this issue

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Editorial Column

I spoke to a few friends, distant relations, immediate family members recently. All of them had a common thread – having the "me time/ our time" and utilizing it effectively. Many of them are revisiting hobbies of their childhood, a few are upskilling, and few others are venturing into uknown territories. One of unknown territories is cooking; I know a lot of gentlemen who are pursuing this very diligently, they have burnt the dishes and their fingers too but, are not giving up. They asked me to call them a month later to talk about their progress in this activity.

Families with school going children, are pulling out their stock of childhood games (indoor) and in the process refreshing their memories with nostalgic anecdotes. Families far flung are not sitting idle either, they are using technology to connect with each other and spending quality time. The lockdown has given tremendous opportunities, be it personal or professional, the onus lies with us to grab these opportunities and convert them to tangible results.

Here is something interesting for folks who would love to catch up on the reading,

https://www.pdfdrive.com/technical-writing-books.html

Have fun with family, and stay safe.

Learning & Improving Domain Knowledge
Editors' Musings

It is always overwhelming, daunting to learn something very new and which is not in the comfort zone. It is oftentimes very difficult, uncomfortable, and challenging while working in a new domain. Anxiety builds up when we see the road ahead filled with potholes and is not the smooth ride that we envisaged. It is overwhelming initially but, gradually it becomes easier as you start following, what we call, a strict "Knowledge Acquisition Plan" (KAP).

Is domain knowledge important? Will it help to know a domain to write effectively?

Yes, it helps to know a domain, especially the terms and terminologies, concepts, aspects of various functionality.

What are the stages of learning a domain?

1. Creating a KAP
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation

Comprehension includes research, application is learning and implementation.

There are a few proven ways to learn and improve domain knowledge, we are jotting them down here, it is not restricted to this list, we can add if a new best practice is available.

1. Research a domain – do compilation of content and a lot of data mining
2. Talk to SMEs – domain specific SMEs help a lot in understanding the domain, ask relevant questions
3. Maintain a knowledge repository of all that has been researched in an organized folder structure, we call this as the "knowledge book"

The knowledge book helps in tracing the learning curve and also as a reference database.
4. The other way to traverse a learning path is mind mapping
5. Identify a mentor who will help with the initial phase and can be very useful during the handholding stage
6. Join a professional course or training to gain domain knowledge
7. Join a professional body or forum and participate in discussions, ask questions to seek answers at this stage of learning
8. Finally, after all that learning, gain an industry certification to sustain and cement your expertise in the domain.

The key is to continually seek knowledge of a domain. But, a word of caution – don't just dump the website links, notes, concepts, etc in the knowledge book database. Organizing and maintaining a structure will help you to pick and choose the topics of interest. Avoid information overload. The research phase, is thus, an important point to start the journey.

Understand the domain from the customer's point of view, no assumptions, check the facts.

Analyze the industry, the market share, the stakeholders, the players, the users, and the value chain. It will help to understand the ground level to come up with suggestions and innovations while working.

A good mentor is one who will not spoon feed but, will give directions to gain the know how of learning. Search for a mentor who will help you in bursts and guide you towards the learning goal.

It is not difficult to learn a domain, sometimes it is not required but, certain niche domains do require extra effort and time. The systematic approach to learning will help in the domain immersion process.

Author Profile

Dominic Edison has 15 years of technical writing experience in the field of software products, software services, and in engineering OEMs.

He is involved in developing service documentation for complex technology-based products like wind turbines. He has also been providing oversight and supervision to a team of technical writers, and coordinates assignment of documents and monitor the progress of the team against deadlines.

He demonstrates ability to successfully apply complex knowledge of fundamental concepts and practices and procedures of technical writing.

Dominic Edison is also a trained Yoga practitioner and holds a post graduate diploma in yoga.

WRITE FOR WIND

Dominic Edison, Lead technical writer, Vestas technology, Chennai

Communities and businesses are grounded, they are expected to be down until the 'curve flattens', and the threats posed by COVID-19 moves away. In such critical times, a new research shows that the regions with the greatest pollution levels are the ones most at risk for respiratory diseases and thus, succumbing to the current virus.

Hence, *poisoning our environment means poisoning our own body ...*

Other studies indicate that continued investment in Renewable Energy like the Wind Energy reaps a positive return — one that benefits both the economy and the environment. Growth of Renewable Energy is enormous and Wind Energy proves to be the most effective solution to the problem of greenhouse gas emission, environmental pollution etc.

