**NASA DEVELOP National Program**



Langley Research Center

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Langley Research Center Cross-cutting Technology

DEVELOPedia: NASA DEVELOP’s Wiki

Improving the Functionality of DEVELOPedia

 **Technical Report**

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# I. Abstract

Throughout the term the tech team worked to complete the DEVELOPedia sharing and storing website. DEVELOPedia is a repository which strives to organize and share the wealth of information, technical knowledge, and practices accumulated both during and as a result of NASA DEVELOP’s applied science research projects. DEVELOPedia had a long list of issues and ideas from the previous term to be implemented before the site was ready to be used. The plan involved using the current Langley Node participants to test the site and gauge its popularity throughout the fall term to prepare for a limited live launch in the spring at just the Langley Node where participants will use it for their entire list of deliverables. DEVELOPedia will go full live nationally for the summer 2015 term.

The DEVELOPedia site will allow users to complete a multitude of functions not available on the DEVELOP Exchange. These features will include, but aren’t limited to: looking up keywords in old projects, searching previous end users and partners, researching the projects completed under each application area, viewing current list of proposals both approved and not approved, and allowing real time editing of all of the deliverables. DEVELOPedia is also accessible to participants once they leave the program giving them permanent access to their old projects and reviewing the research of others. This will also create a quasi-DEVELOP alumni database using LinkedIn profiles.

# II. Introduction

The DEVELOP National Program provides participants with the opportunity to lead, create, and complete earth science related projects. Every year, the DEVELOP Program hosts three separate terms (spring/summer/fall), combining new projects and participants each term with some returners. All pertinent data from past three years including participants, projects, and deliverables is in the process of being transferred from the DEVELOP Exchange. The website is organized with a “forum-like” template with a long list of folders containing internal folders with files of interest. DEVELOPedia has been updated this term to be more user friendly with more functionality using MediaWiki.

MediaWiki is a free and open source wiki software used to power wiki websites such as Wikipedia. Using the MediaWiki markup, the Langley Tech Team has improved the design, readability, and implementation of the DEVELOPedia site.

The primary project objectives tackled were to:

* Integrate all current data of the DEVELOP Exchange to DEVELOPedia
* Give users the ability to create, modify, and delete data in appropriate sections
* Maximize user friendliness by creating a simple, sleek, and effective interface
* Allow for the uploading of multiple files (both documents and images)
* Ability for users to create and easily modify image galleries
* Allow for alumni to be easily located and contacted
* Allow for proposals to be submitted and stored with a status
* Allow for deliverables to be submitted online

DEVELOPedia showcases DEVELOP proposals, projects, people, and centers for current DEVELOP participants and alumni. The site was first reviewed by the Young Professionals and reviewed at the Langley Node before being released nationally. Modifications for DEVELOPedia falls under cross-cutting technology that allows for future users to solve problems quicker and more efficiently. The website allows for alumni to be contacted for problems that participants may come across during their research. Center Leads are able to submit project proposals to the National Program Office (NPO) for consideration easier through DEVELOPedia. DEVELOPedia will become known as a go-to website for DEVELOP administration and project deliverables.

# III. Methodology

**Data Acquisition:**

At the start of the term, DEVELOPedia was presented as a functioning website in the resembling Wikipedia with templates, forms, and querying. References to tutorials and knowledge of other Wikipedia websites provided example code and open-source templates to be utilized. Previous DEVELOP projects currently reside in the DEVELOP Exchange and hard drives associated with DEVELOP. Most projects have been uploaded in to DEVELOPedia. Both administrators and users of DEVELOPedia will be able to upload future projects to DEVELOPedia.

**Data Processing:**

DEVELOPedia stems from MediaWiki and uses the same language, PHP. Reverse engineering template code assisted in learning how to manipulate DEVELOPedia from its previous state. Old code was edited for the sole purpose of creating more appealing displays and user-friendly editing abilities. Forms were modified to be more explicit for data entry along with forms for proposals. The proposals form has tables to enter in Earth observation tools and for the decision-making process. Collapsible image tables, highlighting both application areas and locations, were coded onto the main page for interlinking abilities.

Individual participant, location, project, and application area pages were required to be formatted accordingly. Formatting included correcting text and image alignment, revising terminology used throughout the website, and having consistent coding for future DEVELOP users to work on. As a prospective repository for DEVELOP projects and information, it is vital for the website to be user-friendly for not just DEVELOP users at Langley, but for all DEVELOP locations nationwide.

**Data Analysis:**

When editing on DEVELOPedia, users have the ability to preview the edits before saving. This ability has provided countless support in visualizing and analyzing improvements to the website. The available button is conveniently placed next to the “save page” button. To assist DEVELOP users even more, the “edit with form” tab provides section headers accompanied with respective textboxes. “Edit with form” provides a better visual for users unfamiliar to reading HTML. The most important benefit is that users will not have to worry about HTML syntax when “editing with form.” The website has been tested at the Langley Node in order to assure the website is user-friendly.

# IV. Results & Discussion

During the term, edits were made to DEVELOPedia ensuring organization and ease for the end-users to enter in data or proposals. The forms for deliverables and “Proposal” include a user-friendly table generator to assist with an orderly and neat display of information. DEVELOPedia is ready to be launched for national wide use.

Changing DEVELOPedia to the version it is currently entailed a lot of trial and error with the code. Advisement throughout the term from the National Technical Lead Mike Bender and the DEVELOP Young Professionals was key in to understanding how to make the changes to the website.

If the project is selected for another term, the website could use more tutorials and resources available to DEVELOP participants. The DEVELOPedia website should be continually monitored to update DEVELOP information, correct false edits, and prevent acts of vandalism. Administrators of the website will be able to easily correct changes, be they accidentally or purposefully harmful. Changes to displays and forms may be necessary as the amount of information uploaded to DEVELOPedia rises. To maintain user-friendly functionalities and keep up to date, it is necessary for DEVELOPedia to be a continued project.

# V. Conclusions

The DEVELOPedia website was given to this team with very little user-friendly interaction and limited capabilities. Directions have been added to forms so users know what input to put in along with. There is now a tutorial that explains how to use DEVELOPedia available to all users. It has now expanded to have a bigger functionality both for participants and DEVELOP alumni. In addition, Center Leads and NPO can communicate through the website to gather project proposals. These project proposals can be updated and maintained on the database. DEVELOPedia serves as a one-stop shop for all tasks to do with DEVELOP. The public cannot access DEVELOPedia due to security restrictions. Participants are created accounts for life that they will use for deliverables and assistance with their project. Participants throughout their term can use the website to find numerous tutorials and connections to alumni that may be able to help their research move further. Tutorials are able to be made for individual disciplines and tools participants might come across. These will help participants who are unfamiliar with subject matter that their project involves. Projects are also linked with team members and advisors to allow for future collaboration.

# VI. Acknowledgments

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# VII. References

"Help:User Manual." *- Semantic-MediaWiki.org*. 14 July 2014. Web. 7 Oct. 2014. <http://www.semantic-MediaWiki.org/wiki/Help:User\_manual>.

"Manual:Contents." *- MediaWiki*. 11 Aug. 2014. Web. 7 Oct. 2014. <http://www.MediaWiki.org/wiki/Manual:Contents>.

# VIII. Appendices