ISO/IEC JTC 1/WG 7
Working Group on Sensor Networks

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ISO/IEC JTC 1/WG 7 Convenor:
Dr. Yongjin Kim, Modacom Co., Ltd (Email: cap@modacom.co.kr)
ISO/IEC JTC 1/WG 7 Secretariat:
Ms. Jooran Lee, Korean Standards Association (Email: jooran@kisi.or.kr)

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Standardization of Terminology on Sensor Networks

GUO, Nan

China Electronics Standardization institute

Email：guonan@cesi.ac.cn

WHY?

- Task of Working Group 7
  - In the area of generic solutions for sensor networks, undertake standardization activities that support and apply to the technical work of all relevant JTC 1 entities and to other standards organizations. This would include activities in sensor networks such as the following:

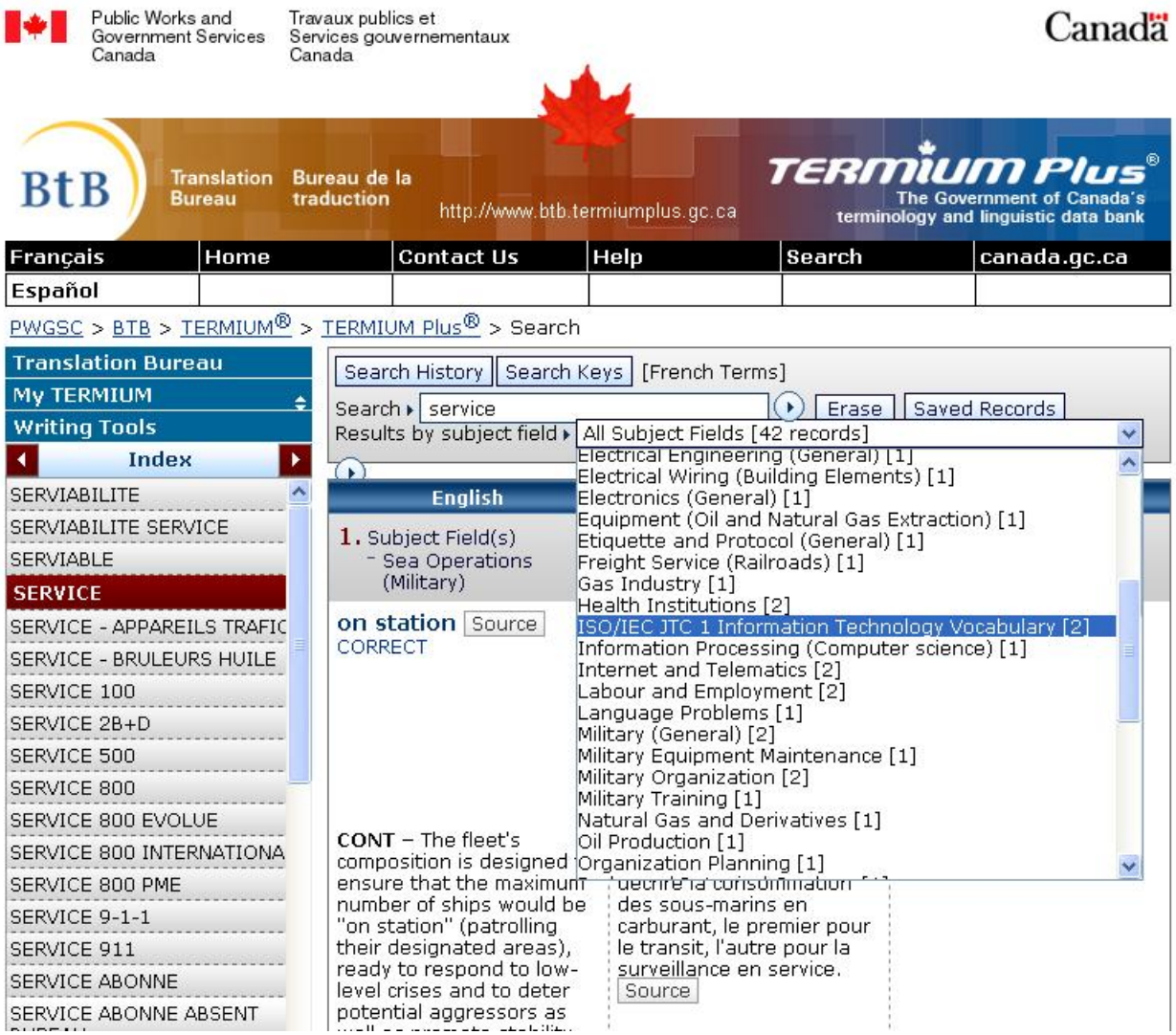
    a) Standardization of terminology.

