall support the following Intelligent Edge Device and IP cameras:
  - a) Single input encoders and decoders
  - b) Multiple input encoders
2. The VMS shall be ONVIF profile S compliant
3. The VMS shall support third-party IP cameras from at least 10 different manufacturers, using auto discovery functionality. Cameras supported should be inclusive of, but not limited to the following brands:
  - a) Arecont
  - b) Axis
  - c) Bosch
  - d) DVTel
  - e) Mobotix
  - f) Panasonic
  - g) Pelco

- h) Samsung
- i) Sony
- j) Verint
- k) Canon
- l) LG
- m) XTS
- n) Scallop Imaging

## 10.5 VMS SERVER COMPONENTS

### **a) Master Server**

1. The VMS Master Server shall maintain cohesive operations of all of the components in the video management system, including the VMS database.
2. The VMS Master Server shall support up to 2,000 cameras and/or encoder channels on a single recommended Server. Multiple servers may be used to support a larger number of cameras. The proposed solution should include 1000 cameras licenses.
3. A single Master Server shall support up to 100 servers used as Recorders, Enterprise Storage Manager (ESM) servers, Media Gateways, or Surveillance Analytics servers.
4. Each individual Master Server shall support a maximum of 80 Review application workstations simultaneously. To achieve a system configuration greater than 80 Review application workstations multiple servers may be used. In a multi-server configuration the maximum number of Review workstations is unlimited. The proposed solution should include licenses for 80 Nos. Review application workstations and licenses for 24nos. CCTV keyboards.
5. The Master Server shall be hosted on a COTS computer server with a hard-disk drive at minimum storage capacity of 250GB; and a network-interface card with a minimum speed of 10 GBPS.

**Bidder to specify the required configuration of VMS master server along with techno commercial bid**

### **b) Recorder**

1. The VMS Recorders shall be certified with optional storage solutions.



2. The VMS Recorders shall be certified to record in a VMware environment.
3. The VMS Recorder Server shall have the ability to run Master Server functions, including the Recording and Review applications simultaneously.
4. The Recorder shall run autonomously, and continue to record once configuration is received.
5. The Recorder shall offer a fail-over solution, either to another recorder or group of recorders, dynamically, and without any user intervention. The proposed solution should have 1000 cameras fail over recording facility.
6. The VMS Recorder Server shall have the ability to simultaneously record multiple streams.
7. The VMS Recorders shall store video on COTS computer server, from a leading manufacturer (including IBM, Hewlett-Packard and Dell); with processors at minimum speed of 2.8 GHz from a leading manufacturer (including Intel or AMD); with a network-interface card with a minimum speed of 1GBPS. Hard-disk drive requirements should be identified during the system design preparations and be aligned accordingly.

**Bidder to specify the required configuration of recording server along with techno commercial bid**

8. The recorders shall be capable of supporting the attachment of external storage devices via SAN, NAS, SAS, iSCSI or Fiber Channel.

**c) Enterprise Storage Manager (ESM)**

1. The ESM shall accept video files from multiple recorders for redundant, off-site, or long-term storage.
2. The ESM shall allow for the support of long-term video storage, using hard drives as the storage medium. It shall support virtually any central disk storage device, including disk arrays with iSCSI connectivity, Storage Area Network (SAN) and Network-Attached Storage (NAS) devices. The ESM should facilitate to record video on 24X7 with a minimum retention period of 30 days.

**Bidder to specify the estimated storage calculation and sizing of storage and servers for 1000 cameras requirement at the best video quality along with techno commercial bid**

The ESM shall be capable of offering long-term video storage using COTS equipment with processors such as Intel or AMD.

**Bidder to specify the required configuration of Enterprise Storage Manager and quantity along with techno commercial bid**

**d) Media Gateway Server**

1. The Media Gateway Server shall transcode received video from IP cameras or edge devices at a certain resolution, and then convert, and send a lower resolution video through a bandwidth limited WAN link.
2. The Media Gateway shall support bandwidth as low as 56 kb/s for remote viewing through Web Review, and 256 kb/s through Review.
3. The Media Gateway shall support Review application User Priorities, in case multiple remote requests for video by Review users exceed the bandwidth of the WAN/LAN link.
4. The Media Gateway shall be capable of running all video transcoding, pass through, and WAN transport services, using COTS equipment with processors such as Intel or AMD.

