SANDIA REPORT

Creating Fantastic PI Workshops

Laura B. Biedermann, Blythe G. Clark, Rachel S. Colbert, Amber L. Dagel, Vipin P. Gupta, Michael R. Hibbs, David N. Perkins, R. Derek West

Sandia National Laboratories

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Laura B. Biedermann
Electronic, Optical, and Nano Materials
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185-MS1411
lbieder@sandia.gov

Blythe G. Clark
Radiation-Solid Interactions
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185-MS0886
blyclar@sandia.gov

Rachel S. Colbert
Integrated Surety Mechanisms 1
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185-MS0350
rscolbe@sandia.gov

Amber L. Dagel
Physics Based Microsystems
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185-MS1082
aldagel@sandia.gov

Vipin P. Gupta
Materials, Devices & Energy Tech
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185-MS1069
vpgupta@sandia.gov

Michael R. Hibbs
Microsystem Pkg & Polymer Proc
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185-MS0958
mhibbs@sandia.gov

David N. Perkins
Computational Sys Development
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185-MS0974
dnperki@sandia.gov

R. Derek West
ISR Sys Eng & Decision Support
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185-MS0519
rdwest@sandia.gov

Acknowledgment

Contents

Figures

1 Introduction

1.1 Guiding Principles of the PI workshop series

The Vision: Enabling PIs to thrive not just survive. Our vision is for each and every Principal Investigator or Team Lead at Sandia to be wildly successful through peer-to-peer engagement and mentoring.

Who are we and who is this for? The PI Workshop Initiative is led by staff for staff. The strength of this approach is that, as staff, we understand the needs of our peers and the gaps in learning opportunities, and so can shape each workshop to effectively address those needs. This allows the initiative to create a workshop with immediate applicability to the life of a PI, versus a workshop that is planned as a top-down exercise or by an outside consultant lacking intimate Sandia business knowledge.

The five guiding principles of the PI workshop series are as follows:

- *Staff driven content.* The PI Initiative empowers aspiring and experienced principle investigators and team leads to continuously improve upon their skills in initiating and running effective projects by providing content determined by the PIs themselves. PIs know best what skills they and their colleagues are lacking and through surveys and continual feedback we seek to identify those needs and organize workshops to address them.

- *Peer-to-Peer.* The content of the workshops is presented by fellow Sandians who are widely recognized as high potential or high performers, also identified through feedback and inquiries of staff and up through the management chain. In this way the most relevant material is presented by highly respected colleagues who are intimately familiar with the work environment and procedures at Sandia. This enables practical lessons to be delivered through stories PIs can relate to and concrete tools to be provided that PIs can implement on their jobs immediately.

- *Personal.* One of the most important aspects of this model is that these successful PIs do not share generic tips and advice, but rather their personal stories of project successes and failures and how they addressed these situations, enabling aspiring PIs to see that the greatest success is not achieved over night, that everyone makes mistakes and the important lesson is to learn from these mistakes. The hope is that through this knowledge transfer process PIs learn and apply these lessons without making the same mistakes.

- *Foster Mentoring, Networking, and Collaboration.* An ancillary benefit of the workshop format of Sandians teaching Sandians is that it fosters an environment of mentoring, makes introductions, and provides opportunities for networking across the lab that enable continual support, improvement, and relationships that last far beyond the

day of the workshop, enabling future collaborations and creating a more unified, high performing Sandia team.

- *Record all workshops* We work with Video Services to record all workshops. These videos, as well are accompanying slides and other handouts, are posted on the Internal Sandia website following R&A.

These driving elements are implemented through workshops, online videos, and on our Sharepoint *Resource Guide for Principal Investigators and Project Leads*:
https://sharepoint.sandia.gov/sites/PIResourceGuide/SitePages/Home.aspx

1.2 Goal of the SAND report

The goal of this SAND report is to provide guidance for other groups hosting workshops and peer-to-peer learning events at Sandia. Thus this SAND report provides detail about our team structure, how we brainstormed workshop topics and developed the workshop structure. A Workshop "Nuts and Bolts" section provides our timeline and check-list for workshop activities. The survey section provides examples of the questions we asked and how we adapted the workshop in response to the feedback.

The appendix provides detailed examples of workshop organization, example correspondence, workshop schedules, and lessons learned.

2 PI Workshop Team Structure

The PI Workshop Team structure and composition was deliberately chosen to be representative of the experiences of many PIs at Sandia. We intentionally recruited PIs from 1000, 2000, 5000, and 6000 who lead projects for NW, DS&A, DOE, SPO, and internal customers. This broad experience base allows us to identify common challenges for PIs of all backgrounds. Additionally, our diverse networks allow us to identify excellent panelists and presenters from across Sandia. In addition to division and research diversity, we also tried to incorporate individual diversity (*e.g* MS and PhD degree holders).

We rely on bi-weekly meetings and shared electronic resources to stay in touch. Key programmatic decisions and workshop plans are ironed out in the bi-weekly meetings. Once a quarter we meet with Justine Johaness, our director champion, to brief her on our team accomplishments. Our wiki site (`tiny.sandia.gov/PIWorkshop`) hosts both information for all of Sandia and our internal organizational pages. The wiki structure is

- Upcoming PI workshops. Sign-up SharePoint sites are linked from the relevant PI workshop page.

- Previous PI workshops. On each previous page are video links to that workshop, presentation slides, and the workshop schedule with panelists and presenters listed.

- Organization (restricted to PI team members). Useful contacts, suggestions for future panelists/presenters, and "nuts and bolts" information are stored here.