    ……
- An essential part of a standard/standards
  - Terms and definitions
- Avoiding unnecessary argument
  - Sensor Networks vs. Networks with sensor/sensors

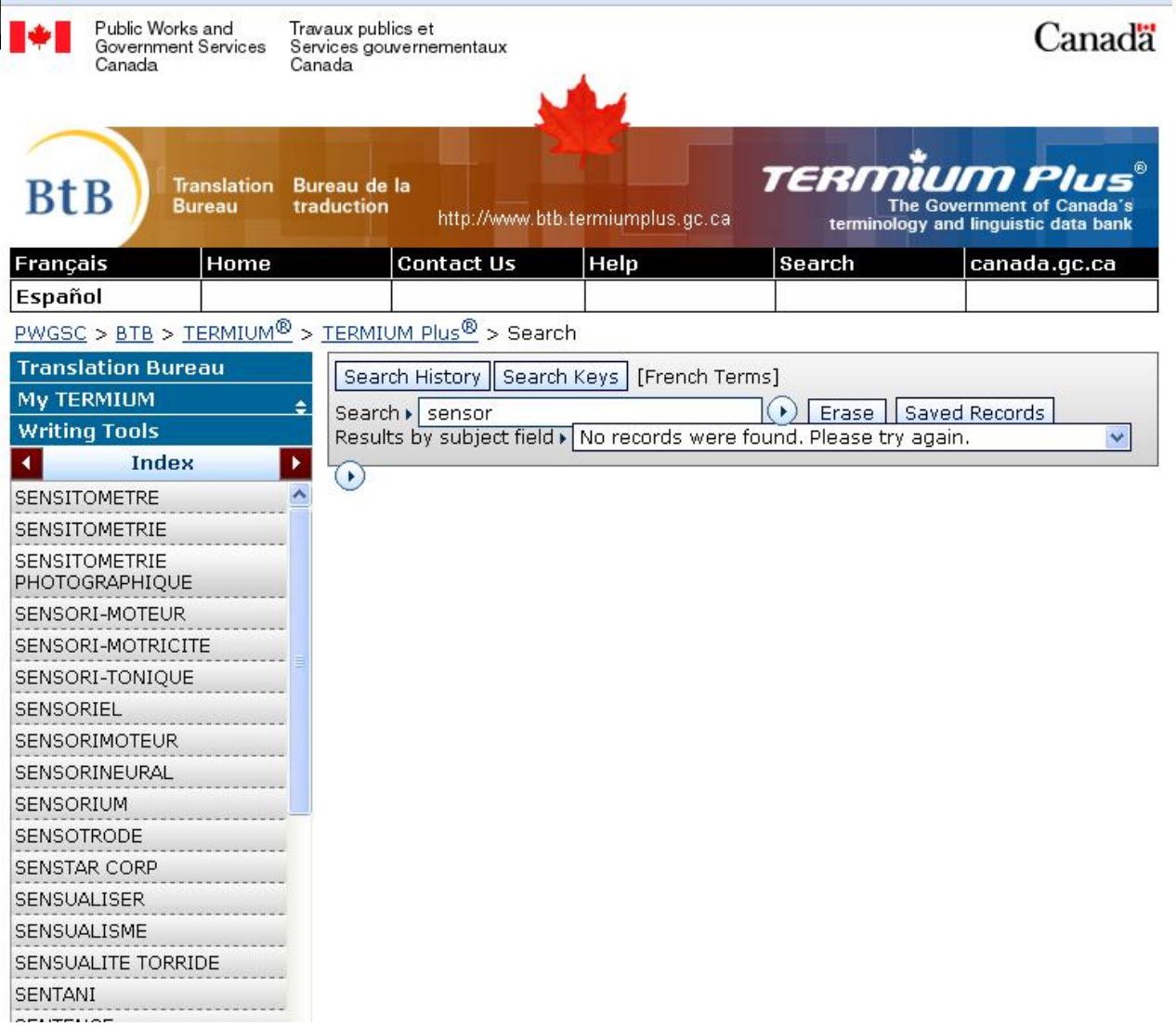
Standardization of Vocabulary in JTC 1

- Used to be done by ISO/IEC JTC1 SC1, then dismissed and the work transferred to JTC 1
- Currently maintained by JTC 1
- JTC 1 **IT Vocabulary Maintenance Team (ITVMT)**
  - JTC 1 appointed Natalie Ranger (SCC, Canada) as convener at its 2008 Plenary in Nara, Japan
  - Develop a mechanism to support the updating of international IT Vocabulary
  - Some terms and definitions provided by SC 2, SC 22, SC 27, SC 31, SC 35, SC 36 and SC 37
  - Requesting SCs and NBs' participation
  - *TERMIUM Plus*®: http://www.btb.termiumplus.gc.ca

Searching “service” on *TERMIUM Plus®*:



Searching “sensor” on *TERMIUM Plus*®:



ISO/IEC 2382 series (1)

Part 1:1993	Fundamental terms
Part 2:1976	Arithmetic and logic operations
Part 3:1987	Equipment technology
Part 7:2000	Computer programming
Part 8:1998	Security
Part 9:1995	Data communication
Part 10:1979	Operating techniques and facilities
Part 12:1988	Peripheral equipment
Part 13:1996	Computer graphics
Part 14:1997	Reliability, maintainability and availability
Part 15:1999	Programming languages
Part 16:1996	Information theory
Part 17:1999	Databases
Part 18:1999	Distributed data processing

ISO/IEC 2382 series (2)

Part 19:1989	Analog computing
Part 20:1990	System development
Part 21:1985	Interfaces between process computer systems and technical processes
Part 23:1994	Text processing
Part 24:1995	Computer-integrated manufacturing
Part 25:1992	Local area networks
Part 26:1993	Open systems interconnection
Part 27:1994	Office automation
