

NSF Revolutionizing Engineering Departments Webinar Transcript

Webinar held November 7, 2018

Okay, welcome everyone to the RED webinar. I have 15 minutes after the hour so we will get started here shortly. We have a couple of things to let you know about. I have muted all of you now. Hopefully, I may have to go back and double check that. What we are interested in knowing is who is here with us. I would love it if you could type your name and department, and institution, in the chat box so we know you are here. We are really interested in hearing who is joining us today. We are recording the webinar and this will go up on the RED program page. If for any reason you don't want to be part of the recording and the webinar I will give you a minute to disconnect.

The last thing I want to say -- say before we get started, we invite you to type a question into the chat box at any time. We are going to field questions in the Q&A at the end. And it will help us to get those questions organized if, as you have questions you can type them into the chat box rather than all waiting until the Q&A session.

So this is the webinar for the professional formation of engineers, revolutionizing engineering departments, RED. I am Julie Martin, program director for engineering education. I am joined by my colleague Heather Watson who is the program director in the division of undergrad education and the director of human resources directorate. We are literally going to turn the camera over to Heather. When the time comes, I won't do it too much. What we will be discussing today is the new solicitation I am sure you all have read by now, NSF 19 513, which has a deadline of January 24, 2019 and I do want to let you know we are joined by two AAA technology fellows. Jesus and Vanessa, who will help me field questions we will start with the program overviews and the goals. We have this new solicitation. A single track that we had in prior solicitations we will talk about that and we will talk about the elements of the proposal let's start with all of these prefixes I'm sure if you have submitted to NSF before, you will understand what is in the program. The IUSE stands for improving undergraduate stem education. All the undergraduate assessments. IUSE is not a program with specific funding, there are programs underneath this. PFD is the professional organization of engineers, for engineering directorates to understand engineering formation holistically. This program doesn't have particular funding but a program that exist underneath the PFE framework. The RED program now stands for revolutionizing engineering departments. The directorate for education, human resources, EHR did in my colleague Heather Watson will speak to you who comes from the EHR directorate in the undergraduate division. And all of the engineering divisions have invested in the red program. Engineering wide.

Let me talk for just a minute about the professional formation of engineers. We talk about the professional formation of engineers as being the formal and informal processes and the value systems by which people become engineers. This really can incorporate a number of elements. There is the introduction to the profession at any age. acquisition of the technical knowledge and professional skills, knowledge and abilities. This can be both in informal and formal settings. the development of outlooks, perspectives, ways of thinking and knowing and doing. The development of identity as an engineer, and its intersection with other identities. And it is the acculturation to the profession, its standards and norms.

So, with that we will combine some of the acronyms we have been talking about and talk about the IUSE, PFE, RED program. I will give you a little bit of history, I'm sure many of you are familiar with the fact that there have been 19 projects that have already been funded as part of the RED program. from

fiscal year 14 through fiscal year 16, engineering, EHR and the CISE directorate collaborated on the RED program. and the same acronyms but slightly different name, in computer science. What we are seeing in the common thread across these projects is focus on organizational cultural change in the department, involving students, faculty, staff and industry, all in rethinking what it means to provide an engineering program. What we are seeing from the 19 Amalia one -- RED program, organizational change and not just changing curriculum and pedagogy. one of my favorite quotes from one of the folks on one of the funded RED teams was on a call with them and they were talking about the change that they had encountered in their department. One of the comments was the change doesn't start with development it shows up in development. This is a great way to think about how we are framing change is not just being about curriculum or a [indiscernible] but really showing up in the classroom.

So the new IUSE PFE program has two tracks. the innovation track which is analogous to what we have funded previously. and an adaptation and implementation track. I will speak just a moment about both. The innovation track, what you might be used to when you're thinking about the formal RED program -- former RED program. Things that are completely new approaches and actions. Designed to produce fundamental and structural change. And really go beyond the existing norms or principles. The innovation track is going to be funded between \$1 million and \$2 million for up to five years.

The new adaptation and implementation track is really a result of some of the interesting things we have been saying in the RED program to date. With the adaptation and implementation track we are looking for evidence-based and evidence generating change strategy. These can be actions and approaches that are adopted into the local context. So this track is going to have a maximum of \$1 million in funding for up to five years. What is important to understand is both tracks still include the consideration of cultural, organizational, structural, pedagogical changes needed to transform the department to one where students are engaged and developing their technical and professional skills and establishing identities as professional engineers. So I also highlighted in yellow on this slide, because I wanted to make sure everyone understands cup proposals outside the budgetary limits will be returned without review.

