Annual Report for: INCITS/Study Group on Internet of Things (IoT)

Period Covering: February 27, 2013 through March 8, 2013

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Executive Summary

The INCITS/SG-IoT has the following defined charter and responsibilities:

1. Identify market requirements and standardization gaps for IoT;
2. Encourage JTC 1 SCs and WGs to address the need for ISO/IEC standards

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for IoT;
3. Facilitate cooperation across JTC 1 entities;
4. Promote JTC 1 developed standards for IoT and encourage them to be recognized and utilized by industry and other standards setting organizations;
5. Facilitate the coordination of JTC 1 IoT activities with IEC, ISO, ITU and other organizations that are developing standards for IoT;
6. Periodically report results and recommendations to JTC 1/SWG on Planning; and
7. Provide a written report of activities and recommendations to JTC 1 in advance of each JTC 1 Plenary meeting.

The first meeting of INCITS/SG-IoTwas convened on February 27, 2013, by Dr. W. Charlton Adams, Jr, to prepare for the initial JTC 1/SWG 5 Plenary scheduled for March 6, 7, 8, 2013, in Berlin, hosted by DIN. JTC 1/SWG 5 was initiated during the fall 2012 JTC1 Plenary, with the Korean delegation appointed as convenor and secretariat for the activity. At the organizational meeting of the INCITS study group, Steve Halliday was appointed to serve as Head of Delegation (HOD) to the Berlin Plenary; a US contribution to JTC 1/SWG 5 on “The Internet of Things (IoT) in the USA” was developed; and the US delegation was organized. Seven organizations, attended the organizational meeting of the INCITS study group which was held at the ITI offices in Washington, DC. Four individuals were identified for the Berlin delegation.

The three day JTC 1/SWG 5 initial meeting in Berlin, represented by 30 participants, from 11 delegations reviewed contributions, assessed the environment and developed a series of recommendations for the next steps to be pursued by JTC 1/SWG5.
The next international meeting will be hosted by the US and will be held in the US in August, 2013.

Additional details on both initial meetings (the organizational meeting of INCITS/SG-IoT and the inaugural meeting of JTC 1/SWG-IoT) are contained in

the attachments to this report.

No subgroups within the INCITS/SG-IoT have been created at this time; however at the next INCITS/SG-IoT meeting on April 26, 2013, the team's organization will be reviewed, for supporting the JTC 1/SWG 5 Berlin recommendations. The call for volunteers to serve as Chairman of the INCITS study group has been issued and will close on March 29, 2013.

Significant Accomplishments

- The INCITS/SG-IoT initiated its organizational phase.
- A call for INCITS/SG-IoT Chair has been issued which closes on March 29, 2013.
- INCITS/SG-IoT provided the US contribution for the JTC 1/SWG 5 agenda that related to determining a definition for the internet of things (IoT).
- INCITS/SG-IoT identified an initial slate of stakeholders that would be involved in addressing IoT requirements.
- US delegates led the JTC 1/SWG 5 discussions on technology definitions and market related requirements.
- The US delegation attending the JTC 1/SWG 5 Berlin meeting has committed to support the recommendations and resulting international work efforts (see Recommendations in Attachment Three).
- US delegates took the positions of leader (or co-leader) for the three ad hoc groups created in Berlin.
- The INCITS/SG-IoT has committed to host the next JTC 1/SWG 5 meeting.
- The US HOD report for the international meeting has been published (see Attachment One, also document eb-2013-00391).
- Minutes for the INCITS study group organizational meeting will be published soon.

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- JTC 1/SWG 5 recommendations have been published (see Attachment Three).
- Planning for the expansion of INCITS/SG-IoT participation has been initiated.

Significant Challenges

- The work scope and breadth of liaisons across the international standards community will be quite extensive.
- Increased participation in the INCITS study group from US industry will be necessary to integrate the scope of global requirements and existing standards activities necessary to support the IoT activity.
- Involvement of the broader stakeholder community will be necessary.