- Link to the PI Resource Guide:
  `https://sharepoint.sandia.gov/sites/PIResourceGuide/SitePages/Home.aspx`

The Organizational pages on the wiki site are particularly useful as we can all update details of speaker availability and workshop schedule. As a team, we find wikis easier to update and edit than SharePoint; SharePoint sites offer the ability to track workshop sign-ups and improved visuals over wikis.

A group e-mail alias, PIElves@sandia.gov is allows us to easily e-mail the entire team. Additionally, we just set up a collaborative share (`\\snl\collaborative\PITeam`, associated with the MetaGroup *wg-pi-workshop*) to store workshop presentations, survey results, and organizational notes.

3 Brainstorming Stage

The organizing team should decide what the goals of the workshop will be. This includes determining the intended audience and what that audience will learn about. The team members should not only discuss this among themselves but they should also poll their peers, mentors, experienced staff members, and potential workshop panelists and speakers. The aim should be to identify a need that is not currently being met by other educational opportunities within Sandia.

Team members should decide upon a general workshop structure. The specifics will be covered in the next section, but at this early stage it is important to think about how long the workshop will be, whether it will include hands-on activities and panels, and how much of the time should be allotted to single speakers/presentations.

A list of potential panelists and speakers should be compiled. Names for this list can come from the organizing team or from the previously advised discussions with peers, mentors, and experienced staff members, as well as managers and directors. It is important to note that speakers and panelists should be dynamic and outgoing in addition to having experience or knowledge in the subject of the workshop. For example, there are many staff members with the experience necessary to talk about how to be an effective PI, but only some of them can keep a large audience truly engaged while they impart their wisdom. The list should be a living document that is updated regularly, perhaps once or twice each year.

To plan the January 2015 workshop, we sent a pre-workshop survey e-mail to ~20 early career Sandians. This survey e-mail, and the key themes identified from the replies, are copied below. From these responses, we planned an initial full-day workshop focused on the leadership and project management aspects of being a PI. The frequent requests for support in understanding budget management inspired the two half-day budget workshops as well as the two half-day workshops on proposal writing presented by Celia Elliott.

> "I am currently co-organizing a workshop for this fall on how to be an effective PI. This workshop was inspired by a similar event held at SNL-CA this past spring, targeted at early career Sandians. To help in planning, and in an effort to make the workshop as impactful as possible, I was wondering if you would take a quick second to answer the questions below. Your feedback would be much appreciated!"

Would you be interested in attending a workshop on how to be an effective PI?

What have you found to be the biggest obstacles for you in terms of either becoming a PI or being an effective PI?
Leadership and How to be a PI; Setting priorities and time management; Budgets

What content would you like to see featured in a workshop of this kind?
Leadership/being a PI; Project deliverables; Time management and meeting structure; Budget/funding comments; Sandia support structure;

What roles and responsibilities as a PI do you feel you are/were most unprepared for?
Leadership/being a PI; Deliverables; Networking; Budget/funding

Are there resources or personal lessons learned that you feel everyone should be aware of?

Leadership/being a PI; Time management; Sandia support; Budget

If you can charge either SEI-32 (`http://info.sandia.gov/learning_wiz/`) or project P/T, would you be able to attend a 3/4 day workshop?

4 Fleshing Out the Workshop Structure

Whether it was a full-day "How to be an effective PI" workshop or a half-day follow-on workshop, we strived to structure the workshops in a manner that engaged the audiences. Much of the time spent planning various workshops was to determine a logical flow of topics and to try and properly interleave the talks, panels, practice exercises, and breaks to keep the day interesting. The actual structure of a given workshop depended on whether it was a full-day workshop or a half-day follow-on workshop.

4.1 Full-Day Workshops

The full-day workshops were a mixture of talks, panels, and breaks. Each workshop typically had a mix of the following:

- Before the workshop formally begins, we provide coffee and ask that the attendees sign in (15 minutes)

- 3-4 talks were scheduled and were between 30-60 minutes

- Two 10-15 minute breaks were scheduled, one in the morning and one in the afternoon

- Two 75 minute panels, one which discussed planning for success and the other how to run effective projects

- We held a 60 minute networking lunch

- We spent about 10 minutes introducing the PI Resource Guide

4.2 Selecting Speakers and Panelists

The choice of who to have as speakers at the PI workshops was not trivial. As a planning committee, we had discussions about many different candidates for speaking to the audience and we tried to balance many factors such as, having a diverse set of speakers from across Sandia with relevant experience, ensuring that we felt they would be good at speaking and could engage the audience, and it didn't hurt if they happened to be well-known across Sandia, as well. When we decided on a group of speakers for a workshop, we would assign various people on the committee to contact them and invite them to speak at the workshop. We generally found that people were willing to speak at the workshop, but occasionally we had candidate speakers who had to reluctantly decline for various reasons.

The selection of panelists was very similar to the selection of speakers in many regards. We tried to have a diverse representation across Sandia and to have panelists that were enthusiastic about being a PI, were engaging to listen to, and were PMTS, DMTS, senior scientists/engineers, or managers. We feel that having four people on a panel is the ideal number of panelists; having four panelists gives enough diversity of opinions and gives each panelist enough time to give their valuable advice and answers to questions. We discussed potential panelist candidates as a committee

and divided up the potential panelist candidates' names amongst ourselves to extend an invitation to participate. For each panel, we conscientiously strove for diversity. We tried to ensure that there was at least one woman on each panel and that centers and divisions matched the diversity of workshop attendees. We would try to include one, but not more than one, level 1 or 2 manager on each panel.