So many of you have probably looked at the new RED solicitation and are wondering really what the major changes are. This is a summary of the major changes from prior solicitation. Computer science is no longer included in the solicitation. Therefore the name of the program has been changed back to its original title. Which is revolutionizing engineering departments. We provided revised descriptions that focus on the middle two years of undergraduate and engineering curricula, as well as emphasizing the attention to cultural, organizational, structural and pedagogical changes that is necessary to reinforce and sustain desired transformations of engineering departments. This implementation track was added because as I mentioned, we are interested in fostering propagation of improving strategy to new contexts. and previously we required submission of a letter of intent it and we no longer require that. -- A letter of intent and we no longer require that you

As result of funding both tracks, we are looking for these outcomes. The fund programs that can serve as examples of change, and we are looking for revolutionary change to the middle two years of undergraduate curriculum. We are looking at engineering to connect engineering education research and practice. Contribute to the literature on change, and to create a cohort of project teams with activities and collaboration within and across cohorts. So the 19 projects that have already been funded, have been funded in three cohorts. They have activities and collaboration within each of those three cohorts, as well as across all three. So this year's funding will result in a fourth cohort of the RED funding, joining those 19.

When we think about the new RED solicitation, we are thinking about our prior research is going to have meeting, for faculty development and faculty reward systems and cultures that support faculty engagement. For change to really take hold. This is something we kept in mind in designing the solicitation. The RED teams already funded are becoming exemplars of change and we are excited about that. We have seen the need for adapting and implementing some of the existing red revolution. The existing projects as well as other revolutionary ideas that might've existed another context. So we added the second track.

We are continuing the emphasis on revolutionary change. The folks at NSF when they came up with the solicitation a number of years ago, we went straight to the dictionary to get a definition of revolutionary. This is what they came up with, radically, subtly or completely new, something producing fundamental, structural change, going outside or beyond existing norm and principles. We are continuing to emphasize the revolutionary change. We are continuing to have a focus on significant and systemic department change. This again is not a program where we are funding curricular reform. The changes in the curriculum and pedagogy will show up as a result of this revolutionary change. We want to create a vision for what it means to have an engineering program in your discipline. That's what Tran proposes to do. To clearly articulate a vision for what you see is an engineering program in your curricula.

And a typical attempt at change. One of the things that faculty might do, they might work in these large lecture halls, where audiences complain about the lectures. So coming up with an idea of intervention. They might find students are still complaining if they change that. students will claim plane -- complain either way so let's go back. That is not the change we are looking for. We want you to pay attention to the culture. If we think about this issue of having students enlarge lecture halls, not being sufficiently engaged, the types of questions we want you to ask her what do you want the program to be? You can get together and think about what you want your program to be, and if one of the things that you want as a culture in your department is that students should be engaged with real-world content cup that is going to help you do something like create field experiences, which is sort of a revolutionary way to think about your engineering discipline.

So with this I will turn the computer over, we will literally slide the computer down, to my colleague Heather.

Good afternoon everyone. Now I will talk to you about the components come when you're thinking about putting together your RED proposal. You notice in the solicitation, your principal investigator is your department chair or Dean, someone vested in actually carrying out the changes. and has the ability to get leverage on the changes you are making to actually stick within your department. It can be the department chair, the Dean level. Somebody that can actually help you carry out the type of changes and cultural vision, organizational change vision you have. Also included in that team is the educational researcher, and the organizational change expert. These two people will help you and to various aspects, one of course looking at perhaps the types, mentioned earlier, the field experiences and you will use it to support your vision for revolutionary thing your department revolutionizing your department did the pedagogy's, aspects you should look at, to get that portion of your project underway. And then the organizational change expert, that is the person you really want to have on board, from the very beginning, integrated in your project idea. They are the ones who will look for the information and literature you need it integrate into your project.

This is a Mac.

One moment. There you go.

The organizational change expert can bring in that aspect from social sciences or wherever their expertise lies with organizational change. These three key individuals, it can be more than three but you want these three as part of your project.

I will go over at a very high level what is required when you are presenting your project idea in your proposal. A vision that you have for revolutionizing your department. Project plan and evaluation framework, and we will talk about supplementary documents required.

