customer email



Application Development



**FROM: Steven A. Quinn (saquinn@parallax.com)**

**TO: professor’s name (**[**professor@icarnegie.com**](mailto:professor@icarnegie.com)**)** (to be inserted by the professor)

**SUBJECT: Avoided a big problem at the Berlin site**

Hey Fred,

I’m at the airport flying out of Berlin to visit my family in Dublin for a week. Before heading out I wanted to let you know of a few issues that I uncovered just days before the project at [DRK Kliniken Berlin – Westend](http://www.drk-kliniken-berlin.de/international/english-information/about-us/locations/drk-kliniken-berlin-westend/) got underway.

As you know, we were contracted to design and build new state-of-the-art heliports for two of five hospitals in the DRK Kliniken Berlin chain. I was reviewing the final plans for the Westend job, before signing the order to begin pouring the concrete, when I realized that the staff in the United States recorded linear measurements in feet while the folks on the ground in Berlin used meters. Yikes!

Had I not found this error, we would have purchased and mixed more than $1.2 million dollars of concrete that we didn’t need. (And I think I’d be out of a job!)

Needless to say, both teams are pointing fingers and neither wants to accept responsibility. I can deal with that, but I fear this issue occurring again, with our team being diverse and spread all over the world.

Oh, and once I began checking the other documents I found that the key navigational aid for the heliport was going to be 125 meters away from where it was required. (The figure was supposed to be 7.25 but ended up 7.1) I guess a few decimal places got lost along the way.

Is there some way to give the teams some sort of mobile app or calculator that would force them to be on the same page when doing computations? Does something like that even exist? That way we would avoid these problems in the future. Not to mention keep everyone from pointing fingers and me having to sort it all out!

I sure am ready for a vacation.

Can we arrange a chat soon before we begin the bulk of work on the second heliport?

Regards,

Steven A. Quinn

Senior Consultant, Europe

Parallax Consulting

REPLY----------

**FROM: Professor’s name (**[**professor@icarnegie.com**](mailto:professor@icarnegie.com)**)** (to be inserted by the professor)

**TO: Steven A. Quinn (saquinn@parallax.com)**

**SUBJECT: re: Avoiding a big problem at the Berlin site**

Hello Steve,

Thanks so much for your email. Your diligence on this project is proven once again by catching these errors. I can’t even imagine where we would be if the errors were not caught until after the project began. Oh wait, yes I can.

This is very similar to what happened to the [Mars orbiter](http://articles.cnn.com/1999-09-30/tech/9909_30_mars.metric.02_1_climate-orbiter-spacecraft-team-metric-system?_s=PM:TECH) that was lost a few years back. Do you remember that? NASA did all its equations in metrics, while Lockheed Martin used English units of measure. Unfortunately, no one caught that one in time and a $125 million craft was launched into space and lost forever. I’d love to have seen how the directors of those organizations dealt with that!

Here’s what I am thinking…what if we had a calculator that required users to input their unit of linear measure. The user would also then select the unit of measure in which to have the output displayed. This way each team would be hyper aware of which unit is being used and all calculations would be recorded with the number and also with the type of unit. We could develop a calculator program as well as a mobile app so that everyone can have it on all of their devices.

I can get my NU interns to work on this. These students have read a handout called “Units and Precision” that sums up a few chapters from the John Taylor book [“An Intro to Error Analysis,”](http://books.google.com/books/about/An_introduction_to_error_analysis.html?id=giFQcZub80oC) which should give them a sound base on error analysis.

This calculator/app could also be designed in a way to avoid ‘[loss of significance](http://en.wikipedia.org/wiki/Loss_of_significance),” which looks to be the culprit in the nav. aid placement error. A lot of folks don’t realize how much of an issue this is. Being a bit off course might not be bad, but if a ship is a ‘bit’ off course every day for weeks, suddenly it finds itself in Somalia instead of Kenya.

Can you send me a more detailed report so that I can gain approval for the project and provide more information to the NU students?

Let’s try to chat next Tuesday.

Sincerely,

Professor’s name (to be inserted by the professor)

Senior Project Manager

iCarnegie Consulting

powered by Carnegie Mellon

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Pittsburgh, PA 15213

REPLY-----------------------

**FROM: Steven A. Quinn (saquinn@parallax.com)**

**TO: Professor’s name (**[**professor@icarnegie.com**](mailto:professor@icarnegie.com)**)** (to be inserted by the professor)

**SUBJECT: re: re: Avoided a big problem at the Berlin site**

Tuesday is great. I’ll set up a call. Attached are the project requirements.

Steve

**PROJECT DOCUMENT**

**DRK Kliniken Berlin Error Assessment**

**Prepared by Steven A. Quinn**

**Background**

DRK Kliniken Berlin is a non-profit network of five hospitals with more than 1,350 beds and 3,300 staff members. In addition to providing care, DRK Kliniken Berlin locations are teaching hospitals, where physicians and other health care professionals are trained. Its facilities include: Kopenick, Mitte, Parks-Santorium Dahlem, Pflege & Wohnen Mariendort and Westend.

iCarnegie and Parallax have been contracted to work on the design and building of heliports at the Westend and Kopenick locations, as well as the development and implementation of the training and continuous education aspects of the expansion. iCarnegie is heading the information technology and educational excellence aspects of the staff who will work and teach at DRK Kliniken Berlin. iCarnegie has contracted with Parallax to oversee the design and construction of the new facilities so that they are in line with the overall goals of the teaching hospital.

**Discovered errors**

*Issue: Using different units of linear measurement*

While conducting the final review in order to give sign off for the Westend job, I did one final check over all the specs. Something caught my eye while reviewing the documents created by the team in the US. I noticed they were measuring in feet, not meters like the British team.

At first I thought maybe I was mistaken, so I was ready to sign. Then I asked my colleague, Mary Margaret Fischer, to review the numbers and give me her expert opinion. She looked at the documents and her face became pale. She said it was not something that was never checked because it was assumed everyone was using metrics.

Had I not found this error, we would have purchased and mixed more than $1.2 million dollars of concrete that we didn’t need. It would have thrown us way over budget, not to mention the loss of our reputation as a first-class global firm, and potential time and money issues for DRK.

*Issue 2: Loss of significance*

After uncovering the unit error, I immediately began working with Mary Margaret to recheck everything. While checking the other documents I found that the key navigational aid for the heliport was also going to be 125 meters away from where it was required, placing it directly in the path to the elevator. (The figure was supposed to be 7.25 but ended up 7.1) It seems there was a loss of significance in the calculations.

**Actions needed**

We need a solid solution to keep such errors from delaying our projects in the future. Additionally, this will keep us from losing money and damaging our relationships with our clients. A solution could come in the form of a calculator, mobile app or any other high-tech and adaptable solution. The solution needs to be easy to use and implementable across our teams all over the world.