Each member of the panel was introduced at the beginning of a panel discussion and each panelist was given a couple of minutes to state what they do at Sandia and any relevant experience as a PI that may be noteworthy for the discussion. As a side note, while each panel was very successful, one of the most successful and memorable panels had panelists who happened to know each other well.

5 Workshop Nuts and Bolts

5.1 Timeline

The following is a suggested timeline for when items should be completed in order for a successful workshop.

- 2+ Months in Advance

  1. Identify workshop date and reserve the conference room (including time the evening before for set-up)
  2. Identify panelists/speakers and send outlook calendar notices to hold time in their schedules
  3. Set-up wiki page with tentative agenda; all panelists may not be identified at this stage
  4. Work with speakers to engage with their development of content, encourage early discussion on their slides/outline, and encourage dynamic/interactive style presentation

- 1 Month Prior

  1. Send out workshop announcements (SDN, ANGLE, other targeted groups)
  2. Contact facilities to reserve tables and chairs
  3. Order give-away books for participants
  4. Confirm OAA support for workshop help (day of and printing/snack/coffee, etc)
  5. Contact video services to reserve their time
  6. Contact café service that will be used for lunch with tentative lunch order numbers from sign-up sheet
  7. Place coffee/tea (hot water) order for the breaks
  8. Update wiki as panelists confirm or have conflicts
  9. Set-up/edit SharePoint site for sign up and make sure the first N slots are visible, where N is the room capacity, and that those on the waitlist are not visible, separate columns for first and last name

- 1-2 Weeks Prior

  1. Confirm with speaker/panelists
  2. Check out AV and set-up of the conference room
  3. Confirm lunch numbers/orders with café
  4. Send reminder email to participants, asking to let organizers know if they can't attend to invite waitlist people
  5. Confirm with OAA about snack/tea purchasing
  6. Identify in organization team who is introducing speakers and who is moderating panels
  7. Make rotating slides for during breaks

8. R&A slides, if necessary

9. Ask for Bios from speaker/panelists

10. Create agenda for the workshop

11. Contact building/room owners to discuss workshop day-of logistics

   (a) AV discussion
   (b) Request additional trash cans
   (c) Approval for tables/chairs

12. Update wiki with final panelists and presenters

13. Send reminder email to participants, asking to let organizers know if they cant attend (this gives time to contact those on the wait list)

14. Send an Outlook invite to their calendars

- Day Prior

   1. Print agendas, handouts, name tags, sign-in sheets, and name signs for panelists/speakers

   2. Put all slides on collaborative share folder

   3. Verify slide display with the AV in the room (including confirming embedded videos work)

   4. Confirm set-up time with facilities

   5. Costco/Walmart run for snacks

   6. Things needed for day of:
      - pens for sign in sheets
      - tape to hang signs
      - table cloths for networking lunch tables
      - coffee, coffee cups, creamer, stirrers, and sugar
      - hot water kettle, tea, and air pots
      - cases of bottled water
      - morning snacks: muffins, cinnamon rolls, and bananas
      - afternoon snacks: peanuts, candy, and granola bars

- Day of

   1. Set up an hour early

      (a) Handouts and books on desk
      (b) have sign-in sheets and name tags out with someone there to help/greet

   2. Greet attendees as they enter and encourage their participation

   3. Have coffee brewed/hot water for tea and snacks laid out just before breaks

   4. Remind participants to fill out survey

- Post-Workshop

1. Send out thank-you notes to panel members, speakers, OAA support, and any other key support
2. Send videos to R&A (split amongst multiple DCs)
3. Turn in food purchase receipts to LM Fee
4. Send follow-on email to attendees
   - link to videos
   - link to resource guide
   - link to wiki site
5. Give completed surveys to CTO office intern
   - Have surveys scanned to PDFs
   - Digitize the data
   - Run analytics
6. Update excel sheet with info of who actually attended
7. Give names to HR to get complete demographics data on participants (this complements survey information since only about two-thirds of participants complete the survey):
   - Level (SMTS, PMTS, etc...)
   - Time at Sandia
   - Which centers they are in
8. Debrief as a team
   - What went well?
   - What could be improved?
   - Lessons learned

5.2   Top Points of Contact to Help in Organization

1. Facilities: to rent tables and chairs

   (a) Karen Prinke, 4822, Call Karen to make the organization plans

   (b) Eddie Muro, 4822, staff who is likely to set up tables and chairs

   (c) To set up work request:

      i. Go to 4800 webpage:
         `https://info.sandia.gov/fmoc/new_index_suit.html`
      ii. Select "Submit or track service request"
      iii. Fill out online form

2. CNSAC 810 Contacts

   (a) Barbara Kishi, 36531, AV guru for CNSAC

   (b) Pat Ortiz, 4826, Building supervisor

      i. Provide a heads up on tables/chairs request, request extra trash cans

   (c) Sahaar, Atomic Café Owner

3. Wiki Wizard: Fe Theresa Georges, ftcanon@sandia.gov

5.3 Pros and Cons to Rooms Used in the Past

1. 858EL/L2000 (∼100 people)

   (a) Great space if you use high chairs/tables from downstairs lobby for panelists, food and drink allowed in room, VTC capable, outside of limited area

   (b) Not enough tables to allow all participants to use as writing surfaces thus tables would need to be ordered which will limit the number of participants in the room

2. 810 CNSAC (∼100 people)

   (a) Comfy tables and chairs, great AV support, VTC, coffee shop/café just outside, great networking lunch space in lobby by café, hallway is secluded to set-up for breaks

   (b) In limited area and thus escorts may be required for participants, no food or drink allowed in room

3. 701/2001 (∼50 people)

   (a) Tables and chairs already in room, VTC, food and drink allowed in room

   (b) In limited area so escorts may be necessary

4. 822 A/B (∼50 people)

   (a) Tables and chairs in room, food and drink allowed in room, outside of limited area

5.4 Creature Comforts

It is important to acknowledge that the PI workshops are full day events. It seems to be a fairly universal law that the mind can only absorb for as long as the body is comfortable. With that in mind, we determined that it is important to schedule breaks throughout the day to allow attendees the chance to refresh and rejuvenate. To aid in the refreshing process, we also provide light snacks, coffee, tea, and water during the scheduled breaks.