Division as Julie mentioned is really key to what we are looking for. What is the vision you have for your department, or the particular discipline area you are focusing on. So what will happen after this revolution. What do you really anticipate, what is the dream or goal, guiding light for the department or culture your vision is. And define what success looks like, how it is defined for you and basically that success, how you would identify it. And also provide in your proposal, when you are thinking about this, what would be different in your department, what will be different culturally, for the student experience, in your program. What are those things you think would be provided or guide what you are doing. That's when you're creating the vision, it's very important to set that clearly. That revolutionary type of stance, vision, visionary thinking going on.

We have the two tracks. Putting them side by side as a staying on track, one might be for one track and one might be for another track. So for those familiar with the RED program, and now the RED A&I. Adapting either revolutions, in the cohort or other types of organizational changes that have happened elsewhere. Adapting them to the new context, your new department. What is different about it. We want things like when you compare the old implementation or original implementation of that change, the vision and context, to now the new context, of your proposal, where you are implementing that change or adapting. That is important.

For both tracks, goals and objectives are the same. Looking at the cultural, organizational, engineers in the middle two years. What are the goals and objectives in your project. The targets for the project, what will make your department move towards your vision that you articulated. What is it about faculty, those experienced career students, the formation. And both of these, I will say both are literature based. It depends on your stance, what will be. For the RED innovation projects, evidence-based, supporting your revolutionary ideas. Coming up with a new organizational or change strategy for that department. What is that based on, how you are using that. What is the theory of change on that, and how to make it a lasting effect. From the implementation, how is this adaptation now revolutionizing. Sorry about that. How are those being adapted for success in your department? There will be some literature about how things changed or how you can adapt things to the context. With literature as well to support if there are changes for that adaptation and how to make that lasting change affect.

A little bit about the barriers. You want to think about any anticipated barriers that might be in your way, challenges the opportunities come when you're looking at barriers. You don't have to spend a lot of time articulating all of the barriers. We know you cannot part -- anticipate every barrier just make sure you are aware of them and you articulate well enough to reviewers or to us, that you understand what the buyer yours might be. -- Barriers might be.

And then a little bit more, the focus of the two different tracks. In the RED innovation you are doing a research plan, a research design, specify your research questions, based on the literature out there what are the theories used in your research and your research design and methodology. In these can be based on qualitative or quantitative. Of whatever you are proposing to do. You are developing again, a new strategy, revolutionary strategy, or building upon an existing revolutionary change strategy. With the RED innovation.

Now the red A&I, doesn't focus on strategy that you're looking at how to implement the strategy somewhere else in a new context. Because a change strategy might work on a particular campus or department and not that you can pick up and drop it down into a different context and it would be behaving the same. What the A&I track is looking at evidence with the emphasis on the adaptations as a way for the opportunity you have for best practices and how the innovations can be done.

Both of these will have evaluation plans with one more focused on looking at the scope of work that is being proposed in the RED innovation track, informed by your theory of change. With desirable and reasonable outcomes for revolutionary change. And with the A&I side, it's focused more on implementing those strategies. So you're not looking to say that we choose the right approach, you are looking at what I call the foot on the ground, practical aspects of implementing your change strategy from a different context into your own context. And what can you learn thinking about everything in the right way. For both of those you have to think about what are you defining or choosing to indicate success, or accomplishing whatever it is you are proposing to do whether adaptation or implementation. In the timeframe. Sometimes you will formalize the timeframe in a logic model. Sometimes people tend to articulate that in a model.

For both of these tracks we are thinking about how the organizational change or revolution in the disseminated scale and for the RED innovation, adapted to different context. For the RED innovation projects we are looking for you to articulate is there a roadmap you have, for the scale, how that particular revolutionary idea change strategy will have an impact locally, nationally, to support those types of changes on departments. And for the RED A&I track, a dissemination plan, we want to know how that knowledge if implemented in a different context can be diffused to other departments and institutions. I use the word diffused instead of simulated -- disseminated because it's more broad to creatively how you can get that information really widespread to get to people got to really get revolutionary change not just in your own department, or institution, but across all departments.

Now we will talk about the supplementary documents. There are three. That we look for in the proposals. One is letters from institutional leadership. When we are talking about institutional leadership we are talking beyond chairs, we want letters beyond that, higher up. We want buy-in and this helps you or helps promote the change, sustains changes. Once there is an investment, not meeting monetary but maybe monetary, but you want the buy-in from leadership. The letters actually serve to show our highlight that yes the institution itself is behind you. In doing these revolutionary ideas, carrying them out.

