

## 17.0 Epilogue: Principles to Think With

### Epilogue

Woven through this long report on the future of Information Technology, hovering above the details, have been some principles with which to think about the future of IT. The future may differ in detail from what we predicted, but the principles will not. We found a statement of these “principles to think with” written out in the 1993 book, *The Road to 2015*, by the futurist John Peterson of the Arlington Institute. With his permission, we reproduce them below.

- **Speed.** Everything is going faster, so speed is increasingly being used to measure value.
- **Trend toward light.** Light is the fastest communications medium with the greatest capacity to carry information. There is a clear trend toward using light and optics in information technology.
- **Information.** Information, in the form of knowledge, is what allows speed. Information is the capital commodity of the future.
- **Going to digital.** Information in all forms is being converted into digital forms so that it all can be transmitted through the same cables, fibers, frequencies, and equipment.
- **Global connectivity.** Everything is being connected to everything else. In time, almost every home, office, school, and government agency in the developed world will be connected in a huge information system by way of every computer and telephone.
- **Global accessibility.** There will be no place on the surface of the earth where one can't access the whole network.
- **Moving information instead of people.** Information technology is making it more advantageous—in almost every situation—to move information rather than people.
- **Power migrating toward individuals.** Individual people will increasingly be able to access, analyze, and manipulate information (the source of wealth and power) without the need for larger organizations like corporations and governments.
- **Systems thinking.** All things of importance are coming to be understood as systems; in most cases, they are highly complex, dynamic sets of sometimes widely dispersed components. In science, particularly, there is a move toward the integration of disciplines. In manufacturing, there is a move toward concurrent engineering.
- **Increasing complexity.** Manufactured systems are becoming more complex and faster.
- **Increasing vulnerability.** The more complex a system becomes, the more likely the chance of system failure. There are unknown secondary effects and particularly vulnerable nodes.

- Qualitative becoming more important than quantitative. Software, intuition, speed, and quality are areas that are pregnant with opportunity.
- New structures and organizations. All structures and organizations (business, government education) will reconfigure to adapt to the faster, more interconnected world and to the more powerful and enabled individual.
- New info-criminals. There will be a significant increase in information crime, more viruses, and a growing international information criminal element.
- Unpredictability. Technology is a huge effort with lots of people in an extremely complex context where there are fundamental changes in the underlying principles. We almost certainly will not anticipate some of the significant changes that will certainly occur.
- Punctuated change. One or more of the reality-exploding nascent technologies will come to fruition soon and send shock waves throughout the global system.