The Wind industry – an overview

The term Windmill that typically refers to the conversion of Wind energy into power, is used to describe a Wind turbine. But, in the industry, the term Wind turbine is widely used as a mainstream reference to renewable energy. The Wind power industry is involved with the design, manufacture, construction, and maintenance of Wind turbines.

Building a Wind farm (an area where several Wind turbines are installed) is a big project that requires teams of specialists, design engineers and technical writers to handle many aspects from conception and planning, to implementation. Wind turbine installation requires multi-discipline engineering expertise, along with a working knowledge of heavy machines, logistics and project management capabilities. Today's Wind turbines are much more complicated machines. They are installed with advanced software and control systems that can closely monitor the performance of the turbine and provide real time data. To simplify various complexities, technical documentation plays a key role throughout the value chain of building a Wind turbine.

Wind Turbine installed on a runway

Wind Turbine in the sea

Role of technical writers in the Wind industry

A typical Wind turbine approximately comprises of 8,000 parts that have to be transported to their final installation site. Turbine components are being delivered and assembled in remote places including high-altitude locations like the rocky mountains, and in deep waters where the turbines are also installed in the sea (Offshore Wind turbine). For every step in the process of building a Wind turbine, documentation plays a critical role for a smooth flow of a complex process. Any kind of repair or maintenance activity in the Wind turbines cannot be performed without proper documentation.

Technical writers in the Wind industry create and update various documents that is needed for the complete life cycle of a Wind turbine. The required documentation may include information relating to the following manual types.

- Transportation & construction
- Installation
- Commissioning
- Operating the turbine
- Repair and replacement
- Inspection and maintenance
- Service manuals

The users of these documents are well trained and experienced service technicians, who are involved in activities related to the installation and maintenance of a Wind turbine. The standards, guidelines and procedures outlined in the technical documents, ensures that the people who build, service and maintain the Wind turbines, not only perform their task efficiently but also work in a safe and informed environment.

Usage of International Writing Specifications

Many end-users of documentation in this industry are confused by complex sentence structures, and with the different meanings of some English words . Injuries, losses and expensive legal liabilities can occur as a result of unclear documentation and ambiguous translations. To overcome these gaps, the documentation teams implement international specification for writing standards.

Use of ASD Simplified Technical English (ASD-STE100)

ASD Simplified Technical English (ASD-STE100) is an international specification for writing standard that is characterized by a defined grammar and syntax rules, and a limited vocabulary.

This specification is widely used in the Wind industry for writing all service documents in a controlled language. ASD-STE100 helps technical writers with accurate and efficient documentation.

STE also helps to make technical documentation easy to understand by standardizing the vocabulary, grammar and style, while letting users control their terminology specific to their industry.

Using guidelines from the ASD-STE100 specification, writers and editors can take document clarity and consistency to the next level. Content written in STE shows improved readability and consistent translation.

Use of HyperSTE

HyperSTE is a language check software that ensures compliance with ASD-STE100. HyperSTE ensures governance of content and helps to create content that is Clear, Consistent and Concise.

HyperSTE is normally integrated into the authoring software tool and checks the content based on rules for terminology, spelling, grammar, length, style and structure.

As a plugin to the technical writing software, HyperSTE assists the technical writer in creating content that is more suitable for a global audience. HyperSTE also allows the writer to create extensive reports to get metrics on quality and improvement areas. It also has a sentence memory, which makes it possible for technical writers and subject matter experts to reuse each other's compliant sentences, which will save additional editing time and translation costs.

The benefits that we get by such standards should not be overlooked, as products and their accompanying documentation are increasingly shipped to many countries worldwide where English is not the native language.

Conclusion

The world is in the midst of transition from an unsustainable energy path to a renewable energy path.

Wind power is one of the fastest-growing renewable energy technologies. With the advancement of technology, Wind turbines are also increasingly redefined into complex machines.

The Wind turbine as a product cannot stand-alone, without ably supported by documentation at different stages throughout the life time of the product.

The Wind industry is constantly emerging and are in look out for Technical Writers who have excellent writing skills and a good acumen for technology.

The Wind industry is here to stay and grow…as long as the sun shines, the Wind will blow.

Interesting tools

If you have come across any tool, open source or paid, which can make our life easy, please do send us an article on the tool, along with an author profile, to indus@stc-india.org

Author Profile

Tharoor Gopalkrishna is an industry veteran with 27 years of experience out of which 10 years have been in Technical Writing. Currently he works for Scientific Games India Pvt. Ltd in capacity of Sr. Lead Technical Writer. In his current role since 2017, he works as an editor.

