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INCITS: THEN AND NOW

Andrew Updegrove

Abstract: As the commercial realities of technology development have evolved, SDOs have found it necessary to evolve along with them. Those SDOs that have served their niches well have grown and become more influential, sometimes becoming the hubs of activities involving many SDOs. Faced with competition from the proliferation of consortia, some SDOs -- like INCITS -- have adapted by providing a link between consortium-originated standards and the international de jure bodies, such as ISO/IEC. The result of such cooperation is a more effective global standards infrastructure.

Introduction: Looking back at the International Committee for Information Technology Standards (INCITS) at its inception is a bit like opening an IT industry time capsule. The attendees at the inaugural meeting of the "Accredited Standards Committee X3, Information Technology," as it was then named, included former IT powerhouses Honeywell, NCR and Sperry/Univac, and the seven initial work topics included (then) cutting-edge technical areas like Magnetic Ink Character Recognition, Programming Languages, and Terminology. Punch cards were state of the art, and Bill Gates was five years old. Fast forward through two-thirds of the computer age, and INCITS is still focused on IT, but its technical committees now number over 50, and the technologies it is addressing include SCSI interfaces, multimedia, GIS, databases and security. In between these two endpoints in time, a sampling of its areas of activity yields a representative snapshot of the evolution of information technology:

Early 60's –	7-bit ASCII, Magnetic Tape storage, COBOL, OCR
Early 70's –	Fortran
Mid to Late 70's –	Flexible Disk Cartridges
Early 80's –	Data Encryption Algorithm, Optical Media, C, SQL
Mid to Late 80's –	SCSI, Fibre Channel, 8-bit ASCII, C++, JPEG and MPEG, SGML
Early 90's –	GIS, ISO/IEC 10646 (Unicode)
Late 90's –	Common Criteria for IT Security
Early 00 –	Biometrics, Serial Attached SCSI, Serial AT Attachment

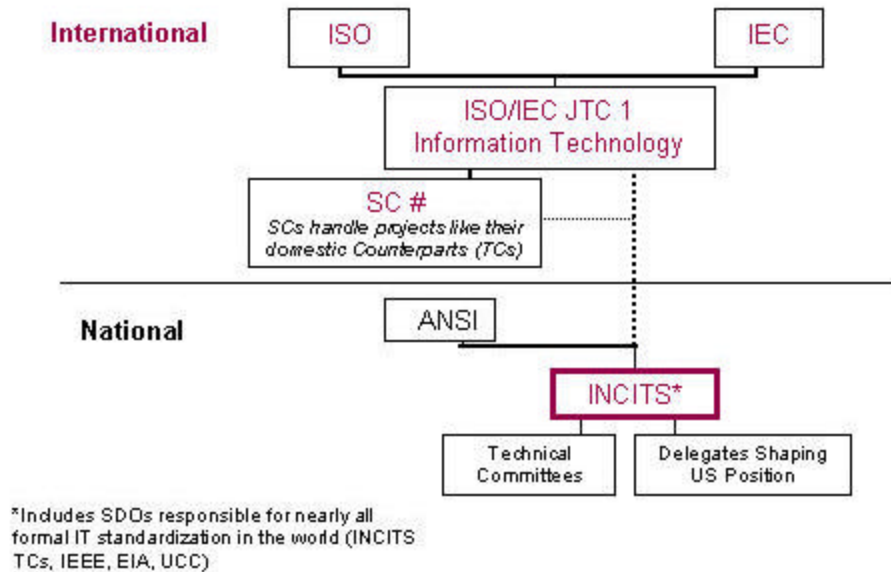
During the same forty-two years, INCITS was evolving its role in the global standards infrastructure, adapting as the world of standards development itself evolved. Today, besides acting as an SDO in its own right (it has been accredited by ANSI since its inception), it plays an important role in both further developing consortium-originated standards, as well as introducing those standards into acceptance by ISO/IEC. Most recently, it has assumed a role at the center of the major IT SDOs.

Taking a closer look at the more recent evolution of INCITS also provides one way to better understand important factors in the evolution of the entire global standards infrastructure -- such as the way in which SDOs interrelate, and the way that consortia and SDOs are finding to productively work together.

