

Tele No: 39577

B/05353/Auto/STC (AI)/IT/Info Sys

02 Aug 2024

IHQ OF MOD (ARMY): DTE GEN OF INFO SYS

MINS OF FIRST STEERING TECH COMMITTEE (STC) MTG ON AI/ ML/ DEEP LEARNING & BIG DATA ANALYTICS - STC (AI) HELD AT DGIS ON 29 JUL 2024

1. Ref DCOAS (IS & C) Sectt Note No 57926/ICT/DCOAS (IS & C) Sectt/IS dt 07 Sep 21 and DGIS Note No B/05353/Auto/IT/Info Sys dt 08 Jul 24.

2. The first STC (AI) mtg was held on 29 Jul 2024 at DGIS Conf Hall. The mtg was chaired by Lt Gen Rajiv Kumar Sahni, VSM, PhD, DG Info Sys. Fwg were present during the mtg:-

(a) **Members.**

- (i) Maj Gen AK Jha, ADG IS, DGIS.
- (ii) Brig Saurabh Bhatnagar, VSM, Brig MO (C), DGMO.
- (iii) Brig Saurabh Bhargava, Brig EME (B), DG EME.
- (iv) Brig Lokinder Chandel, VSM, BGS (T&F), HQ ARTRAC.
- (v) Col Vikram Singh, Col SP (Tech Scan & AI), DGSP.
- (vi) Col Dheeraj Kumar, Col PMO CDNS (Wkg Gp), DG Sigs.
- (vii) Col Manoj Singh Silot, Col (Sigs & EW), ADG ADB.
- (viii) Lt Col Kuldeep Vaishnava, Sr Intptr (MI-17), DGMI.

(b) **Invitees/ Other Attendees.**

- (i) Maj Gen SS Salaria, YSM, ADG Armd Corps.
- (ii) Brig Rajesh Sihag, Brig Concepts, DGIS.
- (iii) Brig Varun Sehgal, Brig CD (A), DGCD.
- (iv) Brig Indervir Rana, Brig ST (PPP & OL), DGST.
- (v) Brig Sanjay Gautam, Brig Mech Inf, ADG Mech Inf.
- (vi) Brig Niraj Mathur, Brig CE (A), E-in-C Br.
- (vii) Brig Vikas Khanna, Brig AD (Ops & C2), DG AAD.
- (viii) Brig NP Singh, Brig MISO, DGIS.
- (ix) Brig Manish Joshi, Brig IT, DGIS.
- (x) Col SP Singh, Col (Ops & Plg), DGIS.
- (xi) Col Navneet Singh, Col Arty-8 (Auto), DG Arty.
- (xii) Col Praveen Kumar Sharma, Offg Dir, CICG, DGOS.
- (xiii) Col JS Mann, Col Army Avn-10, DG Army Avn.
- (xiv) Col Sumeet Sewal, Col AC-3, DG Armd Corps.
- (xv) Lt Col Jitesh PS, GSO-1 (ADP), MO-10, DGMO.
- (xvi) Lt Col Himanshu Mathur, Proj Offr (EMERALD), DG EME.

- (xvii) Lt Col SS Sehgal, SM, Proj Offr, ST-16, MISA, DGST.
- (xviii) Lt Col Aditya Sharma, GSO-1, Inf-5 (Mob & Veh), DG Inf.
- (xix) Lt Col Rohan Mudaliar, GSO-1 (AAD-2), DG AAD.
- (xx) Brig Rajesh Verma, Cdr, FCE, MCTE.
- (xxi) Brig GS Bedi, Dean, Faculty of Electronics, MCEME.
- (xxii) Col Mitesh Rana, HOD, Cmptr Sys, MCEME.
- (xxiii) Col Manish Tuli, FCE, MCTE.
- (xxiv) Col KS Kushwah, SM, Col GS (T&F), HQ ARTRAC.
- (xxv) Col Ravinder Kumar, Col GS (TT-1), HQ ARTRAC.
- (xxvi) Col Shailesh Gokhale, HOTT, Tac Wg, CME.
- (xxvii) Col YR Singh, CI, IT Wg, CME.
- (xxviii) Lt Col Anupam Sharma, GSO-1(Tech), MCTE.
- (xxix) Lt Col Abhimanyu Singh, OIC, AI Cell, MCTE.

