Farewell Predictions

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After beating the technology drum in TIP for some 11 years, this will be my final column. As my farewell, I’d like to use this space to reflect on where we’ve come from and offer some thoughts on where we are heading.

The predecessor to this column started in 1995 as Traveling in Cyber-Space, written by Philip Craiger, with myself as frequent coauthor. The name feels extremely dated now, wide-eyed and innocent, reflecting an attitude that prevailed through the early days of the Web. Our early columns were simply an effort to introduce the Internet to TIP readers without any illusion that there was much related to I-O on the early Web other than SIOP’s home page (which, coincidently, we maintained in its infancy, painstakingly coding every page by hand—To see how far we’ve come, visit http://www.archive.org and enter www.siop.org into the “Wayback Machine” box).

The years that passed as we wrote Traveling in CyberSpace brought increasing technological sophistication on the part of SIOP’s membership. In response, I began writing Leading Edge in 2001 to focus primarily on next-generation technologies and tools that would have important implications for future applications related to I-O. Some of the technologies that I’ve introduced are now commonplace—XML (Weiss, 2001) and Web services (Weiss, 2003). Others remain decidedly futuristic, such as ubiquitous computing (Weiss, 2002b) and the semantic Web (Weiss, 2002a). Given their vast scope, I would not be surprised if these technologies do not enter popular use for some time to come.

As a field, we have come a long way in the 11 years since the effective dawn of the Web. In the 5 years spanning Traveling in CyberSpace, much of I-O’s approach to technology was around creating online versions of traditional, paper-based tools and processes, in hope of achieving simple gains through automation. In the 5 years since I began Leading Edge, the nature of our applications has advanced considerably. I’ve increasingly seen solutions designed directly for the Web and for which there are no conceivable offline counterparts. What will the next 5 years hold? As I sign off from this column, I’d like to suggest some trends that I foresee playing out:

Standards bodies will evolve and grow in stature. Standards bodies such as HR-XML arose to facilitate the encoding and communication of business information for information systems. Through their efforts, it is increasingly rare for vendor and client software teams to spend countless hours hashing over how
they will exchange data on test scores, resumes, or background checks, for example, between databases that use different data-representation schemes. When I first wrote about HR-XML (Weiss, 2001), it was just getting off the ground as a standards body and had much to learn. As of this writing, quite a number of HR-XML specifications have been proposed, and more are in process.

As new systems are created and older ones updated, these specifications will play an increasing role in the design process. In many respects, this will be beneficial, as they will cue the capture of data or development of features that might otherwise be missed. To take a simple example, assume a team is working on the contact information page of a software application under development. If they discover a standard contact information schema that can apply internationally, it is likely to shape their approach to what may have started out as a form based on American address standards. Extrapolating this tendency across organizations, we may eventually see a certain similarity appear across software offerings. Another effect of the presence of such standards could be a reticence to develop functionality in directions for which standards don’t exist. Both of these potential results reflect the strong normative influence of standards and argue for openness to the development of superior solutions that may not easily fit the standards but that suggest future directions for their evolution.

**Paper-based processes will not vanish.** One of the early visions of technology was the notion of the paperless office in which all work would be done on computers, with none of the clutter that paper brings. Despite advances in the technologies that could enable us to achieve this lofty goal, the paperless office is still some ways away. Similarly, the more technologically inclined among us may dream of a future in which I-O software solutions completely replace paper-based processes. There is merit to this perspective, but I would argue that a better vision for the future maintains paper-based processes as an important counterpart to online processes. Paper will remain necessary for situations in which online access is unreliable, too slow, or entirely unavailable. I foresee three potential levels of fusion of paper and online processes:

1. **Paper as a backup to online systems.** The lowest level has paper tools pressed into play when needed, outside of established online processes. For example, should automated online delivery of a personality instrument fail, an administrator could e-mail a paper version to a participant who would then complete it and send it back for manual scoring.

2. **Graceful degradation from online to paper processes.** A more advanced application will offer several possible combinations of online and paper processes given the client or user’s technological environment. This application will offer multiple possible combinations of online and paper processes that can be deployed so as to achieve whatever benefits may be gained from software, while using paper to ensure delivery quality where it is critical. Using the former example, the software system
itself would offer a paper version of the personality instrument that can be printed out and completed offline in the event of delivery issues.

3. **Tight integration of online and paper processes.** The most advanced application allows graceful degradation but efficiently returns data gathered offline to the online process. At this level of integration, the paper version of the personality instrument would be automatically tagged with identifying codes that help route the data appropriately after the document is scanned. Even processes that are performed offline by default will have a means to quickly and easily store their outputs online.

*New tools will help us better understand and communicate our data.* I remember reading Wainer and Thissen’s (1993) discussion of graphical data analysis back in graduate school and thinking, “Sure, it makes perfect sense to start by looking at the data. If only they were easier to visualize…” As consultants, too, we recognize that it is critical to have effective presentations of our data. We are further encouraged to do so by our clients, who wish to see their results in forms that are immediate and accessible and that do not require extensive explanation to produce meaningful insights. Yet, configuring charts to produce something sensible, much less insight provoking, has always required more work than seemed necessary, and the necessary tools are frequently confusing and frustrating to use. Further, helpful guides like Wainer and Thissen (1993) aside, we have lacked an orientation toward the effective design of data graphics. More often than not, in my experience, our goal in this area has been to avoid hindering effective interpretation. Rarely have we focused on the positive obverse of this issue, which is to design data graphics that promote interpretation.

The software side of this issue looks promising. The graphics capabilities of common statistical software packages (e.g., SPSS and SAS) have evolved greatly and will undoubtedly continue to do so. Further, Microsoft has placed a new emphasis on data visualization for Office 2007, with a revamped charting engine and other new features for graphically interpreting data. Learning these tools and becoming proficient with them will be half the battle. Thought leadership around data graphic design will be the other half. This will come from market demand, as I noted before, from competitive pressure, and from the presence of better tools. I remember the advent of Harvard Graphics and how it inspired us to think in new terms to produce slick data graphics. I think we are on the verge of a similar leap with these new tools, only our outputs will not only be slicker—they’ll be better.

**Thank You**

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For Further Communication

I welcome your thoughts, questions, comments, or reactions on this or any of my earlier columns. Please e-mail me at jason.weiss@ddiworld.com.

References