Expected Challenges

- Challenges, schedules, work products, etc. will be reviewed at the next INCITS/SG-IoT meeting, following a debriefing from the US team that attended the JTC1/SWG 5 meeting and an assessment of the proposed JTC 1/SWG 5 work scope.

Committee Activities

a. Previous Year's Meetings:

There were no previous meetings of the INCITS/SG-IoT as this is a new INCITS Study Group.

The organizational meeting for INCITS/SG-IoT and the inaugural meeting of JTC 1/SG-IoT were held as follows:

a. February 27, 2013 – INCITS/SG-IoT organizational meeting at ITI Headquarters, Washington, D.C. (see Highlights of this meeting in Attachment Four).

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b. March 6-8, 2013 – JTC 1/SWG-IoT inaugural meeting at DIN Headquarters, Berlin, Germany (see Highlights of this meeting in Attachment Five).

b. Future Meetings

a. INCITS/SG-IoT meeting, April 26, 2013; 1:00 – 4:00 PM ET via teleconference.

b. Meeting planning associated with JTC 1/SWG 5 recommendations and associated workscope will be reviewed at the April 26, 2013 meeting.

c. JTC 1/SWG 5, August 20-21, 2013 - in the US.

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Liaison Activities

There is a broad slate of potential organizational liaisons associated with the JTC 1/SWG 5 recommendations (Attachment Three).

Membership and Officers

Membership - the membership roster is appended to the end of this report

Organizations represented at the first meeting of INCITS/SG-IoT:

American Express

Evanhoe and Associates

Futurewei

High Tech Aid

NIST

Raytheon

TIA

With the exception of Raytheon and TIA who participated as guests, all other organizations have requested membership in INCITS/SG-IoT.

Officers

Position (and Training Date) Name Organization

Convenor for INCITS/SG-IoT organizational meeting: Dr. W. Charlton Adams, Jr (Chuck), Futurewei

Head of Delegation to JTC 1/SWG-IoT inaugural meeting: Mr. Steve Halliday, High Tech Aid

Chairman, INCITS/SG-IoT, call closes March 29, 2013

The call for other officer positions such as an International Representative will be conducted once the position of Chairman is approved.

JTC 1/SWG 5 Ad Hoc Convenors from US Delegation

- Ad-hoc Group 1: **Develop a Common Understanding of IoT**
  - Nader Moayeri (Co-Convenor)
- Ad-hoc Group 2: **Identify Market Requirements for IoT**
  - Chuck Evanhoe (Convenor)
- Ad-hoc Group 3: **Identify Standardization Gaps and Develop a Standards Roadmap for IoT**
  - Steve Halliday (Convenor)

JTC 1/SWG 5 Ad Hoc Membership from US Delegation

- Ad-hoc Group 1: **Develop a Common Understanding of IoT**
  - Nader Moayeri, Chuck Adams, Chuck Evanhoe and Steve Halliday
- Ad-hoc Group 2: **Identify Market Requirements for IoT**
  - Chuck Evanhoe, Chuck Adams, Steve Halliday, and Nader Moayeri
- Ad-hoc Group 3**: Identify Standardization Gaps and Develop a Standards Roadmap for IoT**
  - Steve Halliday, Chuck Adams, Chuck Evanhoe, and Nader Moayeri

Future Trends

Other Administrative Information

1. No administrative issues are identified at this time
2. No procedural issues are identified at this time
3. There are no financial obligations at this time.