- Through VC

3. DG IS welcomed all members of STC (AI) and exhorted that collaborative efforts of all stakeholders is must to leverage the AI for enhanced op effectiveness. Chairman highlighted that as per dirns of 11th ETC Mtg, DGIS has been nominated as '**Anchor Dte**' for '**Tech Clusters**' of **AI/ ML/ Deep Learning & Big Data Analytics and Auto/ Digitisation/ Service Specific & Jt Appls** to harmonise and de-conflict the efforts wrt the projs being devp pan IA.

4. The agenda pts discussed and decisions taken are as fwg:-

S No	Agenda/ Info Pts	Decision / Dscn	Resp
(a)	<p><u>IA Roadmap for AI.</u></p> <p>(i) <u>Backgrnd.</u> IA is undertaking leads towards incorporation of disruptive and contemporary tech like AI/ Machine Learning/ Deep Learning & Big Data Analytics in various Sw appls with an aim to improve the outcomes in predictive and prescriptive domains. As a 'Collaborative Apch', IA is carrying out interactions with ministries, industries, domain experts and academia towards devp of state-of-the-art sys which are sustainable, cost effective and meet the aspirations of Fd Army.</p> <p>(ii) <u>Purpose.</u> The disruptive/emerging tech will be co-opted in the overall digital eco-system wherein all transactions will be captured seamlessly at the pt of occurrence through inter-connected micro appls. The AI/ ML shall be effectively emp on the comprehensive Op Info Sys (OIS) & Mgt Info Sys (MIS) database for predictive outcomes and the data democratisation & analytics shall be a cornerstone towards enhanced</p>	<p>(i) Col CIDSS briefed the Committee on 'Inclusive AI Strat for IA', highlighting the overarching framework wrt key focus As, strat initiatives, impl roadmap, etc thereby aligning AI initiatives of IA with Gol India AI Msn (INDIAai).</p> <p>(ii) Brig MO(C) recom that AI being a data driven niche tech, all Sw appls devp/ under devp by Dtes/ Br of IHQ of MoD(Army), HQs Comd and Cat A est should adhere to guidelines of Data Governance Policy 2024.</p> <p>(iii) Committee recom that an AI desk be nominated at all Line Dtes and HQs Comd to channelise all AI initiatives with clear time bound objs. This will reduce the dupl of efforts and consolidate the resources,</p>	DGIS

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	<p>productivity, optimisation of resources and improved overall effectiveness.</p> <p>(iii) <u>Proposal</u>. The impl of the 'IA Roadmap for AI' involves crucial plg towards alignment of org goals. The focus As for successful exec of this roadmap are mentioned as under:-</p> <p>(aa) Env't Scan.</p> <p>(ab) Adversary Differential.</p> <p>(ac) Time bound objs/ goals (Strat, Op & Tac).</p> <p>(ad) Impl Architecture.</p> <p>(ae) Harnessing present capb (AI use cases pan IA).</p> <p>(af) Expanding AI paradigm.</p> <p>(iv) A formalised roadmap for adoption and absorption of AI in IA is presented for consideration of STC (AI). The underlining parameters for its impl are as under:-</p> <p>(aa) Functional Linkages - I (Dtes/ Brs IHQ of MoD(Army), Line Dtes, HQs Comd & CsOE eg MCTE/ MCEME/ CME).</p> <p>(ab) Functional Linkages - II (Inter-Ministerial Collaboration, PSU, Industry, Academia, etc).</p> <p>(ac) Effective Data Governance.</p> <p>(ad) Tech Infrastructure.</p> <p>(ae) Resource Allocation incl manpower & funds.</p>	<p>time and funds towards singular aim of exec of these projs at fd fmn level.</p>	
(b)	<p><u>AI Based Detection & Recog Using Rdr Sigs.</u></p> <p>(i) <u>Backgrnd</u>. Maj Vikas Kadsoli, 1 AHQSR is undergoing MTech in IIT Delhi under Dr Brejesh Lal, Professor, Dept of Electrical Engg, IIT Delhi and is devp the proj 'AI Based Detection & Recog Using Rdr Sigs' using ML algorithm.</p> <p>(ii) The Offr has requested for data of rdr echo sigs so that the sys can analyse the</p>	<p>(i) Col ADB (Sigs & EW) briefed the Committee on the proj undertaken by Maj Vikas Kadsoli and highlighted that the sml database (lab) is already held with the offr. However, the offr has apch ADG ADB wrt realistic database for ingestion into his Sw appl.</p> <p>(ii) Brig AD (Ops & C2) highlighted that the data asked</p>	ADG ADB