Part 28:1995	Artificial intelligence -- Basic concepts and expert systems
Part 29:1999	Artificial intelligence -- Speech recognition and synthesis
Part 31:1997	Artificial intelligence -- Machine learning
Part 32:1999	Electronic Mail
Part 34:1999	Artificial intelligence -- Neural networks

Characteristics of the terms in ISO/IEC 2382 series (1)

- "Common Sense"
  - Sharing the same meaning across different IT domains
  - Examples: message, signal, baseband, channel, software, etc.
- Original meaning vs. Usage habit
  - Example: Byte's definition in ISO/IEC 2382-1
    - A string that consists of a number of bits, treated as a unit, and usually representing a character or a part of a character.

      NOTES

      1 The number of bits in a byte is fixed for a given data processing system.

      2 The number of bits is a byte is usually 8.

Characteristics of the terms in ISO/IEC 2382 series (2)

- In most cases, one term mapping with one definition, but with exceptions
  - Example 1: Process's definition in ISO/IEC 2382-1
    - A predetermined course of events defined by its purpose or by its effect, achieved under given conditions
    - (in data processing) The predetermined course of events that occur during the *execution* of all or part of a *program*
  - Example 2: Port's definitions in ISO/IEC 2382-9 and ISO/IEC 2382-18
    - A termination point through which *signals* can enter or leave a *network*
    - A *function unit* through which *data* can enter or leave a *network*
  - Example 3: Stress test, marginal test, and marginal check defined in ISO/IEC 2382-14
    - A *test* in which certain operating conditions are varied about their rated values in order to detect or to locate potential *faults*