INCITS Today: The latest transformation of INCITS is indeed recent: INCITS entered 2003 with a stronger link to ISO/IEC, and acquired responsibility for the Joint Technical Committee 1 (JTC1) Technical Advisory Group (TAG), which had formerly been a separate organization with SDOs, vendors and users as members. Other ANSI-accredited standards organizations integral to the "new" INCITS in its JTC1

TAG role are the Institute of Electrical and Electronics Engineers (IEEE), the Electronic Industries Alliance (EIA - itself an alliance of six major standards bodies), and the Uniform Code Council (UCC). The collective standards output of this grouping -- which includes EIA's Home Electronic Systems (HES) HomeGate, IEEE's 802.11 family of wireless standards, and the UCC's barcode-related standards -- accounts for nearly all of the SDO-based IT standardization work in the world. The only international IT standards that top INCITS-related standards in sales are the ISO 9000 series of quality standards.

As a result, INCITS finds itself in the middle of a great deal of standards setting activity involving diverse organizations. The following diagram seeks to represent INCITS in the context of the formal standards bodies:



A Bridge Over Troubled Waters: But while INCITS was busy with its own activities in the closing fifteen years of the last century, another method of standard setting was becoming pervasive in the market place. Unlike other areas of standard setting (such as health and safety), the need for IT standards is often urgent, and the jockeying of individual companies is frequently intense. Partly as a result of these forces and because few IT standards are subject to regulation, many companies began banding together in the late 1980s to create interoperability and other standards using a more informal process. The resulting organizations became known as "consortia," and over time this method became increasingly popular with companies that a few years before would have automatically brought their standard setting proposals to an SDO.

With time, it has become increasingly accepted that the marketplace should seek to take advantage of the best of both the SDO as well as the consortium methodologies. Today, both consortia and SDOs are more frequently opting to cooperate. The reasons vary, depending upon the type of organization.

For a consortium, a number of reasons may lead it to consider partnering with an SDO at some point in its life cycle. One is that SDOs -- by design -- tend to be very broad and comprehensive in their scope. In contrast, consortia often have a narrower focus, and are sometimes formed to create a single standard. Due to the breadth of interest of SDOs, there is usually an appropriate and potentially interested SDO available if a consortium wishes to work with one. The consortium's reason for doing so may be that its development work is done, and it does not wish to continue in existence for purely maintenance purposes, or that the financial commitment of its members is waning, or because it desires to achieve ISO/IEC acceptance for its standard.

At the same time, the proliferation of consortia has provided a level of competition that was unknown to SDOs before the late 1980s. Maryann Karinch, communications advisor to INCITS, identifies attracting new work as one of the greatest challenges facing INCITS today. That challenge arises, she says, "because many IT producers would prefer the venues where they have the greatest influence over

projects and members." In short -- consortia, with their relative flexibility of operation, as compared to SDOs, with their more established and mandatory process and policies.

How should an SDO react to the launch of consortium efforts in the same general technical space as one of its existing technical committees? Commencing a work group to solve the same problem would rarely serve anyone well. At best, confusion and inefficient usage of resources will result. At worst, overlapping standards efforts can result in duplicative and divisive standards. Often, it simply makes more sense for both sides if a standard originates in one system, and is later transferred into the other.

According to Karinch, INCITS has taken the prevalence of consortia into account in creating its strategic vision, noting: "As an SDO, INCITS [has] committed to an expanded program of work, which allows for more productive collaboration with consortia." She believes that INCITS is affected both positively and negatively by the competitive shifts among consortia. On the positive side, some consortia have found ways to team up with INCITS to further develop their specifications and fast track them to ISO/IEC -- often with the encouragement of major IT companies which are often on the Boards of both organizations.

On the negative side, she notes that some of the projects that would fit within the purview of existing INCITS Technical Committees end up being permanently addressed by consortia, sometimes resulting in redundant efforts.

Recent collaborations between INCITS and consortia include successful efforts with the SQL/XML Group and the BioAPI Consortium. While the former worked well as an independent effort for two years, its members eventually opted to trade out of their informal mode of operation. As a result, representatives from member companies asked INCITS' H2 to establish a new Task Group so that future proposals linked to the SQL/XML specification could be developed within the de jure standards environment.

Similarly, when INCITS' M1 took on the BioAPI spec for fast tracking, Cathy Tilton of SAFLINK, who chairs the BioAPI Consortium, stated: "It has always been one of the [BioAPI] Consortium's goals to eventually transition the BioAPI to a formal standards body. INCITS provides a great vehicle for doing just that; and we feel that with the release of Version 1.1 of the specification, it is the right time to move forward with that goal."

