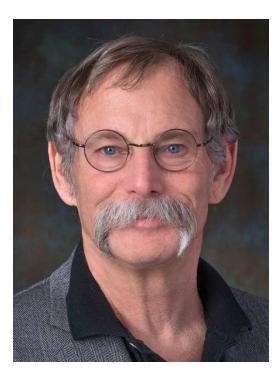- ## [Interview with Neil Siegel, ESEP](#)

by Courtney Wright | Sep 22, 2021 **Leave a comment**

The interview presents information from 2014 and updates from 2021:

Q1: Describe your current position/role.

2014 - Dr. Siegel is currently Vice-President and Chief Technology Officer for Northrop Grumman Information Systems, which is one of four operating sectors within the Northrup Grumman Corporation (NGC). In this role, Dr. Siegel is responsible for the technical content of the company's projects and proposals, directing the research program, and leading the talent-development program for the sector. Dr. Siegel also participates in many other company activities, such as long-range strategic planning.

2021 - Dr. Siegel is currently The IBM Professor of Engineering Management", within the department of industrial and systems engineering, at the University of Southern California.

Q2: What are one or two of your proudest professional accomplishments?

2021 - Dr. Siegel has four professional accomplishments of which he is proudest. First, Dr. Siegel led the team that rescued the HUNTER unmanned air vehicle (UAV) development in the late 1990s, taking a program that was literally cancelled by the Army, getting it "uncancelled," finding and solving the issues that were causing reliability and safety problems, and then

bringing the system performance into specification. The HUNTER UAV program was the first UAS that was widely deployed as a fully operational war-fighting system, not just as an experiment, and as such, was a major contributor to the "UAV revolution". The HUNTER UAS was in use for 25 years, and just retired in early 2021. Second, Dr. Siegel was the Chief Engineer for the Forward-Area Air Defense System. This was a first-of-a-kind command-and-control system, that 30 years later remains in use, and has received many awards and recognitions as a model system-development program. Third, Dr. Siegel was the leader of the team that developed the Army's "Blue-Force Tracker" that provides U.S. soldiers and Marines with knowledge of the position of friendly and enemy forces, provides real-time command-and-control, and manages the dynamics of the battlefield (e.g., re-supply, artillery support). The program has received many awards, and Dr. Siegel has received letters from soldiers thanking him and NGC for saving their lives with this technology. This system also debuted a number of technologies that have crossed over into consumer electronics, and thereby provided important support to the smartphone and consumer electronics revolutions. Fourth, early in his career, he played an important role in the first system to use a computer to analyze prescriptions as they are written, and notifying doctors and pharmacist's of potential adverse interactions between different prescribed medicines, over-the-counter preparations, and the patient's chronic conditions; tens of thousands of death were occurring in the U.S. alone due to this cause. Almost every prescription in the U.S. and Europe now is processed through a system of this kind, saving significant number of lives every year.

Q3: What is the biggest challenge you face as a Systems Engineer?

2021 - The biggest challenge Dr. Siegel currently perceives is getting customers adequately to fund the Systems Engineering work required to be effective at engineering complex systems. Dr. Siegel applauds the DoD for vocally championing the value proposition that Systems Engineering provides, but feels that other industries often do not understand and appreciate the value of Systems Engineering. The U.S. government understands the systems engineering value proposition far better than most private industry does, and better than most other governments do.

Q4: What advice do you have for individuals starting their career as a Systems Engineer?

2021 - Dr. Siegel advises people aspiring to become Systems Engineers to be sure to acquire domain knowledge in some problem / customer space. Acquiring domain knowledge allows people to become passionate about a problem set, as they connect with system users and other stakeholders. This passion makes solving the customers' technical problem emotionally rewarding. Dr. Siegel also advises aspiring Systems Engineers to take responsibility for the social, not just the technical, aspects of the problems that they are given to address. This broader perspective increases the likelihood that the technical solution is actually used.

Q5: How do you continue to learn about SE? What professional development activities do you do?

2021 - Dr. Siegel completed his Ph.D. in Systems Engineering relatively late in his career, studying under Barry Boehm at the University of Southern California. Dr. Siegel regularly writes conference papers and attends systems engineering professional conferences, and

undertook to qualify as an INCOSE E-SEP. Dr. Siegel also works to foster advancement and transfer of Systems Engineering knowledge within private industry, and teaches Systems Engineering through his membership on the engineering faculty at USC.

Q6: What are the next career goals you want to achieve?

2021 - Dr. Siegel believes his next career goal is to transfer knowledge and skill in Systems Engineering to the next generation. Dr. Siegel retired from corporate life at the end of 2015 and entered academia on a full-time basis. Dr. Siegel's current personal research interests include the problem of geographically distributed engineering, the reliability of the electric-power grid and other societal infrastructures, and the opportunities for systems engineering dramatically to improve healthcare. He also has written a textbook on Engineering Project Management (Wiley), and plans to write a companion textbook on systems engineering.

Q7: What are some of your hobbies/interests outside of work?

2021 - Dr. Siegel is a musician, having been an instrumentalist since he was seven years old. He is an aficionado of folk music from all over the world, especially the Middle East. He plays the flute, the Persian *târ*, the Bulgarian *kaval*, and the Turkish *ney*, and has performed in more than 1,500 concerts worldwide. This skill is what paid his way through college.

Q8: Are there any other final comments you would like to make?

2021 - Dr. Siegel feels that Systems Engineering is a "high leverage" profession, and the place to be for young people who want to make a difference in their world.

In 2021, we reached out to Mr. Siegel to answer more questions:

Q9: Why did you decide to get the SEP certification?

To inspire others at Northrop Grumman to do so.

Q10: How does the SEP certification impact your professional career?

For me, not so much; I was already vice-president and chief technology officer, e.g., not much further promotion potential! But I hoped that it would be helpful to other employees, so I felt I ought to set an example and go for certification myself.

Q11: What has surprised you in the past five years related to systems engineering?

More industries are coming to understand the systems engineering value proposition. Aerospace and defense were the first industries to do so, of course. Energy was next. But recently, I have seen signs that others, notably healthcare and entertainment, are seeing the systems engineering value proposition, as well.

Q12: What job titles have you had other than "Systems Engineer?"

I don't know that I was ever titled "systems engineer". I have held titles such as "principal scientist", "vice-president and division general manager", "vice-president and chief engineer", and "vice-president and chief technology officer" (the title from which I retired at Northrop Grumman). My current title is "The IBM Professor of Engineering Management", within the department of industrial and systems engineering at USC.