He is a sought after speaker who articulates concepts with an ease of understanding for the learner. He is very famous for his very dry sense of humor!! His passion for teaching, knowledge transfer is legendary.

BFSI (Banking, Financial Services, and Insurance) Domain

Gopalkrishna Tharoor

Who doesn't use the plastic card for withdrawal of money or for shopping?!! In today's digital world, the footfall to the banks or financial institutions has reduced, but, the behind the scenes work in the banking system has increased tenfold to create a seamless customer experience. This article's aim is to trace the path of the BFSI domain in India and also create awareness of this vast domain. It is the oldest software domain that has seen two decades of existence. As soon as the Y2K issue was resolved, the banking domain projects were the forerunner to providing sustenance to the software industry in India. Most of the technical writers of the 90s started their career in this domain. There were big teams of writers, instructional designers, graphic specialists to complete huge projects. Many teams were revenue generating teams of that era and were kept busy with the 'technical' written word.

Most of the banking domain modules commenced with Loans. Student loans were a specialization with the increase in loan application for completing education. Mortgages were added on and soon the banking domain saw two new divisions getting carved out - Personal banking and Corporate banking. The loan division further expanded into almost all areas of personal loans, and home loans.

The growing need for a credit segment resulted in a credit card division that became a huge revenue division with its fleecing interest rates. Plastic soon replaced money and everyone had cards beyond their credit-worthiness. Two of the famous international banks had their captive software units established here in India. They provided the impetus for more international banks to make India their base and flourish.

The year 2003 onwards, the Indian banking system decided to get more organized with commercial off the shelf products (COTS). The banking industry and the stock exchange benefitted immensely from these products.*

In 2008, Indian software companies realized the true potential of Islamic banking (since 1979) and started focussing their attention towards the OPEC region. Some of them have made themselves truly Sharia principle compliant and now their growth is word of mouth oriented.

The Banking domain has grown by leaps and bounds to the extent of which today we have specialized segments of banks. Today, software applications are created both for the front-end and back-end of the banking system. Loans -> Credit Cards -> Derivatives -> Brokerage -> Corporate Banking-> Retail Banking -> Financial Services – Insurance (BFSI) are some of the major banking development projects that are undertaken by the Offshore Development Centres. The BFSI segment has been the forerunner and continues to be the key revenue generator for software development organizations.

 The BFSI domain can be broadly classified as follows and writers in this domain write on most of them in their tenure.

Core Banking	SWIFT & Remittance
Forex management & Treasury	
Islamic Banking	Financial Inclusion & Payments
Corporate & Retail Banking	Securities & Brokerage services
Wealth Management & Investment Banking	Branchless Banking or Banking Virtual
Micro Finance	Data Archival & Repository
Credit Appraisal & Loans	Distributed off-line Banking
	Infrastructure Management Services
Cards Management	
ATM, POS, Switch	Insurance (Living & Non-Living; General insurance, Health insurance etc)

Technical writers who aspire to be in BFSI need a basic understanding of the domain. Normally the financial industry welcomes an SME who can write with open arms. "Almost an MBA who can also write".

However technical writers have proved that their innate capability to research, interview experts, and write effectively on any subject, financial, or otherwise is good enough to see a writer through in any industry. Experts suggest that to demonstrate your skills against a writer requirement, you can offer to work one week for free to demonstrate your skills with the new subject matter.

Knowledge of the Sarbanes Oxley Act (SOX) that deals with financial irregularities are a huge plus for BFSI. SOX as it is called by industry insiders requires companies to carefully document their financial processes and be prepared for periodic audits. User documentation and training materials for enterprise software modules, and reports that meet SOX requirements, are generalized examples of financial writing tasks that may be needed at any company. The segment is so complex that a technical writer for Business Proposals quickly scales-up to authoring content on securities and derivatives.

It is to our credit that this has to be on the record.

"The financial writer [may acquire a basic business sense] through formal education, practical experience, or informal study. Knowledge of the stock market is a common foundation; the writer then develops a financial specialty [that] may take any of several forms...Writers keep current in their field by regularly reading industry publications, union newspapers, The New York Times, and The Wall Street Journal. They gather economic information from government offices, public relations agencies, and professional societies associated with their writing specialty."

Conclusion: What is the BFSI domain? Banking has many branches or activities like core banking, cards, investment, retail banking and others. Financial Services include stock broking, mutual funds, etc. And, Insurance has again many branches like general insurance, insurance on property and non-living items or things, health insurance to just name a few. No person is an expert in all but, focusing on the knowledge required for becoming a specialist is the need of the hour.

