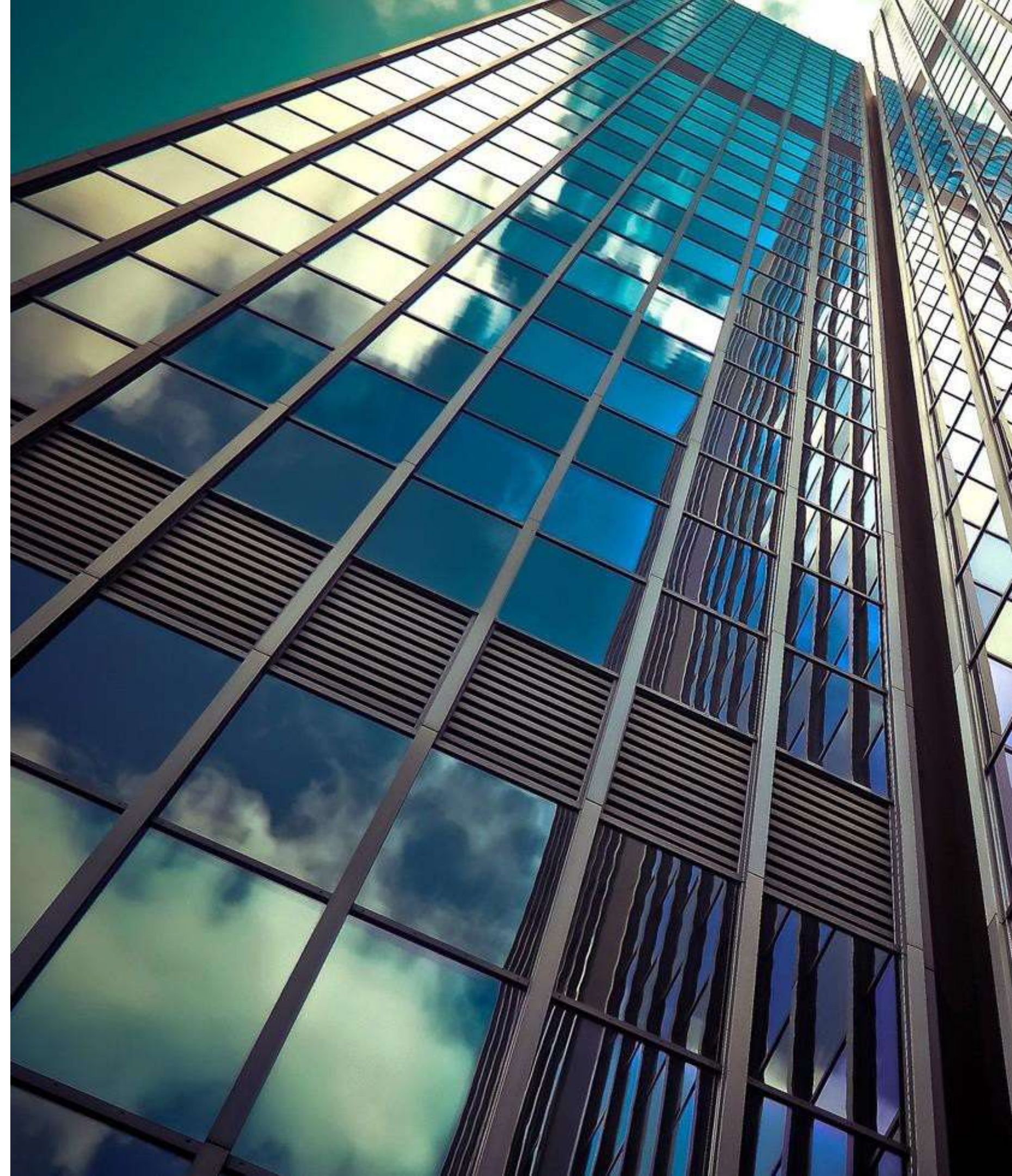# A Presentation on
IETM Level - IV

Registered With :

**IETM Development is Our Passion not Just Business**

About Us

❖ Code and Pixels Interactive Technologies Private Limited is a IT company with its headquarters in Hyderabad, providing **IETM services** to industries in verticals such as **Defence**, **Transportation**, **Aerospace**, **Manufacturing**, **Energy**

Services

IETM – JSG 0852 Indian Defence Standard

E-Learning

CBT | Video Film
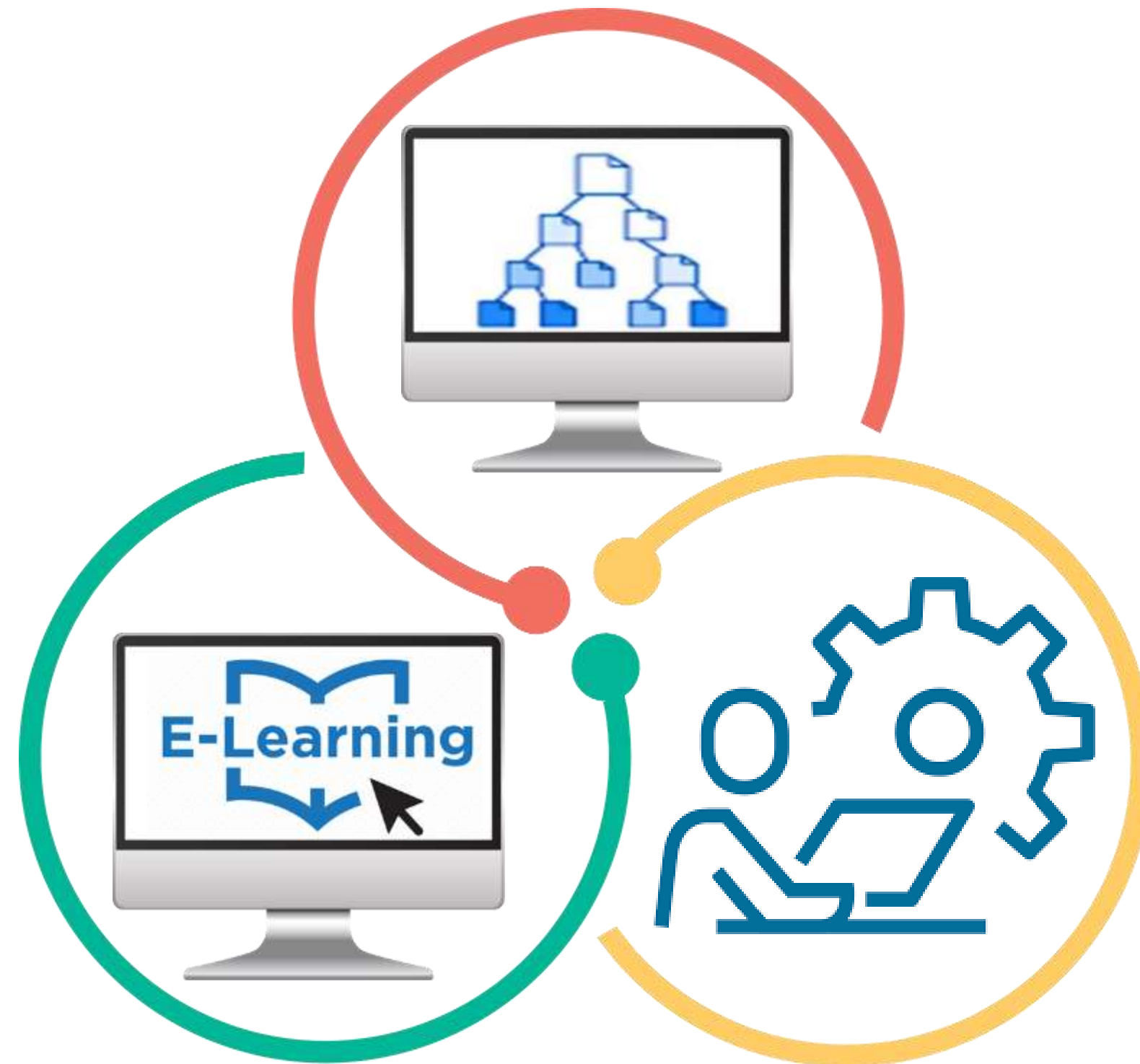
Technical Documentation

JSS 0251

- 125+ Customers across a broad spectrum of industries and sectors
- Excellent track record of Delivery
- Experienced Team
- Delivered 75+ IETM projects and 5000 Hours of e-Learning content /CBT

Performance

Operations

- 50+ professionals in development team
- Well equipped Development centre in Hyderabad
- ISO 9001:2015 Quality Certified

Our Team

We have 50+ Members Professional Team Consists of :

- IETM Programmers
- IETM - UI & UX
- Document Integrator
- QA & QC
- HTML/PHP Developer

- Project Managers
- Content Writers
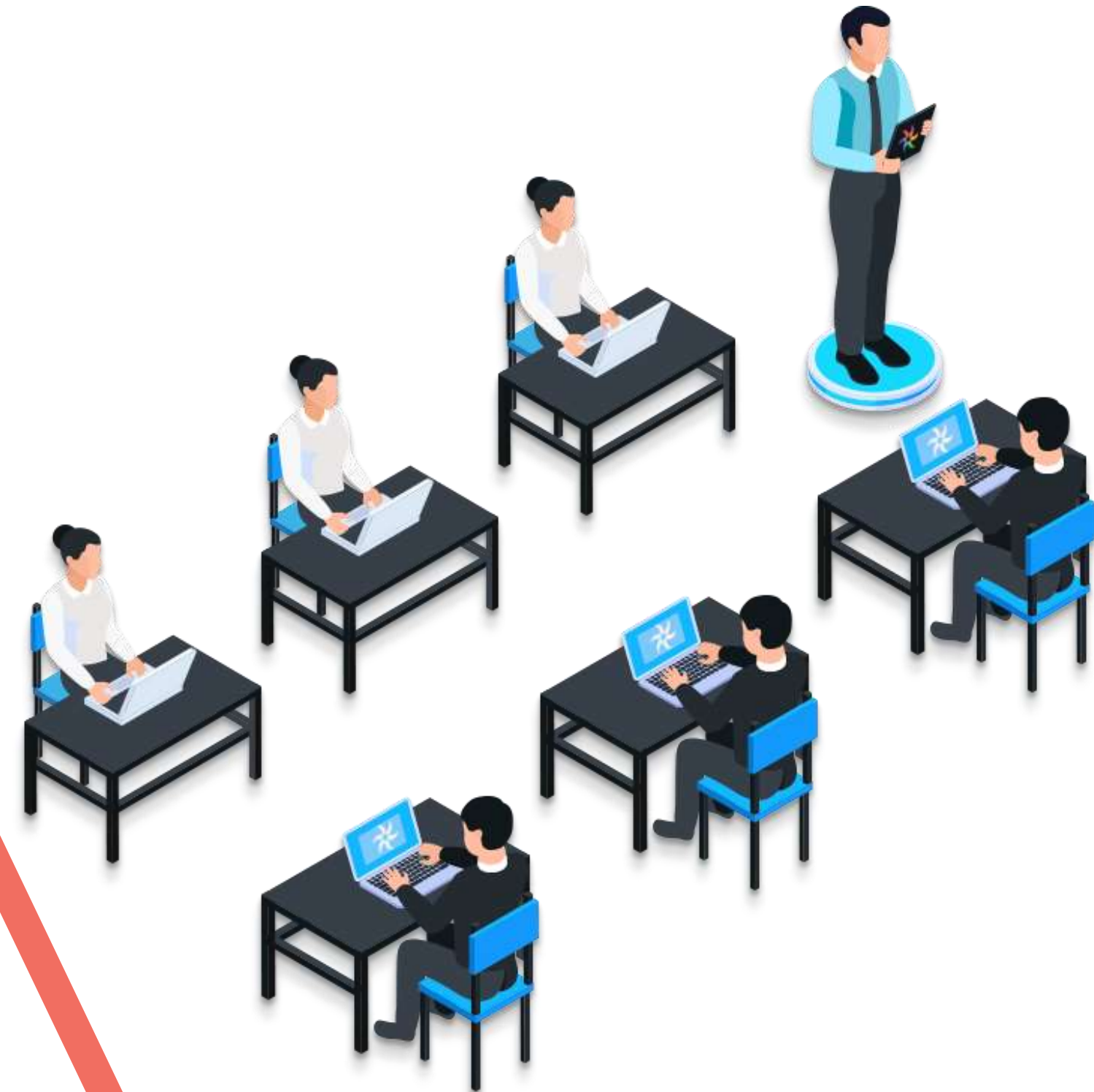- Instructional Designers
- Multimedia Team
- Sales & Marketing Team

Code and Pixels has provided a range of Computer-Based Training (CBT), Interactive Electronic Technical Manuals (IETMs), technical documentation, and training aids for numerous defence laboratories such as DRDO, DRDL, RCI, and ASL, as well as production agencies like Bharat Dynamics Limited (BDL), Electronics Corporation of India Limited (ECIL), Bharat Electronics Limited (BEL), Hindustan Shipyard Limited (HSL), and BrahMos Aerospace.

The company also collaborates with various OEMs, including TATA, L&T, NOVA, Tractors India Limited, IdeaForge, Kirloskar, Enertech, Marine Electricals, MAN Energy Solutions, Tata NOVA, Tata Advanced Systems Limited, Anath Technologies, Raphe mPhibr, Jyoti Limited, Allterra, FlaktGroup, Johnson Controls, Gen Technologies, Rifle Factory Ishapore, Avision Systems, Data Patterns, Zmotion Autonomous Systems Pvt Ltd, Electropneumatics & Hydraulics (India) Pvt. Ltd., Kirloskar Brothers Ltd / KSB Ltd, Asteria Aerospace Limited, among others.

We are also partnered with international defence IETM service providers, including "Navcon Advanced Systems," a leading aerospace and defence company based in the UAE, and "EKA Three G," which offers an advanced networked electronic IT-based system from the Republic of Korea.

We are honoured to support the Indian defence sector and have contributed to significant projects such as the AKASH Missiles, Agni Missiles, BrahMos Missile, ASTRA, and MRASM for the Indian Air Force (IAF).

Code and Pixels brings 12 years of experience managing defence projects, with a team well-versed in all Indian defence standards, including JSG 0852: 2019, JSS 0251: 2015, and the European aviation standard S1000D.

We are the only company in India that has successfully delivered approximately 75 IETM assignments to the Indian Armed Forces.
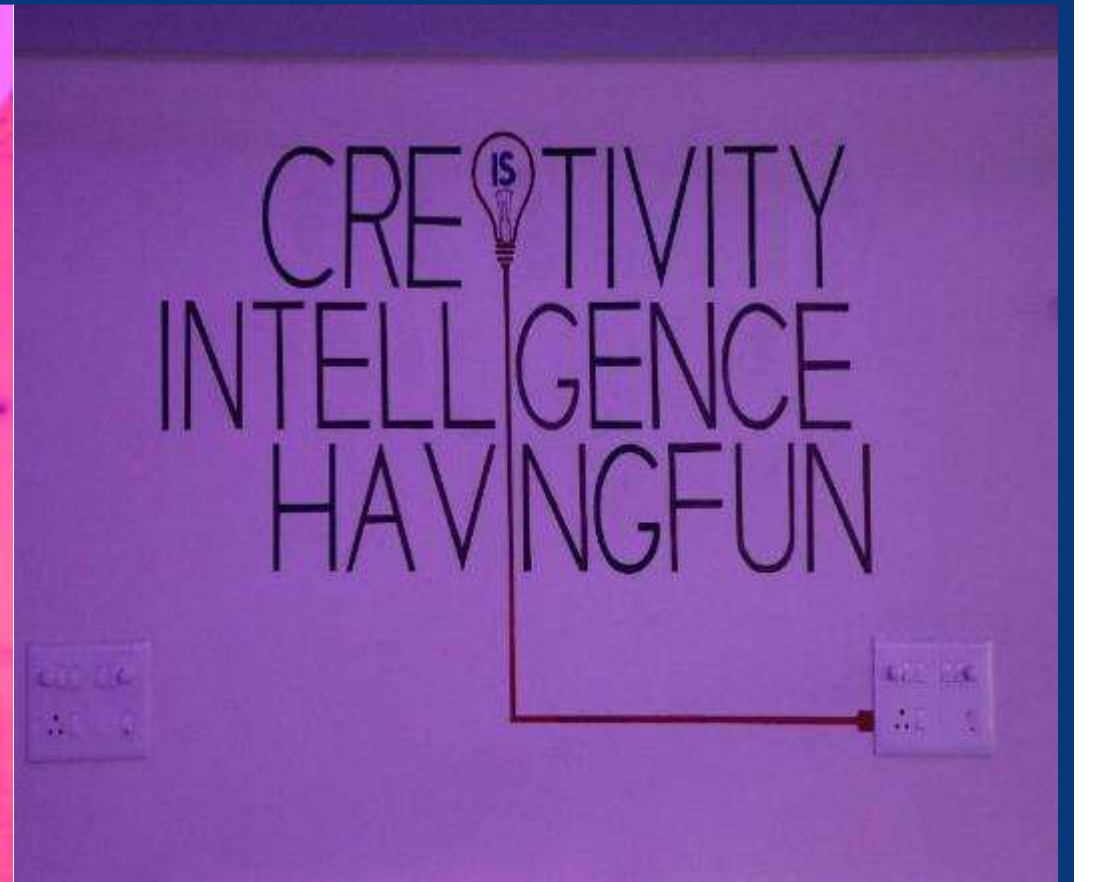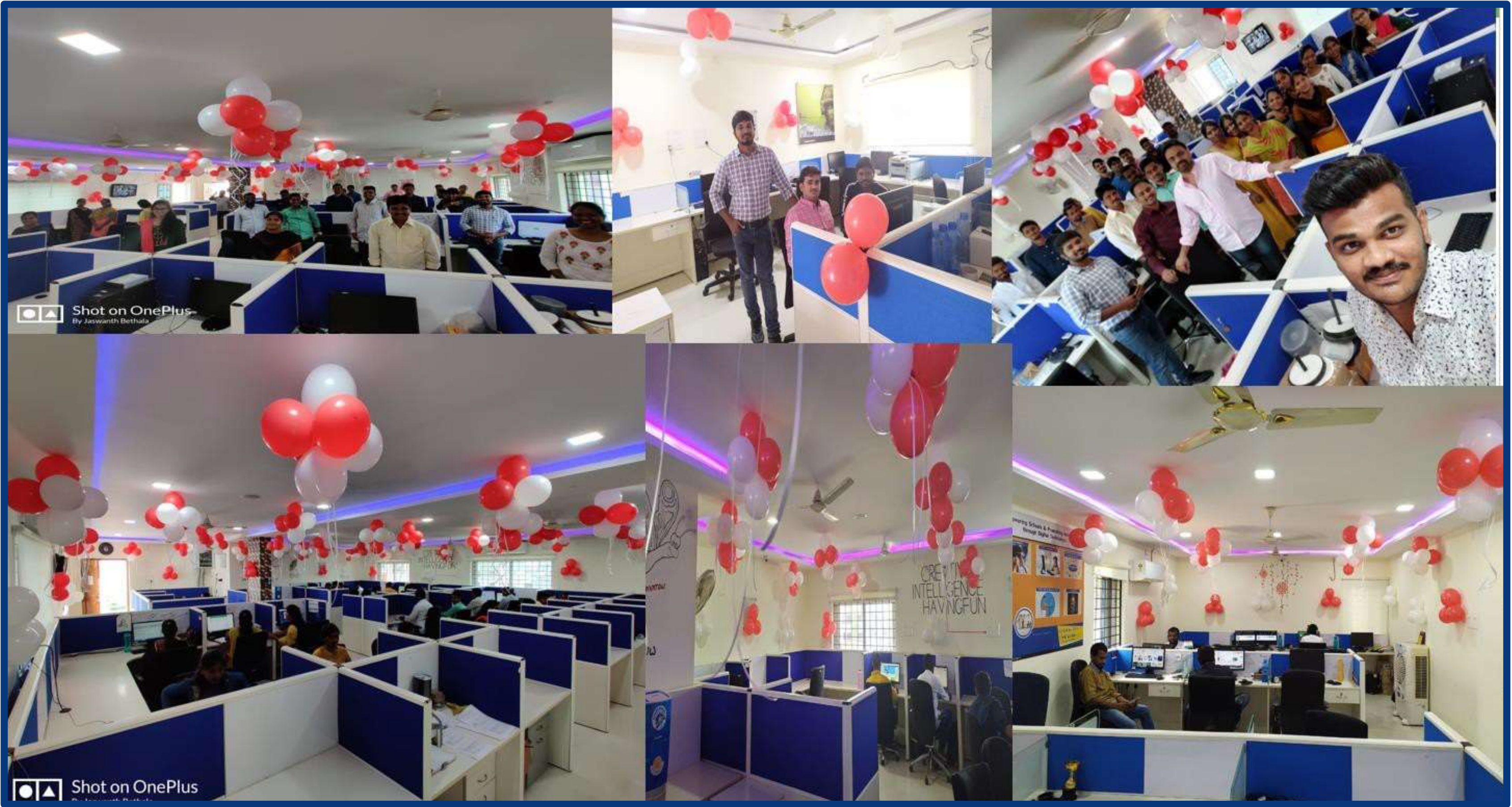
Company Owned Building

CODE & PIXELS
Values, People, Experience & Technology

CIOReviewIndia
Recognizes

Digital Teacher

In Annual Roll of Honor
As one of the

"10 Most Promising Smart Classroom Solution Providers – 2019"

In commendation for their unbridled strive
towards excellence and innovation in this field.

Sudhakar Singh
Editor
CIOReviewIndia

CIOReviewIndia

SMART CLASSROOM SPECIAL
CIOREVIEWINDIA.COM
THE NAVIGATOR FOR ENTERPRISE SOLUTIONS
JULY, 2019

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DIGITAL TEACHER
EMPOWERING CLASSROOMS WITH DIGITAL TECHNOLOGY

insightsSUCCESS
The way of business solutions

Code & Pixels Interactive Technologies Pvt Ltd
is recognized by Insights Success magazine in

INNOVATIVE E-LEARNING
SOLUTION PROVIDERS IN 2019

An annual listing of "Innovative E Learning Solution Providers in 2019"
that are setting new standards for education and learning.

Pooja M. Bansal
Editor-in-Chief

Code & Pixels Interactive Technologies
recognized by siliconindia Magazine as

siliconindia 10 MOST PROMISING
K-12 TECH
Service Providers - 2017

This annual listing of 10 Most Promising K-12 Tech Service Providers represents
not only the glory of companies offering quality & efficient technology services to the
K-12 segment, but also recognizes businesses impacting the marketplace

Ananika Sahu
Managing Editor

ABOUT THE COMPANY

CODE&PIXELS
Interactive Technologies Private Limited
Registered with: ISO 9001 : 2015 Quality Certified Company

TNV United Kingdom • AB-CAB • MSME MICRO, SMALL & MEDIUM ENTERPRISES • NSIC • NASSCOM MEMBER
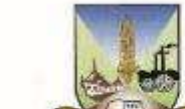
Code and Pixels, an ISO 9001: 2015 company headquartered in Hyderabad employs the best talent in the industry with a range of specializations including Subject Matter Experts, Instructional Designers, Multimedia Specialists, Software Professionals and Consultants.

We are a specialist e-learning company, providing Simulation & Training Solutions, Content Engineering Services, Consultancy Services and IT Services to the Industry.