5.5 Workshop Wrap-up and Beyond

At the end of the workshop day, we remind the attendees to take the handout and books that have been provided that supplement the advice they have received. Additionally, we strongly encourage the attendees to fill out, and turn in, the workshop survey.

There is still much work to be done after a scheduled PI workshop. The video recordings of the workshop need to be sent through the review and approval process and deemed unclassified and unlimited release in order to be posted to the PI Workshop resource page. Furthermore, as a reminder of their availability, we send out an announcement through the Sandia Daily News stating that the slides and videos from the workshop are posted on the PI Workshop webpage so the workshop attendees, as well as those who wished they could attend the workshop but were unable to do so, can go back and review the sage advice that was presented at the workshop.

It takes a lot of work to get ready for each PI Workshop. The work of the PI Workshop committee is only part of the total effort involved. The time and effort that the speakers, panelists, and other supporting personnel put in to get ready for each PI workshop is not trivial. It is important to realize this and to properly acknowledge all contributions made to each PI workshop. To this end, we send out hand-written thank-you cards to the speakers, panelists, and other personnel who supported the workshop. We also email their managers thanking them for allowing their time to support our workshop and to state how successful the workshop was because of the contributions made by their staff.

6   Surveys and Data Analysis

Surveys were conducted at the conclusion of each full and half-day workshop to capture participants' immediate impressions, and as a follow-up 3-12 months after the full-day workshops to see what advice was the most helpful. Survey respondents were always asked to provide basic demographic information (center, time at Sandia, role at Sandia), their impressions of the workshop components, and to comment on what they learned that was most useful.

6.1   Post-workshop surveys

Following the conclusion of every workshop, participants were asked to fill out a paper evaluation of the workshop. This survey included demographic information and evaluation of the workshop as a whole, including an evaluation of each section.

From these surveys, we learned that panel discussions resonate strongly. Participants greatly appreciate the chance to learn directly from their peers, including the opportunity to hear how they succeeded and to hear cautions about failures. Vipin Gupta's motivational speeches regarding team dynamics and leadership were also consistently among the highest rated portions of the workshop. Following survey responses from the January 2014 workshop, we made a couple key changes to improve "creature comforts." Specifically, the lunchtime presentations were replaced with a networking lunch as participants wanted more time to network and were exhausted by the continuous presentations. We moved rooms from 858EL/L2000 in which participants sat in straight-backed chairs all day without desks to the CNSAC auditorium which had tables and chairs for all. Finally, the workshop day was shortened to 3/4 day (8:15 am–3:00 pm). The full-day (8:15 am–4:30 pm) was simply too long.

General questions asked at post-workshop surveys

Demographics and Motivation

Which center are you in?

How many years have you been at Sandia? <1 year, 1–5 years, 5–15 years, >15 years?

What is your current position?

What inspired you to register? "This workshop addressed a need not well met by other Sandia resources."; "I want to become a PI but am unsure how."; "I am a new PI and would like to become better at leading a team."; "Quality and reputation of the panelists."; "The workshop was free and I could charge A291 to attend."; "Other (please elaborate)."

Workshop Evaluation

How do you rate the workshop overall (on a scale of 1-5)?

How do you rate each section of the workshop (on a scale of 1-5)?

Please comment on things you liked most in the workshop, liked least?

Do you have any suggestions for improvement?

What did you learn at the workshop?

What advice really struck a chord?

How useful will this be for your career? "Not useful," "Moderately useful," "Very useful," "Extremely useful".

How soon do you think you'll be able to use the advice you received at the workshop? "Not sure." "Within a year." "Next week."

Would you recommend this workshop to a colleague? "No - colleagues are at different points in their career."; "Potentially yes."; "Yes, strongly."

Due to time constraints, we were unable to address many important aspects of being a PI/Team lead (eg: writing proposals, budgets, ...). If a similar workshop were hosted again, what aspects would you like it to address?

From these post-workshop surveys, we learned that we are reaching a representative portion of the four largest R&D divisions in Albuquerque. We were surprised to learn that >50 percent of participants, on average, had been at the labs for longer than 5 years. At the April 2015 workshop, a quarter of participants had been at Sandia for 20 years or longer. These experienced Sandians were motivated to register for the workshop because it addressed a need not well met by other Sandia resources, it was part of the AST program, and they had heard good things about the workshop series. Figure 1 summarizes the demographic information for workshop attendees.
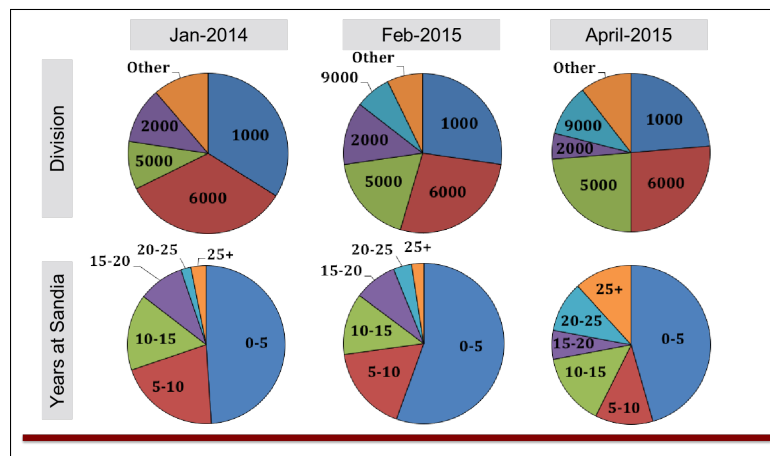
Figure 1. Demographics for "How to be an effective PI" workshop attendees.