**Bidder to specify the required configuration of Media Gateway Server along with techno commercial bid**

## **10.6 VMS CLIENT COMPONENTS**

**a) Control Center Client Application**

1. The VMS shall provide a Control Center client application, designed for system administrators to configure cameras, recorders, schedules, users, and system functions.
2. The PC workstation used to operate the Control Center application shall use COTS equipment with processors such as Intel or AMD.

**Bidder to specify the required configuration of Control Center Client workstation along with techno commercial bid**

**b) Review Client Application**

1. The VMS shall provide a Review client application, designed for operators to operate and view live/recorded video.
2. The PC workstation used to operate the Review application shall use equipment from a processors at minimum speed of 2.8 GHz from a

leading manufacturer (including Intel or AMD); with a network-interface card with a minimum speed of 1GBPS; with a hard-disk drive with a minimum capacity of 250GB; with a high-end video card with 1GB RAM, 1024 x 768 screen resolution and highest 32-bit color quality.

**Bidder to specify the required configuration of Review Client workstation along with techno commercial bid**

**c) Web Review Client Application**

1. The VMS shall provide an ultra-thin, secured Web Review client application, designed for viewing by corporate personnel or other investigators.
2. The Web Review download with ActiveX shall be less than 3.5MB.
3. The PC workstation used to operate the Web Review application shall use equipment from a leading processors at minimum speed of 2.8 GHz from a leading manufacturer (including Intel or AMD); with a network-interface card with a minimum speed of 1GBPS; with a hard-disk drive with a minimum capacity of 250GB; with a high-end video card with 128MB RAM, 1024 x 768 screen resolution and highest 32-bit color quality.

**Bidder to specify the required configuration of Web Review Client workstation along with techno commercial bid**

## **10.7 VMS FUNCTIONS**

**a) Control Center Client Application**

1. The VMS shall have a Control Center graphical user interface (GUI) that allows the user to efficiently configure and apply the following parameters, and perform the following procedures:
  - i. All camera configurations
  - ii. All recorder configurations
  - iii. All work schedules
  - iv. User and access rights and privileges, including rights for multisite configuration
  - v. Create schedules and apply them to specific camera groups
  - vi. Configure cameras and recorders individually, and as a group, in system components

- vii. Preconfigure camera profiles (containing video quality configurations) to be managed and distributed as required in user defined logical groups
- 2. The user shall have the ability to add and edit interactive site plans and maps.
- 3. Control Center shall be controlled by access rights assigned by the system administrator, including:
  - i. Full access to all functions
  - ii. Limited to system configuration only
  - iii. Limited to Health Check viewing only
- 4. Control Center shall have the capability to automatically discover and perform initial IP camera configurations.
- 5. The VMS shall provide a health check single point of control mechanism to monitor operations and track system performance.
- 6. The VMS shall provide audit trails of activities performed in the system.
- 7. Control Center shall have the capability to provide a dashboard, with status information of each recorder that is part of a Master Server configuration.

**b) Review Client Application**

- 1. The VMS shall have a video viewing graphical user interface (GUI) that allows users to view live video, retrieve recorded video, and export video from a workstation PC.
- 2. The VMS Review application shall enable users to manage multiple windows and perform multiple tasks simultaneously. The VMS Review application includes the following functionality:
  - i. A quick video query button
  - ii. Ability to select time preference (AM/PM/2400Hrs)
  - iii. Hot Function Keys
  - iv. Configurable playback speed in multiple increments up to 100x
  - v. The ability to retain time between queries