Domain Expertise Knowledge Base – DEKB

STC India Chapter has announced the **DEKB (pronounced as DECK)**, which is a repository to gather information on domains that the technical communication industry in India and abroad is working on in various regions. It is very difficult to transition to a new domain and the learning curve is very steep if there is no knowledge on a particular domain or vertical. The plan is to have a knowledge base that will be created by the community, for the community. This will help understand the fundamentals of a particular domain, what to learn, how much to learn, and how to be successful in that particular domain. Domains, to name a few, will be BFSI (Banking, Financial, Security, and Insurance), Healthcare, Networking, Aerospace, Emerging technologies like IoT, Robotics, and Manufacturing etc. Two templates will be provided to the global community to submit their contribution to this repository, all the submissions will have the respective author(s) names to acknowledge the contribution to the knowledge base.

Premise: India is predominantly a software hub, thus the technical communicators are used to preparing documents and other outputs based on software. Most of them work in various domains like BFSI (Banking, Financial, Security, and Insurance), Healthcare, Networking, Aerospace, Semi-Conductor technology, TeleCommunications, Cloud based products, Emerging technologies like IoT, Robotics, and Manufacturing etc. If a person joins a service based company or a product based organization, he/she has to work on a domain or multiple domains. Where do they start? This will help them to kick-start the Knowledge Transfer(KT), eliminating the R&D phase. A well equipped employee is an asset to the organization. Since knowledge is in pockets, we are trying to gather this intellectual asset under one umbrella.

The repository will include

1. Concepts
2. Practical applications
3. Situational problems and solutions
4. Videos
5. Demos
6. PowerPoint presentations
7. Templates (that are ready to use or are reference material)

Please write to deck-program@stc-india.org if you are interested in contributing on a domain to the DEKB repository.

Author Profile

Anil Goyal has 27 yrs of wide and rich experience in aviation including military and airline operations.
He is experienced aviator with more than 6000 flight hours on commercial, military jet, transport, and training aircraft of more than 30 types.

He is accomplished Experimental Test Pilot with more than 10 years of experience. He has an exclusive experience as Project Test pilot on Fighter aircraft upgrade and two indigenous prototype development project SARAS and IJT aircraft. He has vast experience on light test techniques to evaluate aircraft performance, stability and control, flying/handling qualities, avionics, certification, and airworthiness.

He has significant experience in Radars, Electro-Optical Sensors, Communication systems, Displays, HOTAS and Controls, Human-machine interface, Navigation system, Datalink system, and Electronic warfare. He assessed and evaluated Simulators and Mission planning and Debrief system designed for fighter aircraft.

He is also a Qualified Flying Instructor with a wide experience of training ab-initio to experienced operational pilots.

He is presently working with SpiceJet Airline as Line Captain.

Flight Manuals and Fighter Pilots

Anil Goyal

PART 1
"Don't wake me up, I am studying", a pilot.

Aircraft Operating Manuals/Flight Crew Operating Manuals/Pilots'Operating Handbook (AOM/FCOM/POH) constitute the primary flight crew reference for the operation of an aircraft under normal, abnormal, and emergency conditions. These publications include aircraft general descriptions, system descriptions, normal and emergency procedures, supplementary techniques, and performance data. Along with the initial training course, the AOM/FCOM constitutes a trainee's first introduction to their new aircraft. This is normally followed by fixed-based or full-flight simulator training and, ultimately, operating the actual aircraft. The manuals are always kept handy for quick reference and are the most referred and quoted documents.

Early in my career, I was told to remember all the specific figures and procedures from these manuals like the back of my hand. The information in manuals kept growing in size and complexity as I kept moving from simple piston engine training aircraft to more complex multi-engine supersonic jet fighter. As the communication technology progressed from fixed landline telephone to simple mobile handest to smartphones, the manuals also kept pace and moved from simple black and white paper documents to colorful documents and then to app-based electronic flight bags.

Like any other young fighter pilot, I never paid much attention to these manuals other than what was required. These manuals were dusted just before the annual visit of AEB or DASI to the squadron. However, things changed when I got selected for the test pilot course where we had to dig up all the required information form these books about aircraft, systems, and their operations. But it took an ugly turn when I was ordered to author them as a subject matter expert while in Russia for a fighter aircraft upgrade project. The boss could read the vehement protests written all across my face. But he was undeterred. And I was left with no choice. As a challenge I took a vow under my breath, to make these documents as creative and interesting as possible. 'Everyone would love to read these manuals and it would be no less than a bestseller', I kept telling myself. This was not the first nor the last time I was absolutely off the mark.

