**NASA DEVELOP National Program**



Langley Research Center

*Fall 2014*

DEVELOPedia: NASA DEVELOP’s Wiki

Improving the Functionality of DEVELOPedia

 **Technical Report**

Final Draft – November 19, 2014

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# I. Abstract

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. Throughout the term the Langley Tech Team worked to complete the DEVELOPedia sharing and storing website. After its formation in the summer 2013 term, DEVELOPedia took on a slightly different form every term through the fall 2014. Each team built upon the previous term fixing flaws and implementing new ideas. The fall 2014 team took the summer 2014 version of the site and completed construction of the necessary features. Participants at Langley Research Center were asked to test the site to gauge its popularity and functionality in preparation for the live beta test at Langley in the spring of 2015, at which time, participant will submit all deliverables to the site. Following the launch of the site, participants at the Langley node will use it for their entire list of deliverables. DEVELOPedia will be fully accessible for all nodes for the summer 2015 term.

DEVELOPedia will allow users to complete a multitude of functions not available on the DEVELOP Exchange. These features will include, but are not limited to: searching for keywords in old projects, searching for previous end users and partners, researching projects completed under each application area, viewing current lists of proposals (both approved and unapproved), and allowing real time editing of all deliverables. DEVELOPedia is also accessible to participants once they leave the program, giving them permanent access to their old projects and the ability to review the research of others. This will create a quasi-DEVELOP alumni database with the use of LinkedIn profile URLs located within DEVELOPedia.

# 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, and fall), combining new projects and participants each term with some returning participants. All pertinent data from the past three years, including participants, projects, and deliverables, is in the process of being transferred from the DEVELOP Exchange and incorporated into DEVELOPedia. The website is organized with a “forum-like” template with a list of broad category folders containing subfolders with pages of interest. DEVELOPedia has been updated this term to be more user-friendly and include more functionality through the use of Semantic MediaWiki. MediaWiki is a free and open source wiki software used to power wiki websites such as Wikipedia. Using the MediaWiki markup language, the Langley Tech Team has improved the design, readability, and implementation of the DEVELOPedia site.

The primary project objectives that the tech team tackled over the course of the fall 2014 term 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); create a quasi-alumni database so they can be easily contacted; allow for proposals to be submitted and stored with a status; and allow for deliverables to be submitted on the project pages. DEVELOP center leads can now be labeled in a new category giving them the ability to add new users at the beginning of each term.

DEVELOPedia showcases DEVELOP proposals, projects, people, and center locations for active DEVELOP participants and alumni. Modifications for DEVELOPedia fall under the cross-cutting technology application area that allows for future users to solve problems quicker and more efficiently. The website allows for alumni to list their current email and LinkedIn address to increase alumni activity and networking. Center Leads are able to submit project proposals to the National Program Office (NPO) for consideration with ease through DEVELOPedia. The site was first reviewed by the Young Professionals, then used sparingly at the Langley Node during the fall term.

# III. Methodology

**Data Acquisition:**

At the start of the term, DEVELOPedia was presented as a functioning website resembling Wikipedia with pre-made templates of pages and forms which allow users to enter data easily in text editing boxes, and the ability to search for and query data and pages. 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 and deliverable since 2008 have been uploaded to DEVELOPedia. Both administrators and users of DEVELOPedia will be able to upload future projects to DEVELOPedia.

**Data Processing:**

DEVELOPedia was created using Semantic MediaWiki write up, an open source wiki package that is written in PHP programming language. Old code was edited to create more appealing displays and user-friendly editing abilities. Each page can now be created using a template where users add in their information step by step. Page templates were modified to be more explicit for user data entry along with templates added for proposals, tutorials, point of contacts, and web training. The project form have tables to enter in earth observation tools and to describe the decision-making process.

Individual participant, location, project, and application area pages were formatted to be comparable with one another. 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 was vital for the website to be user-friendly not just for DEVELOP users at Langley, but for all DEVELOP locations. Advisement throughout the term from the National Technical Lead Mike Bender and the DEVELOP Young Professionals was key in to understanding how to create positive changes to the website.

**Data Analysis:**

When editing an entry on DEVELOPedia, users have the ability to preview the edits before saving, providing support in visualizing and analyzing improvements to the website. To assist DEVELOP users even more, the “edit with form” tab provides section headers accompanied with respective textboxes to edit their pages with ease. “Edit with form” provides a better visual for users unfamiliar with HTML syntax. The most important benefit is that users will not have to worry about coding practices 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 information. The forms for deliverables and proposals include a user-friendly table generator to assist with an orderly and neat display of information. When submitting deliverables and creating project pages the user is now forced to use a naming convention thus helping to keep the site organized and easily searchable.

Future work in the development of DEVELOPedia should focus on making more tutorials and resources available to DEVELOP participants. The page also still requires massive amounts of data input to cover the project years from 1998 to 2007. 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

Prior to the Fall 2014 term, DEVELOPedia had limited capabilities and lacked user-friendly interfaces. Directions have been added to all of the forms and templates so users know what to add and how it should be added (whether the files require a naming convention or not). There is now a tutorial that explains how to use DEVELOPedia, which will be made available to all users. The site now has improved functionality both for participants and DEVELOP alumni. In addition, Center Leads and NPO can interact through the website during the project proposal process. Project proposals can be updated and maintained on the database. DEVELOPedia serves as a one-stop shop for all DEVELOP tasks. DEVELOPedia’s goal is to become known as a go-to website for DEVELOP information, administration and project deliverables.

Due to security protocols, public access to DEVELOPedia is restricted, but current and past participants can request access. Participants create accounts for life that they will use for submitting deliverables and finding assistance with their projects. They can also use the website to find numerous tutorials and connect to alumni that may be able to help with the research project. Tutorials can be made for both individual disciplines and tools that the participants might come across in the course of a project. These will help participants who are unfamiliar or new with the subject or program at hand. Projects are also linked with team members and advisors to allow for future collaboration.

# VI. Acknowledgments

The DEVELOP Tech Team would like to thank NASA DEVELOP for this amazing opportunity. The team would like to thank our tech advisor Mike Bender for working with us this term of DEVELOP. We would like to thank the Young Professionals for their input on how the website should function.

# 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