BFSI, Defence and Government Organizations

State Bank Of India

SBI Life INSURANCE — With Us, You're Sure

SBI MUTUAL FUND — A PARTNER FOR LIFE

ANDHRA BANK

बैंक ऑफ़ इंडिया Bank of India

बैंक ऑफ़ बड़ौदा Bank of Baroda

केनरा बैंक Canara Bank — A Government of India Undertaking

इंडियनऑयल IndianOil

DRDO

INDIAN RAILWAYS

NDCRTC — NATIONAL DIGITAL CRIME RESOURCE & TRAINING CENTRE

इक्रा EC

आर सी आई

BrahMos

भारत इलेक्ट्रॉनिक्स BHARAT ELECTRONICS

सी डैक CDAC

ASL

रेलटेल RAILTEL — RailTel Corporation of India Ltd (A Miniratna Category - I Enterprise)

Army Air Defence College

MHRD Govt. of India

BHARAT DYNAMICS LTD (A Govt. of India Enterprise)

Nimi

शास्त्रानिस NIRD

Digital India — Power To Empower

Sardar Vallabhbhai Patel National Police Academy

Rural Development of AP

Universities

NMEICT — सत्यमेव जयते

UGC — University Grants Commission

INFLIBNET

AICTE

ePathshala पाठशाला

FREE ONLINE EDUCATION swayam — शिक्षित भारत, उन्नत भारत

Jawaharlal Nehru University (JNU)

University of Mumbai

Sri Ramachandra University

Avinashilingam University

National Institute of Nutrition

Tilak Maharashtra University

University of Madras

University of Calcutta

Anna University

INDIAN INSTITUTES OF PUBLIC HEALTH — phfi

University of Mysore

Prof. Jayashankar Agricultural University

University of Hyderabad

SNDT Women's University

Indian Statistical Institute

Gujarat University

University of Jammu

ndri

teri — The Energy and Resources Institute

Corporates

Globarena — Transforming Talent

TATA

Piramal

ANSA

L&T — LARSEN & TOUBRO

german cooperation — DEUTSCHE ZUSAMMENARBEIT

giz — Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

INSTITUTE OF Tally LEARNING

Kirloskar

hitech HYDRAULICS

APTARA

एनटीपीसी NTPC

Josts — Since 1907

talent sprint

integra

ENERTECH — Continues to serve & grow with the Nation!!!

TIL Tractors India

Partnering with the best to deliver exceptional quality & value

CODE & PIXELS
Values, People, Experience & Technology

WE SALUTE YOU SOLDIERS

NAVY
ARMY
AIR FORCE

INDIAN DEFENCE
इंडियन डिफेंस

Design and Development of Interactive Electronic Technical Manuals CBTs, Video Films and Training Aids

Defence - R&D centres and Production Agencies

DEFENCE R&D ORGANISATION
MINISTRY OF DEFENCE

आर सी आई
BrahMos Aerospace

DRDO
DEFENCE R&D ORGANISATION
MINISTRY OF DEFENCE
DRDO

भारत इलेक्ट्रॉनिक्स
BHARAT ELECTRONICS

डका ECIL
Electronics Corporation of India Limited
A Govt. of India (Dept. of Atomic Energy) Enterprise

BD
BHARAT DYNAMICS LTD.
(A Govt. of India Enterprise)

इंडियन डिफेंस
INDIAN DEFENCE

Design and Development of
Interactive Electronic technical
Manuals development

Defence Sector - IETM & E-learning Solutions

Defence Sector - IETM & E-learning Solutions

Defence Sector - IETM & E-learning Solutions

Defence Sector - IETM & E-learning Solutions

IETM Level - 5
(JSG 0852: 2001)

Surface Surveillance Radar (SSR)

CODE & PIXELS
Interactive Technologies Private Limited

आर सी आई

Medium Range Surface to air Missile
- Indian Air Force MRSAM (IAF)

IETM Level - 4 (JSG 0852 : 2001)

Defence Sector - IETM
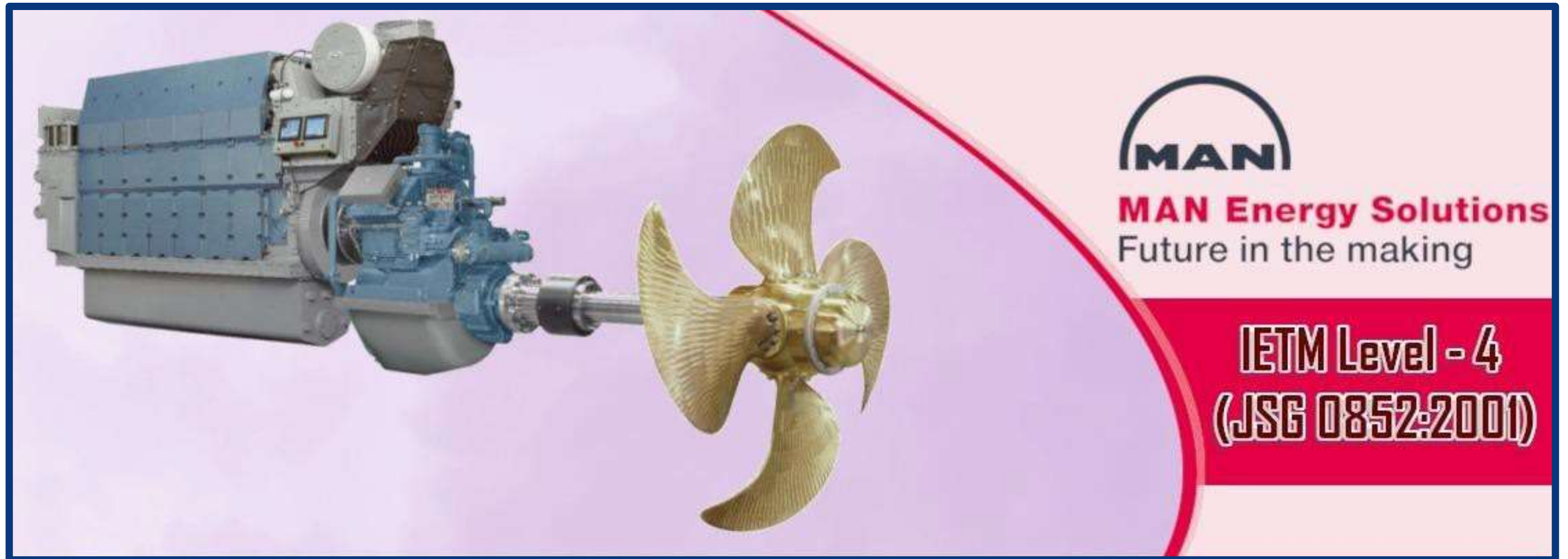
राइफल फैक्टरी ईशापुर
RIFLE FACTORY ISHAPORE

Sniper Rifle 8.6x70mm

IETM LEVEL-IV (JSG 0852)

Code & Pixels

Johnson Controls

IETM LEVEL-IV

(JSG 0852)

CODE & PIXELS

Marine Electricals
IETM Level - IV

IETM LEVEL-IV
(JSG 0852)

CODE & PIXELS

RAPHE mPhibr
प्रत्यक्षं किम् प्रमाणं

IETM LEVEL-IV
(JSG 0852 : 2019)

CODE&PIXELS

BAeHAL
SOFTWARE LIMITED

IETM LEVEL-IV
(JSG 0852 : 2019)

CODE&PIXELS

CODE & PIXELS
Interactive Technologies Private Limited

Marine Electricals

50 T BP Tugs
S1000D (IETM Level -4)

DESMI

IETM Level - 4
(JSG 0852:2001)

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Values, People, Experience & Technology

IETM - Level III/IV/V

LARSEN & TOUBRO

Indian Navy

IETM - DEMO SYSTEM

Login

bhargav

12345

SUBMIT

IETM - Level III/IV/V

CODE & PIXELS
Values, People, Experience & Technology

ATL
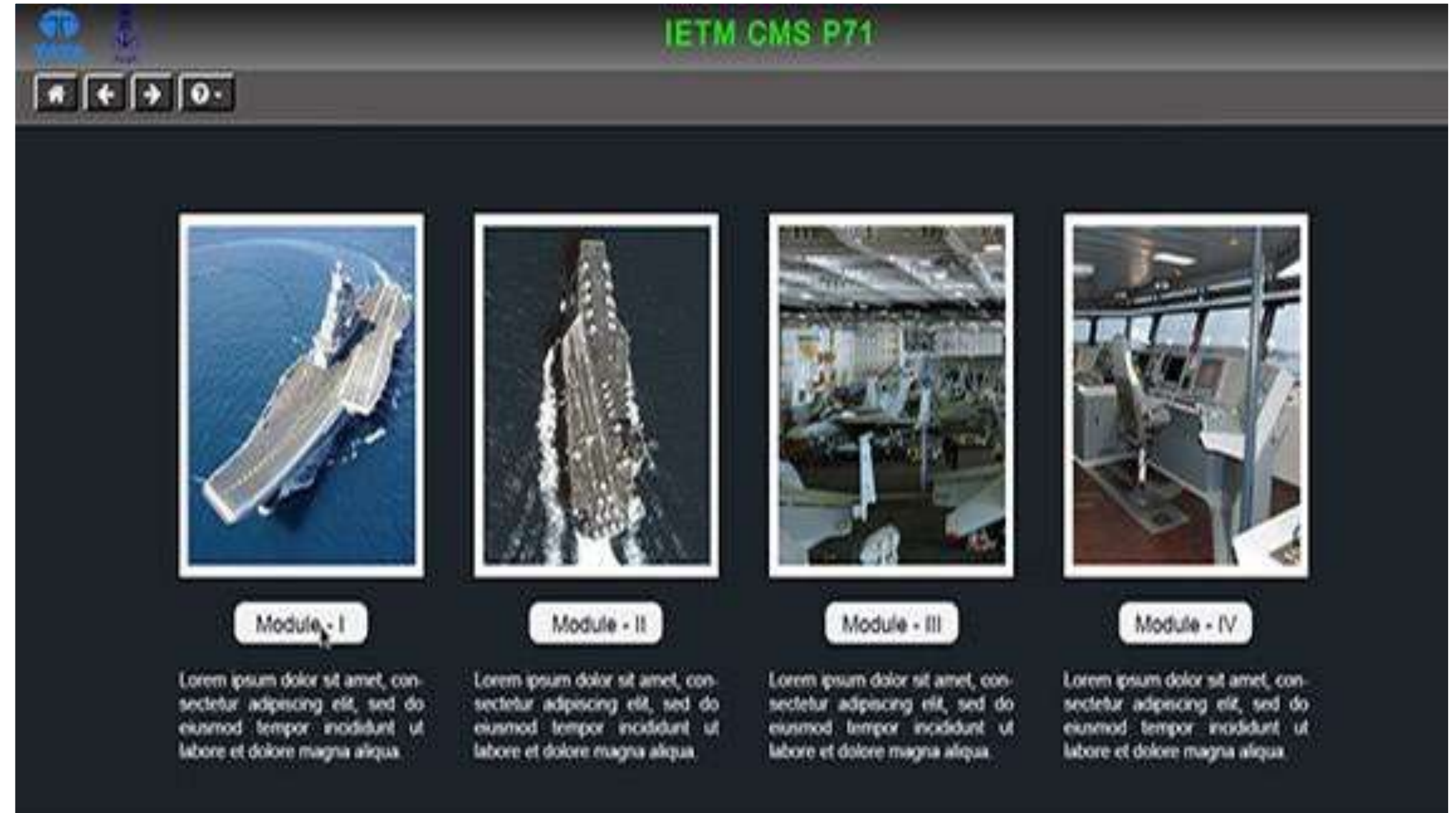
ANANTH TECHNOLOGIES LTD.

Akash Weapon System

IETM Level - 3
(JSG 0852: 2001)

CODE & PIXELS
Values, People, Experience & Technology

IETMs of Level 3 and Level 4

INDIAN ARMY

INDIAN ARMY

AKASH

AGNI

BRHMOS

IETM

AKASH MISSILE
and
SUB SYSTEMS

BHARAT DYNAMICS LTD.
(A Govt. of India Enterprise)

CODE & PIXELS
Values, People, Experience & Technology
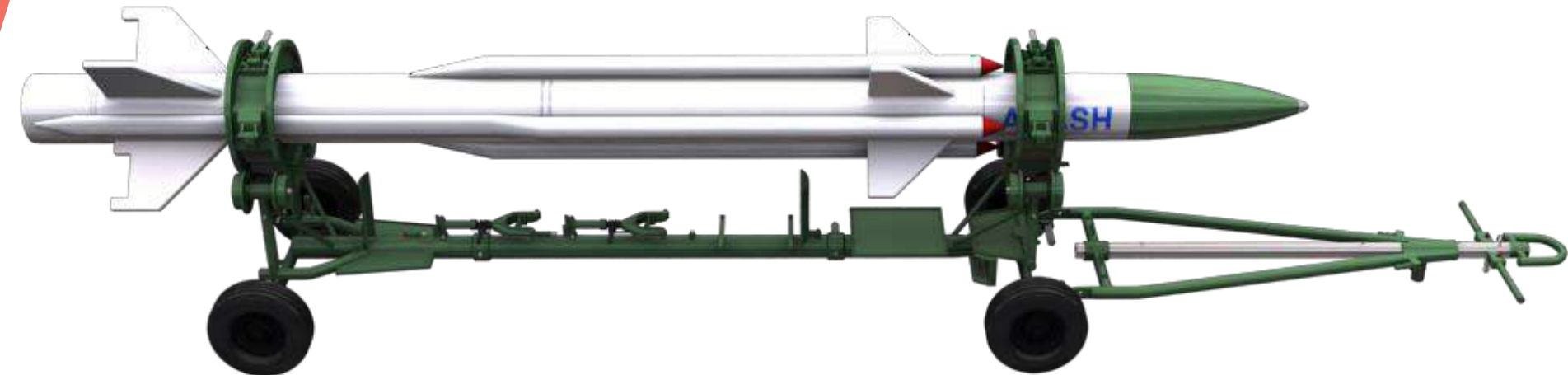
BDL – AKASH MISSILE IETM

POONA BEARING
Missile Handling Trolley Vehicle
(MHTV) IETM

POONA BEARING
– Missile Handling Trolley (MHT)
IETM

HITECH HYDRAULICS

-Missile Tranportation Vehicle (MTV) IETM

HITECH HYDRAULICS

- Akash Tent Vehicle (ATV) IETM

TIL

- Transport Cum Loader Vehicle (TLV) IETM

TIL

- Akash Auto Crane (AAC) IETM

ECIL

- Mobile System for Missile Checkout (MSMC) IETM

ECIL

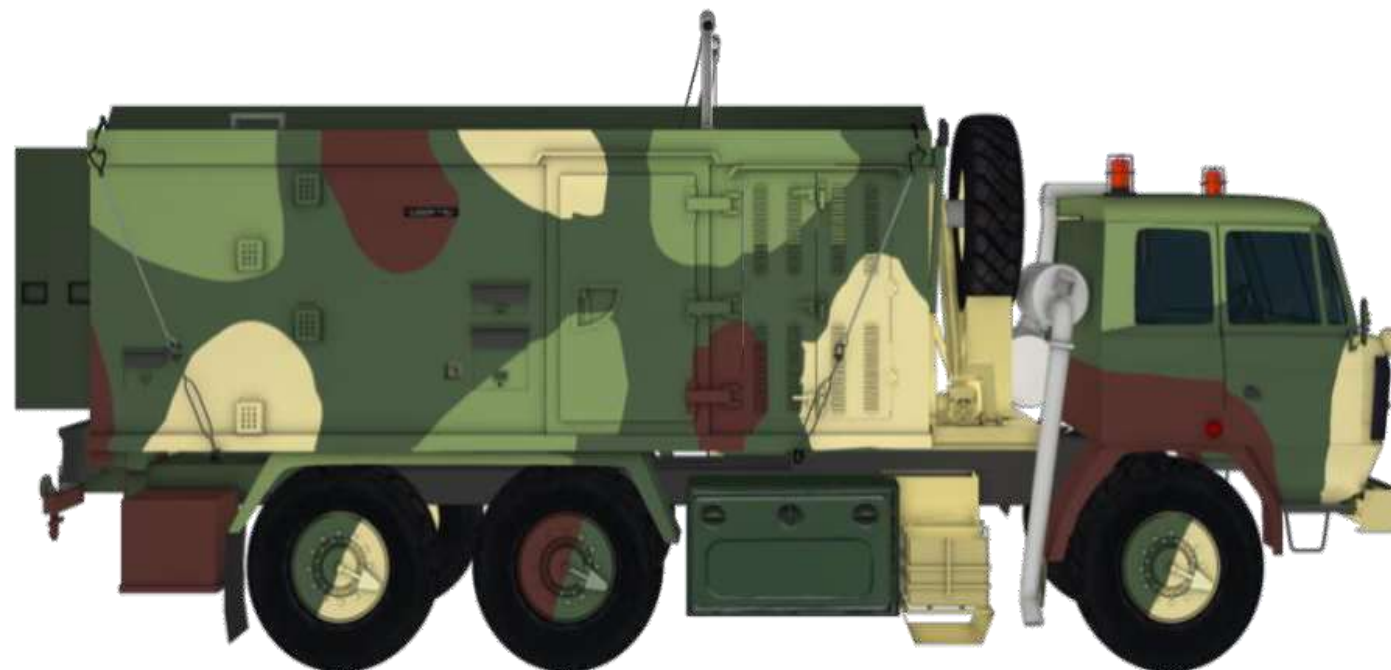- Combat Command Control Centre (CCC) IETM

TATA

- Akash Army Luncher (AAL) IETM

TATA

- Mobile Luncher Repair Station (MRLS) IETM

Mobile System for Missile Checkout (MSMC)

ECIL

Electronics Corporation of India Limited
A Govt. of India (Dept. of Atomic Energy) Enterprise

CODE & PIXELS
Values, People, Experience & Technology

INDIAN DEFENCE

Kirloskar
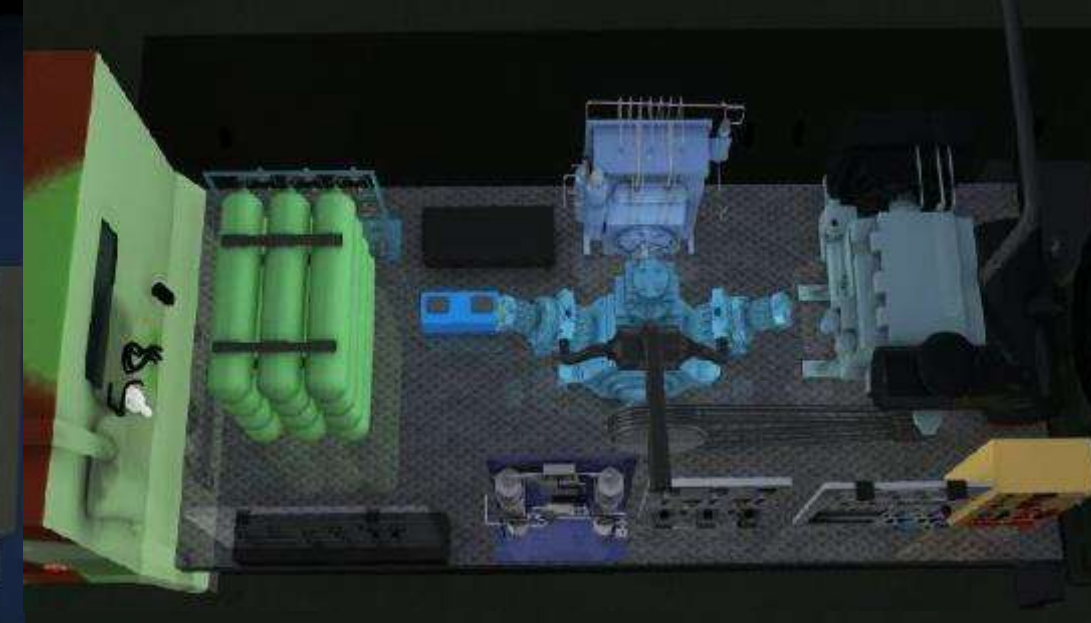
Transporter Cum Loader Vehicle (TCLV)

IETM & Training Aids

INDIAN DEFENCE

Missile Transportation Vehicle

CODE & PIXELS
Values, People, Experience & Technology

BHARAT ELECTRONICS

AKASH MISSILE SYSTEM (AMS)

Transporter Cum Loader Vehicle (TLV)

Computer Based Training

Username

••••••••

Login

CODE & PIXELS
Values, People, Experience & Technology

IETM

Interactive Electronic Technical Manual

❖ If you are a supplier of defence then along with the system/equipment you also need to provide Training Aids
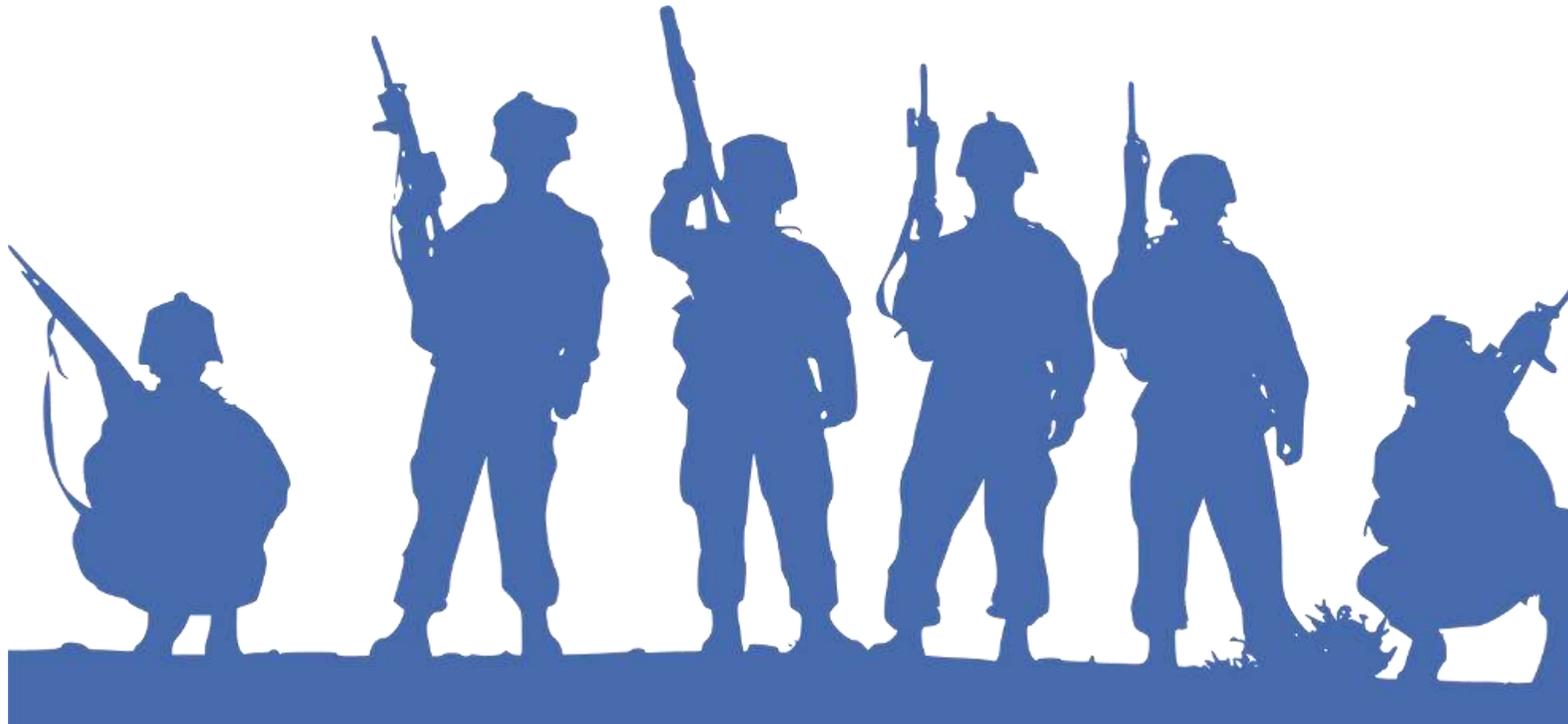
CBT