Attachments

Attachment One: HOD Report for JTC 1/SWG 5 Meeting, March 6-8, 2013, Berlin

Head of Delegation: (Please print)	**Steve Halliday**
Telephone/Telefax:	**724 443 7518**
Email:	**steve@hightechaid.com**
Date:	**15 March, 2013**

Meeting of JTC 1/SWG 5 IoT (Designation/Title)
Date(s) 6th – 8th March, 2013
Location DIN, Berlin Germany

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1. MEETING ATTENDANCE

Please indicate, if available, both the number of delegates and the countries represented

at the Meeting:

27 people attended (including the convenor and secretary representing: Korea, Germany, SC 31, USA, China, UK, Canada, TC 122, Singappor, Austria, Japan

_X_ Meeting attendance roster and meeting resolutions attached, if available

Please comment on significant or unusual attendance issues (e.g., new member bodies, regular members not in attendance, new Chairman or Secretariat, non-accredited U.S. persons, etc.).

First meeting. Confusion about the status of members from other committees and their ability to take positions as liaisons. They are not liaisons but members per the original call for members.

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MEETING OBSERVATIONS

2. Overall, how well did the U.S. meet its objectives on policy or technical matters?

_x_Very Successful -- U.S. positions were accepted in whole

__ Successful -- Compromises were reached which are acceptable to the U.S.

__ Not Successful -- U.S. positions were not accepted

3. Please comment on any issues of significance which might have an impact upon materially affected or interested U.S. parties.
It will be in the US interest to get more members to this group.
4. Was there any discussion for which the United States was unprepared? (e.g., late document distribution, addition of new items, etc.)
No
5. Did the U.S. extend an offer to assume any new TC/SC Secretariat or management positions?
_x_Yes __No **(If yes, please indicate which position and provide Officer contact information.)** **The US took leadership of all three ad hoc groups created**
6. Did the U.S. extend an offer to host any future TC/SC meetings?
_x_Yes __ No **If yes, please identify:** **The US made a tentative offer to host the next meeting in August 2013. This is to be confirmed to the convenor as soon as possible.**
7. Were any new issues raised which require, or might involve, coordination with other U.S. bodies? (Include coordination items with other U.S. TAGs, ANSI policy-level committees (AIF, AIC, the USNC TMC and/or

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Council, etc.)
__ Yes _x_No If yes, please identify:
8. Did the U.S. put forth / agree to put forth any New Work Items?
__ Yes _x_No If yes, please identify:
9. Was there any evidence of irregular voting by participating countries?
__ Yes _x_No If yes, please identify any significant issues or concerns:
10. Are work items in the TC or SC being affected by related work in regional standards bodies (e.g., CEN, CENELEC, ETSI, PASC, NAFTA, COPANT, etc.)?
_x_Yes __ No __ No related regional activity If yes, please explain: The SWG is tasked with collecting information from Standards bodies all over the world, so it is important that contact be made with those groups

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11. Were any new issues raised which require, or might involve, coordination with emerging market countries?
Yes _x_No **If yes, please explain:**
12. Were any issues raised which relate to or impact existing U.S. regulatory matters?
__ Yes _x_No **If yes, please explain:**
13. Please identify any IMMEDIATE U.S. TAG actions which will be required as a result of this international meeting.
None, other than the TAG needs better membership from US companies, and needs to work on hosting the next meeting.
14. Please identify specific decisions which the U.S. delegation believes to be noteworthy for publication, publicity and/or development of a future article. If there are any, would you be willing to help develop an article for publication?
Other than the creation o the new group and the first meeting, nothing this early in the groups existance **_x_ Yes __ No**

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15. What might be done to further promote the ANSI Federation's goal of "global standards that reflect U.S. interests?" (Consider such issues as how might the U.S. further promote acceptance of related American National Standards in international and, where applicable, regional fora?)
16. Has this report been provided to your TAG Administrator for US TAG distribution?
_x_ Yes __ No
17. Other Comments

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Attachment Two – JTC 1/SWG 5 Attendance at the March 6-8, 2013 Meeting, Berlin

