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Bridging the Gap Between Users and Developers

Has the communication between demining technology users and developers improved over the last 10 years? Most agree that while there have been improvements, the need for further improvement overshadows the positive developments.

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Are Users and Developers Closer to Resolving Their Differences?

"Although there have been many improvements in technology during the last 10 years, not much has changed fundamentally and we still do things in a similar way to what we were doing 10 years ago," says William Lawrence, an independent mine action consultant. Most users and developers agree that while there have been attempts to develop an avenue of communication between the two groups, the attempts have rarely been successful. Therefore, the questions remain:

- Are users defining their needs?
- Are developers listening?
- What mechanisms should be in place to encourage communication between users and developers?

Are Users Defining Their Needs?

"While some users are making an effort to clearly define their needs, some are not," says Marc Acheroy of the Royal Military Academy in Brussels. He cites Norwegian Peoples Aid (NPA) and Menschen gegen Minen/People Against Landmines (MgM) as two organizations that are making an effort to understand the technology and to explain their real needs, which are often translated in a type of priority list that helps developers to see that fundamental needs must be solved before bringing new technologies to the field. The ergonomics of the metal detector is one example; in Angola the deminers must regularly stop their work during the day because they have shoulder problems caused by the bad position of the electronics.

"Users often have difficulties communicating their needs because they don't know what could enhance their work—they are not aware of the capability of new technologies and they have difficulties expressing their needs in a technological language," says Acheroy. Users can express their needs in terms of the malfunctioning of their process in specific conditions (e.g., when the soil is dry, it is hard and it is difficult to use probing systems); seldom will they communicate their needs by themselves. Therefore, it is important that developers go to the field to observe the work of demining.

While Lawrence would agree that developers must go to the field to observe the needs of deminers, he believes "users are becoming more and more familiar with what they need, what they should have and what is or is not useful." Lawrence explains that in years past, deminers would always wear whatever personal protective equipment (PPE) developers gave them and would almost always accept the opinions of the international supervisor running their teams. However, as the mine clearance world becomes more mature and as more national programs become self-managing, deminers are becoming more educated about their needs.

Also, as Andy Smith (AVS Mine Action Consultant) mentions, deminers tend to communicate their needs by solving them. Says Smith, "The field people come up with a make-do solution and then it can be improved, enhanced, refined with some more input." However, Smith explains that deminers' needs are often an incremental improvement over previous technologies, a feature that does not appeal to research institutions. Also, the ownership of the idea may be questionable, which can make commercial exploiters back off.

Are Developers Listening?

"Users feel as though very few are listening to their needs," says Andy Smith. "In the USA, the Golden West Humanitarian Foundation people do understand what I am saying, but get no funding. The Geneva International Center for Humanitarian Demining [GICHD] is not entirely deaf, but restricted by heavyweight bureaucracy. "On the other hand, Smith says that the Night Vision and Electronic Sensors Directorate (NVESD) is no longer listening and "the Japanese just want to give away Japanese products."

So, how can developers listen better to the needs of deminers? "Stop having profit as the bottom line," says Smith. "Humanitarian demining (HD) is an activity that takes place in post-conflict or poor economies most of the time—this means that profit must be limited if a new technology is to be genuinely embraced by nationals in the affected area." Smith explains that there is not a need for a lot of research and development (R&D) of hi-tech programs that will never be cost-effective, even if technically successful. However, there is a need for a lot of small equipment/materials such as improved metal detectors with a simple user interface that provides more information than metal/non-metal. Safer hand-tools and PPE (especially lighter visors with a higher level of protection that are still very low-cost) are also needed. "These things were identified years ago, but are not sexy enough to attract realistic support," says Smith. Large programs are easier to administer so they get funded. Also, from a political perspective, there are "advantages" to large programs if the money is spent at home; therefore, funding a home corporation to complete research that has little or no HD value can be attractive to politicians and administrators.

"Perhaps donors are not listening enough to end-users," says Acheroy. "When donors are funding research, they often mandate developers to build on assumed needs instead of real end-users' needs." For example, Acheroy mentions that some years ago, an important donor focused on research on data fusion. While data fusion is an important topic, it is not the most urgent research to be achieved. Says Acheroy, "I think that a process should exist to ask the good questions to users in such a way that the correct message is provided by the users to technologists [for making it] and donors [to fund it]."