Charts and Bloups

Video Film

Training Work Modules
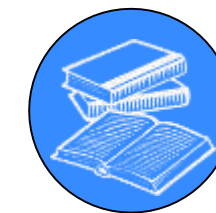
Manuals Hard Copies

IETM

❖ For example, the maintenance and operation manuals of a warship, which used to occupy 300 -350 sq. feet of prime area with thousands of pages of technical literature

OEMs

Deliver hard copies of manuals
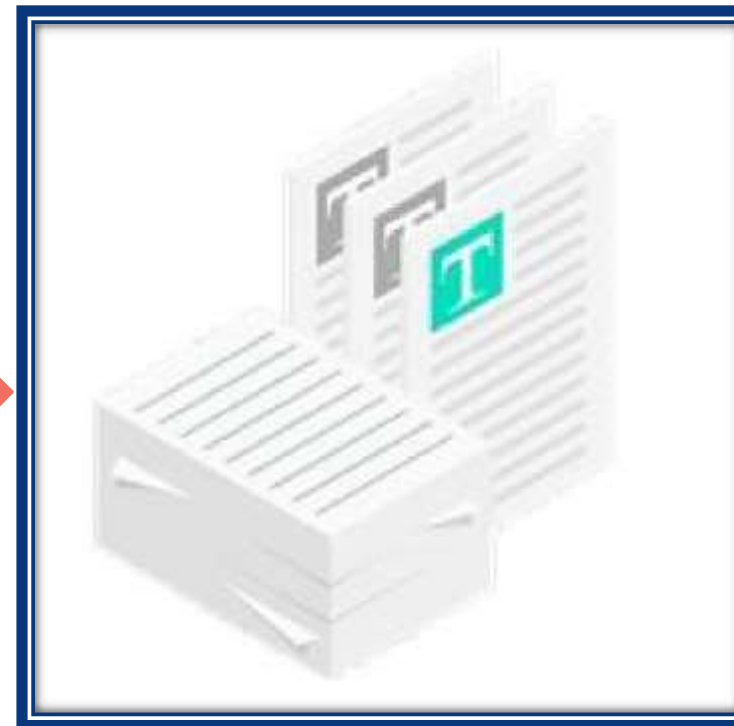
Occupy 300 -350 sq. feet of prime area

Difficult to refer some operating process or trouble shooting from thousands of hardcopies
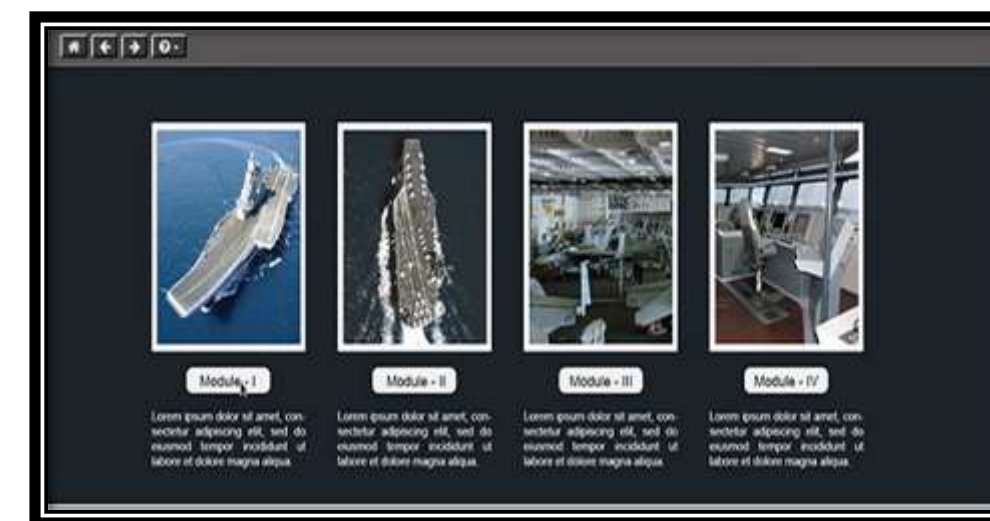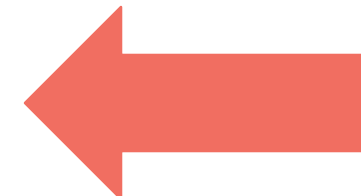
To address these issues IETMs were introduced

CODE & PIXELS
Values, People, Experience & Technology
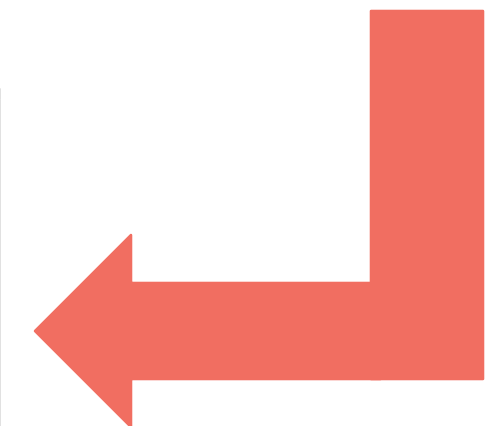
Paper Based Manuals

User Handbook (UHB)

Design Specification (DS)

Technical Manuals (TM)

Illustrated Spare Parts List (ISPL)

Manufactured Recommended List of Spars (MRLS)

Diagnostics and Installation (DIM)

CMS

Electronic Format (IETM) / DIGITAL Format
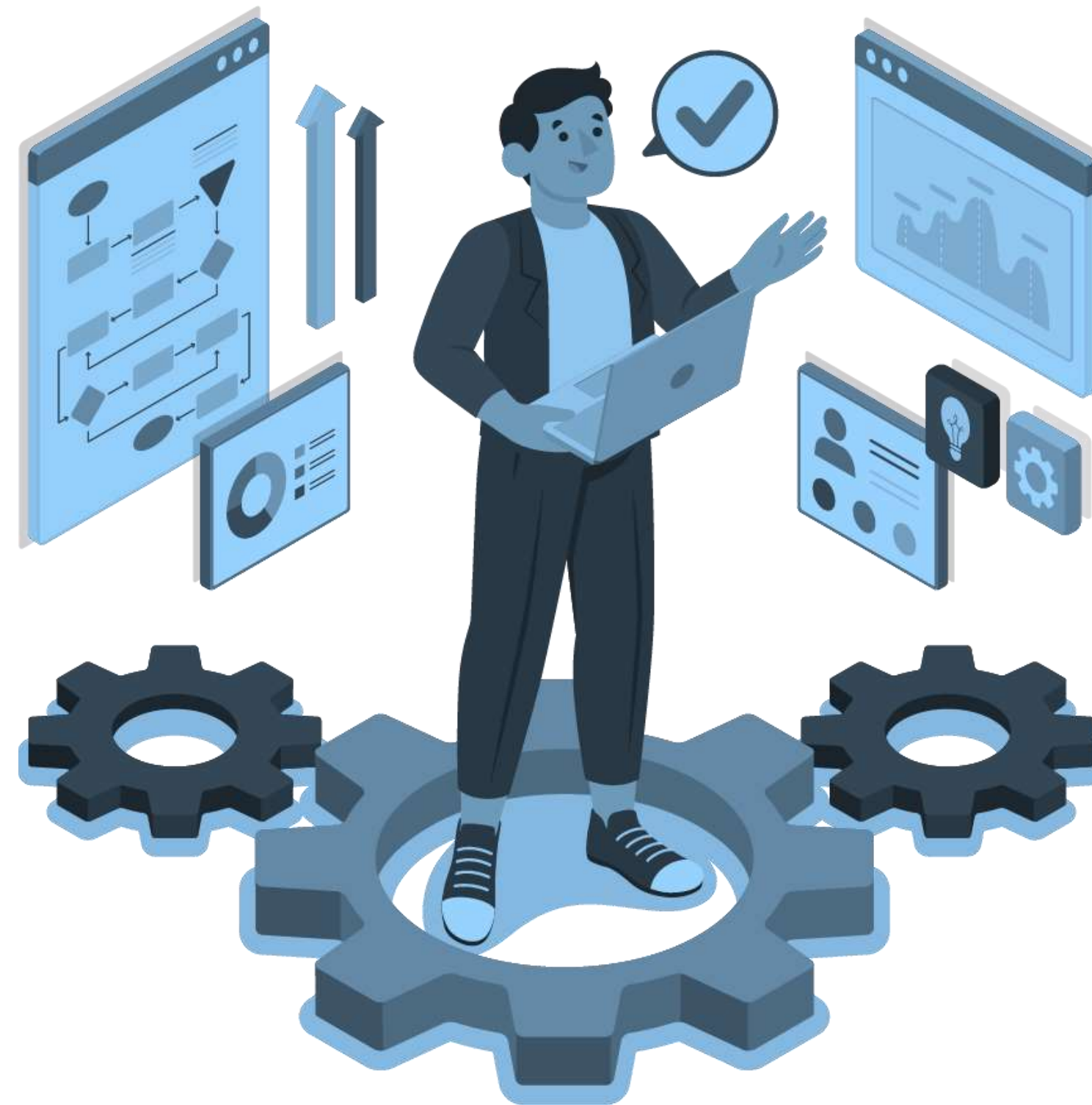
❖ IETMs are a portable, electronic "library" which contains thousands of pages of documentation and images and allows end users to trace technical documentation in a more efficient manner.

CODE & PIXELS
Values, People, Experience & Technology

Manual

- Manual means any literature organized or written in a prescribed manner to guide the user

Technical Manual

- This means the literature is technical, like user manuals, maintenance manuals etc. Hard copy

Electronic Technical Manual

- This means the manual is available in the form of an electronic version which simply means digital format or softcopy. It can be a PDF file or a database-driven software application

Interactive Electronic Technical Manual

- Let us first understand the meaning of Interactive.

- The meaning of interactive is two people or things influencing each other.

- Allowing a two-way flow of information between an electronic device /computer and a user; responding to a user's input.

- Involving the actions or input of a user. Especially

- It means when the Electronic User manuals Interact and respond with the user, that is you, it will become an Interactive Electronic Technical manual.

❖ As per the above definitions, it is clear that we need a Technical Manual that too in soft copy and which will be able to talk to us or able to respond to us.

❖ When the Manual responds to user questions then it is called an Interactive Electronic Technical Manual

❖ How will the document be able to respond?

❖ We need to embed or integrate this soft copy or content into one application so that the application will respond or interact.

❖ What are the common interactivity features so that the User will be able to get the information from the software?
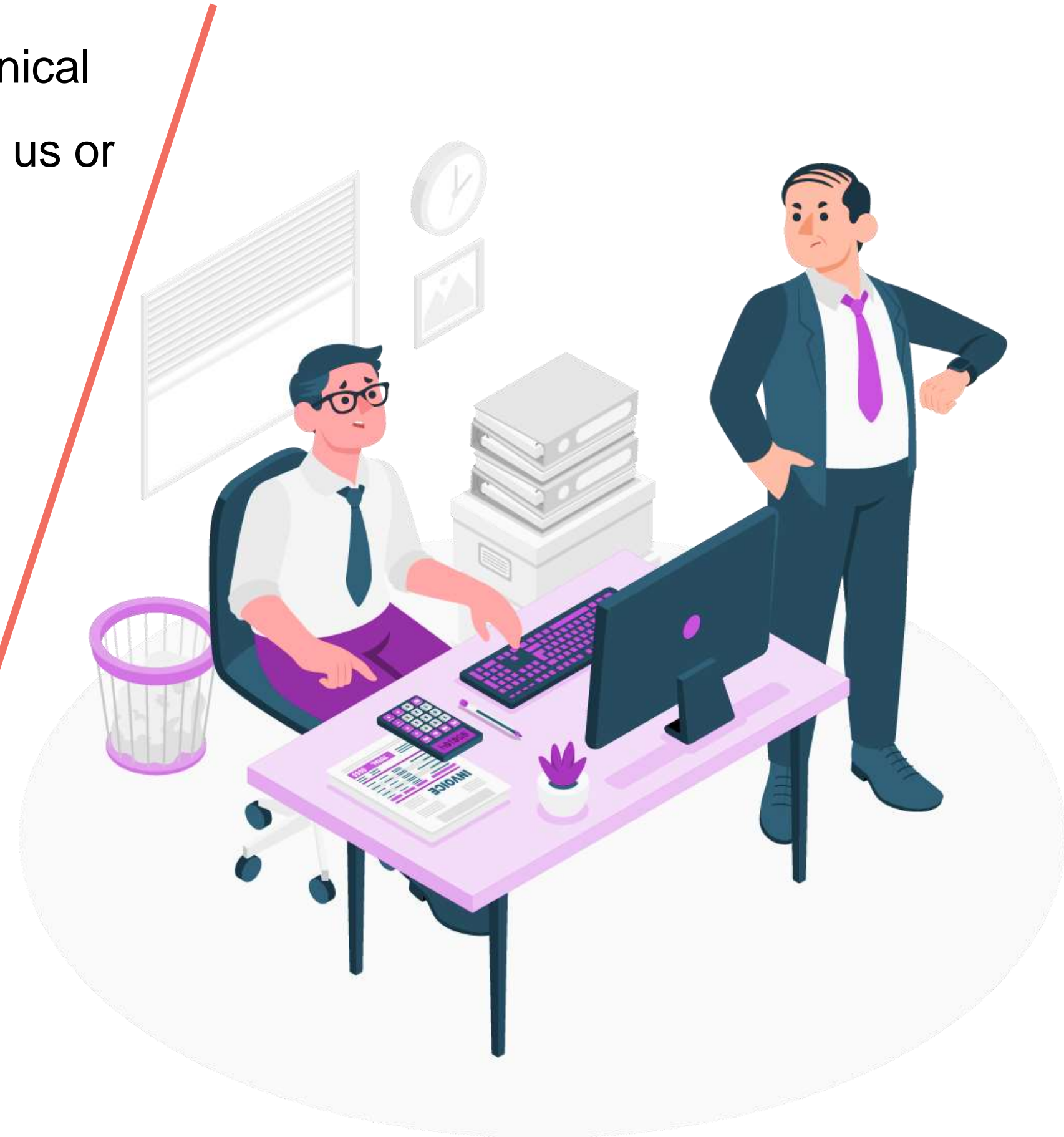
Navigation

- **Linear navigation(**moving in the fixed or pre-defined path-next – previous topics**)**
- **Non-liner navigation (**User can go to any topic randomly**)**
  - Page Search
  - Global search
  - Best matched
  - Content tree
  - Related topics
  - Core IETM
  - Documents
  - Drawings

Interactivity

- **Hyperlinks**
- **Hot Spots**
  - Text hotspot
  - Image hotspot
  - Video Hotspot

Bookmarks

Annotation

Interactive Features

CODE & PIXELS
Values, People, Experience & Technology
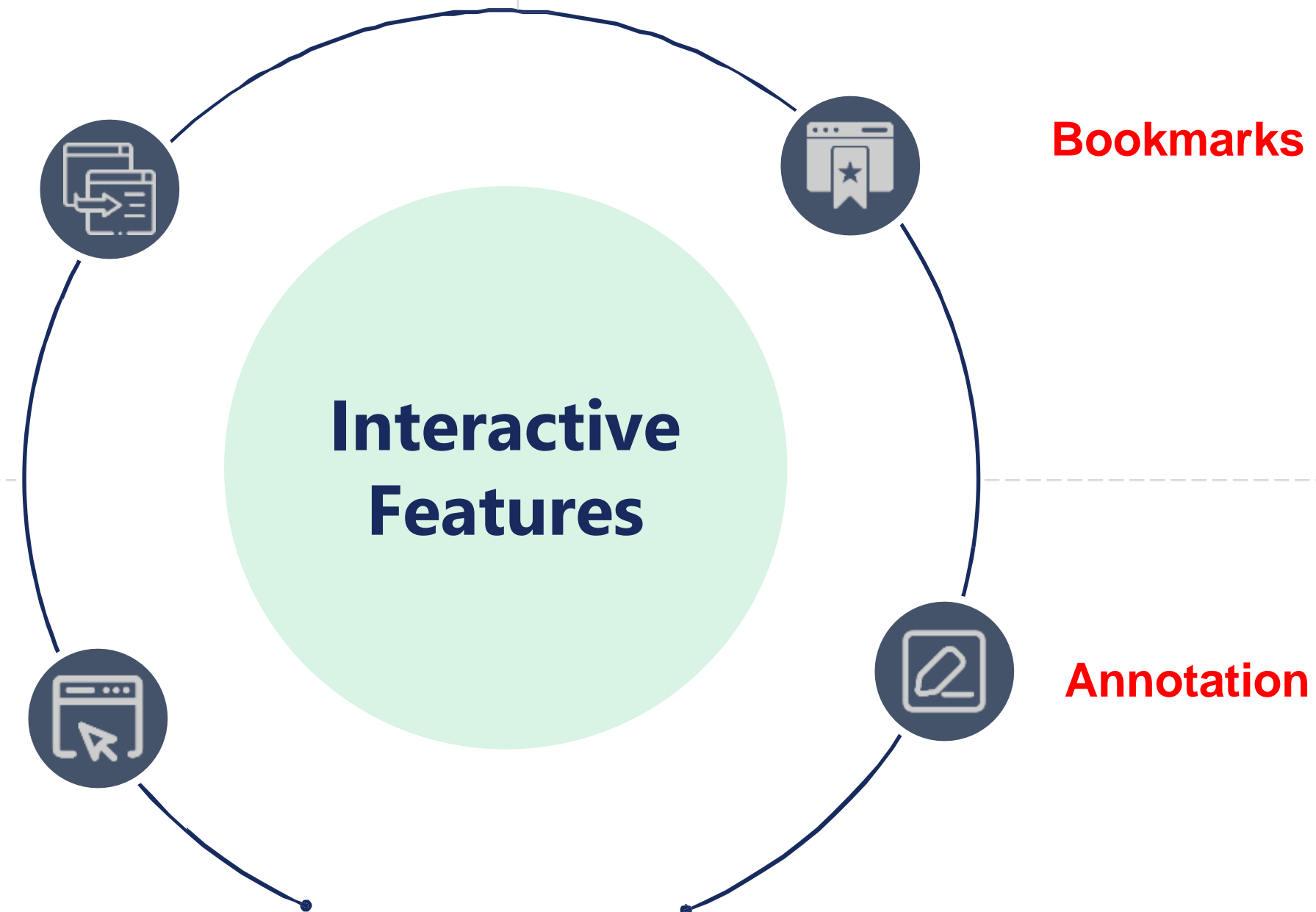
❖ The documents and pages are many hence, for easy and fast accessibility complete content is converted and stored as a database.

CSDB (SQL)

CNP Document Conversion
Engineers work Statations

CNP Author Studio
"CNP-AS0852"

Legacy Documents , i.e Manuals,
ISPL, Pictures, Videos, etc...

❖ Whenever the user wants some information, IETM software produces the information in a fraction of a second.

Interactive Features

IETM is a combination of software applications and databases.

CODE & PIXELS
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CSDB (SQL)

Cloud (AWS, Google Cloud)

Local Server

CNP Document Conversion Engineers work Satations

CNP Author Studio "CNP-AS0852"

Legacy Documents , i.e Manuals, ISPL, Pictures, Videos, etc...

Administrator

Operator

Maintainer
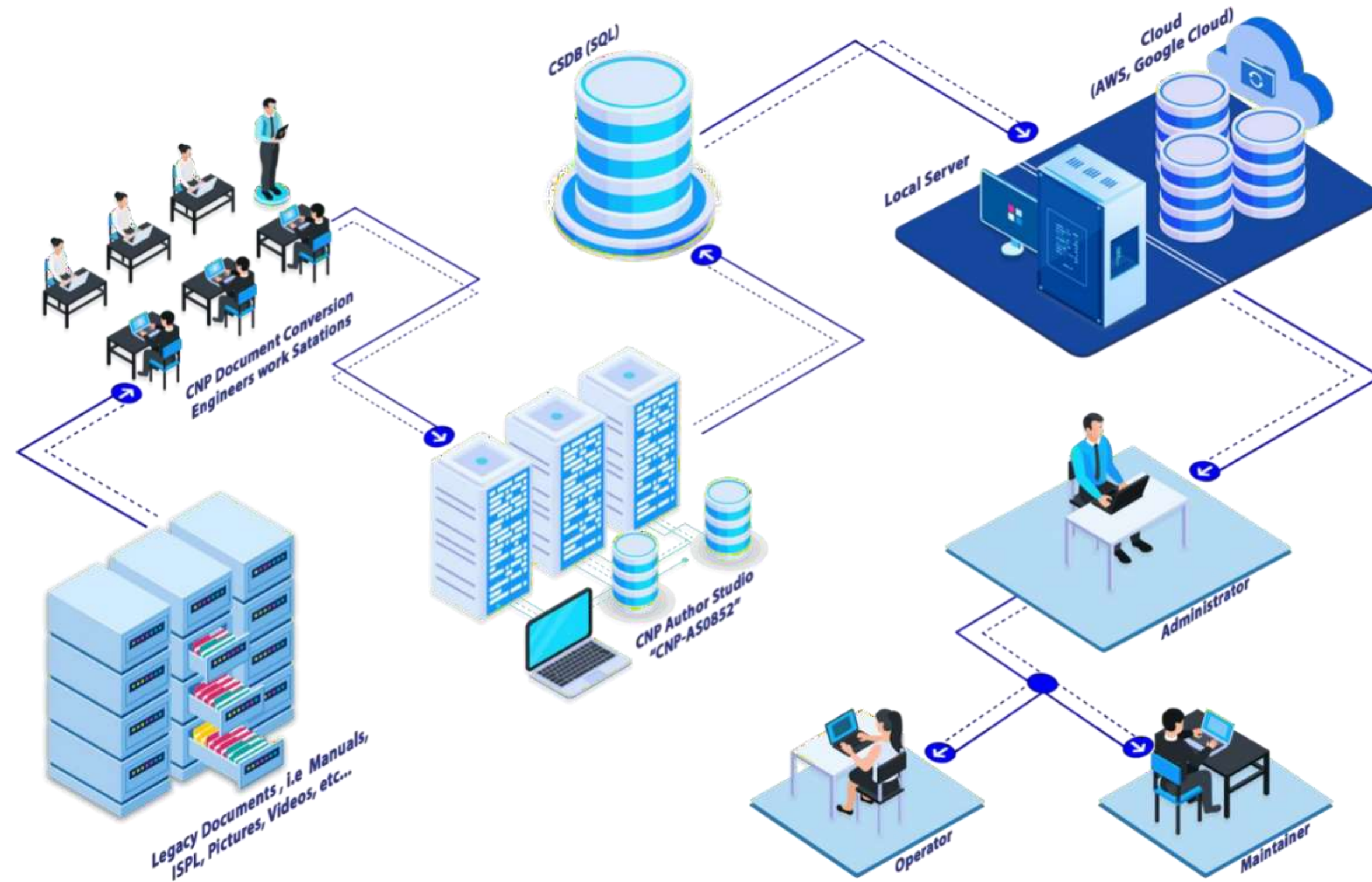
Purpose of the Manual is to give information related to the equipment to the end user for quick reference.

❖ All the technicality is written in detail so that when an issue arises, the user can refer to the manual, as every time OEM or technical person or subject matter expert might not be available on the spot to resolve the issue.

If the manual has 10 pages users can refer easily.