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	<p>sigs and use the sigs to detect the type of tgt. Fwg data base has been requested for:-</p> <p>(aa) Micro-doppler signature of various Freq Modulated Continuous Wave (FMCW) Rdrs.</p> <p>(ab) Echo sigs from X, S and W band Rdrs.</p> <p>(ac) Echo sigs backscattered from multiple tgt like different type of drones, birds, heptrs and other objs.</p> <p>(iii) Proposal. In order to assist the offr for the ibid proj which could be of immense utility to IA, efforts were made to obtain requisite data from HQ ARTRAC/ AAD College, Gopalpur & DG AAD. However, in absence of Data Governance Policy existing that time, no headway could be achieved.</p> <p>(iv) As per Data Governance Policy, resp for provn of data is of the appl developer/ sponsor being the Single Source of Truth (SSOT), which can be utilised by other appl developers.</p> <p>(v) ADG ADB to org a pstn by Maj Vikas Kadsoli, 1 AHQSR on the proj for perusal of STC (AI).</p>	<p>by the offr is not avbl with DG AAD. In addn, data wrt own AB elements being of 'SECRET' cl cannot be shared as per policy in vogue.</p> <p>(iii) Brig MO(C) recom that due secrecy be maint while sharing cl data for ingestion into Sw appls being devp by the proj offr at Cat A est/ Academia.</p> <p>(iv) Col ADB (Sigs & EW) recom that a holistic view needs to be undertaken pertaining to policy wrt sharing of data of this nature with Cat As/ Academia.</p> <p>(v) Committee recom that as per the dirns of 11th ETC Mtg, '16 Tech Clusters' have been iden with Lead PSOs & Anchor Dtes. All Student Offrs (SOs) devp projs/ Sw appls at civ instt (IITs, etc) should wk under the guidance of 'Anchor Dtes' resp for absorption & adoption of respective niche tech. HQ ARTRAC will coord allocation of projs and assigning the 'Anchor Dte' for the proj.</p> <p>(vi) Brig AAD to steer resolution of the issue of the offr in consultation with ADG ADB and Lt Col Vikas Agnihotri, VSM, DGIS towards gainful outcome of the proj.</p>	
(c)	<p>Updt on AI Projs. Updt on current status of AI projs undertaken through iDEX/ Academia routes, their timelines and plan for next five yrs.</p>	<p>Col ADB (Sigs & EW) briefed the Committee on various 'Use Cases of AI' and ongoing projs with Academia and Industry. Total 54 AI projs have been undertaken out of which 26 projs have been completed and 17 projs are already under expl with fd</p>	ADG ADB