Representing	Name	Company
Austria	Preishuber Pflügl, Josef	CISCO
Canada	Khan, Faud	TwelveDot
China	Min, Wei	CQUPT
Germany	Kovacs, Nikolaus	DIN
Germany	Oehlmann, Heinrich	Eurodata
Germany	Seewald, Maik	CISCO
Germany	Tenhagen, Detlef	HARTING
Germany	Wendt, Mario	Microsoft
Germany	Wischhöfer, Cord	DIN
ITU-T	Lee, Jun Seob	ETRI
Japan	Kawai, Kazuya	Panasonic
Korea	Bae, Changseok	ETRI
Korea	Kim, Hyoung Jun (Secretary)	ETRI
Korea	Kim, Marie	ETRI

Korea	Kim, Yong-Woon	ETRI
Korea	Park, Joo-Sang	ETRI
Korea	Yoo, Sangkeun (Convenor)	ETRI
SC31	Barthel, Henri	GS1
SC31	Schuessler, Rick	Motorola Solutions
Singapore	Ho, Buaey Qui	
TC122	Harmon, Craig	QED
UK	Foggie, Richard	Knowledge Transfer Network
UK	Grant, Kate	Nine Tiles
UK	Heath, Andy	Axelrod
UK	Rix, Nigel	
UK	Rees, Richard	Scanology
USA	Adams, Chuck	Huawei
USA	Evanhoe, Chuck	Evanhoe
USA	Halliday, Steve	High Tech Aid
USA	Moayeri, Nader	NIST

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Attachment Three – JTC 1/SWG 5 Recommendations from the March 6-8, 2013 Meeting, Berlin

Recommendations

Recommendation 1: Establishment of an Ad-hoc Group to Develop a Common Understanding of IoT (Ad-hoc Group 1)

ISO/IEC JTC 1/SWG 5 notes that IoT has diverse applications and encompasses many technical and non-technical disciplines, including, but not limited to, physical connectivity, data manipulation, application interfaces, regulatory issues, and cyber security. Therefore, SWG 5 agrees to develop a common understanding of IoT with an IoT Mind Map that would be essential to the work it has undertaken. SWG 5 appoints the following as ad-hoc group 1 members: Nader Moayeri (Co-Convenor), Faud Khan (Co-Convenor), Wei Min, Maik Seewald, Detlef Tenhagen, Mario Wendt, Jun Seob Lee, Kazuya Kawai, Changseok Bae, Hyoung Jun Kim, Marie Kim, Yong-Woon Kim, Joo-Sang Park, Sangkeun Yoo, Henri Barthel, Rick Schuessler, Buaey Qui Ho, Craig Harmon, Richard Foggie, Kate Grant, Andy Heath, Nigel Rix, Richard Rees, Chuck Adams, Chuck Evanhoe and Steve Halliday. The first meeting of the ad-hoc group shall be no later than 30 April 2013.

Unanimous

Recommendation 2: Establishment of an Ad-hoc Group to Identify Market Requirements for IoT (Ad-hoc Group 2)

ISO/IEC JTC 1/SWG 5 notes that the Terms of Reference establishing SWG 5 outlines the expectation for the SWG to identify Market Requirements for IoT. SWG 5 appoints the following as ad-hoc group 2 members: Chuck Evanhoe (Convenor), Faud Khan, Wei Min, Maik Seewald, Detlef Tenhagen, Mario Wendt, Jun Seob Lee, Kazuya Kawai, Changseok Bae, Hyoung Jun Kim, Marie Kim, Yong-Woon Kim, Joo-Sang Park, Sangkeun Yoo, Henri Barthel, Rick Schuessler, Buaey Qui Ho, Craig Harmon, Richard Foggie, Kate Grant, Andy Heath, Nigel Rix, Richard Rees, Chuck Adams, Steve Halliday, and Nader Moayeri. The first meeting of the ad-hoc group shall be no later than 30 April 2013.