❖ But any system used by the defence will have multiple manuals and thousands of page counts and many times a user has to cross-refer between manuals, **Intra-manual** and **Inter-manual** to resolve the issue.
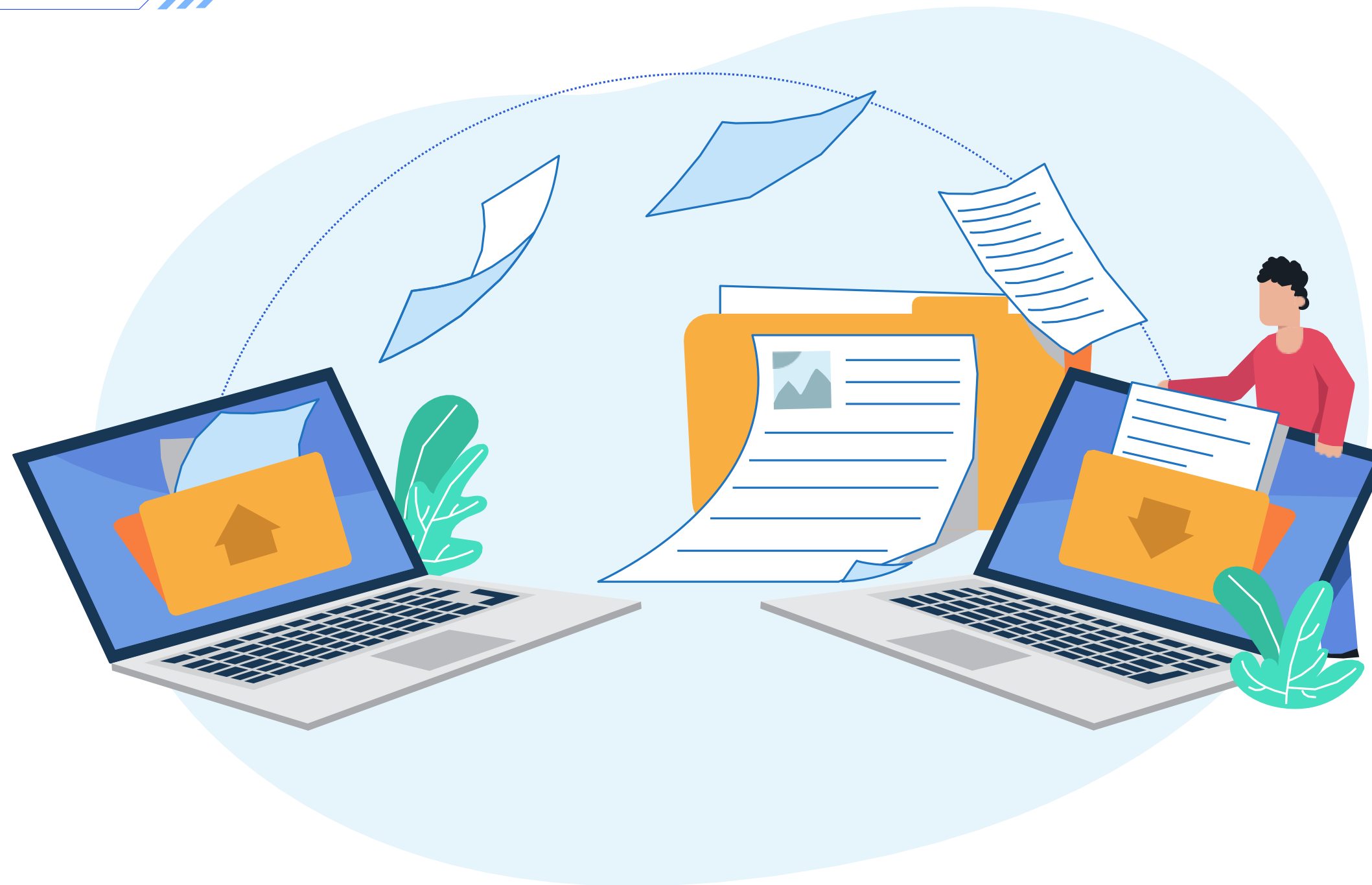
❖ Referring to 10- 15 hard-copy or even soft-copy books simultaneously will be difficult and time-consuming.

Using IETM software, users can solve in a single click and seconds.

Levels of IETM

Level - 1 → Any PDF file or scanned file

Level - 2 → PDF file with hyperlinks from the table of contents to the body, cross referring etc

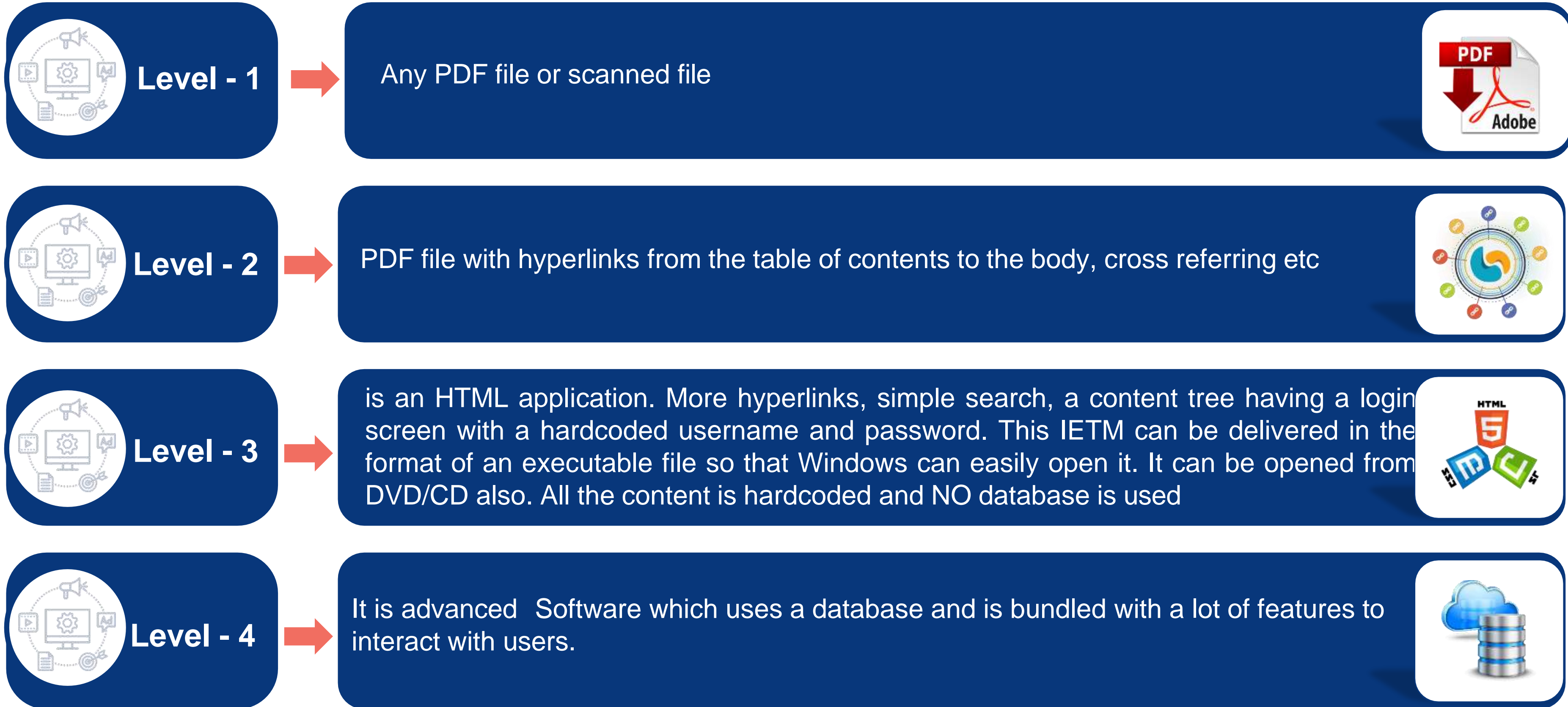**Level - 3** → is an HTML application. More hyperlinks, simple search, a content tree having a login screen with a hardcoded username and password. This IETM can be delivered in the format of an executable file so that Windows can easily open it. It can be opened from DVD/CD also. All the content is hardcoded and NO database is used

Level - 4 → It is advanced Software which uses a database and is bundled with a lot of features to interact with users.

Since 2018, Level 4 is being asked to supply by Indian Defense
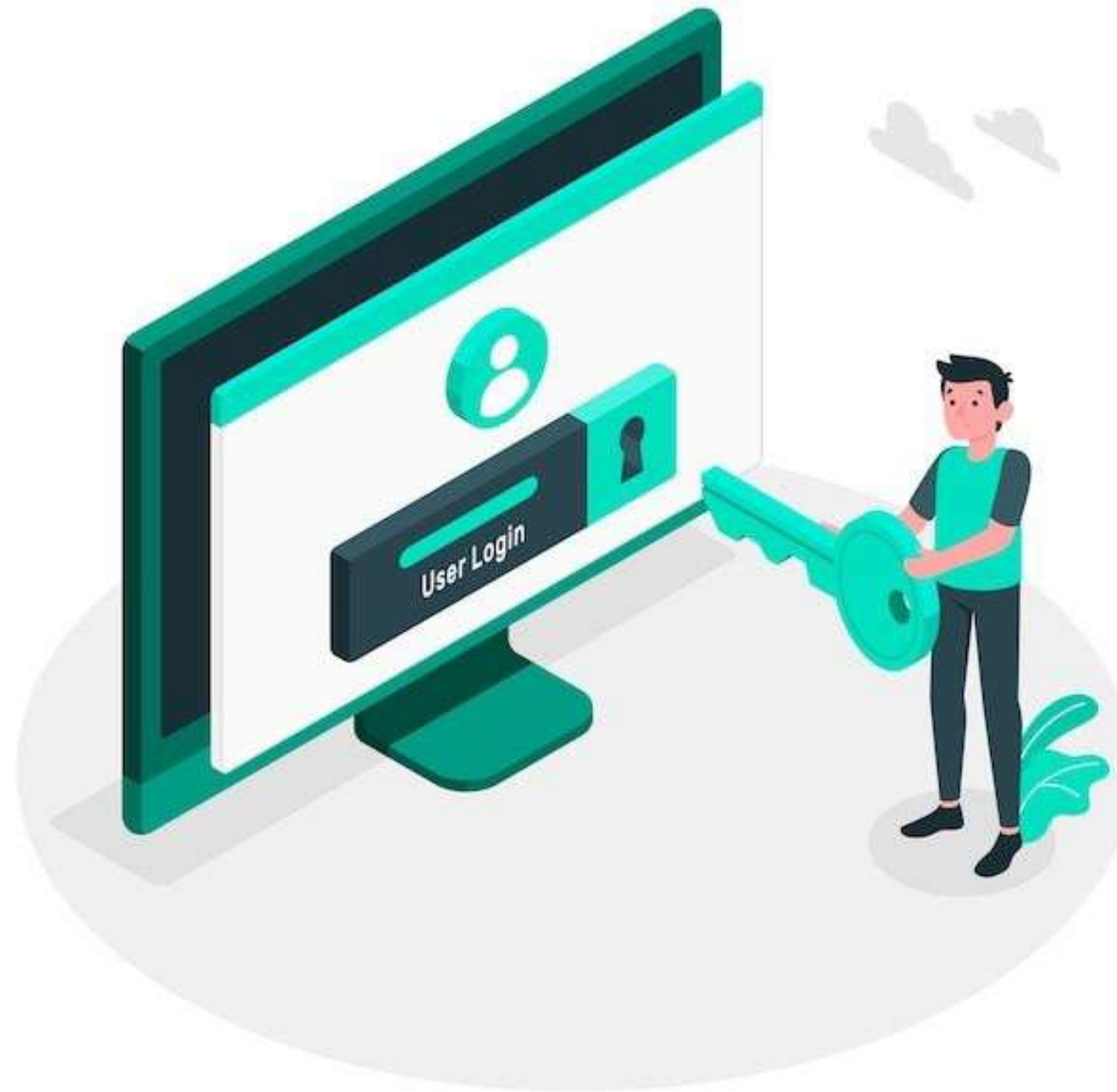
IETM – Level 4

❖ IETM Level 4 is a web-based application like our bank software or any other web application.

❖ The graphic user interface will be provided to use IETM through which users can interact and get the desired data.

IETM – Level 4

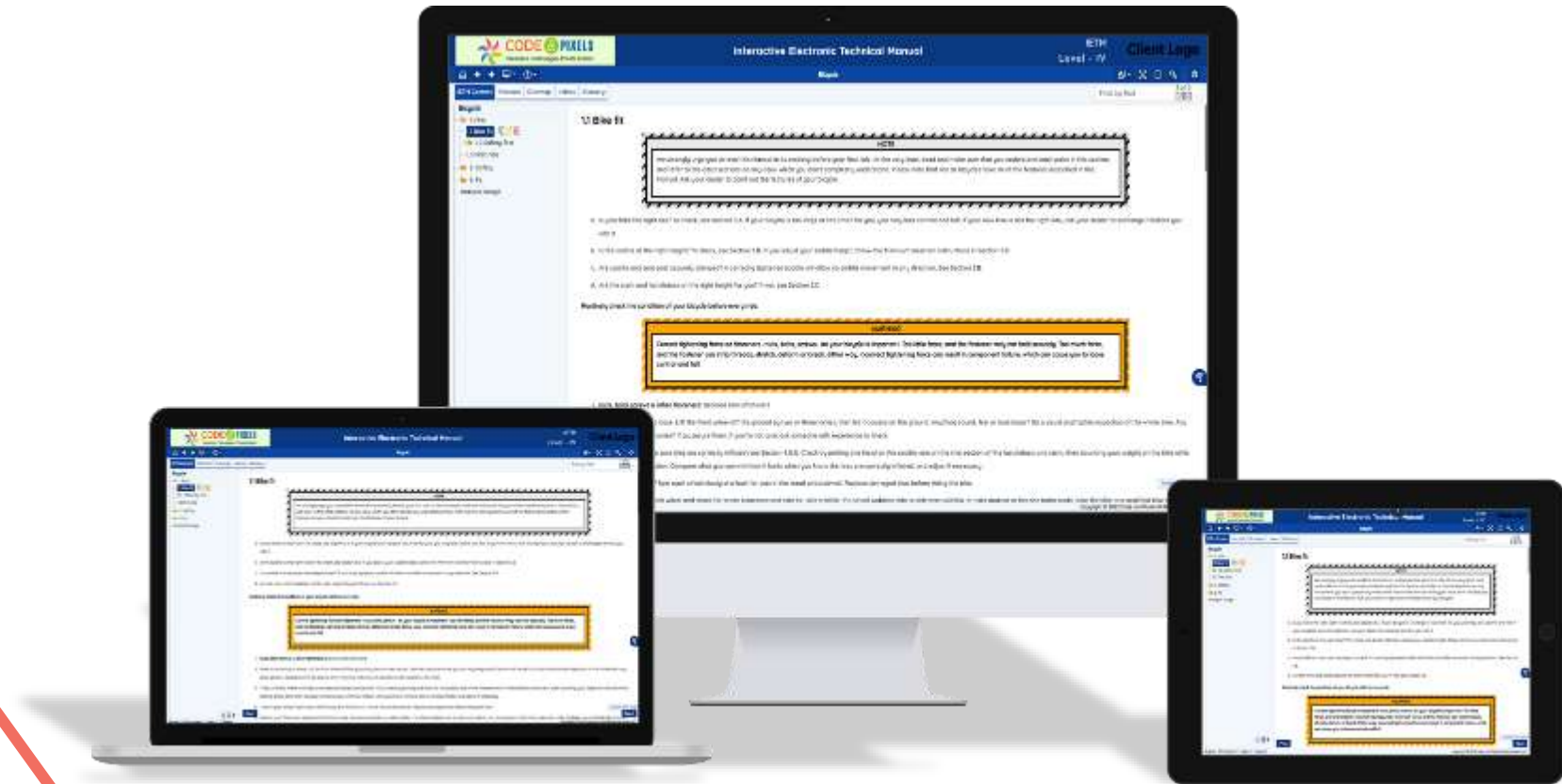❖ IETM Level 4 is a web-based application like our bank software or any other web application.

❖ The graphic user interface will be provided to use IETM through which users can interact and get the desired data.

❖ Like all other standard software, Unauthorized users cannot access the IETM.

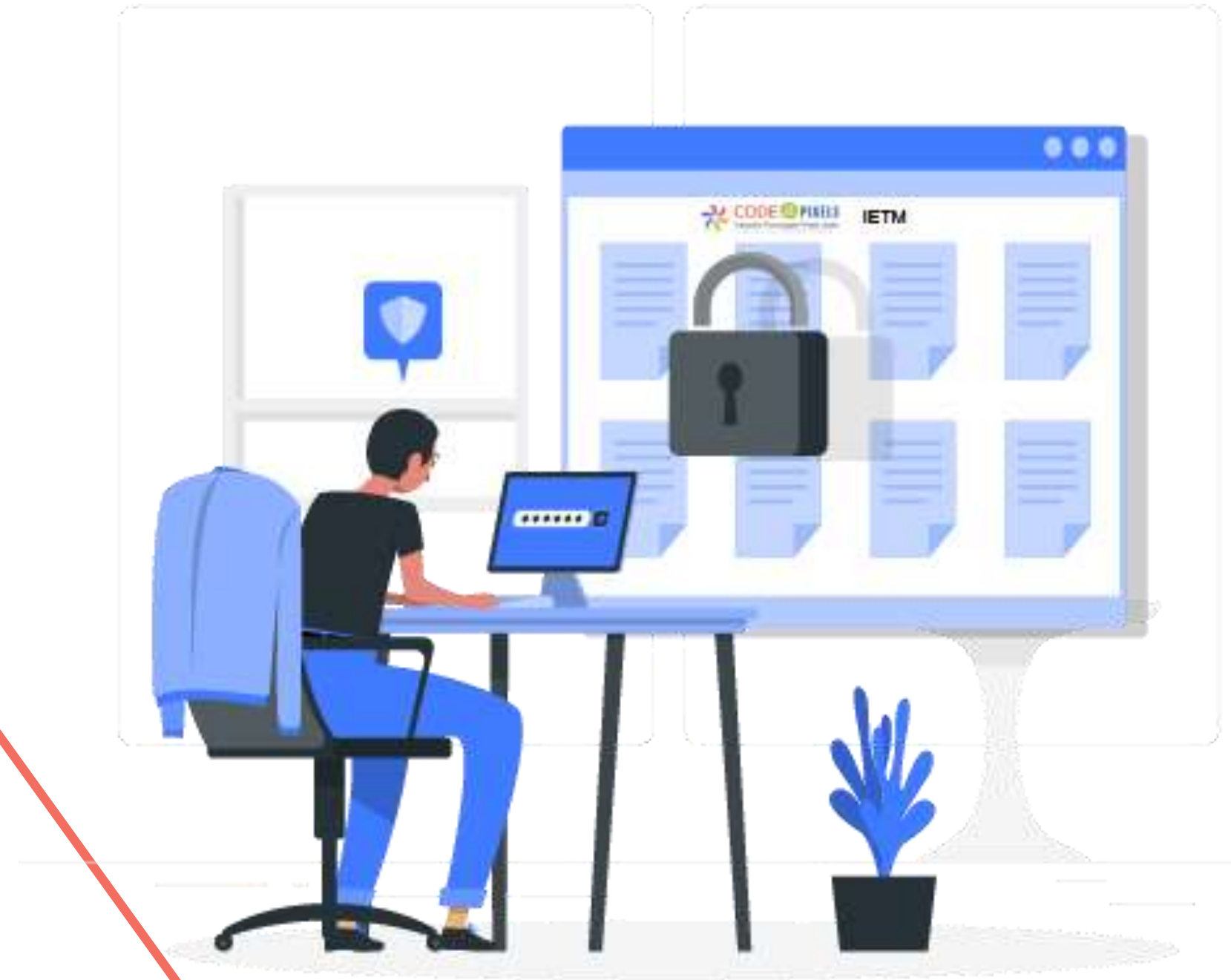❖ IETM is Login login-based application. Only users having valid Login credentials can access the software.

IETM – Level 4

❖ IETM Level 4 is a web-based application like our bank software or any other web application.

❖ The graphic user interface will be provided to use IETM through which users can interact and get the desired data.

❖ Like all other standard software, Unauthorized users cannot access the IETM.

❖ IETM is Login login-based application. Only users having valid Login credentials can access the software.

❖ Based on the user log credentials data will be provided to the user.

IETM has 2 types of users (Maintainer Operator) and one Administrator

IETM – Level 4

❖ If the operator logs in, the user gets all the content related to operator use, similarly if the maintainer logs in only maintenance-related content is visible for that user.
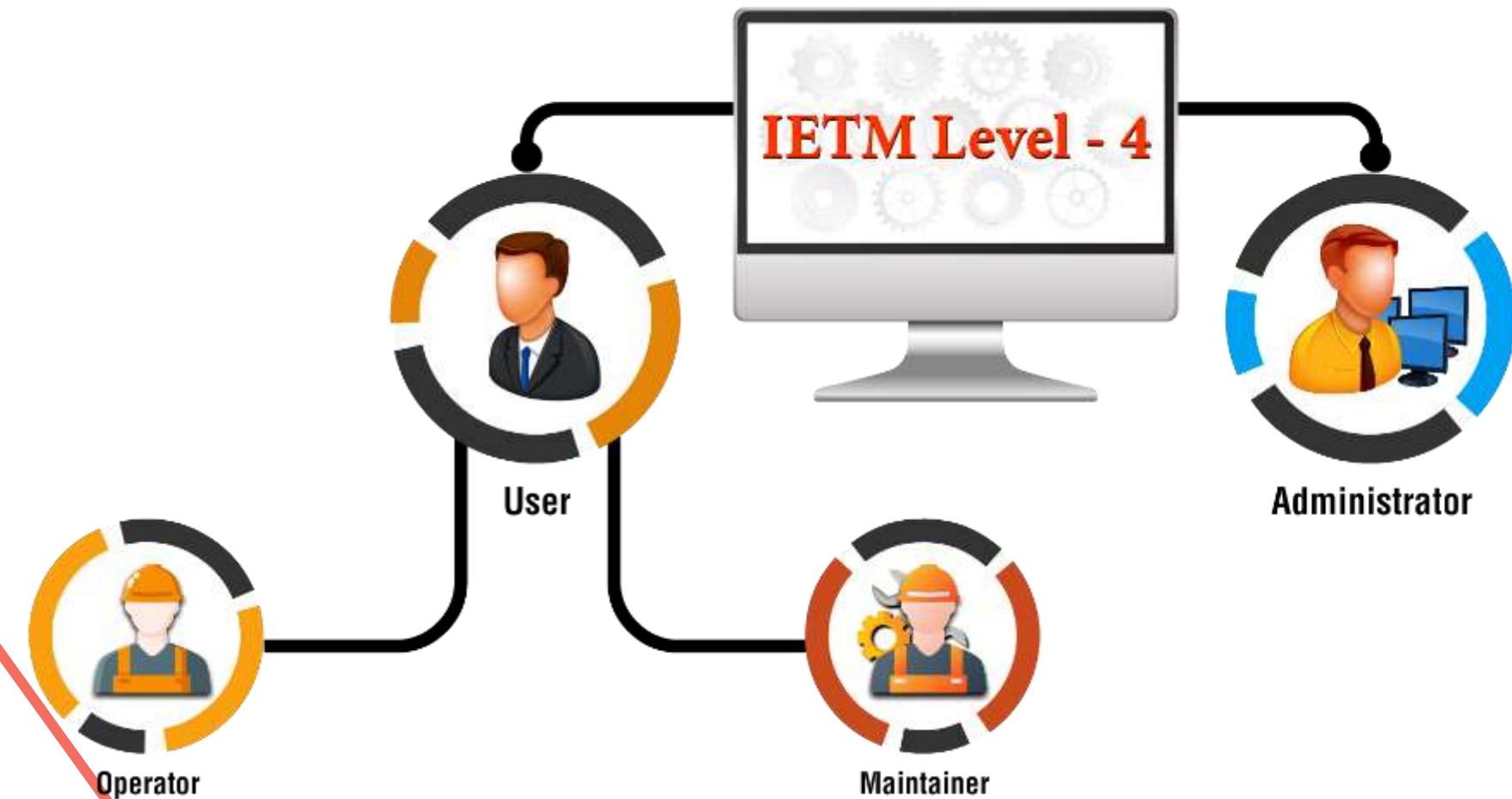
IETM – Level 4

❖ If the operator logs in, the user gets all the content related to operator use, similarly if the maintainer logs in only maintenance-related content is visible for that user.