6.2 Lasting impressions from the workshops

To evaluation the lasting impact of the "How to be an Effective PI" workshops, we sent all previous workshop attendees a follow-up Survey Monkey survey request in May 2015. 46 previous participants completed this survey. From this follow-up survey we learned that advice, like fine wine, improves with age, as highlighted in Figure 2.

Have you recommended this workshop to others?

Legend:
- April 2015
- February 2015
- January 2014

(Axis: 0, 20, 40, 60, 80, 100)

Have you used something you learned at this workshop?

(Axis: 0, 20, 40, 60, 80, 100)

Percent of participants responding "Yes" (%)
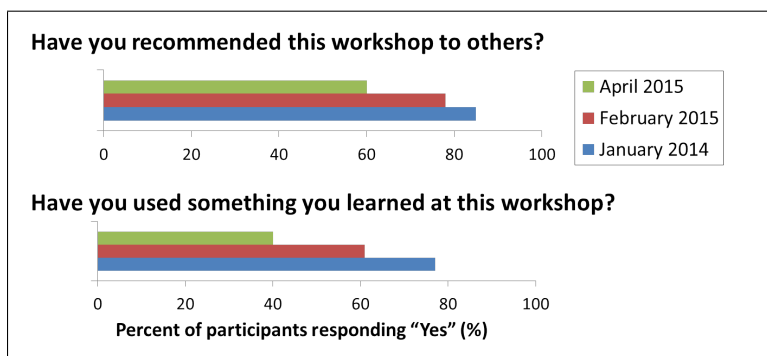
Figure 2. Follow-on impressions, one month to 1.5 years following the workshop.

Follow-on Survey Monkey survey

Demographics

What is your current division?

How many years have you been at Sandia? "less than 1 year," "1–5 years," "5–15 years," "15+ years"

What is your role at Sandia? "Technical staff (R&D, S&E)", "Manager", "postdoc", "Program manager", "Technologist", "IT/ systems architect", "Business development and/or communications", "Other (please specify)

"Which workshop date(s) did you attend? "January 2014," "February 2015," "April 2015"

Workshop Evaluation

Have you recommended this workshop to others?

Have you used something you learned at this workshop?

If yes, what was either the most useful thing you learned or the insight that has stuck with you the most?

Did you make any new networking contacts from fellow workshop attendees?

Have you contacted a PI workshop speaker or panelist for follow-up guidance (eg: research, mentoring, technical connections)?

(Optional): Is there any other feedback you would like to share?

Significantly, we learned that the insight workshop participants gain is experience-dependent. We asked participants, "What was either the most useful think you learned or the insight that has stuck with you the most?" Early-career (1–5 years at Sandia) participants learned PI logistics, such as "How to plan for and organize meetings." Mid-career (5–15 years at Sandia) participants learned team dynamics, such as "Understand where people are coming from and adapt to make interactions work more smoothly." Experienced Sandians learned vision. "Establishing a vision and communicating it to your team is a must." and "More important for me to be the best FOR the nation than the best IN the nation."

The workshops were also excellent networking opportunities for participants. 60 percent of participants made new networking contacts at workshop. 26 percent of early career (< 5 years) contacted a speaker or panelist for follow-up guidance. An early-career participant reported that following the workshop, "I began mentoring with one of the senior managers from the panel." An experienced participant reported "It was also good to talk with some younger people about their careers and gain some insight on their perspective," illustrating that the mentoring opportunities benefited Sandians at all career experience levels.

7 Conclusions and Future Directions

The PI workshop series exemplifies our guiding principles of staff-driven content; peer-to-peer learning; personal stories; fostering mentoring, networking, and collaboration; and recording everything for reference. The feedback network of surveys ensures that the workshops stay relevant and are updated as Sandians' needs evolve.

This collaborative education begins, rather than ends, with the introductory "How to be an Effective PI" workshop series. In response to survey requests, we also hosted advanced, half-day workshops on "Proposal Writing" and "Budgeting." We have also developed a SharePoint site, *Resource Guide for Principal Investigators and Project Leads* (`https://sharepoint.sandia.gov/sites/PIResourceGuide/SitePages/Home.aspx`). Figure 3 shows the homepage of this SharePoint site.

We intend this document to be further updated following future workshops as we continue to improve workshop organization. We hope this document serves as a guide to others at Sandia hosting peer-to-peer learning workshops.

Figure 3. Screen shot of the homepage for *Resource Guide for Principal Investigators and Project Leads.*

8   Resources

8.1   Lessons Learned

Ghost Budget Tracking

If the workshop funding comes from several different centers/divisions and the money is spent by using a ghost P/T, tracking the budget can be problematic. Periodically, charges are cost transferred from the ghost P/T to other P/T's that are scattered among the center/divisions. In order to keep track of spending during the FY it is recommended that the business professional who is responsible for tracking the budget (in this case, Katie Burke, 10611) request regular updates from the business professional who is responsible for making the cost transfers (in this case, Matthew-Ryan Morrell, 10619). The organizers should be aware of the lag between the time when costs appear on the ghost project and when they are transferred to other P/T's.