- vi. The ability to view live or recorded video in multiple windows, including video from multiple Network Video Recorders and multiple sites
  - vii. Variable speed PTZ camera control (camera dependant)
  - viii. The ability to lock the PTZ control for a camera, depending on user rights and priority levels
  - ix. The ability to take-over a PTZ function, depending on user rights and priority levels
  - x. The ability to export video to digital media output devices, such as a CD, DVD, Blu-ray disk, and USB thumb drive, and to manage the exported files via an exported queue, depending on user rights.
  - xi. The ability to submit and manage multiple requests for video
  - xii. Support for time synchronized video playback on up to 16 windows simultaneously
  - xiii. Support for camera groups and maps that provide a video preview of the camera and alarm indication
  - xiv. Support for camera presets in a user-defined, multi-level tree structure. The following guidelines shall apply:
    - Each group has a user-defined name and user-defined contents
    - Cross-site monitor trees are supported for multisite environments
    - A group can contain cameras and/or other groups
    - Users can define multiple levels of groups and maps
    - A camera can be included in more than one group.
    - Users can select or drag-and-drop individual cameras to request video for playback or to open live video windows.
    - Guard Tours display sequential views of predefined workspaces created by the operator in the Review application, for specified periods of time.
    - Allow to synchronize playbacks video
    - Store the recent played video for quick playing
    - Ability to select playback played video from a recent playbacks list
3. The VMS shall allow the user to open, move, and size multiple, independent video windows as needed, including:
- i. Single windows

- ii. 2 x 2: 4 (quad) windows, arranged in two rows of two windows each
  - iii. 5 x1 window, arranged in one large window, surrounded by multiple tiles
  - iv. 3 x 3: 9 windows, arranged in three rows of three windows each
  - v. 4 x 4: 16 windows, arranged in four rows of four windows each
  - vi. A maximum layout of 8x8 windows
  - vii. Dynamic, flexible, and customizable layouts, including color skinning
  - viii. Up to 4 screens per workstations, for a maximum of 256 tiles @ CIF/5fps
  - ix. HD 16:9 support
- 4. The VMS shall support the ability to preserve aspect ratio.
- 5. The VMS shall support digital zoom on live or recorded video, without requiring a video pause.
- 6. The VMS shall enable/disable video de-interlacing.
- 7. Image Toolkit software shall include the following capabilities:
  - i. Adding the date and time to the image
  - ii. Adding text annotations to the image
  - iii. Copying the image to the clipboard so that it can be pasted into other applications
  - iv. Printing the image
  - v. Saving the image to disk in various standard file formats
  - vi. Adjusting the brightness and/or contrast of the image
  - vii. Converting a color image to gray scale
  - viii. Applying filters to the image to smooth or sharpen
  - ix. Applying edge detection to highlight borders and surfaces of objects within the image
- 8. The VMS Review application shall allow users to select any or all video tiles including live and recorded video for export from a precise user selectable start and end time with a single mouse click. The user shall also have the option to rename the target file name.
- 9. The VMS shall offer Investigation Management capabilities, including:

- i. The ability to create an investigation from any multiple remote and local sites, depending on access rights
  - ii. The ability to include the following attachment types in the investigation binder:
    - 1. Live and recorded video
    - 2. Alarm video
    - 3. External files
    - 4. Still images
    - 5. Video currently playing in the workspace
    - 6. Existing investigations
  - iii. The ability to include explanatory notes in the investigation binder.
  - iv. The ability to access and edit Investigations, depending on access right permissions.
  - v. The ability to perform Investigation Management searches.
  - vi. The ability to export Investigations and their attachments.
- 10. The VMS shall provide a default digital certificate (MD5) for signing exported video clips.
- 11. The VMS shall enable users to open live video windows, relative to the monitor capacity
  - i. Support serial or quad view
  - ii. Allow up to three (3) additional monitors to be configured per Review client to enable additional viewing capacity
- 12. The VMS shall support attaching video to documents, such as incident reports, and ease retrieval of reports and associated video.
  - i. Exported video format is .AVI
- 13. The VMS shall support video playback controls, including:
  - i. Speed Buttons to start and stop/pause playback from the current video position
  - ii. Speed Buttons to step forward or backward through the video in single time increments
  - iii. Speed Buttons to step forward or backward through the video in single frame increments