❖ Ideally, all the content is available for both users, because the purpose of the IETM is to refer to the manual to fix the issue.

IETM – Level 4

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❖ Administrators can create users who can see the user's navigation & log-in history and interact with the users using user dashboards through Annotations.

IETM – Level 4

❖ If the operator logs in, the user gets all the content related to operator use, similarly if the maintainer logs in only maintenance-related content is visible for that user.

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❖ Administrators can create users who can see the user's navigation & log-in history and interact with the users using user dashboards through Annotations.

❖ In any case, Only **OEM** has the right to update or modify the content. Users can only refer to the content.

CODE & PIXELS
Values, People, Experience & Technology

IETM Development Team

Content Data Base / IETM PAGES

Step-1 All Documents will be converted into IETM Database

Step-2
- Building a Table of Contents in the framework
- Copying IETM content in the framework
- All the text will be stored in a database

Step-3 Linkages between pages/frames

IETM
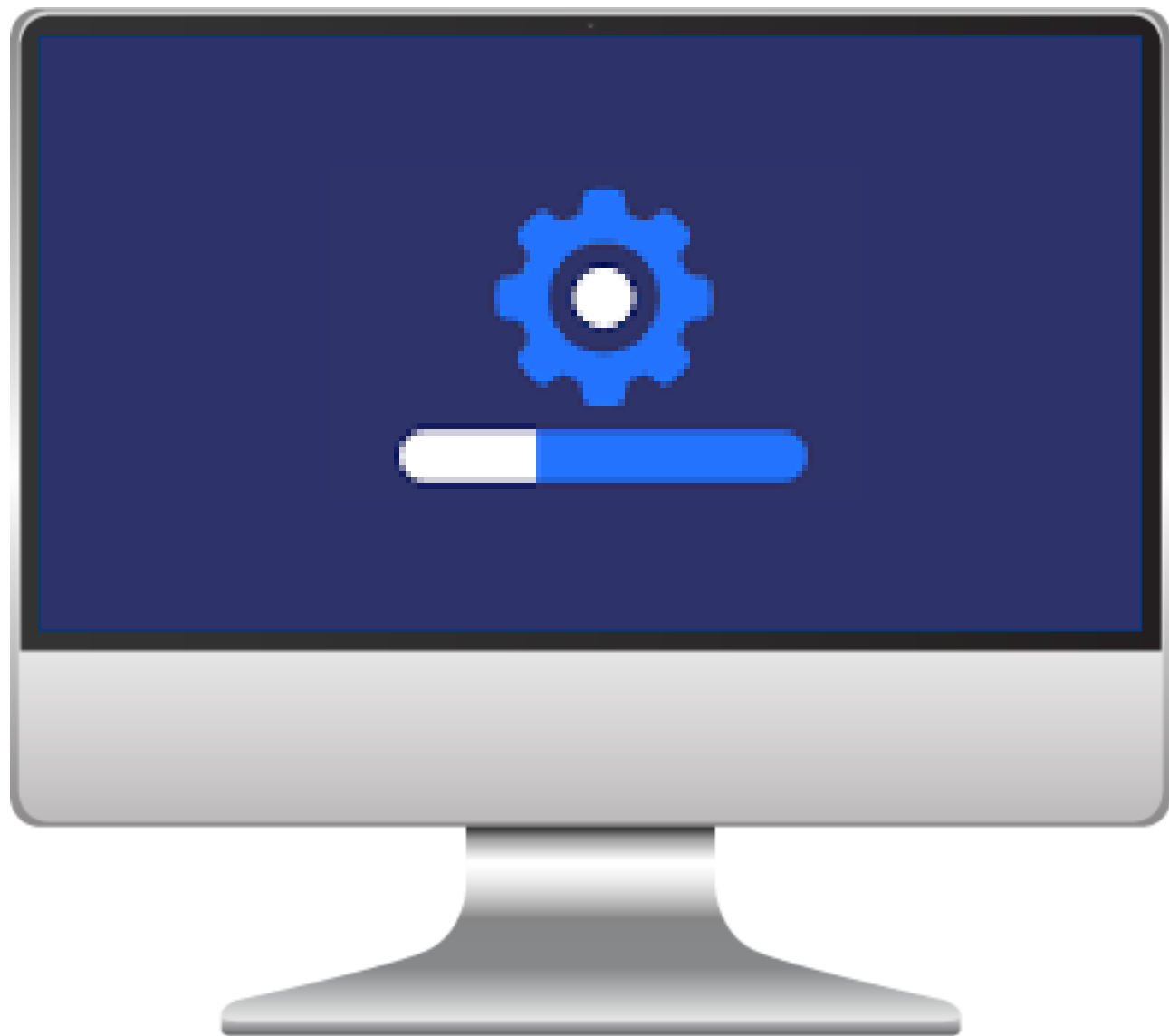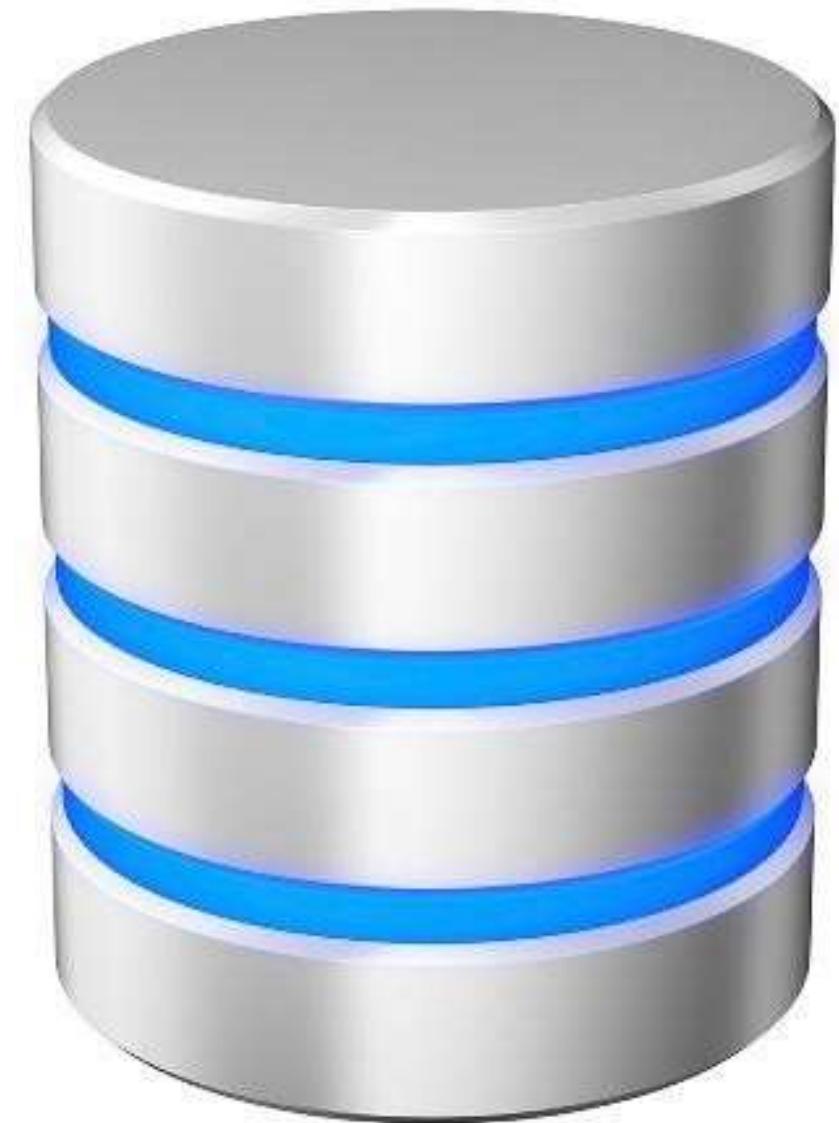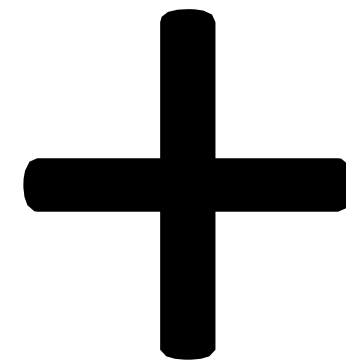
IETM Viewer Software $+$ Data Base

All the Manuals & Images

IETM USER TYPES

❖ Can manage users and also refer documents.
❖ Manage means the admin can create, edit and delete users and see user activity
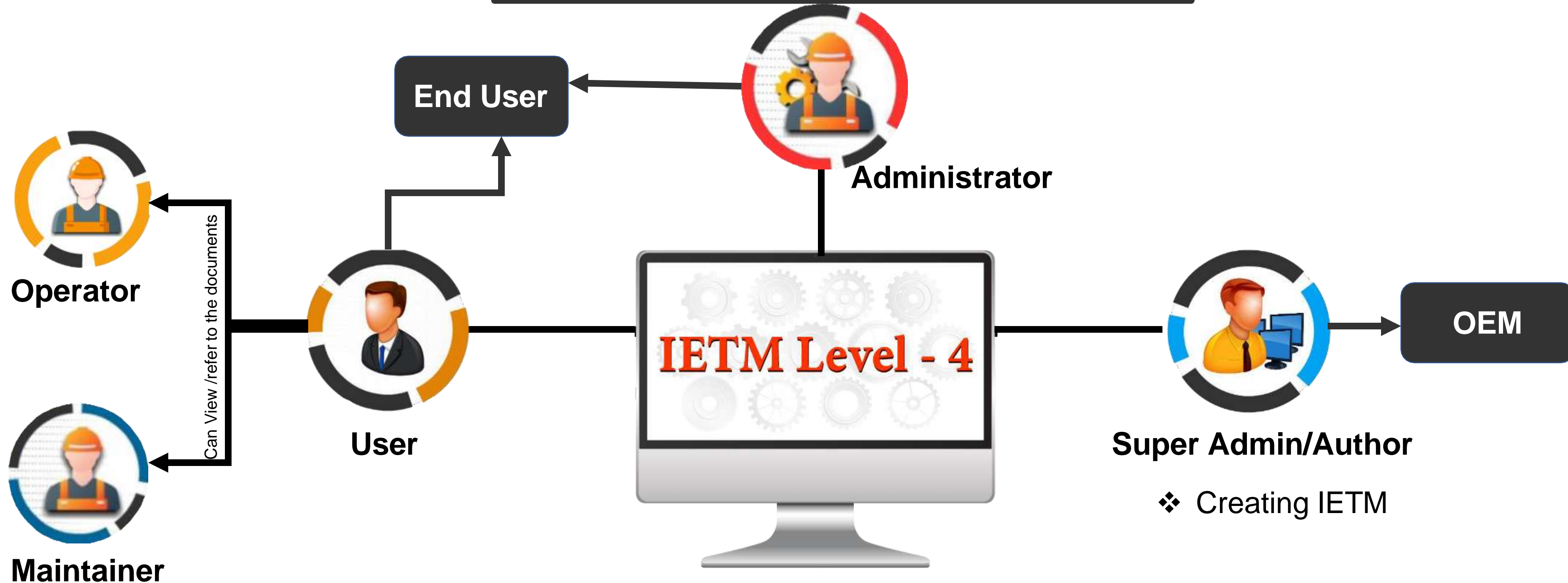
End User

Administrator

Operator

Can View /refer to the documents

User

IETM Level - 4

Maintainer

Super Admin/Author

OEM

❖ Creating IETM

Security

❖ Role based Login Control and Dynamic User access control (User, Admin)

❖ Dynamic User Access control to reduce the risk of unauthorized access to content data Role-based

Cross Platform Compatibility & Deployment

❖ Our IETM Frame work is cross platform compatible

❖ Code and Pixels Frame works is compatible for multiple devices i.e. Lap tops, PCs, Tablets etc.
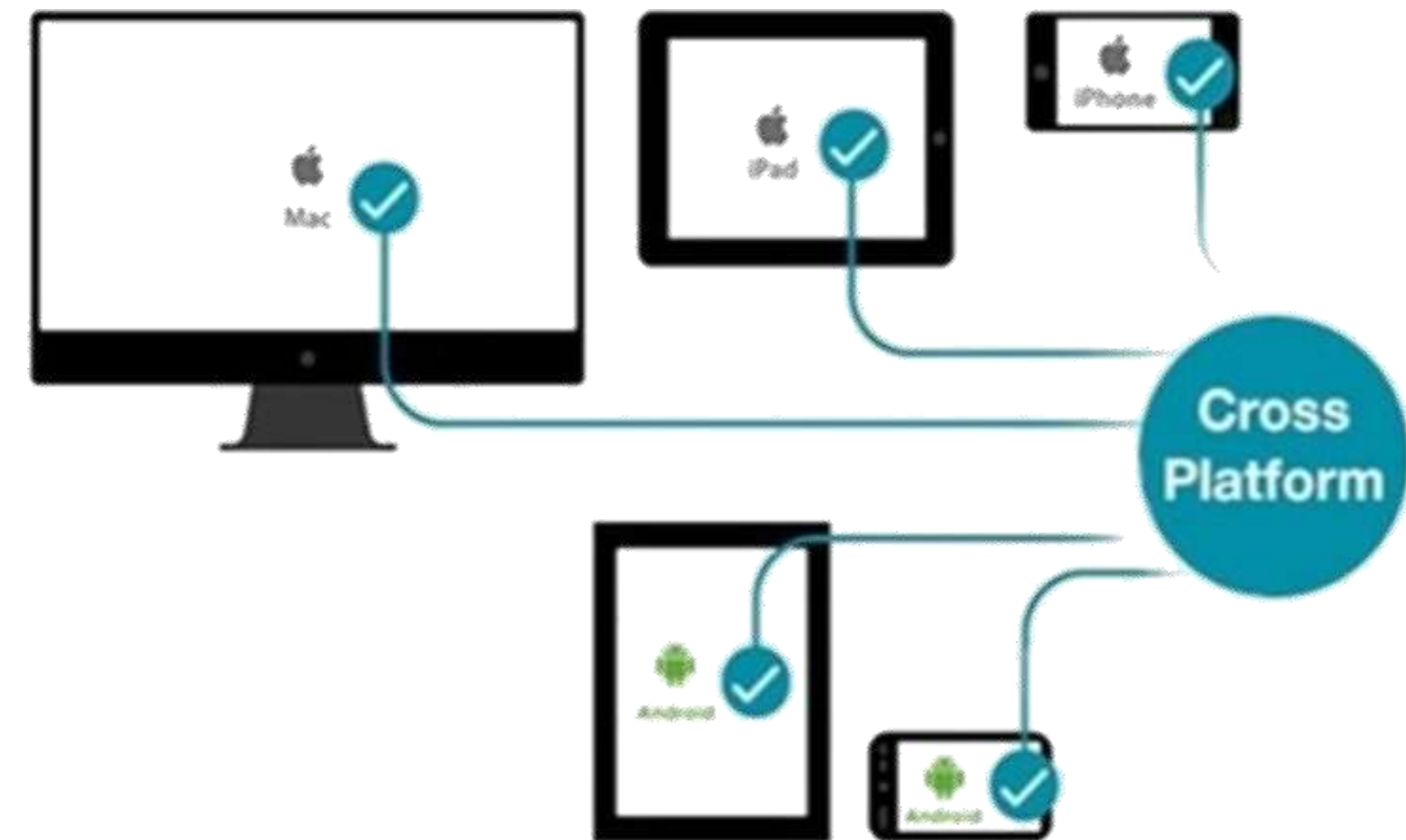
Cross Platform Compatibility & Deployment

❖ Our IETM Frame work is cross platform compatible

❖ Code and Pixels Frame works is compatible for multiple devices i.e. Lap tops, PCs, Tablets etc.

❖ IETM can be operated in Windows Operating systems and also LINUX OS

❖ IETM is a browser-based application

❖ No 3rd party tools are required to install IETM in the client machine

❖ It can be installed in the Client server Environment and also in a single System /standalone system

Clients

Internet

Server

Performance
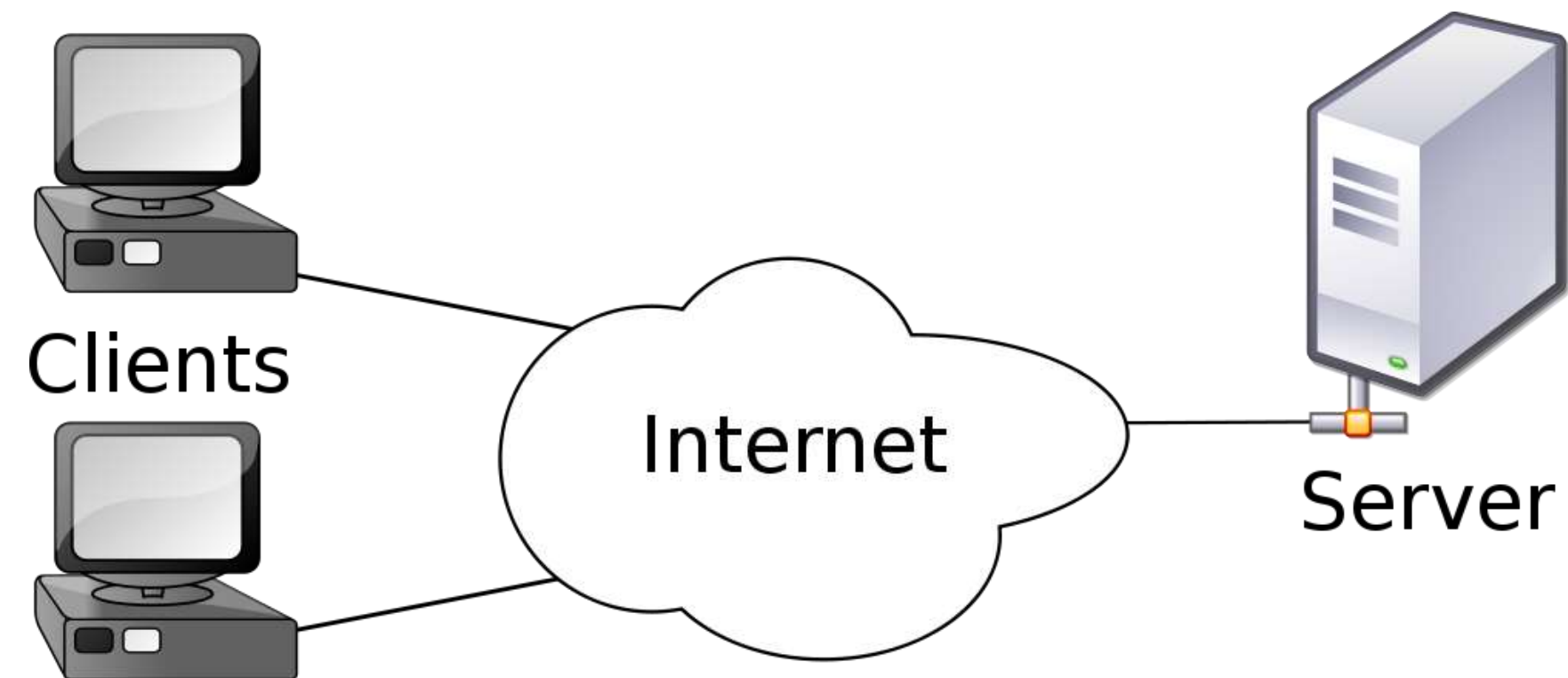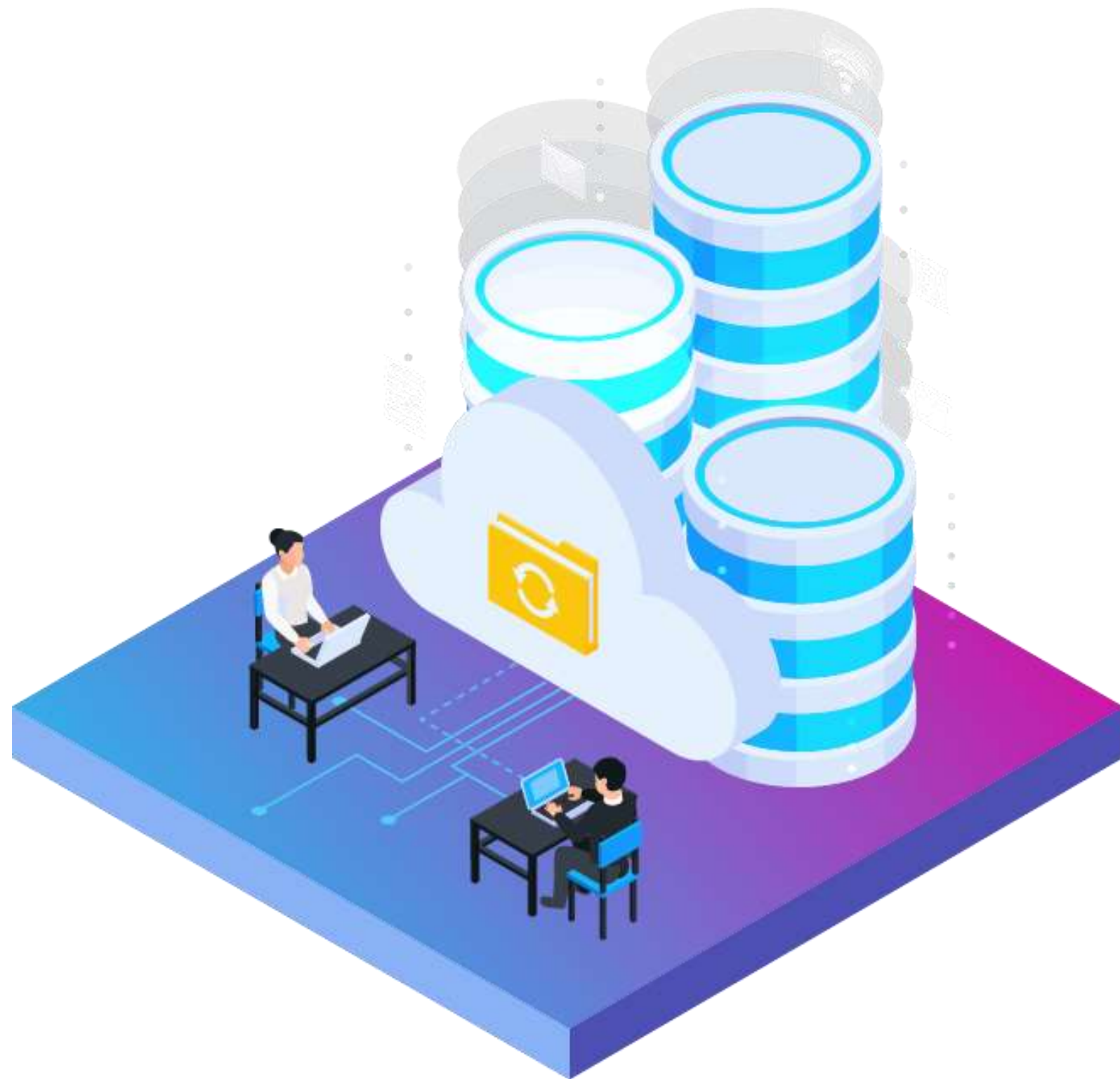
❖ In Class-IV IETM the data to be stored in a relational database, obtaining benefits of data integrity and removal of data redundancy.