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		fmns. Case for indigenous LLM is under vetting at DGMO.	
(d)	<p><u>Est of Jt Devp Centre for Tri-Services : Proj Eklavya.</u></p> <p>(i) <u>Backgrnd.</u> MoD has est the Def AI Council (DAIC) and Def AI Proj Agency (DAIPA) to provide apex level focus in impl AI for Mil purpose. The proposal for est of Jt AI Devp Centre (Proj Eklavya) with HPC-AI Cloud infra was deliberated in the Jt Wkg Gp (JWG) set up by HQ IDS and is being prog on the dirns of the DAIC. The complete infrastructure will be dply in one of the services owned data centre and will be accessible to the Tri-Services over the NFS nw. Once dply, the three services will utilise this central architecture for devp and dply of AI models whereby resulting in capb enhancement in the domain of decision making and predictive analysis. The op capb of the three services will be supplemented by expl the convergence of tech while ensuring requisite security overlap.</p> <p>(ii) <u>Purpose.</u> The complete infrastructure will be dply in one of the services owned data centre and will be accessible to the Tri-Services over the NFS nw.</p> <p>(iii) <u>Type of Sw.</u> IT, HPC-AI Data Centre.</p> <p>(iv) <u>Cost.</u> ₹ 150 Cr (Fund allocation by HQ IDS, Budget Cell).</p> <p>(v) <u>Dply Scenario.</u> ADN</p> <p>(vi) <u>Devp Agency.</u> Centre for Devp of Adv Computing (C-DAC), Pune</p> <p>(vii) <u>Proposal.</u> HQ IDS has obtained AoN for est of Jt AI Devp Centre for Tri-Services (Proj Eklavya) under Buy Indigenously Designed, Devp & Mfr (BUY-IDDM).</p>	<p>Col PMO CDNS (Wkg Gp) briefed the Committee on 'Proj Eklavya' with detls mentioned below:-</p> <p>(i) 'Proj Eklavya' has been cyber vetted by DCyA being a Tri-Services proj.</p> <p>(ii) RFP stg of the proj has been completed.</p> <p>(iii) Pre-bid queries have been replied.</p> <p>(iv) Sup Order (SO) is likely to be placed by Oct/ Nov 2024.</p> <p>(v) Proj is likely to fructify within two yrs of placing of SO.</p>	DG Sigs

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(e)	Initiatives by CsOE. AI initiatives undertaken by CsOE (MCTE/ CME/ MCEME) & any other Cat A Est and plan for next five yrs.	<p>Committee directed that a BOO headed by ADG IS with Brig/ Col reps ex Cat A est, HQ ARTRAC, DG Sigs, DG EME, E-in-C Br & ADG ADB to ascertain fwg:-</p> <p>(i) Review the projs undertaken by Cat A est & ADG ADB through Academia/ Industry incl impl timelines.</p> <p>(ii) Assess the feasibility for dply of these AI projs at fd fm level.</p> <p>(iii) Reduce dupl of efforts wrt Sw appl devp in AI and eff channelising of resources & funds.</p>	ARTRAC
(g)	Updt on Policy Guidelines	<p>(i) Col (AI & Tech) briefed the Committee on existing guidelines promulgated by DGSP and recom that a de-novo look wrt AI policy guidelines for impl of strat roadmap in IA is reqd to be finalised on-boarding all the stakeholders.</p> <p>(ii) AI roadmap being issued by DGIS incorporating inputs from DGSP and ADG ADB.</p>	DGSP
(h)	<p>eGranthalaya.</p> <p>(i) Purpose. As per dirns of the CDS, a Tri-Services online knowledge portal 'e-Granthalaya' to be devp for providing access to topics of research, dissertation, innovation & R&D incl AI based contextual search to Student Offrs (SOs) at various Cat A ests/ Instts.</p> <p>(ii) Type of Sw. Bespoke.</p> <p>(iii) Dply Scenario. ADN/ Internet.</p>	<p>(i) Committee gtd IPA for devp of proj eGranthalaya.</p> <p>(ii) Committee directed the sponsor to follow the guidelines as mentioned in 'SoP on Whitelisting of Appls'.</p>	<p>HQ IDS</p> <p>DGIS</p>