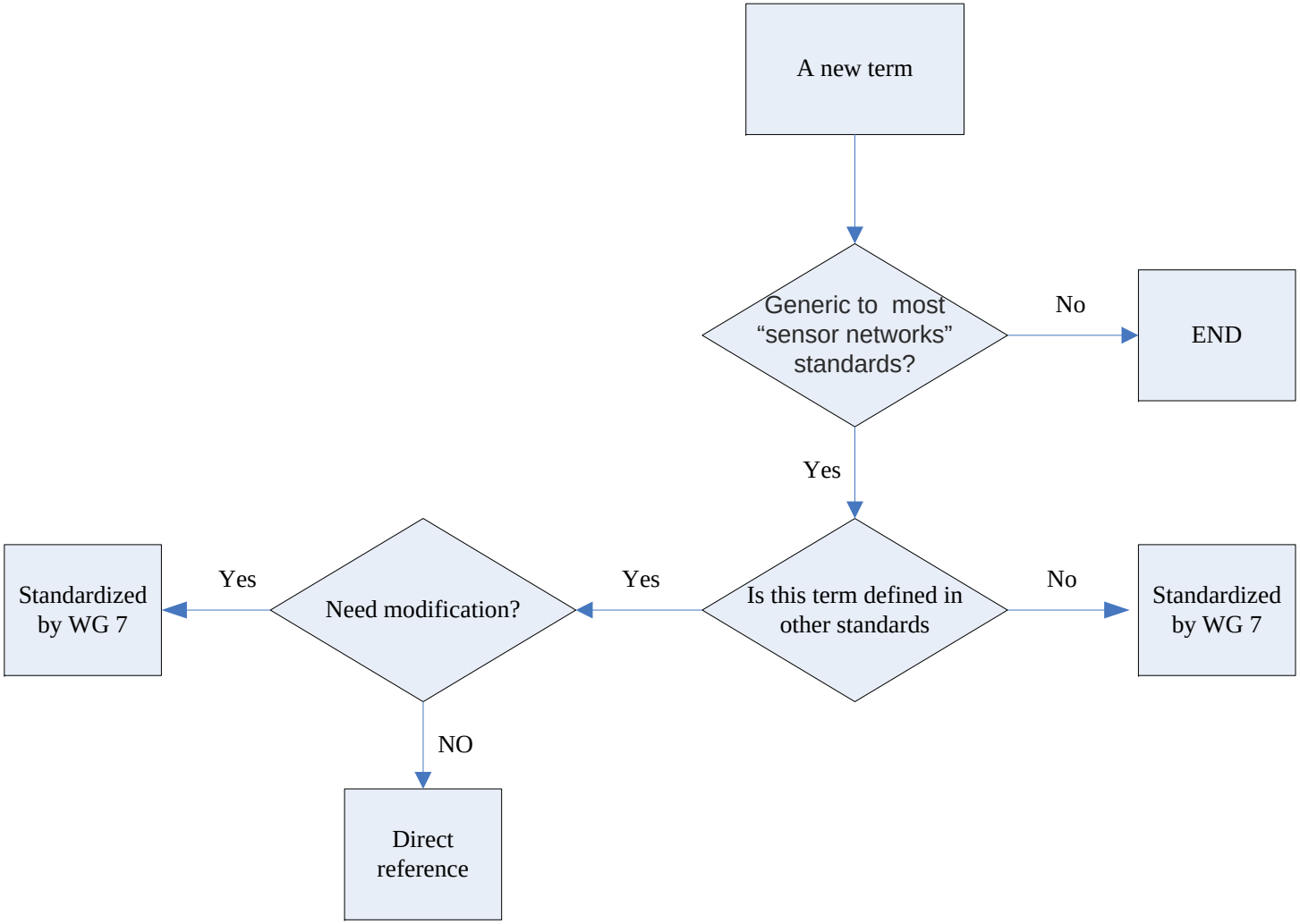
Suggestions on terminology of sensor networks (1)

- Refining and reviewing the terms defined in TD version 3, more terms need to be standardized
  - Solution 1: directly reference to the terms defined in current standards, if needed.
  - Solution 2: modifying the current definitions to make them suitable for the sensor networks, such as “service”.
  - Solution 3: a clean slate way, such as “sensor networks”
- Classification of entries
  - Reference architecture
  - Data communication
  - Security
  - Data processing
  - ……

Suggestions on terminology of sensor networks (2)

- Terms to be defined with the following characteristic(s):
  - Unique to sensor networks
  - Generic to most “sensor networks” standards
- Joint work with JTC 1 IT Vocabulary Maintenance Team
- Requesting more active participations from NBs, SCs and other SDO

A working flow



Conclusions —— a challenge work

- Urgent
  - to start before “technical standards”
  - to accomplish, the sooner the better
- Be careful with the terms, being used in various standards —— may have multiple definitions
- Plenty of cooperation and collaboration work
- NO evaluation or simulation methods for terminology standard
  - Participations
  - Discussions
  - Consensus