❖ As the content (Images, Text, tables, Hyperlinks, Hot spots) is saved in the database, hence content will be loaded in a fraction of a second from the server.

❖ Content completely hyperlinked is mapped directly to relations in the database schema.

❖ Content will be driven dynamically from the Database based

Performance

- ❖ Dynamic data access from Relational database and reduced use of static pages

- ❖ Content data derived in textual, graphical, audio or video formats in a relational database which is composed of logically connected but randomly accessible IETM data elements

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Users

❖ IETM is equipped with User management tools, content management tool, Authoring tools.

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User Dashboard

❖ User Dashboard consist of features like Manage Bookmarks, Manage Annotations , View Activity, Change Password, Enter IETM, Logout.

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Admin

- ❖ Admin can control the documents access based on user profile. I.e. For Operator user , only manuals related to operator can be given access and for maintainer user only Maintenance related documents can be give access.

- ❖ Admin can see user login history and user Annotations and feedback etc.

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View Activity

❖ View Activity Feature consist of Last login, Created Date and a Table with all the previous login and logout's gets displayed.

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Change Password

❖ This Feature enables User to change his own password and to update his own security questions.

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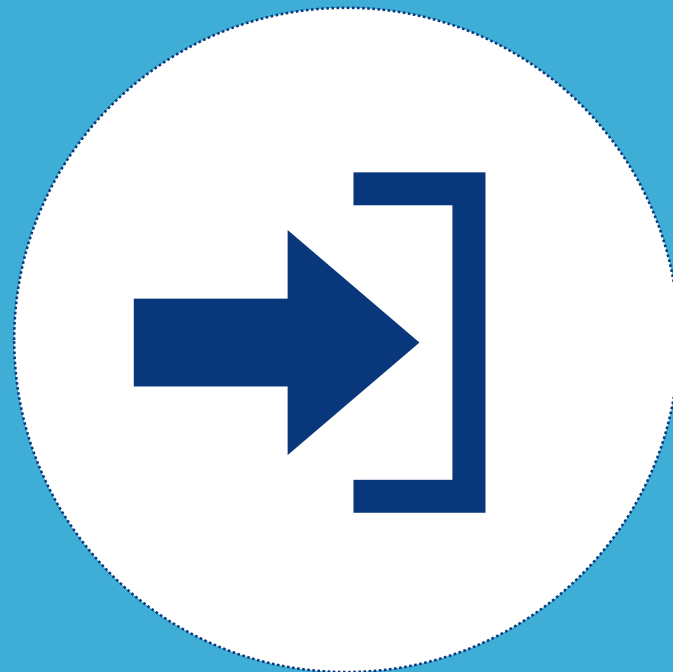
Enter IETM

❖ This Feature enables User to enter into IETM Core and access the IETM Data by selecting the desired module.

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IETM Core

❖ IETM core consist of IETM Content section on the Right and Tree Menu on the Left for navigation of content, IETM Core consist of Global Search, Local Search, Print, Annotation, Bookmark, Help and Select Module, History Navigation and Home options.

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Annotations

❖ Annotations are displayed by an icon at the Top Right beside the Global Search with Annotations Count of particular page. User can select the text with mouse and Add Annotation option appears to users to add new annotation in the content page.

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Print IETM Core

❖ Print feature is provided in IETM Core to print the current page content.

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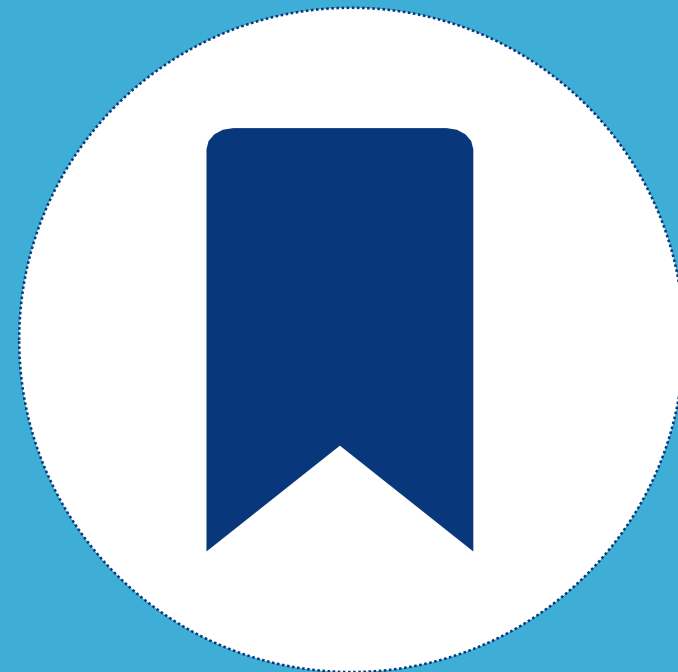
Bookmark

❖ A Bookmark Icon is provided at the top of content section to bookmark a particular page and can be added by clicking the Bookmark icon, A popup with Name Bookmark name field gets appeared.

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Word Explainer

❖ Word explainer feature helps in providing a Description/Explanation to a word by clicking on the word and is highlighted with a color in IETM Content

Image Explainer

❖ Image Explainer feature helps in linking a related image to a word in the IETM content, the word with the image explainer is highlighted with a color in IETM content.

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Video Explainer

❖ Video Explainer feature helps in linking a related Video to a word in the IETM content, the word with the video explainer is highlighted with a color in IETM content.

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Hot Spotting

❖ Hot Spotting functionality is used to link a word to respective image/Drawing of the same page, works with mouse hovering or selecting text or part of a image by which respective drawing or image will highlighted.

CODE & PIXELS
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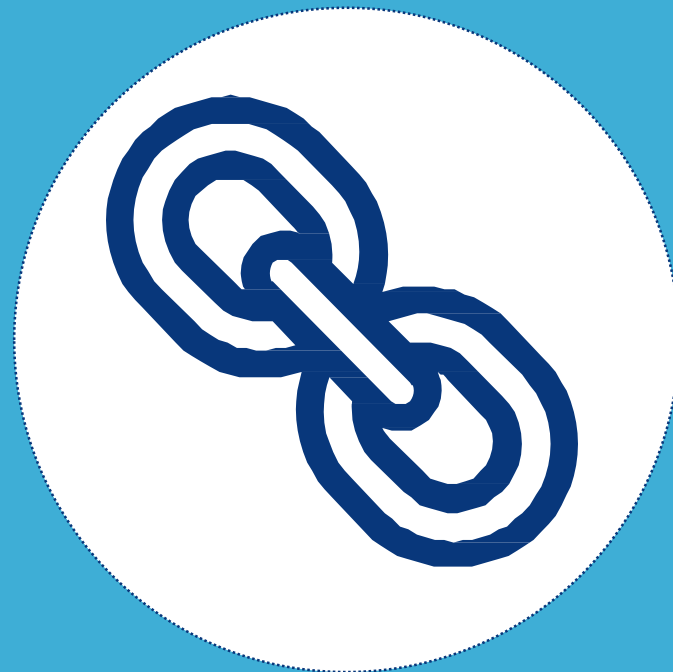
Hyperlinking
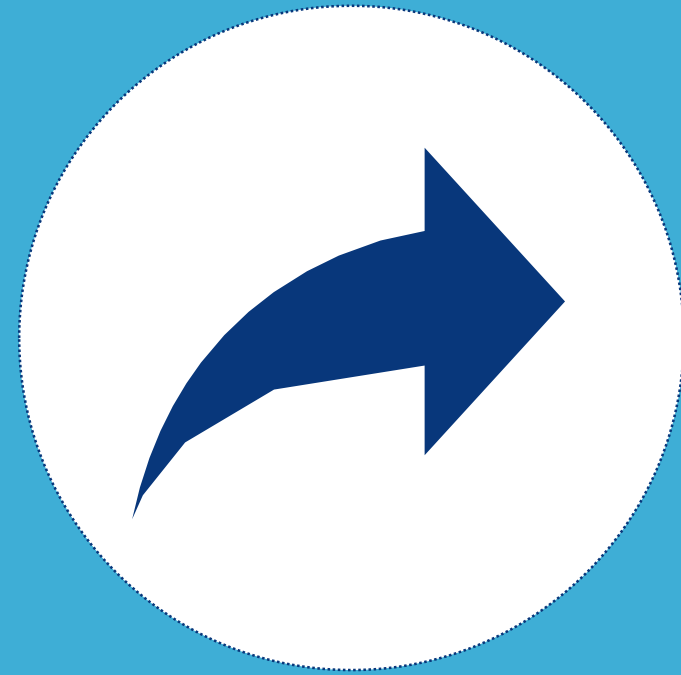
❖ Hyperlinking feature enables user to navigate from one page to the other related hyperlinked page by mouse click, the hyperlinked data is highlighted with a color and underlined.

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Image Viewer

❖ By clicking on image or enlarge icon of the image at the right bottom of image respective image is displayed in a popup of image viewer.

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History Navigation

❖ This feature enables the user to navigate to his previous steps based on his navigation history of the current session, by clicking on the right arrow in the top header user gets navigated to the forward.

Global Search

❖ Global Search provides a functionality to search a keyword with matching page name and also content text form entire IETM Core and the results are displayed in tabular format with Page Title and Module Name. by clicking page title user gets navigated to that page.

Local Search

❖ Local Search provides a functionality to search a keyword in the same page and the matching text is highlighted with a color in that single page.

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Related Content

❖ Related Content features is located at the right bottom of IETM content section. We can link the Related Pages of IETM Core, Document and Drawings which are related to this page content in this feature.

CODE & PIXELS
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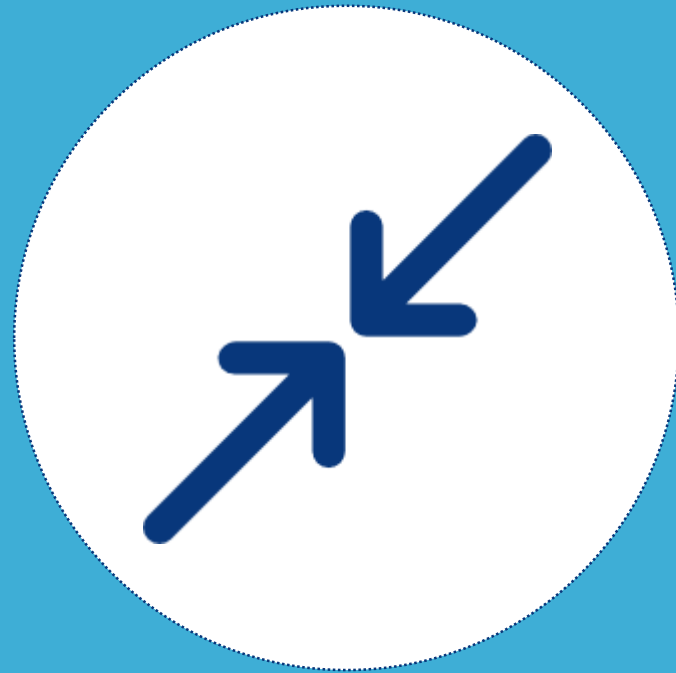
Page Expand View

❖ IETM Page can be expanded upon clicking the arrow button provided at the bottom of the tree menu section.

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Manuals Tab

❖ Manuals tab is provided in the header above the tree menu. All the manuals related to can be placed in this tab and can be viewed with the help of pdf viewer provided in the IETM application.

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Logs Tab

❖ Logs tab is provided in the header above the tree menu. This section enables User to add and store the logs of required data for the user

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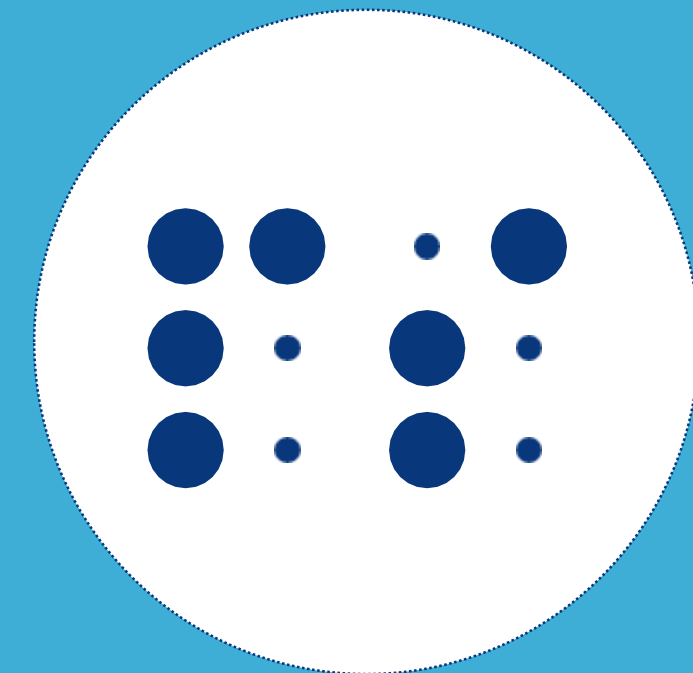
Glossary Tab

❖ Glossary tab consist of Add, Sort , Find options with a tabular display of the glossary Related to content in IETM Core.

CODE & PIXELS
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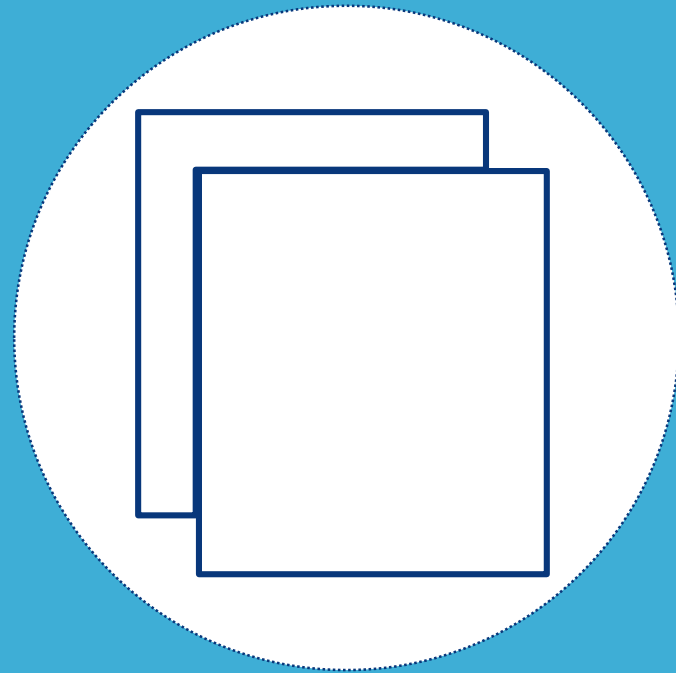
Select Modules

❖ User can be navigated to desired module form this Select Module Button, A list of all available modules will be displayed in dropdown.

Help for IETM

❖ This consist of two pages About IETM and How to use IETM with the information related to IETM and a video how to use IETM.

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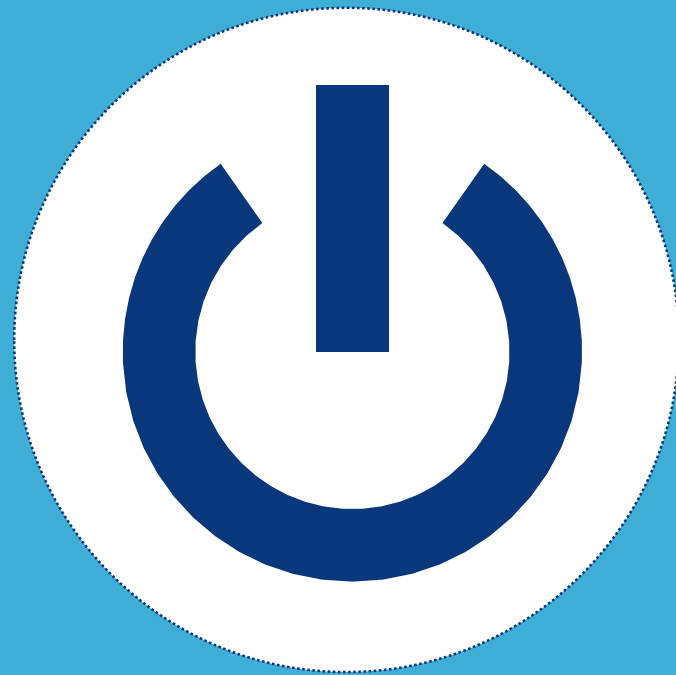
Logout

❖ Logout enables the User to close his session and logout form the IETM dashboard and redirects out of application from his access to login page of IETM.

Level -3

- ❖ is Hardcoded HTML programming.

- ❖ It needs HTML expertise to edit in future, after delivery.

Level -4

- ❖ has an Inbuilt Authoring tool
- ❖ Anyone with little training can edit and update the content after delivery.
- ❖ If the Authoring tool is given to the client, the client can also update.

Still, 10 % OEMs are asking for Level -3. They were awarded the contract in the 2016- 18 period

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What is the difference between IETM level -3 and Level -4?

S. No	Feature	Description -IETM -3	Description -IETM -4
1	Password Protection	Yes	Yes
2	Login Password	Yes. But common for all.	Yes. Different for all. Maintainer, Operator, Admin, Super Admin(Developer mode)
3	User access	All the contents will be visible to all the users. No control over access rights to specific users.	Based on login credentials, we can restrict users. I.e. Operator will be able to see only contents and PDFs and Drawings related to operator only.
4	Admin	NO. Only single log in for all users.	Yes. Admin can create and manage users and content access rights.
5	Super admin/Authoring tool	No	Yes. Client can update the content. Using Super admin or Authoring tool, IETM can be edited. Text, images, Content tree, hyperlinks can be done using Authoring tool.
6	Database	No data base. Documents will be stored as HTML	SQL – Complete text and user information, Content structure will be stored in SQL database
7	Dash board	No	User Dash Board to manage user activities. Admin Dash Board to manage admin activities.
8	Nature of content	Static	Dynamic. Complete data is stored in the database.
9	Interactivity	Less	More
10	Bookmark, Annotations	No	Yes. User wise bookmarks and annotations.

What is the difference between IETM level -3 and Level -4?

S. No	Feature	Description -IETM -3	Description -IETM -4
11	Glossary	Yes	Yes
12	Search	Local Search	Local and global search(Full IETM search).
13	Delivery & Execution	CD and DVD or USB	Installation. Can't be played from DVD/USB. Need client server environment.
14	Dependent software's to play	No	NO. IETM has inbuilt image and video players, PDF viewers, hence no 3rd part installations are required at client side.
15	Operating systems	Linux	Windows and Linux. IETM can be browser based or EXE based.
16	User activity monitoring	No	Yes. User log in history will be tracked.
17	Hyperlinks	Yes , Hardcoded	Dynamic. Each frame, Images or topic will be given a unique code.
18	Hotspots (A pop up window having image, Video and Text plainer)	Yes , Hardcoded	Dynamic
19	Contents Tree Structure	Yes	Yes
20	When to use	When page count is up to 5000	Anywhere from 5000 to 2 lakhs.
21	Specifications	JSG 0852:2001 Joint service Guide	JSG 0852:2001 Joint service Guide MIL Standards - 87268, 87269 (DATABASE)
22	Print	No	Admin can print the required files.
23	Content	Page based approach. HTML pages are developed and integrated	Frame based approach. No pages exist. All data will be stored in database. Based on request from user, content will be fletched from server and displayed.

From OEM to Create IETM

All the softcopies of user manuals to be converted to IETM

All images Videos, and drawings to be integrated into IETM

Table of contents/tree structure.

Subject matter expert to resolve technical clarifications

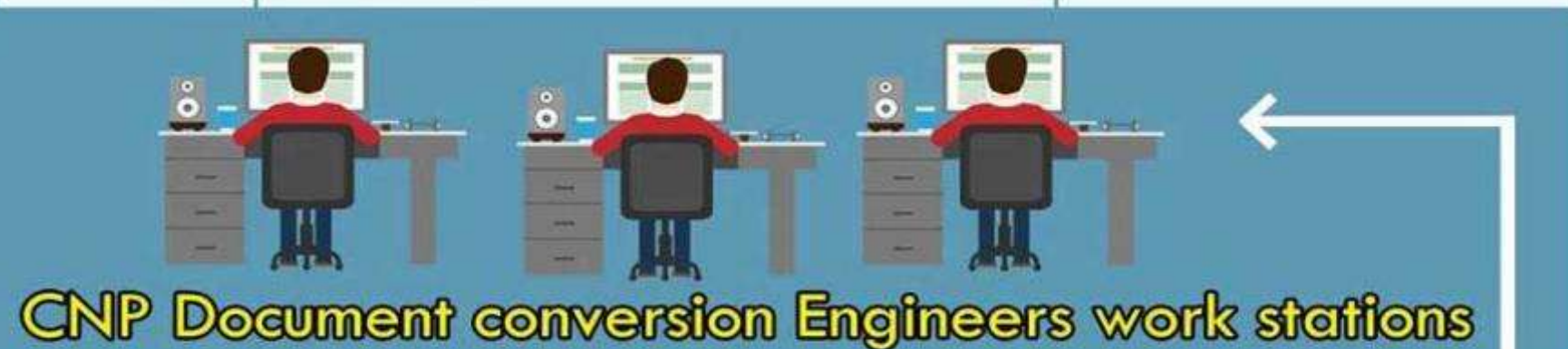**CODE & PIXELS**
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What Inputs are Needed?

There is no relation between IETM and 3D interactive animations / Blowups and Videos.

If OEM has these multimedia elements like Videos, 3d, 2D animations, Blowups, AR and VR, then

IETM can embed these elements as a Library.