Second is the postdoc mentoring plan. If you have docked oriole researchers as part of the plan -- docked oriole [indiscernible] making sure what you are providing, it gets them prepared for their next career step. And the third is the data management plan. Human subjects, considerations around privacy and sharing it I know the engineering doctorate details but the data management plan look like or what they should include. For any of the engineer proposals, but also my directorate at EHR has a document that details what EHR looks for when they are looking for data management plan. Either one of those,

are similar, there is nothing drastically different between the two, we all have the same goal in mind. That informs the type of information we look for cup for you to include an the plan.

The successful RED proposal. Let's talk about this. This is taken from the solicitation. We are talking about things that now you should really, questions you can ask yourself when you are thinking about business proposals. Highly competitive, highly findable, convincing to the reviewers. Think about how revolutionary is your vision. We talk about the vision, the vision is key. So think, when you look at the literature and see what is out there, what opportunities, what others have been doing. And put it into a context in your own mind, how your vision compares to those. Transformative, revolutionary, suddenly new, radically different. all of those fun terms we talked about.

Make sure your team is complete and each member is qualified. A particular role. For example educational researcher, organizational change expert. And think about have you involved in educational researcher and your organizational change expert, in the project from the start. You want them integrated from the beginning, that makes a strong team. It really helps you make that vision, they will help you if you are struggling, trying to articulate the vision. That's why the other two experts are there, for organizational change experts, they help you create or form the vision. Be sure you have them involved.

Institutional commitment. The letters you are providing, from institutional leadership, commitment letters. Partners. Do they provide evidence of support for the project. In achieving the goals you have. Maybe they can specify what they are committing to the project, how they are involved in the project. That would be very helpful. Make sure there is a connection to the professional practice. When you think about the professional formation of your students, if you have students. That connection to professional practice, keep that in mind. Make that come through Quail -- very clearly.

And the faculty development plan, it's not just reform, the vision of the students, for practice to go on to academia. We also include developing faculty, making sure they are changing the culture you want. The faculty and the department, to make sure the plan is well-planned, and properly incentivized. make sure there are incentives, and sufficient incentives to make sure faculty themselves will have a buy-in and they have resources, to be part of the revolutionary change.

You want to make sure you have achievability and significance of the activities, the ideas you have for the middle two years of curriculum. How responsive is that to the call for a focus on professional skills, 21st-century skills we call it. To be engineers. Reviewers will also take into account the justification of your research plan using the literature. All of this will indicate at least to us, the potential that you will have for success and the scalability of your idea. We are looking at your research plan to have that grounded in the literature, incentive plan, institutional leadership buy-in, and sustainability of the change. That is one area where institutional leadership can cut through their commitment letters or letters supporting your idea, where they can actually have a chance to say we have buy-in and we can make the changes, maybe some leadership administrative types of changes that can help sustain the innovation.

For the RED innovation, in particular, reviewers will be looking at the theory of change, valid and well justified. and how it will justify the roadmap, add a vacation -- adaptation, the propagation roadmap in transferability. That is a goal for us in RED. In all of the departments out there. The reviewers will look at just how well-defined those are and your change strategies.

And the RED A&I project, the dissemination plan, how reasonable and appropriate is the reach of that dissemination. That is the focus we are looking at for that potential adaptation of those projects.

Again the connection to research and engineering education. Looking highly at that. How well your plans or vision informed by the literature in prior attempts. And if applicable, how is it leading into the implementation of change. And is the expectation of success that you have are you articulated, is well justified.

And then adaptation and scaling, we have talked about that. I will not reiterate that, you can read that. To be everywhere adapted and scaled, your ideas and thoughts, how clearly defined or articulated it is.

And a little bit about typical pitfalls for a RED proposal or any proposal. If you fail to address the culture, those cultural changes, changes within the department, organizational structures. Those are the items we are looking for. As Julie said, it is not just curricular reform did it's the attention to the organizational changes that might happen, very important. If you're missing any important elements. [indiscernible] how you get this revolution, implementation, adaptation out to the rest of the business community.

Another pitfall might be to explain what will be done and then say we are going to do [indiscernible]. Field learning experiences for students. But not how it will be done. We want to make sure you have thought it all the way through, nuts and bolts, not just describe the high goals. And if there is a lack of appropriate grounding in the literature, evidence generated projects we want to have knowledge generated evidence. So looking to see what has been done out there. What the literature says to support what you are doing.

If there's a week evaluation component that again will be [indiscernible]. and if there is not sufficient engagement of engineer education expert and your organizational change expert. You want these people, these two experts, involved upfront, helping you create your vision, advance your vision and inform your activities.

