

## **A Community Invitation: BSSw.io, a platform for sharing information about scientific software productivity and sustainability**

*A whitepaper for the [2020 Collegeville Workshop on Scientific Software](#), focusing on Developer Productivity.*

Interviewee: Rinku Gupta (Editor-in-Chief, BSSw.io; Research Software Specialist, Argonne National Laboratory (ANL))

Interviewer: Lois Curfman McInnes (Senior Computational Scientist, ANL)

**Introduction:** Advancing scientific productivity is a key issue across all scales of computational science and engineering (CSE) and is a central research challenge for extreme-scale computing [1]; developer productivity is one critical aspect of scientific productivity. Developer productivity directly impacts the output and growth of a team and its software products. The Better Scientific Software website (<https://bssw.io>) has been gaining traction as a community-based resource for sharing information on software productivity and sustainability in CSE and related technical computing areas. Here, we interview Rinku Gupta, who serves as Editor-in-Chief of the BSSw.io site.

### **Question: What is BSSw.io?**

**Rinku:** The BSSw.io website is a central hub for sharing information on practices to improve developer productivity and software sustainability. BSSw.io features experiences and insights provided by the international community, including researchers, practitioners, and stakeholders from national laboratories, academia, and industry who are dedicated to curating, creating, and disseminating information that leads to improved CSE software. Historically, opportunities for CSE software developers to exchange information and experiences have been limited; BSSw provides a space to support this kind of sharing.

### **Question: How is BSSw.io helping improve the status quo for developer productivity?**

**Rinku:** Traditionally, developer productivity and software sustainability have not received the attention they deserve within the scientific community. Improving the productivity of developers and overall teams needs to be tackled in a more systematic manner in our community. Technical and cultural challenges are two sides of the developer productivity coin, and both need to be addressed to make overall teams more productive! When individual team members' strengths are encouraged, the team

naturally grows stronger and more productive. One reason why developer productivity is semi-ignored in scientific fields is the lack of resources explaining (1) what constitutes developer productivity in scientific contexts and (2) what can be done to improve developer productivity in our dynamic environments. The BSSw.io site focuses on providing resources on these topics as well as on software quality and sustainability. Readers of BSSw.io can explore a plethora of topics about how individuals and teams operate in scientific software environments, what software practices they follow, how culture impacts productivity, and how individuals and teams can improve productivity and sustainability in an incremental manner. A few highlights are:

- [2019 BSSw Fellows Guide Developers through Each Stage of the Scientific Software Lifecycle](#)
- [Productivity and Sustainability Improvement Planning \(PSIP\)](#)
- [Better Scientific Software: 2019 Highlights](#)
- [Better Scientific Software: 2018 Highlights](#)

**Question: What kinds of content do you seek for BSSw.io?**

**Rinku:** BSSw.io seeks content on topics related to developer productivity, software quality and sustainability in three broad categories: original articles, curated content, and events. We solicit original articles in the form of blogs and experience-based short articles. The CSE community is tightly knit with respect to the types of software being developed, the technologies we use, and even overall research environments. Keeping that in mind, sharing experiences about software practices, tools, and teams leads to the overall growth and enrichment of the CSE community.

BSSw.io also focuses on curating relevant content from across the internet. We solicit curated content—pointers to web articles, websites, tools, and technologies, with a short explanation of how the content is relevant to the CSE community. Curated content on BSSw.io is helping to overcome the difficulty that sources of information relevant to our community are scattered and difficult to find.

BSSw.io also provides a running list of relevant events (on software productivity and sustainability topics) that are coming up in the scientific community. Webinars, tutorials, panels, workshops and conferences are some of the main events that interest readers. These events are submitted by the CSE community.

In its entirety, the scientific software community is driving the BSSw.io hub through diverse and enriching contributions.

**Question: Who are BSSw.io consumers and contributors?**

**Rinku:** Our contributors and consumers are from the international CSE community. Anyone can submit content, from students through established scientific software developers and researchers. Of course, the content is reviewed and needs to fit within the scope and goals on the BSSw.io website.

**Question: Can you explain more about the BSSw.io approach?**

**Rinku:** The BSSw.io portal is being created by the community, for the community. Content on the site helps to fill missing knowledge gaps between theory and practical implementation on topics related to developer productivity and software sustainability. We rely on the community to contribute articles of interest, which are reviewed by the BSSw.io editorial team and published on the site. We use GitHub as supporting infrastructure for content management as well as logistics and end-user communication. All workflows and policies are publicly viewable, and we welcome feedback.

BSSw.io is managed by the BSSw.io editorial team, composed of senior editors and associate editors, who are experts in their fields. We have a review process for submitted content, which we manage using our GitHub repository. Once an article is submitted, we assign editors who maintain close communication with the contributors during the review phase and work with them to refine the content. The intention of publicly available workflows and processes, for all operations, is to share and grow with the community.

**Question: How can the community get involved with BSSw.io?**

**Rinku:** Attention to software sustainability and developer productivity in scientific fields has grown substantially in recent years, pointing toward a brighter future for scientific codes. We encourage developers and researchers to share experiences and information with the rest of the community through BSSw.io, as the site grows to become a central outreach channel. [Join the BSSw.io mailing list](#) for monthly updates about new content on the site. The BSSw.io site (<https://bssw.io>) has comprehensive information on how to view current content and [contributors](#), as well as how to contribute content (<https://bssw.io/contribute>). We welcome you to join the BSSw community!

**References:**

[1] Office of Science, U.S. Department of Energy, The Top Ten Exascale Research Challenges, 2014. <https://dx.doi.org/10.2172/1222713>.