- iv. Speed Buttons to step forward or backward through the video in multiple frame increments
  - v. Speed Buttons for moving through video in reverse
  - vi. Ability to cause video to loop continuously
  - vii. Positioning controls, including a slider bar and buttons to quickly and conveniently position to the beginning, end, or any other time in the video clip
  - viii. Speed control, using a slider bar to control the rate of playback
14. The VMS shall support scanning recorded video for motion in all or specific Areas of Interest, and shall have the ability to set the motion sensitivity and sampling time.
15. The VMS shall authenticate video, enabling users to verify that the video has not been modified since it was recorded.
16. The VMS shall have live video windows consistent with video playback windows in appearance and operation.
17. The VMS shall allow the entire live video window to be a mouse-sensitive area for PTZ control.
18. The VMS shall provide an optional “heads up display” (HUD), which supports layering a PTZ control user interface over the video, providing a visual indication of the window areas that control zoom, focus, and iris functions.
19. The VMS shall support camera presets by providing a toolbar, or other GUI method, for working with camera presets when viewing live video from a PTZ camera.
20. The VMS shall provide the ability to view camera tours through a graphical, icon-based user interface.
21. The VMS shall allow the user to access a calendar view to query by month, day, and year, and by hour, minute, and second.
22. The VMS shall allow the user to access a hierarchical tree to manage the icons that represent cameras.
23. The VMS shall allow hovering from the camera list to preview the camera window in real-time.
24. The VMS shall provide auto-play alarm tiles and workspaces.
25. The VMS shall allow users to pin alarms to tiles, which keeps the alarm on the tile until it is acknowledged.
26. The VMS shall allow administrators to configure access rights and privileges for every user. The configured user access rights and privileges will apply when the user logs on to any workstation.



27. Review application operations shall be able to be restricted. It shall be possible to restrict or enable the following functionality:
- i. Live video
  - ii. PTZ control
  - iii. Assigning PTZ priorities for take-over functionality
  - iv. Digital zoom
  - v. Camera menu
  - vi. Recorded video
  - vii. Export video
  - viii. Investigation management
  - ix. Alarm notification, alarm viewing, alarm history
  - x. Cameras
  - xi. Tours
  - xii. Salvos
  - xiii. Maps
  - xiv. Sites
28. The VMS shall allow users to define, save, and call up PTZ presets, patterns, and virtual guard tours as supported by the camera manufacturer.
29. Integration with Physical Security
30. The VMS shall have certified integration with Physical Access Control Systems (PACS)
31. The VMS shall have certified integration with proposed Command and Control systems

**c) Analytics Functions**

1. The VMS analytics solution shall be a flexible architecture that allows use of analytics algorithms on IP cameras as well as encoders. The VMS analytics solution shall provide options for server based analysis.
2. Server based analytics shall be flexible enough to analyze streams from any camera being recorded by the VMS system. The Analytics server shall be capable of decoding and analyzing Meta data.

3. The VMS shall provide the ability to acquire and track an object within a predefined field of view, on selected cameras.
4. The VMS shall support object-based algorithms, and shall provide the following functionality:
  - i. Learn the scene
  - ii. Detect and track objects
  - iii. Adapt to a changing outdoor environment
  - iv. Ignore environmental changes including rain, hail, wind, swaying trees, and gradual light changes
  - v. Classify objects
  - vi. Detect tripwire events
  - vii. Detect multi-line tripwire events
  - viii. Detect “enters”, “exits”, “appears”, “disappears”, “inside of”, “loitering”, “leave behind”, and “taken away” events
  - ix. Detect scene change events
  - x. Create object size and size change filters
5. The VMS shall be able to combine object tracking with object classification, allowing detection of specific objects in a region of interest, while ignoring other object types.
6. The VMS shall support alarm generation and other actions, based on the VMS rule engine for when an object is detected, classified, and tracked.
7. The VMS shall support 3<sup>rd</sup> party facial recognition analytics and initiate an alarm event when a specific face is recognized from a user denied pre-configured list during a live video feed or in post event forensic analysis.
8. The VMS shall support 3<sup>rd</sup> party License Plate Recognition analytics and initiate an alarm event when a specific license number is recognized from a user defined pre-configured list during a live video feed or in post event forensic analysis.