I think now we are going to the questions.

We have some frequently asked one's.

So we thought we would start with frequently asked questions. We have been inviting you throughout the webinar to type your questions into the chat box. I have some of them already. We will answer those for you. You can go ahead and do that now as well. We thought that this would be better than just opening up the lines and having lots of people's background noise on.

So let's talk about these FAQs. We have some questions Heather and I already received from the community. How many proposals can be submitted by an institution. And look at that, I left the number. A maximum of two proposals per institution. That is not a fill in the blank. Two proposals per institution. When I have given that answer before people have said does that mean one RED and one RED A&I did it's however your institution wants to do that. So again, I have been asked, if my institution has a RED project and wants to submit a proposal. We will accept a proposal from an institution that has already been funded for a proposal. you can support it submit it to the RED A&I tracked. So institutions that have an existing RED award should not submit a proposal to a RED innovation track. Often asked about the computer science department. they are no longer eligible. This now the RED stands for revolutionizing engineering departments.

We have been asked if engineering technology departments can submit a proposal. The answer is yes, absolutely, we encourage engineering technology departments. We have a four-year program to submit to the written one program.

Questions already in the chat box, I can answer those.

We will try to both squeeze in to the frame. We can both do it. We will do the best we can with these questions. We have a few of them written down already that were in the chat box. Then what we will do, Venessa Munoz and Jesus will help us field the questions from the chat box.

The first question I saw was asking if financial matching was allowed. I think that had to do maybe with the way that you said not a financial investment. My understanding of that is we can't allow cost-sharing. However what Heather was referring to, speaking about that investment is the nonfinancial investment program. Also it's important to think about we will be looking at the same plan. So we don't want these innovations to vanish when the money goes away.

So yes that financial commitment after the RED award projects in effect. So be thinking about how you will sustain this. We were asked already in the chat box if non-R1 institutions can apply. and I say absolutely, this is about undergraduate engineering education. Whether or not you have a graduate program, or a master's level institution. Is not relevant here.

Here is one that asked if we are using a change model from an existing RED project, with a different set of outcomes, is that a red innovation or adaptation?

I would say adaptation.

I think the way I am interpreting the question, it probably is adaptation and implementation. If you have a specific question about that, we are happy to answer that my email. It could be that you use a particular framework for change, that is similar to something and you're doing something new with it. I would say the person that asked that question, email us details and we will make sure that is clear.

We were also asked if you are doing adaptation implementation grants, should you partner with the same change expert who is the change expert for an institution that has previously been funded. My response to that is it's likely that change expert is still working hard on that RED track. We haven't had any projects without that, our oldest cohort I guess, beginning their fourth year. They still have the good part of two years left. So if you want to talk about it, and or get recommendation from them on who else

Anything else to add?

Maybe they are a super person.

We don't want to say you can't, it's not forbidden but it's not required.

We want to make sure the existing cohorts are able to finish their project. We are okay with that.

Right.

Another question that came in, if there is a general size of the department, depending on number of students, faculty, we are not targeting anything until, nothing particular, that is the story of your department. Whether it's a small department or big department, either way.

One question that came up we already answered. Talking about community colleges. And they said yes they can be involved as partners with a four-year institution. In that sense, many times a community, articulation before the engineering degree program. That is a good way to get the revolutionary change aspect and change strategies integrated [indiscernible] seamless transition.

So we have another question. I realize maybe instead of asking Jesus and Vanessa. You would not believe how many computers it took for us to do this today. This question says our school includes computer science and engineering, and they want to submit a schoolwide proposal. I would say the focus needs to be on the engineering and it comes down to the human resources director, investing in this. I would say feel free to talk to us in the details that we can't really get into. We look forward to hearing from you via email.

And someone asked where can I find good literature for these types of information?

I will interpret that question as potentially being about organizational change. And also they might have been asking about the specifics, innovations that have been made through the RED program. The red program piece is pretty easy. The red teams have been doing a lot of publishing. And you can look at what's been funded and find out to those 19 institutions. I know there are a lot of publications that have been done through the American Society for education process. That annual conference or the frontiers of education conference. Publishes in the Journal of education. And also at the end of this slide, resources we will include.

That's what we have. And someone asked who might be these organizational-change experts. They are asking if someone from a commercial organization, corporate office, Fortune 500, somebody be the organizational change expert.

I would say if they have the expertise in their qualifications. Reviewers will look at how qualified doing this type of organizational change. If they have that in their background. But I wouldn't just go out and get a business.