Within the first few minutes of meeting documentation team, I realized how terribly wrong I was. The learning graph was very steep and task challenging. But soon, Rayban in eye socket gave way to reading glasses and crossed hands showing the relative position of two virtual aircraft engaged in combat settled to on the keyboard. I recollected the pros and cons of all the flight manuals I had read since the beginning of my journey as an ab-initio pilot.

How technical writing is unique

Creative writers use a more informal approach, show their personality with their voice, may keep the reader guessing, build suspense, provide enjoyment, have beautiful imagery, examples include poems and fiction, a best-selling novel or biography.

Business writing is much more straight-forward with concise, clear wording. So the more informal shorter letters and emails are one category of business writing, but another category of business writing is business reports. Similarities between business reports in general and technical reports certainly exist. Both have some of the same parts, and both present information and possibly a recommendation to a specific audience. All business reports, including technical ones, need to be direct, straightforward, detailed and have a specific structure. They're generally written in the third person, so the first person I, me, and us, and the second person you and your pronouns are avoided and need to be mechanically correct. All business reports can also tell a story, but the story is not a creative one. It's a critical thinking one.

In the most simplistic terms, the purpose of any technical report is to give technical information to either inform or to persuade the reader. Technical writing has no place for creativity, no concern about a voice, shouldn't include unsupported opinions or editorializing. Think of technical writing as structured, straightforward, clear, concise. So understanding the differences is an important step in learning how to write a technical business report.

Ethical Boundaries

The most simplistic definition of ethics is doing what is right, versus not doing what is wrong. Ethical behavior is important in everything, including technical writing. The main purpose of technical reports is to help the consumer be safe and to use products effectively and confidently. The Society for Technical Writers, a professional association dedicated to the advancement of technical communication, identifies six ethical principles that must be adhered to.

User Needs

Learning is a "linear process" that includes studying and understanding basic systems, normal procedures, abnormal/emergency procedures and, ultimately, specific operational aspects. In contrast, flying is a "contextual process" where the need for information results from a contextual interrogation (e.g. what do I need to know to achieve my goal in the prevailing context ?).

Flight manuals must therefore mirror the users mental model in terms of goals - what to do, when, how, which option to choose to best achieve the goal. The contents of operating manuals must consequently be goal and context-oriented. They must describe the operation of systems and the use of various controls in the operational context where they will be used, going from the mission to the goal, from the goal to the procedure, and from the procedure to the task.

Authoring

Although often authored by non-pilots and non-native-English speakers, AOM's / FCOM's must be written for pilots, from a pilot's perspective, and in pilot's terms/words. Authoring operating manuals requires considering all aspects of the users, including their profile, mental model, expectations, and behaviour. In other words, this implies defining what the reader needs, the way the reader needs it, and where the reader expects to find it in the publication.

The contents and presentation of operating manuals must meet the respective needs of different users (e.g. trainees, line pilots transitioning to a new aircraft, instructors, and check airmen).

The background and profile of these users differ in terms of technical/academic background, flying experience, and experience in previous types of aircraft. A modern aircraft are complex - reflecting the complexity of today's operating environment - the challenge of the operating manuals is to present this complexity in simple terms and supporting illustrations.

As a consequence, the description of systems and the description of procedures should establish bridges between systems descriptions and procedures.

Having understood the purpose of the flight manuals, in the second and concluding part I will bring out the best practices in my opinion, the problems I faced and lessons learnt while authoring flight manuals.

PART 2

In the first part we saw the differences between creative writing and technical writing. We also looked at the purpose and importance of flight manuals. In this second and concluding part I will bring out the best practices, the problems I faced and lessons learnt while authoring flight manuals.

Best Practices.

Flight manuals must be externally compatible with regulations, equipment manufacturers' requirements (OEMs), and human factors principles and should be internally consistent with the other documents like maintenance and training documents. A big part of flight manuals covers procedures, but those procedures should be developed in concert with an operator's philosophy and policies.

The philosophy, policies and operational environment should then be used to guide the tailoring of procedures to make them both operationally relevant and beneficial to flight crews.

