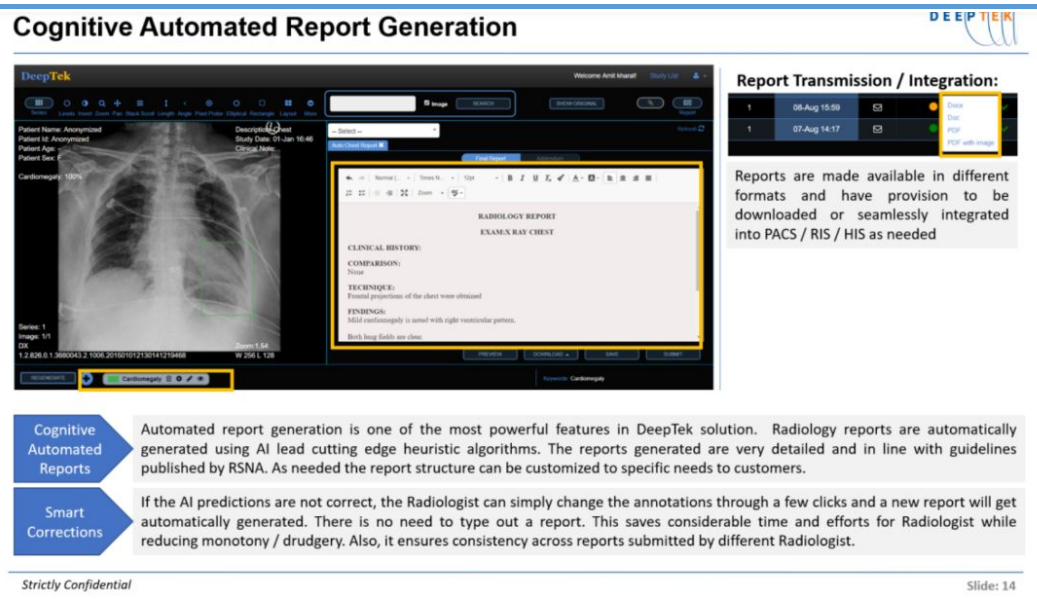
Product Profile: DeepTek Inc

Product name	DxTB
Company	DeepTek Inc
Company HQ	Delaware, US
Version	2
Website	https://www.deeptek.ai
Demo	Available upon request.
Last updated	April 14, 2020
Description	DxTB highlights regions of a chest x-ray that have specific abnormalities associated with TB and helps radiologists to prioritize and reduce their workload. DxTB is an adaptive system which evolves over time based on every new x-ray read in the field. DxTB also generates Radiological Society of North America (RSNA) standard Radiology reports automatically.
Certification	Stage of development: On the market. Certification: CE and FDA mark pending (expected Q2 2021).
Intended Age Group	14+ years
Target Setting	Primary health centres, General hospital (above primary level), Teleradiology companies, Government/public sector, e.g. national TB program, and Private sector. An automated solution or a Teleradiology-backed AI diagnosis and report is provided depending on the situation.
Current Market	India, Asia Pacific, and Africa. Future market (after CE/FDA certification): USA, Europe and Japan.
Input	Can be used to read images from any kind of chest X-ray machine. Chest X-ray image format: PNG, DICOM Chest X-ray type: Posterior-anterior chest X-ray, Anterior-posterior chest X-ray, Portable Other requirements: Other than dicom compatible image there are no other requirements.
Output	Structured report including: ● Heat map, ● Probability score for TB, ● Probability score for the following pulmonary abnormalities: Abscess, Airfluid level, Atelectasis, Blunted costophrenic angle, Bronchiectasis, Calcification, Cavity, Consolidation, Fibrosis, Interstitial markings, Loculated pleural effusion, Lymphadenopathy, Mass, Nodule, Opacity, Pleural effusion, Prominence in hilar region, Pneumothorax, Tracheal shift, Granuloma, Calcified pleural plaques ● Location of certain abnormalities. ● Binary outputs using client-specific threshold scores.

	
Deployment	Online & offline (with intermittent internet connection) with edge computing device locally.
Hardware	I5/I7 processor or equivalent, 6GB RAM, 1TB hard-drive.
X Ray Machine Validation	Data will be required from new clients to validate the distribution similarity with training data. If the new data is not similar to the training dataset, transfer learning may be required.
Software	Linux and some open source deep learning software.
Server	For predictions requirements are as above.
Integration	It is possible to integrate the product with the client's legacy Picture Archiving and Communication System (PACS).
Processing Time	2 seconds
Data Sharing & Privacy	
Server location (for online product)	Local installation either in cloud or on-premises possible.
Data shared with manufacturer?	X-ray and if available patient's clinical data are uploaded to a cloud platform and if the client provides consent, it is shared with the developer in an anonymized form to improve the models. HIPPA guidelines are followed.
De-identification (option to de-identify?)	Yes
Software Updates	
Frequency	Monthly
Cost	Software upgrades are included in the license price. Extra costs: None
Price	Volume-based pricing models are available. Please contact company for a quote (aniruddha@deeptek.ai)
Product Development	
Method	Unsupervised deep learning (AEs/SAE, RBMs, DBNs), Supervised deep learning (CNN, RNN)

Training	The product was trained on 500,000 chest X-rays from India, USA, China, and Malaysia.
Reference Standard	Human reader. Culture and GeneXpert based training will be conducted in the future.
Publications	Kulkarni, Viraj, Milind Kulkarni, and Aniruddha Pant. "Survey of Personalization Techniques for Federated Learning." *arXiv preprint arXiv:2003.08673* (2020)