If it's not necessarily going to be business, I would say probably the majority of the teams would be academic context. There are folks who specialized, their academic discipline is in the organizational change. One thing you might do, perhaps contact some of the red team, that has existing con tracks. Many times they will be in social science.

So those are the questions that have been asked so far. Waiting for others to pop up, type it now. We have had a suggestion, thank you Elizabeth. She is making a suggestion to answer the question we were struggling with. Defining an organizational change expert. Check out anthropology and sociology. Those of the social science folks we just referred to. That she does know of people that are business scholars like business management. And of course, Julia is mentioning higher education. Hopefully that will give you some. We are waiting on someone else to ask a question. We have at least six minutes. We are just staring at the screen. I can put that back. Okay. We have an easy question. Will the slides be up on the website afterwards. Yes. We will have a couple of things on the website. It won't take us long. They will

be in PDF form. We are also having this webinar recorded and transcribed. My understanding is it might take a little while to get the transcription back. Anything we post in terms of a video, we have to make sure it is compliant and accessible. We have to make sure we have that transcript ready and the captioning done before it is posted. We will have a video available. You might want to go back and look at it, there are lots of folks I'm sure who did not know about the webinar. The slides are easy to do and we will have those up for sure by the end of the week. Let's see if anybody else has a question.

Good. Kwok is asking if this is the first time the institution is applying for the RED grant. Can we choose one of the two grants to apply for? Yes. a maximum of two per institution. You could have two A&I, two innovations, one innovation and one A&I. As far as NSF, your institution may decide to do the limit of submission differently. As far as we are concerned, it is a maximum of two total.

Yes, thank you Julia for reminding me that two years ago NSF funded a webinar about proposals. So this would be applicable to the RED innovation. And those addressed issues like revolutionary. Julia entered in the chat box where everybody should be able to see, academic change.org did and then click on NSF webinar. A great resource. There is a link to it on the RED program page. That is a great resource. And Julio Williams, asked, that is a fantastic resource. Looking at what they are talking about we are now calling the RED innovation.

All right. I will allow another minute or two, in case anyone has a question, a burning question. Someone is asking about a collaboration or collaborative grant with an existing RED project, allowed for the A&I. My interpretation of that, it shouldn't be submitted as a collaborative. It is really about your institution. If there someone who has an existing RED proposal you want to partner with. There is probably a way to talk to us about it, to include some budget or some financial considerations for those, probably through a consulting agreement. A sub award. But we are not envisioning that the RED A&I would be officially a collaboration between the two institutions. That is a great question, thank you.

This is the part where we stare at the screen.

I see you are typing a question that says I felt like you were making a clear distinction between curricular change versus this. Yes, I think what we are talking about here, there is likely going to be curricular change as part of the cultural change you are trying to establish. This is not a grant however about we will change the way we teach or we change the courses. It's not just about, it has to have the overarching cultural, organizational change, that is going to have a component of not only with the student experience, but the [indiscernible] a slide at the beginning about the faculty development. We have seen an existing RED grant, departments who were changing their faculty rewards system. One interesting example of that to the top of my mind, at Colorado State, the computer engineering department changing the way, no longer offering courses, they are offering modules that correspond to a particular thread. think of that would change the faculty rewards system. the faculty is no longer responsible for a course and no longer get credit for teaching a three-hour course. And things like that. So that as a department, completely revolutionizing the way you reward faculty. That is sort of an example of the things that we need, that show up in the curriculum but it's not just about the curriculum. Okay, it sounds like we are at 4 PM. I think we should definitely try to keep on time. We appreciate everybody joining us today. We hope we have a lot of folks joining us from other time zones. It's the top of the hour. We are happy to follow up with your additional questions, via email. The best way to do that I think is the email one of us. We will make sure one of us answers. We will both be generating a Frequently Asked Questions, based on the questions you asked here, we will get that transcript up this weekend. the slides as soon as we can hear it and the video as well. Take you so much

for joining us and we look forward to January 24. I will say please submit your proposal at least a couple of days before the 24th.

It could be a horror story.

Not only with the RED program but we had a proposal in the fast lane at grants.gov, I don't know what happened but we had historic amount of people, everybody trying to submit on that day. It was not good.

Long story short, don't procrastinate. And the 459 local time.

Be sure to pay attention to the maximum limits for the two tracks. Anything submitted outside the limits will be returned. Thank you for joining us, goodbye.

[Event concluded]