- Procedures should be specific, concise, and unambiguous.
- Time critical procedures in flight are of primary importance.
- The flight manuals and procedures should be reviewed and tested by the user under real-time conditions on the flight deck or in a simulator.
- The procedures affect the degree of crew compliance and overall crew performance.
- Guide flight crew with automation procedure so that mission is accomplished along with desired safety.

Specify the document structure at its beginning by explaining organizing elements such as headings, main parts of the document, numbering scheme and other sources of coding or grouping. Use a clear heading system to help users access the needed information and navigate through the document. Placement on page, indenting, numbering schemes, upper vs. lower case letters, font style, color, or size all may be used to show the heading hierarchy, which should be applied consistently. Sequence information based on the following three criteria:

1) Critical information should be placed early and prominently,
2) Actions should be sequenced chronologically,
3) Items should be sequenced alphabetically, by quality or by quantity.

Lessons Learnt.

As an operator, the Project team defined high level primary and secondary roles of the military aircraft. We developed mission profiles and objectives; stating how the operation will be conducted. We were able to highlight the unique and most positive aspects of the mission along with safety policies. It is the philosophy, policies, operational environment and user needs that ultimately shaped procedures and the organization of operating documents. It helped us modify specific manufacturer-supplied procedures to conform with policy. High-level philosophy of design and logic were highlighted in the flight manuals along with most positive aspects to facilitate HOTAS concept and HMI.

During aircraft upgrade, a lot of new systems were added/replaced which ensued enhanced or additional operational capabilities. Original equipment manufacturers provided the required information for the operation. It was our task to take that information and make sure that it was integrated with the rest of the documents to meet operational requirements.

We also standardize the documentation and procedures with other military aircraft especially of Russian origin operated by the Indian Air Force. Standardizing procedures and flows considerably reduce flight crew training costs and the interoperability of aircraft. It also facilitates easy communication and learning across the fleet.

Economical and precise use of language is essential. Terms must be clear and commonly understood by the flight crew and technicians. It was our aim to ensure standard writing style, terminology, use of graphics, and formatting across documents. We were concurrently working on 7 Volumes of flight manuals that comprised of more than ten thousand pages. A large number of translators were working on the project, and consistency in translation was our biggest worry.

The list of abbreviations and ICAO terminology was agreed and finalized. However, the use of similar terms was still a possibility, for example, the terms "throttles" and "thrust levers"; "landing gear" and "undercarriage" refer to the same item. It took a while for the team to choose one term and use it consistently throughout the document. We also insisted that checklists should be consistent with the labeling on the switches and controls on the flight deck.

Flight manuals for military aircraft are driven by operational constraints and are further shaped by the large amount of information that is put in them. It was not practical to place all required information in one document hence grouping criteria were used based on roles for which aircraft was designed and the importance of information. The manuals were divided under the following groups

- Time Critical - e.g QRH, checklist and emergency procedures
- Mission Critical - As per the high-level role and missions defined by Indian Air Force
- Must know - affects the level of safety or delays the operations
- Should know and Could know.

Checklists are critical and most frequently used information on any aircraft. Onboard a fighter aircraft all checks are carried out from memory. Special care was taken in designing them with the use of mnemonics, common geographic organization (left to right or top to bottom) for ease of remembering, and keeping them short and sweet. Most critical items of the checklist were listed as close as possible to the beginning of the checklist to reduce the likelihood of their interruption. These precautions obviated the likelihood of error, reduced workload, and more efficient use of time. Thus enhancing time management and efficiency. Procedures were designed after careful task analysis to enhance the effectiveness and efficiency of the crew operation. Task analysis considered crew limitations, workload, and system human-machine interface (HMI). Keeping in mind single occupancy, multi-tasking involved, it was a challenge to develop procedures with adequate feedback that was not too complex or too tightly linked to success. For example- Airborne interception radar and electro-optical sensors could be employed simultaneously in different roles for targetting. This was a complex task that could be carried out with proficiency because HMI philosophy and automation logic were adequately conveyed to the flight crew.

Flight deck automation has a range of effects on the system of procedures, some not fully understood. In general, automation leads to the reduction of the overall number of procedures by eliminating some of the actions required by flight crews, but automation may obscure some actions and complicate some decisions. As covered earlier a systematic approach was followed to convey automation philosophy to flight crews. The default selection of various navigation tasks and combat tasks were defined to reduce pilot workload and ease operation while enhancing mission accomplishment. For example, when selecting air to air mode, AI radar was default sensor with pre-defined search volume. Close combat mode was topmost mode and it switched cyclically between different sensors with HOTAS. Planning and review of manuals is a continuous process and must be carried out at each stage whenever new information is available or new procedure is designed. For procedures and checklists, when the operator has deviated significantly from the manufacturer's recommendations, the procedure should be validated in a flight simulator. Repeated validation may be required to exercise all relevant operational scenarios (for example, SEAD mission at low-level by night or engine fire immediately after takeoff), and to exercise all possible decision alternatives in a procedure or checklist. Normal procedures and checklists should additionally be validated. This was of great value and importance.