**d) Event Management**

1. The VMS shall have a rule-based engine with powerful analytics capabilities that provides the following actions as responses to events and behaviors, including events that occur on one site and responses triggered on another site:
  - i. Automatic event notification
  - ii. Video distribution
  - iii. Process activation
2. Triggering responses shall be addressed on the following:
  - i. when an event occurs

- ii. When two events occur within a specific time span
  - iii. When two identical and consecutive events occurs without another specific event occurring between the two
  - iv. When one event occurs without another event within a specific time span
- 3. The automated responses to behaviors shall be:
  - i. Trigger an alarm with 20 different alarm's priority, assigned to different users or monitors
  - ii. E-mail notification
  - iii. Assign a camera to a monitor
  - iv. Change output relay state
  - v. Call a camera preset
  - vi. Run a camera pattern
  - vii. Record on event
  - viii. Invoke an external application
  - ix. Output alarms to the Client SDK interface

**e) Video Recording**

- 1. The VMS Recorder shall be capable of performing multiple tasks simultaneously, and, provided hardware configuration and software setup guidelines are followed, no task shall interfere with any other task.
- 2. The VMS shall be able to perform the following tasks simultaneously:
  - i. Digitizing and compressing video, and calculating digital signatures for video authentication
  - ii. Writing video to files on local hard disks and maintaining an accurate index of the stored video files
  - iii. Deleting older video files as needed, freeing up space to record newer video files
  - iv. Selectively transferring recorded video to long-term storage media
  - v. Should support Storage on the edge: In case of network or NVR server failure the cameras should store the recording on the IP camera and once the network is restored back, the NVR server should synchronize and playback the video recording stored on the IP camera through VMS Client.

3. The VMS shall be capable of supporting dual streaming live or recorded video in different resolutions or frame rates. The VMS shall be capable of performing the following tasks related to alarms:
  - i. Executing video image analysis algorithms, including activity detection and video loss detection
  - ii. Receiving signals from alarm inputs and generating alarm messages
  - iii. Processing alarm response instructions including calling, changing recording modes, and controlling alarm relay outputs
  - iv. Forwarding alarms to a Review workstation, analog video monitor, or video wall
4. The VMS shall be capable of performing the following tasks and shall support the following recording modes:
  - i. Continuous recording. In the simplest mode, the Network Video Recorder units must record video 24 hours per day, 7 days per week, or as per user defined schedules.
  - ii. Event recording.
  - iii. Augment the recording quality based on an event.
  - iv. Selectively copy video to long-term storage or redundancy on archiving storage. System administrators shall be able to determine whether video will be retained on long-term storage media, for each continuous or scheduled recording instruction.
  - v. Automatically retain video on long-term storage media when video is recorded as part of a defined response to an alarm event.
  - vi. Perform activity recording. The VMS shall support an event recording mode designed for handling activity detection events during periods when frequent activity is expected, but does not constitute an alarm event. Activity detection events shall be handled internally by the Network Video Recorders instead of triggering an alarm response. This mode preserves online video storage space by only retaining video in which activity has been detected.
  - vii. The VMS shall be capable of supporting multiple recorders, including the ability to: Add, modify, and remove recorders from the system
  - viii. Perform failover of recorders

- ix. Perform dual recording from one camera source
  - x. Apply global recorder settings or edit existing individual recorder properties
  - xi. Define recording modes: centralized and distributed
  - xii. Associate cameras, recorders, and schedule assignments
5. The VMS shall support failover recording.
- i. The failover recorder shall act as a hot standby, ready to take over the functions of a primary Recorder. No action from the user shall be required.
6. The VMS shall support dual recording.
7. The VMS shall offer redundant recording which covers: Continuous recording during a recorder server failure (and access to recorded video) and or Recording in two different locations to address a catastrophic event by providing a simultaneous recording by two recorders, with independent (non-shared) video storage Enterprise Storage Manager (ESM)
- i. The VMS shall offer ESM servers for supporting long-term or off-site storage to any central disk storage device. It shall support any central disk storage device, including disk arrays with iSCSI connectivity and Storage Area Network (SAN) devices.
  - ii. The VMS ESM shall dynamically delete (groom) extraneous video from hard drives to make space for newer incoming video, based on specific retention parameters, while recognizing and preserving video clips marked by the system as important.
  - iii. The VMS shall seamlessly locate any requested video stored on disks or ESM servers, from any Review workstation.
  - iv. The VMS ESM shall automatically copy requested video from near online storage to online (disk) storage, easing video playback. When the user has finished reviewing the video, the VMS ESM shall retain the online copy of the video to expedite processing of any subsequent requests for the same video.