Back-up Panelists

It is strongly advised that the committee have at least one or two people ready to serve as panelists in the likely event that one or more of the scheduled panelists cancels at the last minute. It is not advised to schedule and announce extra panelists with the expectation that some may cancel (for example, scheduling 5 panelists when 4 is the desired number). The optimum number of panelists is usually 4 and if no one cancels, having to go on with a panel of 5 can disrupt the dynamic of the panel. Ideally, we would try to have strategic backups that maintained panel diversity (*e.g.* manager backup for the manager panelists; maintain division diversity; male/female ratio.).

Moderating Suggestions

The moderator should be reminded to introduce him/herself prior to introducing the panelists. The moderator should encourage the panelists to share personal experiences rather than general advice. The moderator should prioritize questions from the audience ahead of any pre-planned questions from the organizers, however, it is the moderator's responsibility to avoid letting the discussion drift too far off topic. The moderator should encourage spontaneous conversation between the panelists. The moderator should direct questions at specific panelists so that all panelists don't feel compelled to answer; avoid allowing all panelists to answer every question in turn.

Lunches

Planning a working lunch during an all-day workshop is generally not advised. Experience has shown that audience members need a break from the classroom to process material learned during the morning session. Instead, a networking lunch where students, organizers, and speakers can meet and discuss the material has been found to be quite beneficial and is recommended as an alternative to a working lunch. Having no lunch plan is also not advised as this can result in many

students not returning after lunch.

Escorts

Workshop organizers should not be expected to provide escorts for uncleared students. Public announcements for the workshop should include language stating that uncleared individual will need to arrange their own escorts (if necessary).

8.2 Other things that should be here

Example calendar invite, e-mails to panelists, bios, PI resource guide, letter to panelists with all the planned questions. E-mail thank-you to managers of panelists; thank-you template. Thank-yous should be de-personalized (Dear Jane Smith's manager; this is why Jane Smith is impactful.)

8.3 SDN Announcements, etc...

(All Sandia) PI workshop archives / proposal writing: View videos from the June 24 "How to Write a Winning Proposal" workshop featuring U. Illinois proposal guru Celia Elliott, as well as other past talks, on the PI Workshop wiki. They are an excellent resource for those seeking to become a principal investigator or project lead, or those currently in the role who are interested in refining their skills.

Publication Dates: Aug 26, 2015 Aug 27, 2015 Aug 31, 2015

8.4 Correspondence with panelists

Example e-mail to invite a colleague to serve as a panelist

Bob,

I hope you are doing well. Vipin (cc'd) and I are co-organizers on a workshop on How to Be an Effective PI, scheduled for Monday, April 20th , 2015. This workshop is a follow-up to two previous workshops of the same title (website below).

We are hosting a follow-up workshop to hear the experiences of and advice from a new set of panelists. The previous workshop reached capacity (100 attendees) in less than 2 hours, so we expect strong demand for this workshop as well.

I've been very impressed by your UWBG leadership, both through the UWBG center planning and now as the leader of a GC LDRD. You're definitely an inspiration to me.

I think you would be an excellent fit as a panelist for our workshop. The panel would be on planning for success, so topics will include finding the right customer, communicating your vision, building your team, partnering externally, designing budgets, and setting milestones.

If you are interested and available to serve as a panelist, would you please let me know? We are hoping to finalize the panels in the next week so your prompt reply is appreciated. Please let me know if you have any questions.

Thank you,
Laura

Workshop details:
Date: Monday, April 20th, 2015
Time: 10:15 am to 11:30 am
Panel: Panel 1: Planning for Success
Location: 810 CNSAC Auditorium
Website: `https://snl-wiki.sandia.gov/display/HTBEP/`
P/T: This workshop is being sponsored by the RLT; we do have a P/T to cover your time.
Co-organizers: Blythe Clark, 1111; Rachel Colbert, 2615; Vipin Gupta, 6124; Michael Hibbs, 6124; David Perkins, 5541; Derek West, 5346; and Amber Young, 1728

Dear Panelists,

Thank you for agreeing to share your experiences as part of the "How to Be an Effective PI Workshop" on Monday, April 20th in the Building 810 auditorium (CNSAC). We have been overwhelmed both by your enthusiasm to be a panelist and by the very strong interest of early and mid-career staff from 1000, 2000, 5000, and 6000. The discussion will be videotaped and will be hosted online and accessible through the PI workshop wiki.

PI workshop wiki: https://snl-wiki.sandia.gov/display/HTBEP/

Schedule: https://snl-wiki.sandia.gov/display/HTBEP/April+2015+Effective+PI+Workshop

Below are some details regarding logistics for the panels, as well as potential questions for each panel; Panel 1 will be moderated by Michael Hibbs, and Panel 2 by Blythe Clark.

Logistics:
1. **Introductions:**
   a. For introductions, **please send us a brief bio** that includes your background and history at Sandia (For example, something like: PhD in Mechanical Engineering from University of Illinois. Started in 1997 in Materials Science; moved to Neutron Generators after five years).
   b. For panelist intro statements, we will ask that you *briefly* describe your trajectory at Sandia and your current role.
2. **Panel Format:**
   a. Each panel lasts for 75 minutes. We will start with brief bios for each panelist, given by the moderator.
   b. We will then move to panelist intro statements, 2 minutes per panelist.
   c. The panel discussion will be guided by the planned questions (see second page), with additional questions encouraged from the audience.
   d. The last 10 minutes of the panel will be reserved for final comments from each panelist.
3. **Discussion Topics:**
   a. On the next page, we have listed planned questions within the scope of each panel. We will likely not cover every question, but will use these topics to guide the discussion.
   b. **Please look over the planned questions in advance** and let us know which of the potential questions below you would be most interested in answering. We would like to identify one or two "point" panelists for each question.
   c. If you have related suggestions for topics that we haven't addressed, please let us know.