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(j)	<p><u>Electronic Warfare Analysis Sys (EWAS)</u></p> <p>(i) <u>Backgrnd.</u> MI-17 (ELINT) receives large amt of data associated with rdr characteristics from ELINT units. Data is manually fed into the excel sheet in the sys which is time consuming. Need felt to auto workflow of ELINT Sub Gps & MI-17 that will help in efficient data mgt through centralized cont while enabling faster data collation & dissemination.</p> <p>(ii) <u>Proposal.</u> EWAS to be utilised by all ELINT units for real time ingestion & updt of data for subsequent analysis and IPA be gtd for whitelisting of the appl.</p>	<p>(i) A bfg and 'Live Demo' (on ADN) of the Sw appl was conducted for the members of STC (AI).</p> <p>(ii) Committee gtd IPA for devp of EWAS.</p> <p>(iii) Committee directed the sponsor to follow the guidelines as mentioned in 'SoP on Whitelisting of Appls'.</p>	DGIS
(k)	<p><u>AI-as-a-Service (AlaaS).</u> As part of integ AI into IA appls, DGIS being the Nodal Dte for AI has undertaken devp of AlaaS portal for all ADN users. The 'Use Cases' and their benefits are mentioned as under:-</p> <p>(i) <u>Use Cases</u></p> <p>(aa) Docu Chat.</p> <p>(ab) AI LLM Chat.</p> <p>(ac) DB Chat.</p> <p>(ad) Summariser.</p> <p>(ae) Language Translator.</p> <p>(af) Text to Speech.</p> <p>(ag) Speech to Text.</p> <p>(ah) AI Tgt Iden.</p> <p>(ii) <u>Benefits Accrued</u></p> <p>(aa) Segregation of appl & AI models.</p> <p>(ab) AI models accessible as API/ micro-service.</p> <p>(ac) Existing models can be reused/ customised.</p> <p>(ad) Pre-trained models for ready integ.</p> <p>(iii) <u>Proposal.</u> IPA be gtd for whitelisting of the appl.</p>	<p>(i) A bfg-cum-demo of the Sw appl was conducted for the members of STC (AI).</p> <p>(ii) Committee gtd IPA for devp of AlaaS.</p> <p>(iii) Committee directed the sponsor to follow the guidelines as mentioned in 'SoP on Whitelisting of Appls'.</p>	DGIS

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<u>(AI Sw Appls Devp by DGIS)</u>			
<u>Info Pts</u>			
(l)	<p><u>JIGYASA (Mil Chat).</u> A LLM based appl based on dissertations submitted by Student Offrs (SOs) of DSSC, AWC, CDM & MILIT has been devp. The appl is an in-house devp web appl capb of:-</p> <ul style="list-style-type: none"> (i) Conversation. (ii) Giving out ref. (iii) Knowledge extraction from given docus. (iv) Textual analysis. (v) AI assisted office auto. 	<p>(i) A bfg-cum-demo on the AI appls devp in-house by DGIS was conducted for members of STC (AI).</p> <p>(ii) All Dtes/ stakeholders may provide their valued inputs for further refinement of the projs.</p>	<p>DGIS</p> <p>All Line Dtes/ Brs</p>
(m)	<p><u>AI Chatbot for Structured Data in MISO.</u> IA is continually evolving to address complex challenges in a rapidly changing tech landscape. Traditional methods of data processing and analysis often fall short in providing timely and actionable insights. By leveraging Retrieval Augmented Genr (RAG) optimised multi-modal Large Language Models (LLMs), IA can enhance its op capb and decision making processes. RAG allows efficient retrieval of relevant info from large datasets while genr coherent and contextually relevant responses to queries. The model can process text, images, audio and other forms of data, creating a more holistic understanding of complex scenarios. The key objs are as under:-</p> <ul style="list-style-type: none"> (i) <u>Enhanced Data Accessibility.</u> Facilitate seamless access to structured, semi-structured and unstructured data, enabling pers to retrieve relevant info swiftly. (ii) <u>Int Query Handling.</u> Empower IA pers to pose natural language queries and receive precise answers, regardless of data format thereby increasing speed and accuracy. (iii) <u>Data Driven Insights.</u> Analyse historical and real time data to iden patterns, trends and anomalies. 		

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	(iv) <u>Interoperability & Integ.</u> Ensure compatibility with existing sys and platforms within the IA.		DGIS
(n)	<u>AI Based Trn Analysis.</u> An AI based appl has been devp to carry out Trn and Int Analysis based on MI reports to extract knowledge and carryout analysis based on MI-16 reports. The Sw appl will assist Cdrs at all levels to carryout trn analysis based on MI reports to extract knowledge and carryout trn & int analysis.		

5. For necessary action pl.

(SP Singh)
Col
Col (Ops & Plg)
for Chairman STC

DGMI (Coord)

DGSP (Coord)

ADG ADB

DG Sigs (Coord)

DGMO (Coord)

DG EME (Coord)

DG Sigs (Sigs-7)

DGMO (MO-12)

ACG

MS Br

DGCD (Coord)

DG AAD (Coord)

HQ ARTRAC

MCEME

CME

MCTE

HQ IDS

All Line Dtes/ Brs

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Internal :-

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PMO ACCCS

AIC