**f) Alarm Configuration**

1. The VMS shall process alarms from a variety of alarm sources. Each type of alarm source shall have an “OFF” state (normal) and an “ON” state (triggered). The VMS shall monitor the state of alarm sources and generate alarm messages based on state changes.
2. The VMS system components shall provide alarm contacts to receive signals from electrical devices. Contacts are configurable as “normally open” or “normally closed”.
3. The VMS shall be capable of generating an alarm based on video image analysis, detecting activity through motion detection or object recognition in the areas of interest, or directional vectors. The absence of activity shall correspond to the “OFF” state of the alarm source; when activity is detected, the state of the alarm source shall be “ON”.
4. The VMS shall be capable of providing a way to define the areas of interest for activity detection for specific cameras.
5. The VMS shall be capable of enabling configurable activity detection sensitivity.
6. The VMS shall be capable of generating alarms when video loss is detected from the devices due to lost camera signals.

**g) Alarm Responses**

1. The VMS shall be able to configure scheduled alarm sources and responses, depending on the time of day and/or day of the week.
2. The alarm response shall consist of various types of instructions, to be executed by the VMS in response to an alarm message that can be generated by an alarm source.
3. The VMS shall support recording instructions for starting recording, or changing the recording mode, for one or more cameras connected to one or more Recorders.
4. The VMS shall support relay output instructions for controlling the state of one or more alarm relay outputs on Recorders, or other system components such as edge devices or IP cameras.
5. The VMS shall trigger contact closures on edge devices or IP cameras that are hardware equipped with this capability.
6. The VMS shall be able to display text messages to users at the alarm monitoring station.
7. The VMS shall be able to display/send an alarm message to the Application Programming Interface for the Client SDK.

**h) Video Storage Recorder Management**

1. The VMS shall be capable of managing online recorder storage. Storage shall be intelligently managed so that the video most likely to be requested by users will be retained online.
2. The VMS shall be capable of circular overwrites, and online storage on the recorder units shall be managed on a continuous circular overwrite basis.
3. The VMS shall be capable of event recording and selective online storage.
4. The VMS shall be capable of retaining non-event video online for a minimum amount of time, depending on the recorder hard disk space.
5. The VMS shall be capable of retaining video online after transferring it to long-term storage (ESM). Video shall be retained online on the recorder to support immediate playback, even if the video has been successfully copied to long-term storage media.

**i) Managing Long-Term Storage and Archiving**

1. The VMS shall support automatic long term storage with the ESM.
2. Long-term storage shall be implemented using separate storage attachments.
3. The VMS shall support multiple long-term storage devices.
4. The VMS shall be capable of independent operations between storage servers.
5. The VMS shall be capable of immediate transfer to long-term storage.
6. The VMS shall support the ability to “catch up” after storage server downtime. If a storage server must be taken out of service temporarily for maintenance, the VMS shall retain video designated for long-term storage online on Recorders. When the storage server is placed back in service, it shall transfer video data to long-term storage faster than the rate at which new video is being recorded.
7. The VMS shall be capable of variable retention times, i.e., it shall support the segmentation of cameras into groups based on the video retention requirements, so that video is retained for some cameras longer than for others.

**j) Archived and Bookmarked Video**

1. The VMS shall allow disks to be reserved for video archiving.
2. The VMS shall support copying bookmarked video to the appropriate archive storage media, and ensure that the video

will not be overwritten or deleted for the specified number of days.

3. The VMS shall allow any video clip attached to an investigation to be automatically archived. The default video retention time shall be 60 days. This retention period can be modified by the system administrator.
4. The VMS shall allow database queries to find reports, view reports, and export an HTML page with the ability to attach video clips and still images to a report.

#### **k) Health Check**

1. The VMS shall provide a Health Check application for live monitoring and detailed system performance metrics on system components, including all server-side software applications, including video recorder software.
2. The VMS shall provide a Health Check application for live monitoring and detailed system performance metrics on edge devices, and IP cameras.
3. The VMS shall be capable of exporting performance analysis results.
4. The VMS shall offer a user interface designed to enable the management of the following:
  - i. System logs
  - ii. System alerts
  - iii. Audit trail
  - iv. Performance
  - v. Recorder sanity, through a dashboard Redirection to various outputs, such as Windows event logs and e-mail
5. The VMS shall be capable of capturing real-time performance analysis.