Finally, in preparing for the panel, **please try to reflect on personal experiences to illustrate your responses**. The workshop participants consistently resonate with "lessons learned" examples, *both successes and failures*, that are shared by the panelists.

Again, thank you very much for your support of this workshop!

Amber, Blythe, Laura, Rachel, Derek, David, Michael, and Vipin

Next two pages: Panelists and Planned Questions

Figure 4. Pg. 1/3 of letter to panelists for the April 2015 How to be an Effective PI workshop

Panel 1: Planning for Success (10:15 – 11:30 am)
Panelists:
   Barbara Funkhouser, Senior Scientist, Systems Mission Engineering, Org. 5500
   Randy Cygan, Staff, Geoscience Research and Applications, Org. 6910
   Daniel Petersen, Staff, Integrated Surety Mechanisms 1, Org. 2613
   Ryan McBride, Manager, High Energy Density Experiments, Org. 1688

Planned questions:
- Let's say you have a cool idea, how do you identify the right customer and tune your message to meet the customer's needs?
- How do you start the process of developing a relationship with a potential customer?
- How do you identify potential customers and their pain point?
- If there's a proposal call you want to respond to, what are the first things you do?
- What do you find is most effective in communicating and refining your vision for a research project?
- Can you provide some advice on how to build your team, both internally and when partnering externally?
- How should you choose who is on the team?
- Do you have any advice on defining the scope of a project?
- How do you design the milestones and timeframes to achieve them for a new project?
- Does that approach change with different project types or durations?
- How do you design appropriate budgets? For example, should you decide on a "reasonable" figure and work backwards, or itemize your budget and simply add it up (even if it sums to a big number)?
- Are there any Sandia resources that you rely on in project planning?
- Are there any lessons learned in project planning that particularly stand out to you?

Figure 5. Pg. 2/3 of letter to panelists for the April 2015 How to be an Effective PI workshop

Panel 2: Running Effective Projects (12:30 – 1:45 pm)

Panelists:

   Mary Crawford, Senior Scientist, Physical, Chemical, and Nano Sciences, Org. 1100

   Marc Polosky, Staff, B61-12 Integrated Systems Design II, Org. 2153

   Cliff Hansen, Staff, Photovoltaic and Distributed Systems, Org. 6112

   John Feddema, Level II Manager, Advanced Systems Program, Org. 5530

Planned questions:

- How and when (how often) do you communicate with the customer?
- How do you explain the impact of your milestones without overselling them?
- How do you share bad news regarding missed/delayed deliverables or unexpected risk?
- How do you energize your team and keep them motivated?
- How do you keep the team focused when your project isn't their only one?
- How do you stay on track to meet project milestones and deliverables? (Are there any Sandia resources that you regularly use? GANTT charts?)
- Do you have any advice on managing time? This would be both for ensuring that project timelines don't slip and for keeping meetings well organized and efficient.
- How do you structure team meetings? Length, frequency, goals, agenda,...?
- Do you find meetings to be a waste of time or critical to keep everyone track?
- How do you manage conflict in a team?
- Do you adjust your leadership style towards the different personalities and backgrounds of team members?
- Do you have advice on dealing with budget and staff changes?
- What can your management chain/other managers do in support of your project?
- When should you start looking for follow on funding?
- How should you plan for life after the project, in terms of continuing the work?
- Are there any Sandia resources that you rely on in running projects?
- Are there any lessons learned in running projects that particularly stand out to you?

Figure 6. Pg. 3/3 of letter to panelists for the April 2015 How to be an Effective PI workshop

Dear Panelists,

Thank you for agreeing to share your experiences as part of the "How to Effectively Budget as a PI" workshop on Wednesday, August 12th in Building 701/2001. We have been overwhelmed both by your enthusiasm to be a panelist and by the very strong interest of early and mid-career staff from across the labs. The panels will be videotaped and will be hosted online and accessible through the PI workshop wiki.

PI workshop wiki: **https://snl-wiki.sandia.gov/display/HTBEP/**

Schedule: https://snl-wiki.sandia.gov/display/HTBEP/August+2015%3A+How+to+Effectively+Budget+as+a+PI

Below are some details regarding logistics for the panels, as well as potential questions for each panel. The morning panel will be moderated by Amber Dagel, and the afternoon panel by Michael Hibbs.

Logistics:
1. **Introductions:**
   a. For introductions, **please send us a brief bio** that includes your background and history at Sandia (For example, something like: PhD in Mechanical Engineering from University of Illinois. Started in 1997 in Materials Science; moved to Neutron Generators after five years).
   b. For panelist intro statements, we will ask that you *briefly* describe your trajectory at Sandia and your current role.
2. **Panel Format:**
   a. Each panel lasts for 60 minutes. We will start with brief bios for each panelist, given by the moderator.
   b. We will then move to panelist intro statements, 2 minutes per panelist.
   c. The panel discussion will be guided by the planned questions (see second page), with additional questions encouraged from the audience.
3. **Discussion Topics:**
   a. On the next page, we have listed planned questions. We will likely not cover every question, but will use these topics to guide the discussion.
   b. **Please look over the planned questions in advance** and let us know if you have any preferences for questions that you would like to answer or any that you would prefer not to have directed at you. We would like to identify one or two "point" panelists for each question.
   c. If you have related suggestions for topics that we haven't addressed, please let us know.