Unanimous

Recommendation 3: Establishment of an Ad-hoc Group to Identify Standardization Gaps and Develop a Standards Roadmap for IoT (Ad-hoc Group 3)

ISO/IEC JTC 1/SWG 5 notes that the Terms of Reference establishing SWG 5 outlines the expectation for the SWG to identify Standardization Gaps and Standards Roadmap for IoT taking into account inputs from relevant stakeholders. SWG 5 appoints the following as adhoc group 3 members: Steve Halliday (Convenor), Faud Khan, Wei Min, Maik Seewald, Detlef Tenhagen, Mario Wendt, Jun Seob Lee, Kazuya Kawai, Changseok Bae, Hyoung Jun Kim, Marie Kim, Yong-Woon Kim, Joo-Sang Park, Sangkeun Yoo, Henri Barthel, Rick Schuessler, Buaey Qui Ho, Craig Harmon, Richard Foggie, Kate Grant, Andy Heath, Nigel Rix, Richard Rees, Chuck Adams, Chuck Evanhoe, and Nader Moayeri. The first meeting of the ad-hoc group shall be no later than 30 April 2013.

Unanimous

Recommendation 4: Internal Outreach

ISO/IEC JTC 1/SWG 5 requests the Convenor of this meeting to forward a letter to the following Internal ISO/IEC JTC 1 entities to determine their interest in the activities of SWG 5 and willingness to participate: SWG 1, SWG 4, WG 7, WG 8, SC 6, SC 7, SC 17, SC 24, SC 25, SC 27, SC 28, SC 29, SC 32, SC 35, SC 36, SC 37, SC 38, SC39 and ISO/IEC JTC 1 PAS Submitters

Unanimous

Recommendation 5: External Outreach

ISO/IEC JTC 1/SWG 5 requests the Convenor of this meeting to forward a letter to the following entities to determine their interest in the activities of SWG 5 and willingness to participate: ISO TC 8, ISO TC 104, ISO TC 163, ISO TC 173, ISO TC 184, ISO TC 204, ISO TC 205, ISO TC 211, ISO TC 215, ISO TC 242, ISO TC 247, ISO TC 269, IEC TC 3, IEC TC 8, IEC TC 9, IEC TC 13, IEC TC 62, IEC TC 65,

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IEC TC 79, IEC TC 80, IEC TC 100, IEC TC 106, IEC TC 110, IEC PC 118, IEC CISPR, IEC SMB SG 5, IEC SMB SG 6, IEEE 1451, IEEE 802.11, IEEE 802.15, IETF, ETSI TC M2M, UN/ECE, IATA, IMP, WCO, OGC, EU IERC, OASIS, OMA, ECMA, TIA, GSC MSTF, IMSO, ICAO, WCO, IMO, UN/ECE, NFC Forum, ZigBee Alliance, ISA, HCF, IATA, AIAG, SAE, JAMA, JAPIA, ODETTE, EDIFICE, SEMI, CENELEC, CEN 224, CEN 247, CEN 278, CEN 287,CEN 294, CEN 304, CEN 310, GPII and AIM.

Unanimous

Recommendation 6: External Outreach

ISO/IEC JTC 1/SWG 5 requests the Convenor of this meeting to forward a letter to ISO TMB and IEC SMB to inform their membership of the work of SWG 5 and SWG 5's desire to include all interested parties in their work.

Unanimous

Recommendation 7: Liaison Request from ITU-T JCA-IoT (revised)

ISO/IEC JTC 1/SWG 5 notes that ITU-T JCA-IoT has appointed Mr. Jun Seob Lee as

the liaison from ITU-T JCA-IoT to SWG 5. SWG 5 accepts the liaison request from ITU-T JCA-IoT and Mr. Jun Seob Lee as the liaison.**Unanimous**

Recommendation 8: Liaison Request to ITU-T JCA-IoT (revised)

ISO/IEC JTC 1/SWG 5 requests the Convenor of this meeting to forward a request to the Secretariat of ISO/IEC JTC 1 for Category C Liaison with ITU-T JCA-IoT and to appoint Mr. Nader Moayeri and Mr. Craig Harmon as the SWG 5 liaisons to ITU-T JCA-IoT.