IETM Architecture

Code and Pixels Premises

CNP CSDB Viewer "CNPV-0852" software will be installed at client server or cloud

Documents converted to SQL database

CNP Author Studio "CNP-AS0852"

SQL

CSDB (SQL)

CSDB (SQL)

or

Local Server

Cloud (AWS, Google cloud)

Linux Windows 10

CNP Document conversion Engineers work stations

All types of legacy documents, Manuals, ISPL, Pictures, Videos

PDF .jpg W

IETM Administrator

Operator

Maintainer

CNP = Code and Pixels   CSDB = Common Source database

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JSG -0852 :2001

Documents converted to SQL database

CNP CSDB Author Studio "CNPAS-0852"

CSDB (SQL)

IETM – JSG-0852

Deployment

Our IETM Frame work is cross-platform compatible

It can be played on
Windows OS and also in Linux OS

can be played in any Browser

It can be installed in Client Server
Environment and also in single System

HTML 5 (responsive) based content integration and module based deployment

Framework

Database

Frontend

Angular JS
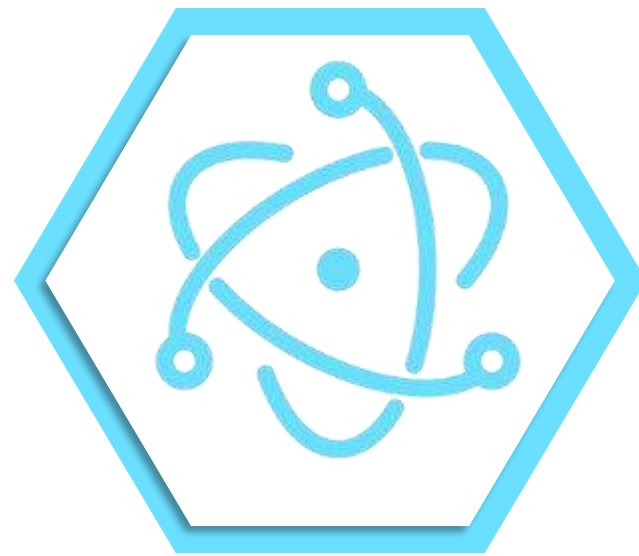
Electron

MySQL

HTML5

Bootstrap

Optimal Performance of IETM
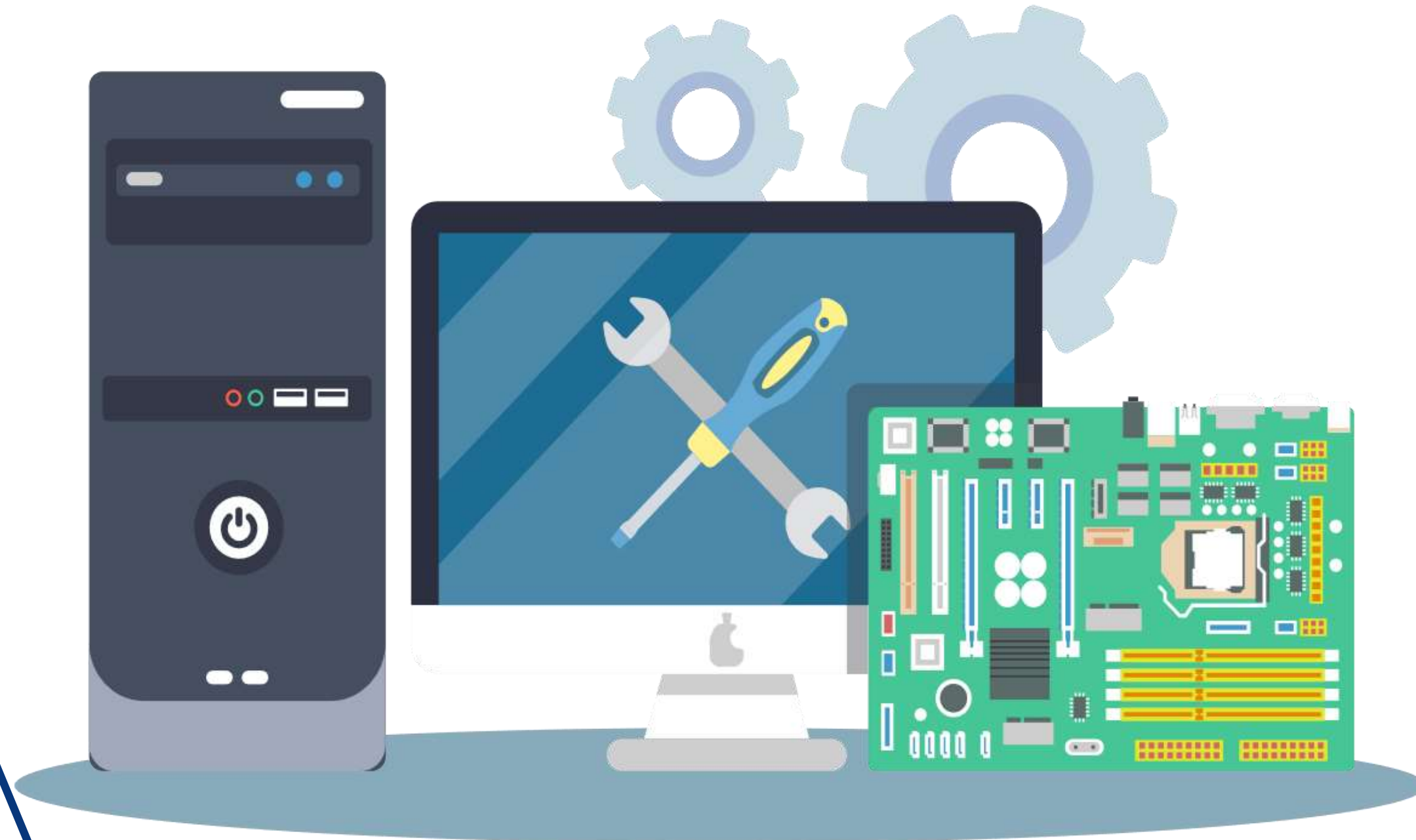
❖ NO High-end hardware or servers are required to run IETM.

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Optimal Performance of IETM

❖ NO High-end hardware or servers are required to run IETM.

❖ However, if more concurrent users, then a good configuration server with good LAN connectivity must be ensured.

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Optimal Performance

of IETM

❖ NO High-end hardware or servers are required to run IETM.

❖ However, if more concurrent users, then a good configuration server with good LAN connectivity must be ensured.

❖ i3 with 8 GB RAM systems is the minimum configuration required for the server or for Node.
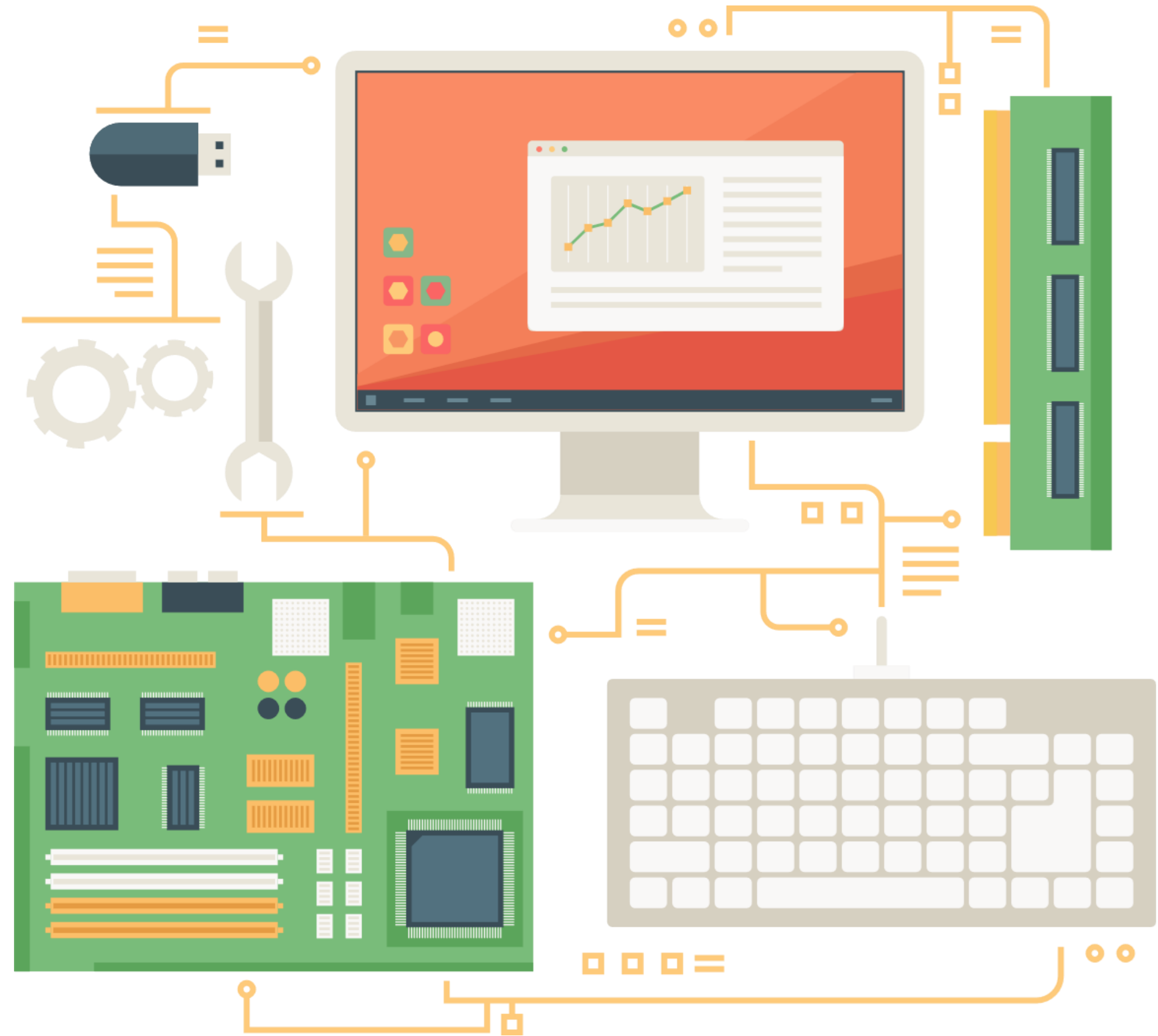
❖ DB file (Database file, all the manuals are covered in the Database)

❖ IETM VIEWER Software to retrieve the content from the database

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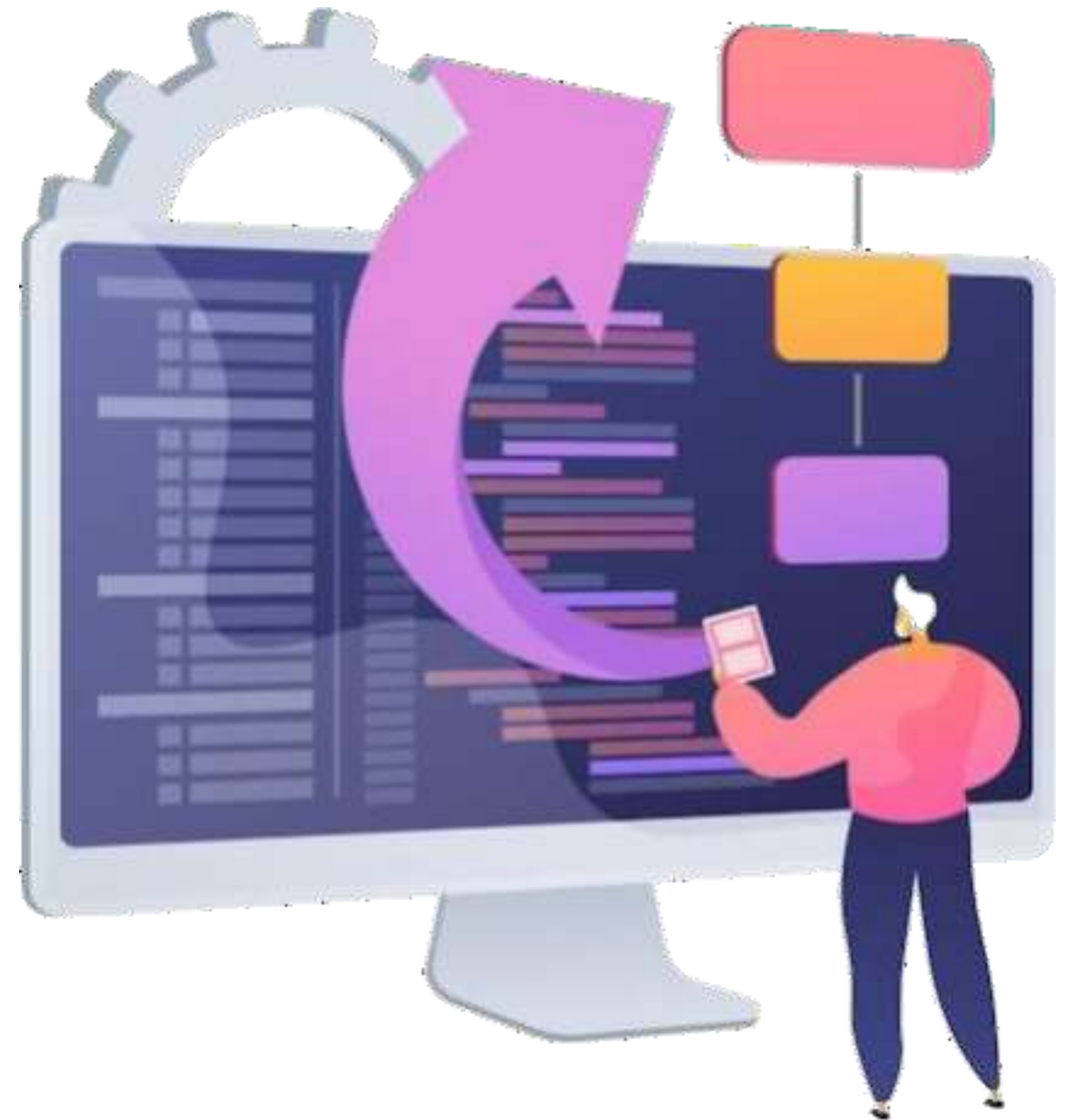
Level of IETM, is it Level 3 or Level 4

Cost will be based on the number of pages that are to be converted

Vendor calculates cost per page. And a fixed cost of IETM viewer software

If you want to create IETM by yourself self then you also need to buy IETM authoring software.

Note:

Level 4 will be almost double the cost of Level 3. If you have a option to select, go for Level 3, which is very economical. In a few Scope documents, the user says we need IETM. They don't specify which level of IETM. In such cases opt for Level -3.

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❖ There is a misconception **about IETM**. As the name indicates interactive, people assume that it is a **3D based on blowup software**. Interactive means, users can browse or cross-refer or interact with the software to search on a particular topic/sub-topic.

❖ **3D Animations** and **blowups** can be taken as separate tasks based on the complexity of the system and the level of blowups that you want. We have a separate division to take up such assignments.

❖ If your SCOPE /SOTR /RFP says **IETM** then stick to **IETM** only.

IETM Vs 3D Blowups

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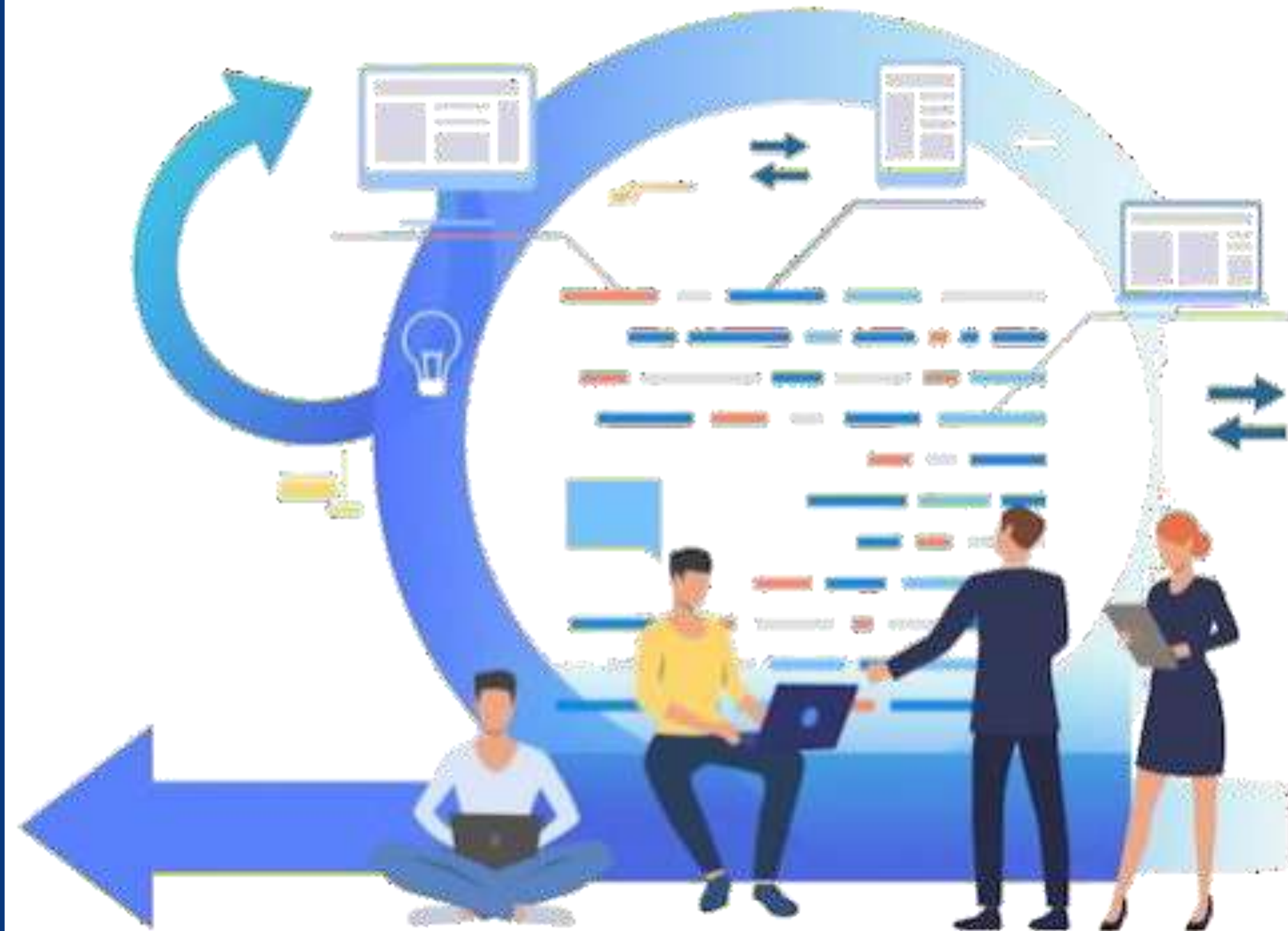
❖ These 3D animations, 3d Blowups and virtual reality cost more than IETM cost. They will be good to see definitely but they are not part of IETM. If your client wants 3d and if the scope specifically mentions 3d then it is a separate deliverable but not IETM.

❖ There is no link between IETM and 3d. If you have 3d animations or blowups, you can integrate into IETM.

❖ Understand the difference between IETM VS CBT vs. virtual reality.
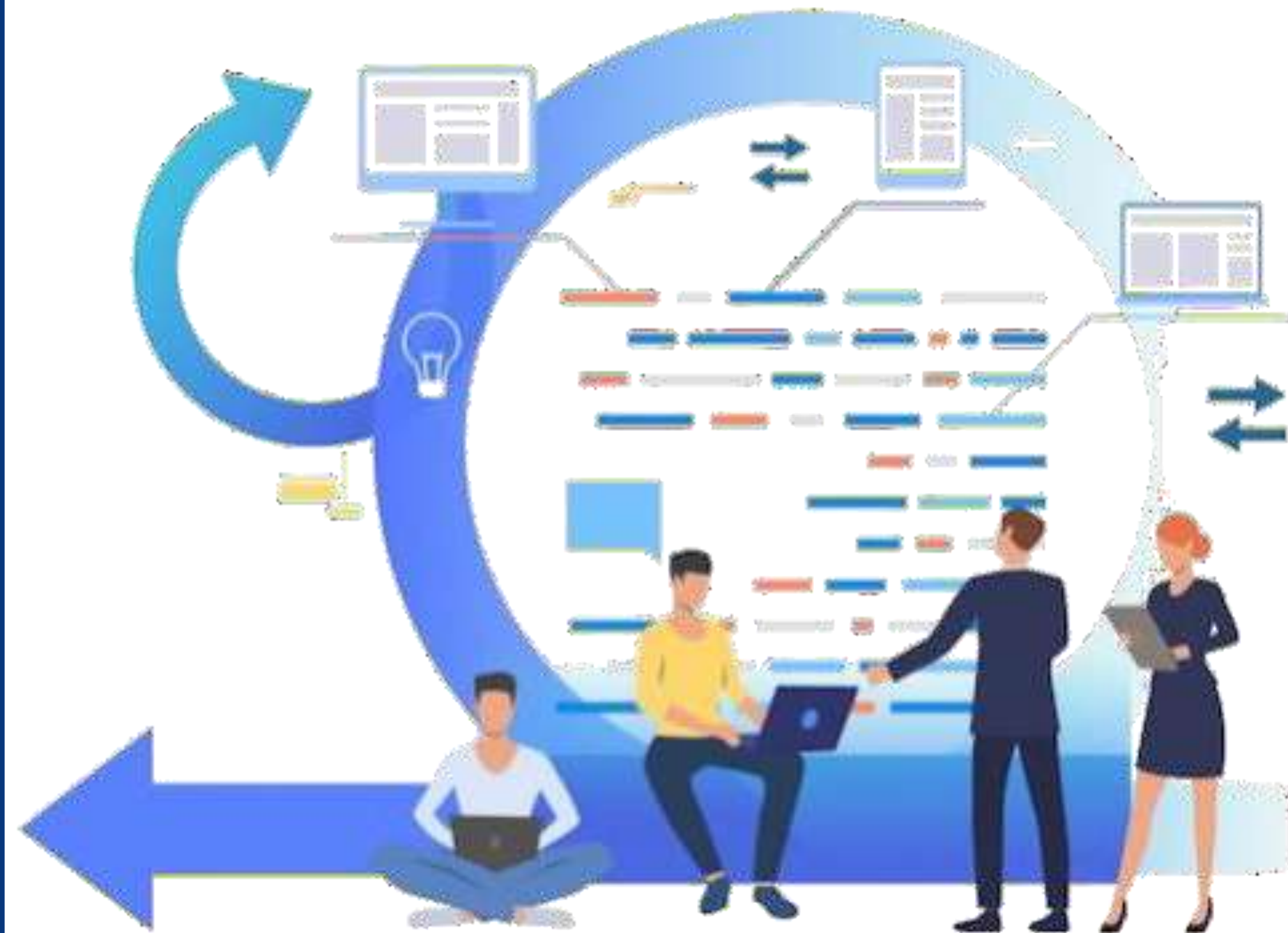
IETM Vs 3D Blowups

- ❖ Another important point to check is which **IETM level** the client/ SCOPE is asking for. Generally, they may **ask for Level 3 or Level 4**. (If your RFQ is 5 years old around 2016-19 then they may ask for Level 2 or 3)

- ❖ Level -3 costs less price than Level -4. If you have a choice to select, then select IETM -3 as it is very economical.

- ❖ The latest RFPs / SCOPE asks for Level -4 only.

IETM Vs 3D Blowups

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- EED-S-048
- DME 452
- NCD 1470
- JSS 0251-01:2015 (Rev no. 2)
- JSG 0852: 2001 Reaffirmed 2019

❖ You may see these standards in your scope.

❖ The end users say that IETM has to be developed based on these standards.

❖ Out of these standards, JSG 0852 is the only standard that talks about IETM.

❖ Other standards are documentation standards.

EED-S-048

Naval Standard Specification

Specification of Documentation for New Construction Ships.