#### **l) Audio**

1. The VMS shall support including audio in the video stream. The VMS supports unidirectional synchronized audio support for live and playback video, and allows for the following functions:
  - i. Exporting audio together with the video
  - ii. Audio support with the Virtual Matrix
  - iii. Audio support using the Client SDK



- iv. Compression modes, including: PCM, ULAW, GSM, depending on the edge device capabilities

**m) Camera Tampering Detection**

1. The VMS shall support the Camera Tampering Detection resident on the edge devices. The VMS shall monitor the following types of tampering alerts communicated by the edge devices:
  - i. Camera blocked fully or partially
  - ii. Out of Focus (OoF) or Camera Defocus, where the image becomes blurred because the camera is being defocused

**n) USB Keyboard Integration**

- i. Support PTZ Joystick in Review, Support full USB Keyboard for the video wall, Control PTZ of the selected tile, Switch tile, Quick Query & Back to Live

**ANNEXURE - C1**

**UN PRICED PRICE BID FORMAT**

Item No	Item Description	Make & Model No.	Qty	Unit	Type of Tax	Rate of Tax
1	<b>Supply of Video Analytics Integration Platform(VAIP) software with 10 client workstation licenses for integration of the following sub systems as briefed in the scope of work :</b>		1	LS		
1.1	Video Content Analytics (VCA) as per RFP					
1.2	Video Management System (VMS) as per RFP					
1.3	License plate Recognition as per RFP					
1.4	Fire Alarm System					
1.5	Gunshot Detection					
1.6	Glass break System					
1.7	Panic Button					
1.8	Power fence					
1.9	Access Control System					
2	<b>Supply, installation, customization as per site requirment, integration and commissioning of the following Video Content Analytics with VAIP :</b>					
2.1	Vehicle Tracking and Management		25	Nos		
2.2	Incident tracking		25	Nos		
2.3	Counter Flow Detection		25	Nos		

**ANNEXURE - C1**

**UN PRICED PRICE BID FORMAT**

Item No	Item Description	Make & Model No.	Qty	Unit	Type of Tax	Rate of Tax
2.4	Vehicle Number Plate detection and Recognition		25	Nos		
2.5	Illegal parking		25	Nos		
2.6	Perimeter Intrusion Detection		100	Nos		
2.7	Crowd Detection		25	Nos		
2.8	Face Detection and Recognition		25	Nos		
2.9	Left/Unclaimed Babbage detection		25	Nos		
3	<b>Software Customization of VAIP and VCA as per site requirement</b>					
3.1	Total man days required		Bidder to specify	Nos		
3.2	Cost per man day		1	Man day		
4	Special Development tools required to meet on site customization requirement, if any		Bidder to specify	Nos		
5	<b>Video Management System with licenses for 1000 cameras, 80 review clients, 24 CCTV keyboards as per RFP requirement</b>		1	Lot		
6	<b>Miscellaneous items if any required for the completion of the VAIP as per scope of work</b>		1	Lot		
7	<u>Optional Items</u>					

ANNEXURE - C1						
UN PRICED PRICE BID FORMAT						
Item No	Item Description	Make & Model No.	Qty	Unit	Type of Tax	Rate of Tax
7.1	Interface module required if any for integrating the alarm inputs of the following subsystems		Bidder to specify	Nos		
7.1.1	Fire Alarm system		5	Nos		
7.1.2	Gunshot Detection Systems		1	Nos		
7.1.3	Panic button systems		1	Nos		
7.1.4	Access Control Systems and Badging systems		1	Nos		
7.1.5	Perimeter and Intruder Detection Systems (Power fence system)		1	Nos		

Note 1: If any line item in the entry attracts more than one type of tax, the same may be specified in the columns Type of Tax and Rate of Tax.

