

Engineers need to get the message across

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There is excitement in the community of engineers today on a scale not seen for decades.

President Barack Obama's appointment of a chief technology officer has generated a heightened sense of expectation in technology circles. The administration's focus on infrastructure – both the hard, physical world of roads and energy generation as well as the conceptual world of networks and systems – has our brightest minds buzzing.

The growing commitment of the global community to solving some of our most incomprehensible challenges – global warming, famine, poverty – is generating a dialogue between policy makers and problem solvers that has rarely been experienced.

This is the way it should always be. Policy discussions about alternative energy, online privacy, infrastructure and global well-being are essentially conversations about innovation, its impact on society and its ability to solve – not blunt, but truly solve – the challenges we face.

Leading this dialogue, however, should be engineers who are working on the front lines of innovation, not politicians or business leaders sitting alone in conference rooms.

Virtually everything people touch today has been designed by engineers – from the cars we drive and the roads we drive them on to the mobile phones and GPS devices we use while we should be keeping our eyes on the road.

The bigger achievements of engineering, the ones that have carried us to the moon and beyond, that have connected every corner of our globe, that allow us to predict when and where the next hurricane will strike, these have sprung from collections of minds working away in small rooms, working out equations and concepts on whiteboards.

This seeming magic of great engineering can be scary to the general public and has far too frequently led to bad public policy and misconceptions that hold back new transformational innovations.

We've already seen this unfold. Look at genetically modified food or nuclear energy, for instance. Both are valuable ideas with tremendous potential to solve critical world problems, but as defined by special interest groups, they have acquired a veneer of controversy that make them untouchable as topics of dinner party conversation – never mind national policy debates. It is no longer about solving world hunger or the energy and environmental crises. Such discussions require a logic that is not possible to maintain in the face of innuendo and emotion.

There is a pressing need for engineers to become more proactive with society – to engage, to communicate, and to lead. We can no longer be content that our laboratory work will be presented and translated to the public as originally envisioned.

The time has come for us to become more socially responsible engineers who not only solve problems but who can educate and argue for their ideals. It's the dawning of a new era, the age of the "citizen engineer".

Engineers already have an ethical obligation to make decisions that are consistent with the safety, health and welfare of the public. The engineering community has met this obligation exceedingly well over the years.

When people cross a bridge or enter an elevator, they do so as a commonplace occurrence and without worry. Society trusts us to get new things right as well – from the newest cancer treatments, to the nanotechnology underlying new ways to create clean water, to the software in a hybrid car that ensures the brake pedal really does stop the vehicle.

But citizen engineers need to move beyond this basic level and begin upholding even higher ideals. More than crunching numbers or building models, engineers should speak out on issues in their field of expertise and engage in the political process.

We're already encouraged by the green technology emerging and its acceptance by mainstream audiences. By embracing new forms of responsibility (ie environmental responsibility), citizen engineers are getting closer to the needs of the end user and getting in touch with the issues that are important to society as a whole.

Perhaps most promisingly, we are seeing the nascent periods of a movement where engineers are being embraced as heralds of a new and better future, as visionaries who will lead us to the amazing solutions our tremendous technology promises.

Time and time again, the public has heralded a technological advance as a savior, only to demonise it months later, when in fact both views were too extreme. Citizen engineers need to play a more active and assertive role in bridging that education gap, in advocating the right solution.

Only when we serve as the connection point between science and society – between pure knowledge and how it is used – can engineers effectively participate in solving the world's problems.

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