other goals within their specialty. For example, the European general security model includes availability, integrity, reliability, and confidentiality under a general security concept.

However, mechanisms that increase fault-tolerance (reliability) can reduce security but are illogical if reliability is part of security. Reliability and security differ in the same way the engineers who maintain society differ from the police who protect it, one aiming to provide services, the other to deny them [6]. Likewise confidentiality (privacy) is not part of security, as one can be private and not secure or secure but not private (such as a prisoner in a jail cell under video surveillance). So, it is illogical for each specialty to include the other specialities within itself.

The Technology Acceptance Model (TAM) argued in 1989 that usability could be as critical as usefulness in IS system acceptance. It questioned the performance value of a powerful system that was too difficult to use. Yet today, security and privacy criteria may be more important to Web users than the now-traditional functionality and usability criteria [8]. One could expand the original TAM theory to make security part of "usefulness," as an insecure system is not useful. However, the same argument could make usability part of usefulness, so the argument collapses. Expanding TAM's usability concept fairs little better. When usability measures include suitability for task (functionality) and error tolerance (reliability) [5], then usability, like security, becomes a confusing catch-all term for performance. When the proponents of flexibility suggest that scalability and connectivity are aspects of flexibility [7], specialist concepts expand to fill the available theory space and create confusion. The WOSP approach is not to conceptually expand but to conceptually contract, or "modularize," such concepts as usability, security, and flexibility, placing them all under the general rubric of system performance.

Theorists easily forget how they previously viewed today's progress. The Internet was for techno-geeks until virtual reality became real. Email was socially inept lean communication until text became rich. Tim Berners-Lee's Web idea was ignored by his employer the European Organization for Nuclear Research, by the academic hypertext community, and by Microsoft, before MIT took it up to help create today's online society. Cell phones were yuppy toys, until everyone got one.

These cases, and many more, illustrate that performance, and hence progress, is multidimensional. The Internet provides massive connectivity; text email is easy to use; the Web is scalable; the cell phone is flexible. Each adds a different web of system performance factors, so progress may seem unpredictable, but such variety is the nature of multidimensional progress. While some view progress as a train moving forward on a single track, the WOSP model views it as a train on many tracks, switching among them to increase the covered area as progress occurs.

Implicit in this model is that today's trends will not necessarily be tomorrow's innovations. A decade ago multimedia was hot, but *Star Trek*'s vid-phone, though technically feasible, is not commercially viable. Moreover, videoconferencing did not boom, nor did people take up virtual reality goggles in computer gaming. Instead, games became connected through virtual social worlds (such as The Sims and various massively multi-player online role-playing games). Meanwhile, game editors made games more extendible, as users could add maps and scenarios, as in id Software's Doom WAD files. Progress in one IS performance dimension it seems tends to be followed by progress in another.

Experts are, by nature, experts in the past, so the progress they predict is not always the progress that occurs. The WOSP model suggests, somewhat counterintuitively, that developing a system's weaker aspect(s) may yield greater performance increases than developing its stronger aspect(s), even though the latter usually creates its success. If performance is the WOSP area, the greatest area increase is achieved by extending the shortest dimension. For example, perhaps the future of online gaming will involve exclusive gaming groups (privacy). We (the authors) are developing a WOSP instrument to help designers determine a system's performance profile.

Conclusion

If something works, developers and users alike want to do it again and again. But if software is evolving the way life is evolving, IS progress will take many forms. It is interesting that killer applications (such as email and chat) are functionally simple, at least initially. Perhaps less capability creates the WOSP slack needed for all-round performance expansion. Users not only want functionality, they also want usability, reliability, flexibility, security, extendibility, privacy, and connectivity, as all are aspects of performance.

As information systems become more complex, performance-integration issues will become more critical. An information system is a synthesis of form in a multidimensional performance space where each design choice affects each dimension [1]. Researchers must recognize what designers face: that the system whole is more than the sum of its parts. Hence putting only advanced specialists into cross-discipli-