Unanimous

Recommendation 9: Liaison Request to CEN TC 225 (revised)

ISO/IEC JTC 1/SWG 5 requests the Convenor of this meeting to forward a request to the Secretariat of ISO/IEC JTC 1 for Category C Liaison with CEN TC 225 and to appoint Mr. Detlef Tenhagen as the SWG 5 liaison to CEN TC 225.

Unanimous

Appreciations

ISO/IEC JTC 1/SWG 5 expresses its sincere appreciation to DIN for arranging and hosting the 1st meeting of ISO/IEC JTC 1/SWG 5 in Berlin, Germany.

Acclamation

ISO/IEC JTC 1/SWG 5 expresses its sincere appreciation to Dr. Nikolaus Kovacs for arranging and hosting the 1st meeting of ISO/IEC JTC 1/SWG 5 in Berlin, Germany.

Acclamation

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ISO/IEC JTC 1/SWG 5 expresses its appreciation to the contributors for their presentations to the meeting.

Acclamation

ISO/IEC JTC 1/SWG 5 expresses its appreciation to its Convenor, Mr. Sangkeun Yoo, for his leadership of the meeting.

Acclamation

ISO/IEC JTC 1/SWG 5 expresses its appreciation to its Secretary, Mr. Hyoung Jun Kim, for his support of this meeting.

Acclamation

ISO/IEC JTC 1/SWG 5 expresses its appreciation to its Drafting Committee members, Yong- Woon Kim, Heinrich Oehlmann, Detlef Tenhagen, Nader Moayeri, Steve Halliday, Wilbert Adams, Wei Min, Andy Heath, and Chuck Evanhoe for their work on the Recommendations.

Acclamation

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Attachment Four – INCITS/SG-IoT Meeting Highlights – February 27, 2013

The focus of the INCITS study group meeting was to assess the requirements as defined by JTC1, to scope the activity, and to prepare to represent the US at the initial JTC 1 SWG 5 IoT meeting.

Nader Moayeri provided an overview of the activities in WG7, looking at the standards and platform strategy for sensors.

The scope and charter of the activity and the definition of IoT was reviewed. A US contribution on IoT definition submission was developed for the upcoming JTC 1/SWG 5 meeting.

The key focus of the team was a reaffirmation that the INCITS/SG was to focus on requirements, rather than developing standards. However, it was agreed that the team would wait for the Berlin international meeting prior to establishing the project scope.

Engaging stakeholders, broadening industry interest, and integrating the INCITS Executive Board was recognized as a primary focus. The Smart Grid model for engaging stakeholders, defining gaps and requirements, and accepting relevant standards development activities was discussed as a potential model to evaluate.

Another conclusion was, that in order to properly assess IoT, both a tops down requirements assessment, a bottoms up technology assessment and a landscape /SDO ecosystem would be appropriate.

Steve Halliday, Chuck Evanhoe , Chuck Adams will represent the US in Berlin in person. Nader Moayeri will represent JTC 1/WG 7 in Berlin.

The meeting began at 9:00 AM and was concluded by 5:00PM ET.
The next INCITS meeting will be a debriefing and planning session scheduled for April 26, 2013 from 1:00 – 4:00 PM ET via teleconference.

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Attachment Five – JTC 1/SWG 5 Meeting Highlights, March 6-8, 2013, Berlin

The initial meeting of the JTC 1/SWG-IoT, JTC 1/SWG 5, team was convened on Wednesday, March 6, under the lead (convenorship) of the Korean delegation.

The meeting has hosted at DIN headquarters in Berlin. Cord Wischhoefer (JTC1 SWG Planning Chair from DIN) provided the welcome and introduced the German mirror team to open the session.

The meeting began at 9AM, and there were 20 folks in the room with four participants on the phone.