Conclusion - The flight manuals should be:

1) Pilot oriented
2) Easy and practical to access and use
3) Easy to understand
4) Accurate and dependable
5) Self-contained and self-sufficient
6) Stable (avoiding too frequent changes, unless they are considered critical)

Identify the domains from these pictures and send your entries to indus@stc-india.org **with the subject line as** Competition-INDUS-Domains
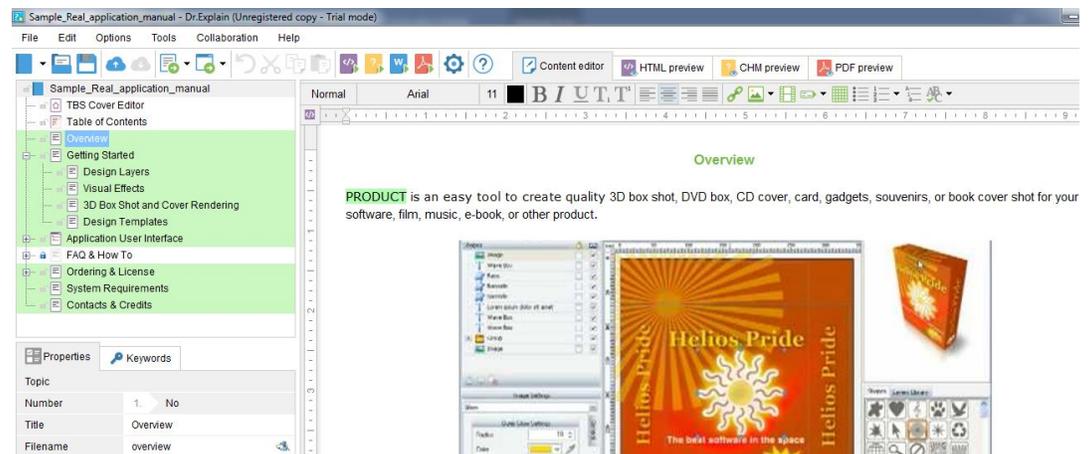
Featured Tool – Dr. Explain

Dr. Explain is a help authoring software to create "single source" documents like help files, printed documentation and on-line manuals in four output formats. The output formats are .CHM, .PDF, .RTF, and .HTML. It is available in nine languages. You can visit their website, https://www.drexplain.com/ for demos&samples, pricing, support, and further details.

Its basic is free for use for lifetime but, the caveat is that it will always have the Dr. Explain watermark in the output.

The uniqueness of its functionality or USP lies in its intuitive capturing feature. According to the official website of Dr. Explain, "it captures application screens or web pages and documents them automatically."

"Dr.Explain is based on a unique interface analysis and screen capture system. Thanks to this system, Dr.Explain can automatically analyze an application's user interface, take screenshots of all controls and elements, and then add explanatory callouts to all images in the draft help system. After that, all one needs to do is add descriptions to the callouts, and save the result in the HTML, CHM, RTF, or PDF format."
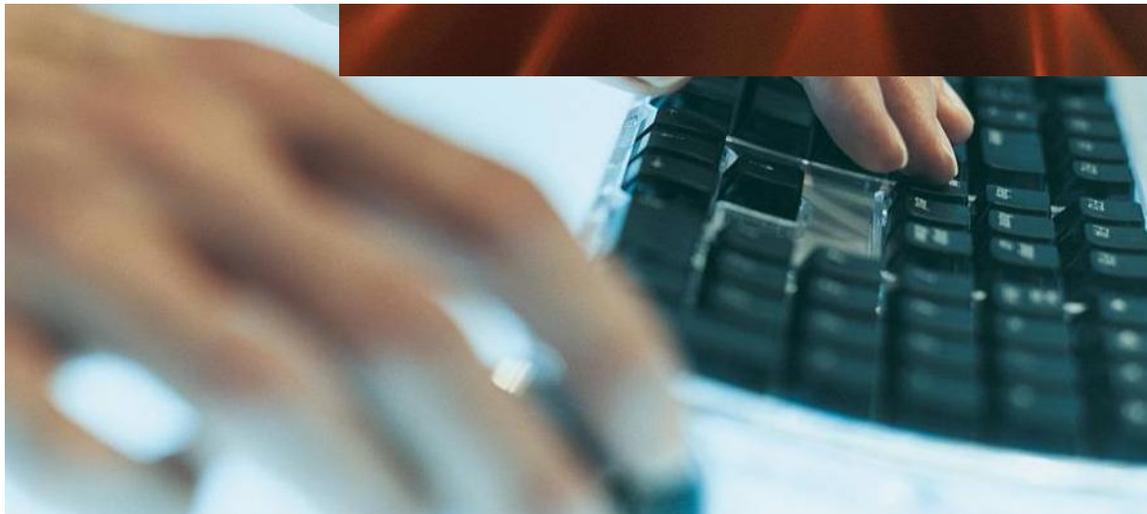
Some useful links