Finally, in preparing for the panel, **please try to reflect on personal experiences to illustrate your responses**. The workshop participants consistently resonate with "lessons learned" examples, *both successes and failures*, that are shared by the panelists.

Again, thank you very much for your support of this workshop!

Amber, Blythe, Laura, Rachel, Derek, David, Michael, and Vipin

Next page: Panelists and Planned Questions

Figure 7. Page 1/2 of letter to panelists for the August 2015 Budget workshop

Morning Panel: (11:00 am – 12:00 pm)
Panelists:
   Nikki Lobato, Critical Asset Protection Business Office, Org. 10666
   Jeff Martin, Nuclear Forensics R & D, Org. 5754
   Cynthia Phillips, Computing Research, Org. 1400
   Richard Sweeney, 6500 & 6900 Business Office, 10669

Afternoon Panel: (4:00 pm – 5:00 pm)
Panelists:
   Susan Altman, Geochemistry, Org. 6915
   James Hochrein, Materials Reliability, Org. 1852
   John Jaramillo, Division 3000 Business Operations, Org. 10593
   Richard Sweeney, 6500 & 6900 Business Office, 10669

Planned questions:

Planning

- How do you estimate FTEs needed when writing proposals, especially ones focused on basic research? Are there rules of thumb for the time needed to accomplish particular tasks?
- Can you give an example of a project with a small mistake or bad decision made early in the budgeting process that compounded over time to become a much bigger problem?
- What are your go-to resources for support in budgeting?
- What lessons have you learned the hard way with respect to budgeting?
- What fraction of your time do you spend on organization/reporting as a PI? And how does this vary with project size and customer?
- How do you decide how to break down tasks and subtasks when designing a spendplan? Is it helpful to have many small subtasks or does it tend to overcomplicate things?
- Let's say you are a PI and your proposal gets funded at 75% of the asking level. How do you negotiate the revised scope with the funding agency? How do you implement the cuts among your team?
- If your proposal includes an outside collaborator (say from a university), are there advantages or disadvantages to including that cost in the proposal budget vs. waiting until after the project has been funded and then contracting the work with them?

Tracking/Adjusting

- Can you describe what part of budgeting are most important to track?
- Are there any tools/graphs you have found to be the most useful when tracking the budget?
- When tracking a budget, have there been any particular signs/flags that have indicated there may be a problem?
- How do you (a PI) keep people from overspending on your project?
- If a project has a university contract that is invoiced monthly, how do you arrange for payment of the final invoice that will arrive after the end date of the project?
- What happens at the end of the FY? Why are some P/Ts closed for a week and how might a PI plan for that?

Figure 8. Page 2/2 of letter to panelists for the August 2015 Budget workshop

8.5 Example survey

How to Be an Effective PI Workshop

Post workshop survey

Participant demographics

What is your position? (postdoc, MTS, STMS, PTS, DMTS, manager, business support, other)

Years at the lab? (less than 1 year, 1—5 years, 5—15 years, 15+ years)

What center are you in? _____

The 100 slots for this workshop filled up in less than 1 day. What inspired you to register? (select all that apply)

☐ This workshop addressed a need not well met by other Sandia resources

☐ I want to become a PI but am unsure how to

☐ I am a new PI and would like to become better at leading a team

☐ Quality and reputation of the panelists

☐ The workshop was free and I could charge A291 time to attend

☐ Other _____

Workshop experience

On a scale of 1-5, with 1 being poor and 5 excellent, please answer the following questions by circling one response.

How do you rate the workshop (overall)?

   1   **2**   **3**   **4**   **5**

Please rate each section as well

Steve Castillo's presentation: What Does it Mean to be a PI?

   1   **2**   **3**   **4**   **5**

Panel 1: Planning for Success

   1   **2**   **3**   **4**   **5**

Panel 2: Running Effective Projects

   1   **2**   **3**   **4**   **5**

Ed Cole's presentation: Don't Just Bring a Hammer – Find a Nail: How to Listen to Your Customers

   1   **2**   **3**   **4**   **5**

Vipin Gupta's presentation: Maximizing Your PI Potential and Developing Your Team

   1   **2**   **3**   **4**   **5**

(Survey continues on reverse)

How to Be an Effective PI: Plan for Success and Run Effective Projects!
January 22nd, 2014
Co-Sponsored by the Division 1000 WEC, the AST Program, Division 1000, and Sandia's ANGLE

Figure 9. Page 1/2 of the January 2015 post-workshop survey

Workshop content

Please comment on things you liked most in the workshop, liked least?

Do you have any suggestions for improvement?

What did you learn at the workshop?

What advice really struck a chord?

Select one answer to each of the following questions
How useful will this be for your career?

(not useful)   (possible useful)   (moderately useful)   (very useful)   (extremely useful)

How soon do you think you'll be able to use the advice you received at the workshop?

(not sure)   (within a year)   (next week)

Follow-on planning

Would you recommend this workshop to a colleague?
(no – not useful)   (no –colleagues are at different points in their career)   (potentially yes)   (yes – strongly)

Due to time constraints, we were unable to address many important aspects of being a PI (eg: writing proposals, budgets, …). If a similar workshop were hosted again, what aspects would you like it to address?

Any additional comments?

(Optional) Contact information to have us follow up with you
Name:_____ email: _____ phone:_____

How to Be an Effective PI: Plan for Success and Run Effective Projects!
January 22nd, 2014
Co-Sponsored by the Division 1000 WEC, the AST Program, Division 1000, and Sandia's ANGLE

Figure 10. Page 2/2 of the January 2015 post-workshop survey

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