DME is a part of the Materiel Branch and works under the overall command and control of the Chief of Materiel, as PSO, and Assistant Chief of Materiel (Dockyard & Refits) as APSO.
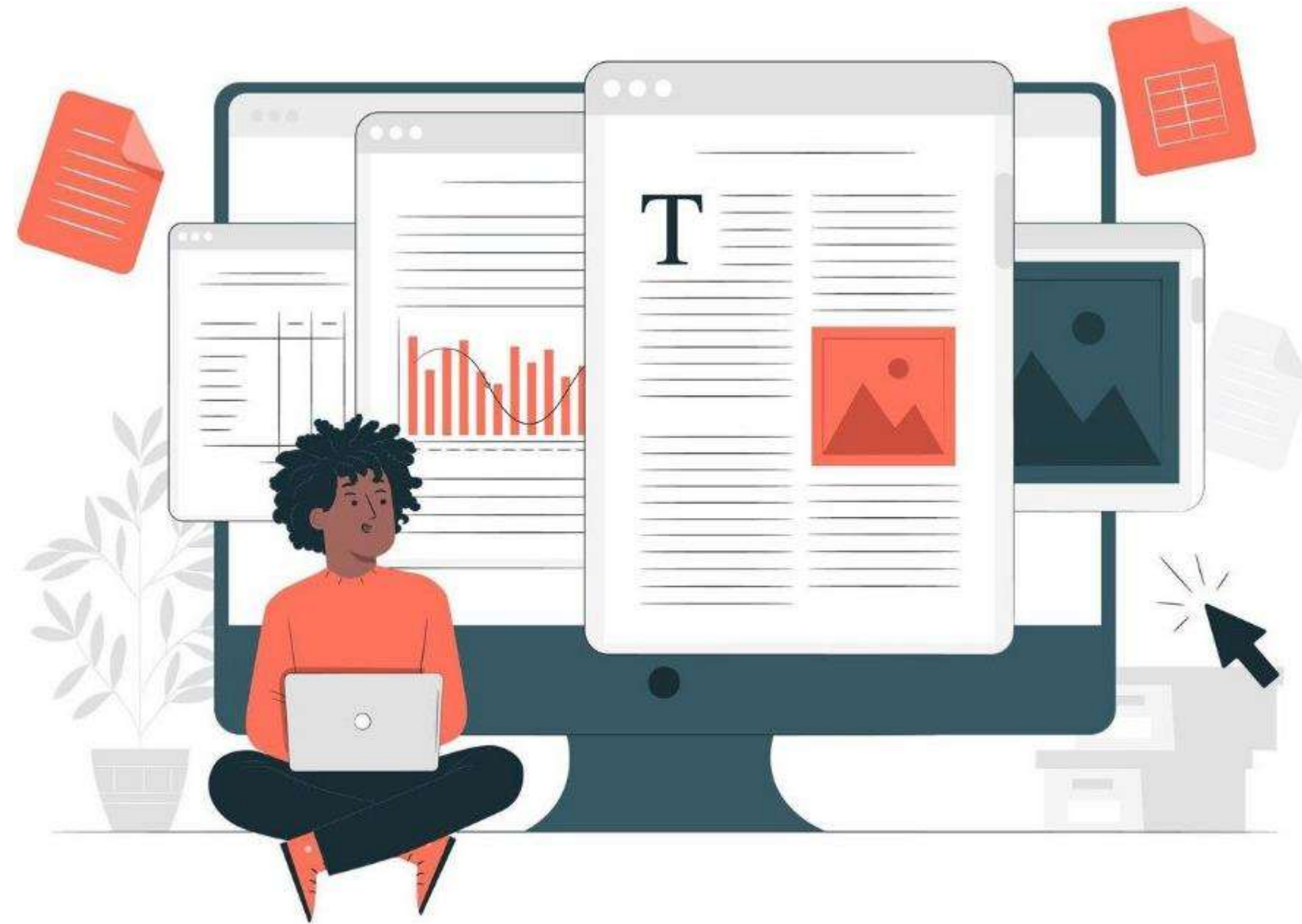
DME -452

Directorate of Marine Engineering (DME)

Documentation Specifications

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NCD 1470

DIRECTOR OF STANDARDISATION

भारत सरकार | रक्षा मंत्रालय
GOVERNMENT OF INDIA | MINISTRY OF DEFENCE

मानकीकरण निदेशालय
DIRECTORATE OF STANDARDISATION
Department of Defence Production
सत्यमेव जयते

Department of Defence Production Requirements For

Preparation of Documentation For

- ❖ Equipment
- ❖ Structure
- ❖ Material
- ❖ System

JSG 0852

Joint Services Guide
(JSG)

Indian Defence standard to make IETM

भारत सरकार | रक्षा मंत्रालय
GOVERNMENT OF INDIA | MINISTRY OF DEFENCE

मानकीकरण निदेशालय
DIRECTORATE OF STANDARDISATION
Department of Defence Production
सत्यमेव जयते

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ONLY JSG 0852 is related to IETM all other standards talk about how to prepare documentation for ships

JSG 0852

NCD 1470

EED-S-048

SS 0251-01:2015 (Rev no. 2)
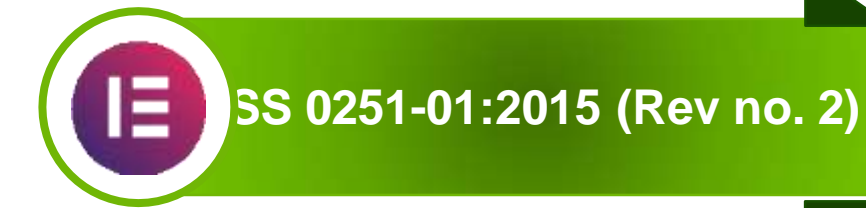
DME 452

EED-S-048 | DME 452 | NCD 1470

Standards defined by the Navy guiding OEMs

Purely Technical Stuff and only Defence Scientists or Technical Teams of OEMs

❖ Who were involved in the **development of equipment / devices** can prepare.

❖ They need **domain expertise**.

❖ These are **absolutely in no way relevant to IETM development.**

By adhering to **EED-S-048** or **DME 452** or **NCD 1470** these standards your technical team will make manuals i.e.

User Handbooks

Technical Manuals

Maintenance Manuals

MRLS

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Content may be written poorly formatted by the Domain Experts as

❖ **Aesthetically Arranging**
❖ **Making a Table of Contents**
❖ **Header**
❖ **Footers etc.**

It is not the work of **Technical People.**

❖ Once this content is written by the experts the documentation team will come to the picture.

❖ These documents are re-arranged and re-formatted as per JSS – 0251 standards.

❖ Once the documents are approved by the authority, then next stage is IETM.

(step 1&2 is done by **OEM** and **Step 3 is executed** by the **IETM Software Vendor)**

STEP 1 (Content writing)	**Writing content/** preparing the manual based on the standards (EED-S-048, DME 452 OR NCD 1470.)
STEP -2 Standardising/ formatting the content	Converting the raw content into a proper **technical document using JSS standard.**
STEP -3 Converting the final PDF manuals to IETM	Converting the approved/vetted Manul to the **IETM database** using the **IETM authoring tool / IETM software.**

There are two specifications/standards that exist

Joint Service Guide

JSG 0852: 2001   Reaffirmed 2019

S1000D European Standard

NOTE :

In many Scope documents client simply says, IETM – Level 4. Then it is default that they are looking for Indian Defence standards.

❖ S1000D is European standard and it costs 3 times more than the Indian standard.

❖ Do not opt or agree to S1000D until and unless it is specifically mentioned in your scope/SOTR document.

❖ S1000D is a complex version, and even the end users also do not know anything about S1000d.

❖ S1000D needs CSDB studio and it is very costly, maybe in crores.

❖ S1000D is XML-based, hence few vendors are just giving XML-based S1000d IETMs. A lot of complexity is involved in the S1000D, Don't get into that as no one knows what the original S1000D looked like.

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?

We are OEMs and serving Indian navy. Our client wants us to deliver IETM along with the Machinery/System/Vehicle/Equipment. What inputs should I take from my client? We have no knowledge about IETM. We are supplying all the manuals in PDF format and hard copies. Why navy needs IETM?

❖ From 2018, all Defense/Navy/Air Force clients are asking for IETM along with other training Aids such as CBT, Video Film, Charts and Boards, and Technical literature Hardcopies.

❖ Based on the complexity of your Machinery/System/Vehicle/Equipment, you will need to provide different types of manuals as deliverables. (User handbook, Design specifications, Technical manuals, and Illustrated spare parts list)

❖ Manufacture recommended list of spares, DIM, SMT & STE, ISG, MS, PRS, Inventory, Deployment manuals, Combat manuals, Operating manuals, Maintenance manuals and many more as per your system. The count of all together may range from 5000 to 25,000 for big systems.

❖ If the user has to refer to a topic, then she/he has to refer to all 10-15 manuals hard copies or soft copies (PDFs) separately. It's a time-consuming and troublesome process and also not completely resourceful.

❖ For example, if a user wants to search for some particular LRU (line replaceable unit) then he has to open each and every PDF and search for the LRU. He will get many results and it will be hard to refer to all the 16 PDFs at a time. Sometimes, he may have to refer to 2-4 manuals together for a solution. In this case, a traditional PDF file or Hard copy will have many limitations.

❖ To overcome the limitations, IETMs are designed.

❖ IETM basically combines all these manuals and creates interactivity between all the manuals and drawings etc. That's the reason it's called the Interactive Electronic Training Manual.

❖ In IETM, all the manuals and drawings, images, and videos will interact with each other through hyperlinks, hot spots cross-references etc. Thus, searching for topics is made possible in a single click with 100% efficient results.

❖ Ask your client whether they want IETM Level 3 or Level 4. And count how many pages of text they have.

❖ Price varies based on the number of pages and the Level of IETM. Level 3 is less expensive than Level 4

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?

What is the deliverable format of IETM manual? PDF or HTML or DOC?

❖ Though the name reads Electronic Training Manual, it is not a single file or Manual. IETM is a software package.

❖ A software where all the pages of manuals are converted and embedded in IETM framework or IETM software.

❖ IETM is a software where all your manuals sit.

?

I want exploded view of our machine in IETM.

❖ If you have any Videos or Images already made, then we will put exploded views in IETM. The IETM vendor's responsibility is to embed all inputs provided by OEM into the IETM framework.

❖ The IETM scope does not cover the designing of Charts, Blowups, Exploded Views, Animations etc.

❖ If you want exploded views, then that will be taken as a content development activity.

?

What inputs you need to make IETM?

❖ May it be IETM level -3 or LEVEL -4, we need all the manuals which are to be converted (either into PDF or Word format), all the images (JPEG, PNG, TIF) and all the CAD drawings converted in PDFs and Videos that are to be embedded into IETM.

❖ We need table of content/content classification done by your subject matter experts.

❖ We also need your subject matter expert's help in connecting documents and also giving hyperlinks, related topics, glossary etc.

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How many days will it take to develop IETM?

❖ It depends on the number of pages to be converted. We have done almost 50 IETMs of various levels. As per our experience to make Level 3 IETM having 5000 pages, it takes around 30 days.

❖ For documents 10,000 to 20,000 it takes around 90 – 120   days.

❖ Major hindrance that we face is the availability of final documents from OEM.

❖ We had this experience several times that OEMs have to collect documents from many sources and a number of versions are available for each document. OEMs usually focus on actual equipment but not on documentation of equipment. Collecting final approved files from OEM is the biggest challenge in IETM development. If all the final approved documents are in place, it takes standard time as mentioned above.

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What will be our /OEM role?

❖ You need to nominate a person as a Point of Contact from your end. Our technical team will be in constant touch with the POC to take approval on UI and UX (User interface and user experience), i.e. the logos to be used, color formats, table of content finalizing and cross checking of IETM etc.

?

My client wanted IETM in DVD.

❖ Probably, your client must be looking for IETM level -3. IETM level -3 only can be played from CD/DVD player. IETM -4 requires installation as it uses a Database.

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?

When do we need IETM -3 and IETM -4?

❖ It depends on your client's requirements. General practice is, IETM level 3 is used when documents are less, i.e. below 2000. When documents are more, IETM -4 is required.

❖ Having said that, we have also done 2000 Pages of IETM Level 4 and 6000 pages of Level 3.

❖ It completely depends on the Client. If your system is small, you can convince them to go for IETM level -3

❖ Cost wise, Level 3 is economic than Level 4

?

I find very few IETM vendors and how different are you from others?

❖ We are the only company in Hyderabad having experience of delivering 30 + IETMs in past 5 years.

❖ We worked closely In associated with all the Defense Labs and we are fully aware of their requirements as almost 30 IETMs are being used by various Army or Naval, Air Force headquarters and training centers and Army Air Defense Colleges etc.

❖ You ask for Purchase Orders from other vendors. Majority of vendors don't have POs from clients.

❖ Many vendors don't have IETM software with them to showcase demos.

❖ We are available any day to give a demonstration on IETM level 3 or 4

❖ IETM is a combination of software and data conversion. We have the strength of 50 + software and content development professionals and we guarantee delivery date as we have experienced resources having dealt with 30 project life cycles.

❖ We have a strong R&D team, which exclusively works on improving software as per the latest technologies. The majority.
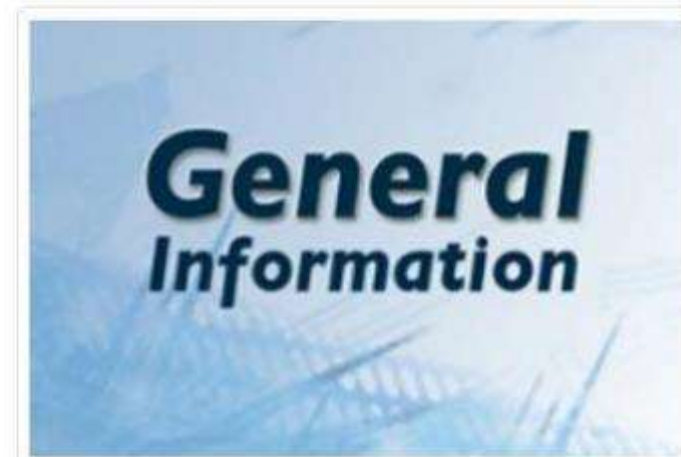
GENERAL INFORMATION

OVERVIEW OF RADAR

TROUBLE SHOOTING

RADAR BASICS

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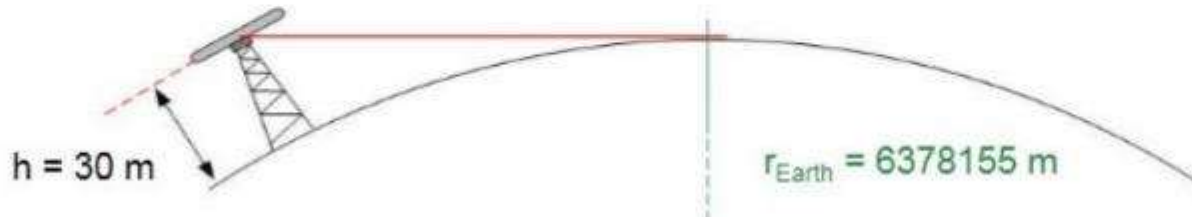
Radar Basics

IETM Content | Manuals | Drawings | Glossary | Inventory | Logs | Bookmarks

Find by Text

Radar Basics

- Basics 1
- Basics 2
- Basics 3
- Basics 4
  - Horizons
    - Geometric Horizon
    - Radar Horizon
    - Geometric Horizon and Radar Horizon
    - Dead Zone and beyond the Horizon
  - Range
  - Slant Range
  - Atmosphere
  - Anomalous Propagation
  - Reflections
  - Simulation Software
- References

Geometric horizon

h = 30 m

r_{Earth} = 6378155 m

$Horizon_{geometric} = (2 \times h \times r_{Earth})^{0.5}$ [m]

$Horizon_{geometric} = (2 \times 30 \times 6378155)^{0.5}$

$Horizon_{geometric} = 19.56$ km / 10.56 NM

or...

$Horizon_{geometric} = 3.57 \times h^{0.5}$ [km]

$Horizon_{geometric} = 1.93 \times h^{0.5}$ [NM]

Knowing the height of the antenna and the radius of the earth, it is possible to calculate the geometric horizon, which is a straight line from the antenna to where the line hit the curvature of the earth.

The squareroot of (2 x antenna height x radius of the earth) gives a horizon of 19.56 km (10.56 NM). The equatorial radius is used – using the polar radius (6356.8 km) the horizon is 40 m shorter which is more or less the same.

As a radar beam bends towards the earth when it enters the atmosphere, the horizon is increased and therefore it is necessary to distinguish between a geometric horizon and a radar horizon

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View User Activity

| From Date: | 01-Jun-2021 | To Date: | 11-Jun-2021 | ✓ | | ▼ All |

Show 10 entries

Find: By: Page Name, User

#	User with Employee ID	Activity	Created Date
1	**Name:** gk **Employee ID:** (120)	**Action:** Document was accessed. **Page Title:** Geometric Horizon	Jun 11th 2021, 02:30 pm
2	**Name:** gk **Employee ID:** (120)	**Action:** Document was accessed. **Page Title:** Basics 1	Jun 11th 2021, 02:29 pm
3	**Name:** gk **Employee ID:** (120)	**Action:** Inventory item 'Bhargav' was consumed. **Quantity:** 5 **Remarks:** bhtg	Jun 11th 2021, 10:32 am
4	**Name:** gk **Employee ID:** (120)	**Action:** Document was accessed. **Page Title:** Warning and Safety	Jun 11th 2021, 10:32 am
5	**Name:** gk **Employee ID:** (120)	**Action:** Inventory item 'Bhargav' was consumed. **Quantity:** 3 **Remarks:** bh	Jun 11th 2021, 10:31 am
6	**Name:** gk **Employee ID:** (120)	**Action:** Document was accessed. **Page Title:** Warning and Safety	Jun 11th 2021, 10:31 am
7	**Name:** gk **Employee ID:** (120)	**Action:** Document was accessed. **Page Title:** PD, PFA, S/N ratio	Jun 11th 2021, 10:29 am
	Name: gk	**Action:** Document was accessed	

Showing 1 to 10 of 104 entries

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Manage Annotations

🗑 ▼ All ▼

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Find: By: Title , Description
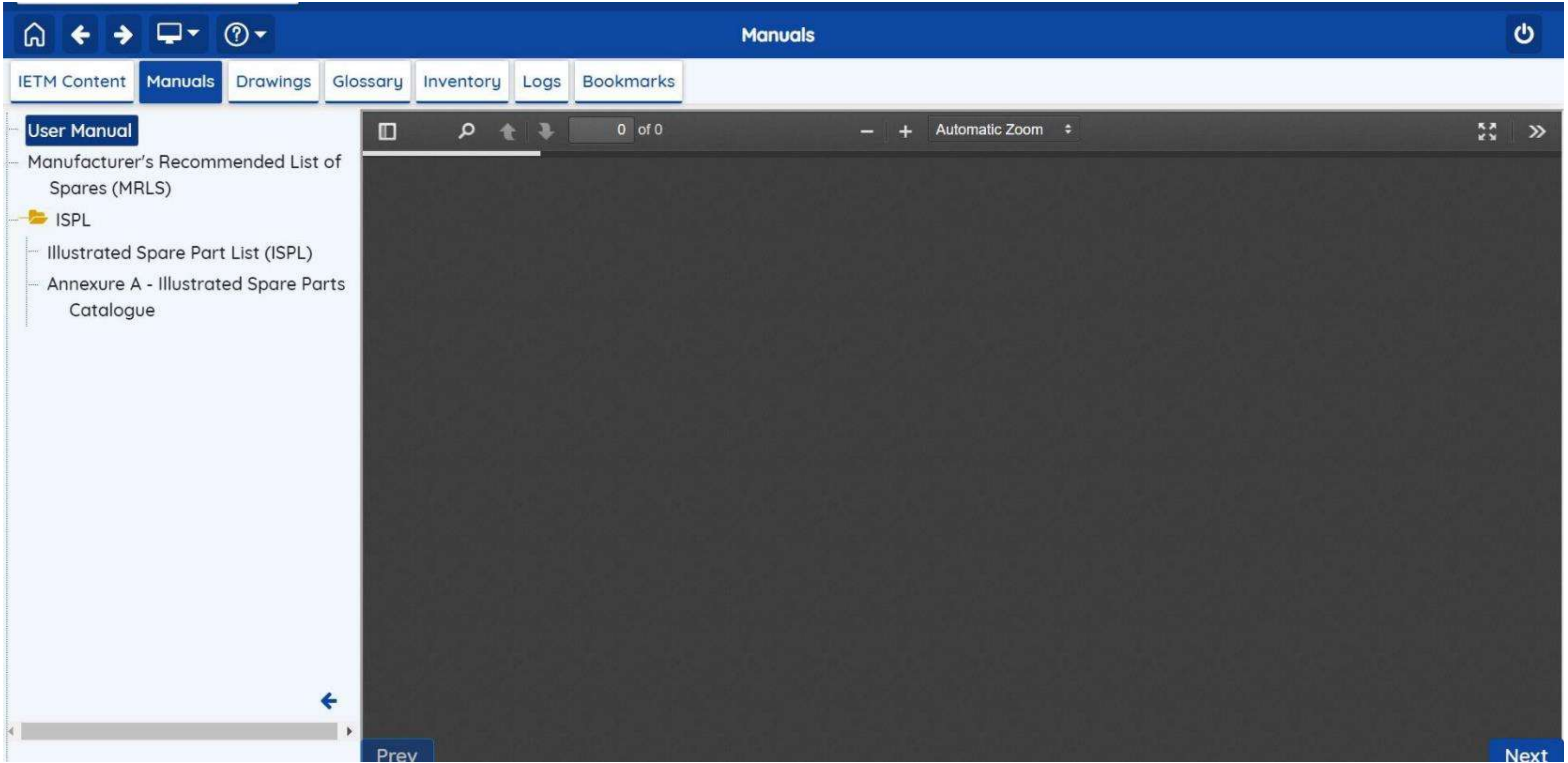
Sr. No	Annotated Text	Description	Annotation Type	User	Date & Time
1	range	distance	Notes	user1	Jun 11th 2021, 12:08 pm
2	Target resolution-range	deneme	Notes	Lutfu_Ozcakir	Jun 9th 2021, 05:04 pm
3	damage	aaabbb	Notes	surya_teja_op	Jun 9th 2021, 03:30 pm
4	power	qqew	Notes	user1	Jun 7th 2021, 08:09 pm
5	Only personnel qualified to work with radar antenna installations and qualified to work at heights are allowed to install and per for m service on antenna systems.	wrong dic by bhargav--note	Notes	bhargav	Jun 7th 2021, 12:34 pm
6 ☐	quantities	FB to admin	Feedback to Administrator	gk	May 27th 2021, 11:11 am
7 ☐	RCS	to admin	Feedback to Administrator	gk	May 18th 2021, 05:06 pm

Showing 1 to 7 of 7 entries

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Manuals

IETM Content | Manuals | Drawings | Glossary | Inventory | Logs | Bookmarks

User Manual

Manufacturer's Recommended List of Spares (MRLS)

ISPL

Illustrated Spare Part List (ISPL)

Annexure A - Illustrated Spare Parts Catalogue

0 of 0   Automatic Zoom

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Next

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- ❖ **User Handbook (UHB)**
- ❖ **Design Specification (DS)**
- ❖ **Technical Manuals (TM)**
- ❖ **Illustrated Spare Parts List (ISPL)**
- ❖ **Manufactured Recommended List of Spars (MRLS)**
- ❖ **Diagnostics and Installation (DIM)**
- ❖ **Special Maintenance Tool & SPL Test EQPT (SMT & STE)**
- ❖ **Initial Stocking Guide (ISG)**
- ❖ **Maintenance Scale (MS)**
- ❖ **Permissive Repair Schedule (PRS)**
- ❖ **Inventory**
- ❖ **OEM Manuals**
- ❖ **Operating Manuals**
- ❖ **Combat Manuals**
- ❖ **Deployment manuals**
- ❖ **Air Transportation Manuals**

User Handbook

Technical Manuals Part

Illustrated Spare Parts List (ISPL)

Manufactured Recommended List of Spars (MRLS)

Diagnostics and Installation (DIM)

Initial Stocking Guide (ISG)

Special Maintenance Tool & SPL Test EQPT (SMT & STE)

Maintenance Scale (MS)

Permissive Repair Schedule (PRS)

Want to see the IETM software?

Until you see the software, you will not be able to understand it fully. Hence, we strongly recommend you have a virtual meeting for 15 minutes so that you will have a fair idea about the IETM software.

Write an email to *ietm@codeandpixels.net* or call 9849527706 to fix up the quick demo on IETM.

We are Just
a Call away

1 call AWAY

Thank You

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