The first day focused on organization, logistics and background / educational material to assist the SWG start-up.

Wei Min, China Ministry of Education – Chongqing University of Posts and Telecommunications / Key Lab of Industrial IoT Networked Control provided the first presentation focusing on standardization (primarily IEC) in the wireless industrial space, emphasizing topology, process control, routing, security, network management, compliance and interoperability.

Yong Kim, ETRI, provided an overview of IoT in Korea, emphasizing that both technology level and application level requirements must be addressed, and that IoT is a full stack eco-system. Korean emphasis was on healthcare, RFID verification, weather monitoring, smart farm, green rest areas, ITS / highway, city management, appliances, parcel delivery.

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Changseok Bae, ETRI, spoke on Zero Configuration collaboration across devices. The focus was on seamless device interconnectivity within and conceptually across domains.

The US team presented material on the need for crisp definitions of IoT, incorporation of stakeholders in the activity, and a gap assessment perspective. Also presented was an overview of sensor networks and related JTC1 standards.

Henri Barthel, GS1, spoke on RFID, Bar Code and Supply Chain Technology, and he shared the SC31 standards portfolio assessment relating to IoT. He viewed SC31 as an enabler to IoT. Henri also reviewed the GS1 assessment of IoT and the GS1 standards portfolio.

Craig Harmon, QED Systems, discussed IoT in the Supply Chain, referencing ISO TC 122 WG 12 and SC31/WG6 emphasizing smart logistics, smart transport, and mobile item identification.

Jun Seob, ETRI, spoke on ITU Standardization for M2M / IoT. ITU is developing an IoT standards roadmap, a coordination work plan, and a focus group on the M2M service layer. Focus is on data capture and transport, development of a reference model, incorporating application layer, service support layer, network and device layers, integrated with management and security overlay. ITU has a focus on e-health gap analysis, service level framework, and API's/protocols.

Andy Heath spoke on GPII Global Public Inclusive Infrastructure.
The presentation focused on addressing accessibility, individualization, user UI, content, and form matched to user needs.

Recognition is required to the environment in which the devices are being

utilized to accommodate specific situations.

Importance to IoT –human endpoints need to be individualized, e.g. enhance visuals. Preferences must interoperate across heterogeneous networks and devices.

Sensors should accommodate environment / context change and propagate states and changes.

ISO/IEC 24751 is developing a registry of accessibility terms (SC26)

Discussion next focused on final development of Terms of Reference, SWG deliverables, IoT definitions, an IoT Mind Map; an IoT gap analysis, an IoT roadmap, and identification of IoT stake holders and requirements.

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DISCUSSIONS

1) IoT Definition

A high level definition is required that addresses

Interaction with people

Scalability

Databases (discovery, exchange)

Safety, Security, Risk, Resilience

What changes come from IoT

Improving quality of life

Inclusivity

List of stakeholders

2) Market Requirements

It was observed that IoT needed to be addressed from a bottom's up technology perspective, as well as a tops down requirements perspective.

User industry participation may be needed.

3) IoT Requirements and Gaps and Roadmaps

The need for SDO liaisons, both internal and external was addressed.

4) Mapping Structure

The value of an enhance mind map as guide for going forward was reviewed, summarizing applications, requirements, standards flows, and stakeholder drivers.

5) Gaps

There is a need to identify a list of organizations that may be involved in IoT.

Some organizations need to be contacted. Others need to have a liaison established.

There is a need to identify standards, both existing and standards being worked on.

There is a need to develop lists of IoT standards by organization.

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Based on the above discussions the recommendations (Attachment 3) were developed.

INCITS/Study Group on IoT Membership List

Company	Membership Class
CDO Technologies	Voting
Evanhoe & Associates	Voting
Futurewei Technologies Inc	Voting
High Tech Aid	Voting
INCITS Secretariat	
NIST	Voting
Ohio University	Voting
SRA International	Voting
Vossel Inc	Voting

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