Acheroy suggests that developers go to the field to better understand the working environment. In addition, developers should participate in end-users' forums where the real needs of users are expressed. "When do designers, inventors and scientists live in deminers' camps in the field?" asks Lawrence. Furthermore, he says, "We don't normally bring deminers to the workshop or lab." Acheroy stresses the need for developers to concentrate their R&D efforts on users' real needs rather than on assumed needs. "It is not because a developer thinks he has a good idea that this idea is good and feasible in the field or is cost effective," says Acheroy. "Someone, or some organization has to translate the operational requirements of end-users in technical requirements." Effective translation of operational requirements would help developers prioritize R&D efforts and would lead to the development of materials that would satisfy the real needs of the end-users.

What Mechanisms Should be in Place to Encourage Communication Between Users and Developers?

Lawrence summarized his perspective on the reasons for the continued gap between users and developers in the following list:

- R&D is technology-driven.
- Developers are ignoring existing approaches.
- Developers/researchers are too ambitious.

- Research is focused on long-term aspects.
- Research is focused on parts of problems.
- Sometimes projects are ill defined.
- There are no clear Standard Operating Procedures (SOPs).
- There are no clear criteria for verification.
- Technology is discussed in isolation.

> "We need an election of people to represent the user community and the R&D community," says Alistair Craib of Baric Consultants, Ltd. "We need to develop a channel of communication to determine what our needs are, how can we meet our needs—what is essential and what we can make compromises on."

What mechanisms should be in place to do this? "Obviously this addresses the complex problem of fielding appropriate mine action technologies corresponding to real end-users' needs," says Acheroy. "As efficiency is required, it is mandatory to first develop a coherent roadmap aimed at fielding effective new technologies before any new funding initiative, instead of giving development freedom with the risk of developing technologies that are based on assumed needs and not real needs." Acheroy explains that a defined roadmap is necessary in order to meet the following needs:

- To have a correct knowledge of the operational needs—statement of operational needs (SONs)
- To derive a portfolio of priority projects
- To identify the best ways to establish technology action plans and a sound procurement process for fielding appropriate and improved technologies as soon as possible
- To secure the support and the collaboration of donors, end-users and technologists

A roadmap would provide donors with a tool to correctly assess the needs of mine-affected countries and regions and to make correct decisions. "Indeed," says Acheroy, "donors must consider investing now in new technology to get future gains in efficiency [thus saving money]." This roadmap would also provide the donors with a means of establishing technology action plans and a sound procurement processes for fielding appropriate and improved technologies, which would in turn help to ensure more cost-effective mine action. A roadmap would also provide end-users with the means to secure their acceptance of new technologies. "Indeed, the fielding of new technologies that are not accepted by end-users would cancel the process," says Acheroy.

"Users should be aware that new technologies could save human lives and increase mine action efficiency. They should help technologists and donors understand the real needs of deminers. Nothing is more important than understanding the working environment," says Acheroy. Therefore, a roadmap would also provide technologists with clear SONs and a clear list of priority projects—it would help technologists understand real end-users' needs. In going to the field, technologist would understand that users will only accept sophisticated technology if it is simple to use and affordable. They would understand that detection is not the only important task and that there is also a need for improved technologies for area reduction, for strategic planning, for program management and for other key areas of mine action.

Smith also suggests a grant-making facility that supports small projects recommended by the field. Says Smith, "If demining groups were invited to apply for small grants to cover staff and equipment costs spent on the development and preliminary trial of new ideas including incremental improvements to existing equipment, they would apply [but make the application process simple]." Smith explains that while much of what developers do would be either useful in their precise context or completely useless, the equipment would be effective. "I would spend as much administering and visiting these programs as I spent funding them," says Smith. "That way, I would learn without expecting these groups to be good at communication and presentation skills."

Conclusion

As stated by Lawrence, "Useful communication relies on education of all concerned, from

field operators to manufacturers, developers and marketing staff." The hope is that in the next 10 years, all involved will become more receptive to corresponding needs, which will in turn benefit the common goal of improving the landmine removal processes.

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