Dr.Explain features overview

https://www.drexplain.com/software-documentation-tool/

Live Demos

https://www.drexplain.com/live_demo/

Tools – Tips and Tricks – MS-Excel

Same content in multiple cells in just a few clicks

Click the cells randomly either by holding the Ctrl key and click each cell. Type the content in the last cell, then press Ctrl+Enter – the content typed in the last cell reflects in each cell previously selected.

Creating macros – an example

1. Select a cell
2. Click View→Macros (use the drop down to select the record option)
3. Record macro→Enter macro name as macro-days and keyboard short cut as Ctrl + d
4. Store macro option is Personal Macro Book, click OK
5. Drop down the macro menu again and select the Relative References option
6. In the cell, type Monday and drag the handle (vertically) for the seven days of the week.
7. Right click and select Formal cells.
8. Click alignment tab, select the horizontal and vertical alignment as Center and Orientation as 90 degrees
9. Click the font tab, and select bold and font size as 14
10. Click the border tab, and select all borders. Click OK.
11. Drop down the macro menu and **stop recording**
12. Click on an empty cell and press Ctrl + d

Transpose cells

1. We continue with the previous example. Select the cells with the days and copy.
2. Click on an empty cell.
3. Drop down the Paste option and select Paste Special.
4. Check the Transpose box. Click OK.

Creating Barcodes in MS-Excel

1. Download the barcode font from this website, https://www.idautomation.com/free-barcode-products/code39-font/#Download_Free_Barcode_Font (Code39 is recognized by most of the barcode scanners and it is a standard).
2. Extract the files from the zip file to a folder and run the .exe file. The font file is installed in the C:\ProgramFiles, open this folder in a separate windows explorer.
3. Open a windows explorer, go to C:\Windows\Fonts folder. Drag the font (True Type) from the previous step to this folder and drop it. Now, this font is available across applications.
4. Open a Workbook in Excel. Type alphanumeric text in a few cells.
5. Select all the cells and apply the barcode font from the font list.

Absolute reference in cells

Default referencing in cells is relative reference, i.e. when a formula is copied from one cell to multiple cells, it takes the relative reference concept. For example, =A4+C4 will be =A5+C5 in the next cell and so on. Sometimes, a value is contant in a formula and has to be used across many cells, this value is entered in a cell and referenced absolutely by freezing the row and column using the $ symbol, example - H10 (the cell content is say 3.14) and used as =A8*H10. When the formula is copied to cells, the H10 remains constant and is referenced absolutely and the rest of it is referenced relatively.

Quick Tips & Tricks

CTRL+Tab toggles between two open workbooks

CTRL+PgUp or CTRL+PgDn toggles the worksheets in a workbook

Double click the Format Painter and use it as many times as you want, when done, press the ESC key. Works in Excel 2007 and higher versions.

ALT+ inserts the sum formula in a cell as =SUM()

CTRL+1 opens the Format Cells dialog box

CTRL+T converts a range of cells to an Excel Table Format. Select the cells and then use CTRL+T to convert to a table format.

ALT+H+O+I auto fits the column width to the content entered.

CTRL + ` (the symbol below the tilde ~) displays formulas in the cells in a worksheet.

Drawing Multiple shapes
1. Click the Insert tab, drop the shapes box
2. Place the mouse on a shape format, right click, select the Lock Drawing Mode
3. Insert as many shapes as necessary
4. Click the ESC key once done

CTRL+W closes the last workbook but does not close the Excel application. You can use it multiple times to close all the open workbooks.

Select an empty cell, press the ALT key to display the shortcut keys across the application.