Once adopted for its fast track process, a consortium-originated standard can become approved by ANSI with INCITS' help in as little as four to six months. Moreover, participation can be broadened once INCITS steps in, since voting membership in the process is only \$800. INCITS has also tried to make itself more competitive with consortia. For example, it annually revisits processes with its Technical Committee (TC) chairs at a TC Symposium. This has resulted in streamlining standards reviews and approvals. INCITS has also worked to create a more direct relationship with ISO/IEC, so that it can make it easier and faster for standards promoted by it to be accepted internationally.

Life as an SDO in a Changing World: INCITS has had to react to member expectations, as well as competition from consortia. Karinch summarizes the situation as follows: "Customers recognize the value of interoperable equipment and are insisting on it. Producers have streaked past many user expectations with innovations, and now need to write specs to encourage market acceptance of them. INCITS has had to evolve -- in a substantive way -- to remain distinct among the complementary (as well as competitive and redundant) standards groups trying to meet the needs of both savvy customers and inventive vendors. Every INCITS Executive Board agenda has action items that drive to that end; at the same time, INCITS centers itself with its time-tested procedures."

There are other pressures as well. INCITS reports that it is feeling the increasing pressure from the European SDOs which are stepping up pressure within international bodies to adopt standards originated through their regional processes. While most IT SDOs in the US include many member companies that are global in operations, INCITS believes that it remains important to its members to assert a US position, in order to ensure the competitiveness of US headquartered business in overseas markets. INCITS' expanded role internationally and its efforts to strengthen its links to ISO/IEC are intended in significant measure to accomplish this goal. INCITS believes that these efforts have been effective: Karinch reports that INCITS was instrumental in ensuring that the two latest secretariats in JTC 1 are US led (SC 36 – Learning, Education and Training, and SC 37 – Biometrics).

Summary: While consortia have provided competition to INCITS in the last 15 years, INCITS has stayed a vital, and indeed increasingly influential, player in the global IT standards infrastructure. With the increasing popularity of the Open Source methodology, consortia as well as SDOs will need to adapt, and doubtless in the future additional ways will evolve to help companies bring sophisticated, interoperable products to end users. To its credit, INCITS has reacted to changing times by providing a process where they can work with consortia, rather than present the marketplace with a pure "us or them" value proposition.

Of course, INCITS hardly intends to concede the standard setting field to consortia. It believes that it continues to provide an excellent, and increasingly streamlined, venue for standards efforts to be launched in the first instance. As differentiators, it is quick to note its low costs of participation for interested companies, its established process and its ability to progress a standard to international status. All of which, it believes, make it as appropriate a venue for the creation of the next wave of IT standards as it has been for the innovations of the last 42 years.

Comments? updegrove@consortiuminfo.org

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INCITS at a glance:

Date of formation	1961
Number of Current members	More than 700 organizations and 1800 representatives
Number of classes of membership	Membership at the Executive Board and the Technical Committee levels; both allow for Voting and Advisory (non-voting) membership
Number of countries represented by current members	17 countries
Number of Technical Committees	More than 50 standing committees; see www.incits.org for names
Number of issued standards or specifications	675 standards
Other Significant Relationships	Primary imaging industry interface with: US Environmental Protection Agency (Silver Advocacy) US Occupational Safety & Health Administration Transportation Security Administration (Airport X-ray warning program) US Department of Commerce (Industry Statistics)
Number of current initiatives	More that 100 active open projects
Other types of work product	Technical Reports
Website address	www.incits.org

Companies currently represented on the Executive Board	A Apple Computer, Center for Global Standards Analysis, CRC Enterprises, Data Interchange Standards Association (DISA), DDC-I, EIA, Farance Inc., Food Marketing Institute (FMI), Hewlett-Packard, IBM, ICCP, IEEE, Intel, Microsoft, Network Appliance, NIST, Office of the Secretary Defense /S&T/ JEOD KTOD ACTD, Oracle, Panasonic, Purdue University, Sony Electronics, Sun Microsystems, the Uniform Code Council, and Unisys.
Officers	Karen Higginbottom, Executive Board Chairperson
Staffing	The INCITS Secretariat function is provided by the Information Technology Industry Council