Note 2: The Un priced price bid format should be furnished as part of Techno Commercial bid, with a certification that *'Prices have been quoted for all the line entries and the priced price bid format as per Annexure C2 contains only prices for different quantity slabs and no other note, remark, term or condition. We understand and agree that any terms, counter/additional conditions or notes, if any, found in Price Bid, other than the prices, shall be summarily ignored by ECIL'.*

Note 3: Optional items mentioned in Item No:7 will not be considered for bid evaluation.

Note 4: The recommended hardware proposed by bidder should be the latest type of hardware and it should not be declared End Of Life(EOL) by OEM at the time of submission of bid

## ANNEXURE - C2

## PRICED PRICE BID FORMAT

Item No	Item Description	Make & Model No.	Qty	Unit	Unit Rate in INR figures	Unit Rate in INR words	Amount in INR	Amount in words
1	Supply of Video Analytics Integration Platform(VAIP) software with 10 client workstation licenses for integration of the following sub systems as briefed in the scope of work :		1	LS				
1.1	Video Content Analytics (VCA) as per RFP							
1.2	Video Management System (VMS) as per RFP							
1.3	License plate Recognition as per RFP							
1.4	Fire Alarm System							
1.5	Gunshot Detection							
1.6	Glass break System							
1.7	Panic Button							
1.8	Power fence							
1.9	Access Control System							
2	Supply, installation, customization as per site requirment, integration and commissioning of the following Video Content Analytics with VAIP :							
2.1	Vehicle Tracking and Management		25	Nos				
2.2	Incident tracking		25	Nos				
2.3	Counter Flow Detection		25	Nos				

## ANNEXURE - C2

## PRICED PRICE BID FORMAT

Item No	Item Description	Make & Model No.	Qty	Unit	Unit Rate in INR figures	Unit Rate in INR words	Amount in INR	Amount in words
2.4	Vehicle Number Plate detection and Recognition		25	Nos				
2.5	Illegal parking		25	Nos				
2.6	Perimeter Intrusion Detection		100	Nos				
2.7	Crowd Detection		25	Nos				
2.8	Face Detection and Recognition		25	Nos				
2.9	Left/Unclaimed Babbage detection		25	Nos				
3	<b>Software Customization of VAIP and VCA as per site requirement</b>							
3.1	Total man days required		Bidder to specify	Nos				
3.2	Cost per man day		1	Man day				
4	Special Development tools required to meet on site customization requirement, if any		Bidder to specify	Nos				
5	<b>Video Management System with licenses for 1000 cameras, 80 review clients, 24 CCTV keyboards as per RFP requirement</b>		1	Lot				
6	<b>Miscellaneous items if any required for the completion of the VAIP as per scope of work</b>		1	Lot				
7	<b><u>Optional Items</u></b>							
7.1	Interface module required if any for integrating the alarm inputs of the following subsystems		Bidder to specify	Nos				



PUBLIC TENDER NO: ECIL/ISG/PUR/PT/16-17/001 DATED 25.04.2016

ANNEXURE - C2

PRICED PRICE BID FORMAT

Item No	Item Description	Make & Model No.	Qty	Unit	Unit Rate in INR figures	Unit Rate in INR words	Amount in INR	Amount in words
7.1.1	Fire Alarm system		5	Nos				
7.1.2	Gunshot Detection Systems		1	Nos				
7.1.3	Panic button systems		1	Nos				
7.1.4	Access Control Systems and Badging systems		1	Nos				
7.1.5	Perimeter and Intruder Detection Systems (Power fence system)		1	Nos				

Note 1: If any line item in the entry attracts more than one type of tax, the same may be specified in the columns Type of Tax and Rate of Tax.

Note 2: The Un priced price bid format should be furnished as part of Techno Commercial bid, with a certification that *'Prices have been quoted for all the line entries and the priced price bid format as per Annexure C2 contains only prices and no other note, remark, term or condition. We understand and agree that any terms, counter/additional conditions or notes, if any, found in Price Bid, other than the prices, shall be summarily ignored by ECIL'.*

Note 3: Optional items mentioned in Item No:7 will not be considered for bid evaluation.

Note 4: The recommended hardware proposed by bidder should be the latest type of hardware and it should not be declared End Of Life(EOL) by OEM at the time of submission of bid