Improving CMS Knowledge Management

This note describes specific actions to improve the CMS Web and document management systems, in view of the recent transition from the era of detector construction and commissioning to a new era of operations and data analysis. These actions are consistent with the approved CMS Communications Plan[1].

Strategic Goal 1: Secure the existing CMS knowledge base for the future

CMS has an estimated 40,000 documents from the CMS R&D, construction and commissioning phases that are not yet in any document management system (e.g. CDS, DocDB, EDMS or Indico) and are therefore at risk of being lost. These documents contain strategically important information such as detector design details; results of R&D, test beams and irradiation studies; installation details; photos, plots and diagrams; software, simulation studies, reconstruction algorithms, and many other topics.

► **The Communications Group has deployed a light-weight document management system** – DocDB[2] from Fermilab running on CERN/IT servers. DocDB already contains several thousand documents from the early CMS adopters (Pixels, ECAL and others).

► **Each CMS sub-systems should identify one person** to coordinate the finding of documents (in personal computer accounts, on private or unmaintained Web servers, etc.) and their storage in a document management system (CDS for notes, papers and photos; EDMS for engineering documents; Indico for meetings; and DocDB for anything else). It takes less than a minute to add a new document to DocDB.

Strategic Goal 2: Significantly improve quality and usefulness of all CMS Web sites

After many years of organic growth in the CMS construction phase, CMS now has more than 250 official Web sites at CERN alone and many others elsewhere. They use a range of platforms and technologies. Many sites are poorly maintained or completely obsolete. As a result, there is no coherence between sites and it is hard to find information. Even if it can be found, information is often out-of-date, incomplete or erroneous.

► **The Communications Group will update iCMS, the umbrella site for internal use**, to meet CMS needs in the operations and analysis era. It will have a more coherent navigation scheme and a general cleanup.

► **The Communications Group will develop a Web tool to help classify and rank CMS Web content.** This will let CMS people click through sites and pages and tag them according to topic, usefulness, correctness, etc. in order to guide what actions to take (e.g. retain, improve, merge, archive, etc.).

► **Each CMS project/group should identify a person responsible for their Web content** to work with the Communications Group to update their web sites, consolidate where necessary, and archive where obsolete.

► **The Communications Group will adopt a Web Content Management System**, probably Drupal[3], which is currently being assessed, together with the CERN directorate, departments, and experiments. It will facilitate the creation and maintenance of a coherent Web system, in terms of content management, site navigation, and graphic design. It would be deployed first for the main umbrella site (iCMS) and then offered as a strongly-recommended option for all sub-systems. The CMS outreach site will ultimately also use the same system but, since it is in good shape already, this is a lower priority.

► **The Communications Group will liaise with CERN/IT to provide powerful Web search functionality.** This search service should span multiple Web sites as well as the contents of document repositories (CDS, DocDB, EDMS, Indico, etc.), allowing for all the subtleties of security and access permissions.

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[1] https://cms-docdb.cern.ch/cgi-bin/PublicDocDB/RetrieveFile?docid=2519&filename=CMS-Communications-Plan-1-0-1.pdf

[2] . The Communications group will assess alternative systems in the longer-term that are built on CERN-supported services, e.g. CDS.

[3] Drupal is a widely-used open-source system built on a "LAMP stack" of Linux, Apache, MySQL, and PHP. It is being tested by various CERN groups including the CMS Communications group. If selected, it would be supported by CERN/IT.