

Ecma International and “Wearable” Standardization -

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- **How EPFL and Ecma International teamed up for “Wearables2016”?**
- **Briefly about Ecma International (“Standards at Internet Speed”)**
- **Ecma - How to get involved in “Wearables” Standardization?**
- **Summary and conclusion**

- EPFL stands for education and research (incl. standardization)
- Ecma International stands for ICT standardization

- **Categories of standards**

1. *Development first, standard follows*
2. *Research and standards in parallel*
3. *Development and standards in parallel*

“Wearables” (IoT) standards require all 3

Ecma International is a not-for-profit association under Swiss Law/Geneva, established in 1961 by major multinational computer hardware manufacturers present at that time in Europe. Originally "ECMA" stood for *"European Computer Manufacturers' Association"*.

In 1994 the "brand name" was kept, but the name changed to simply "Ecma":

- ❏ "International" was added because membership has changed to global
- ❏ Broad scope of standardisation topics including hardware, software, communications, consumer electronics, media, storage, environmental subjects, etc...

Track record: 521 ECMA standards / TRs: Ecma publications are free of charge and can be freely downloaded from the Ecma website www.ecma-international.org

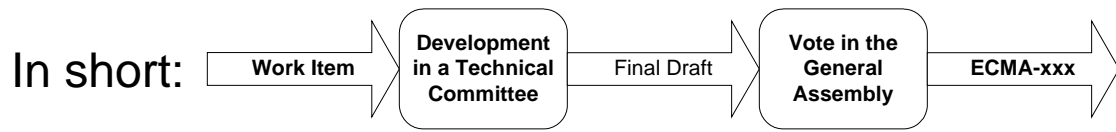
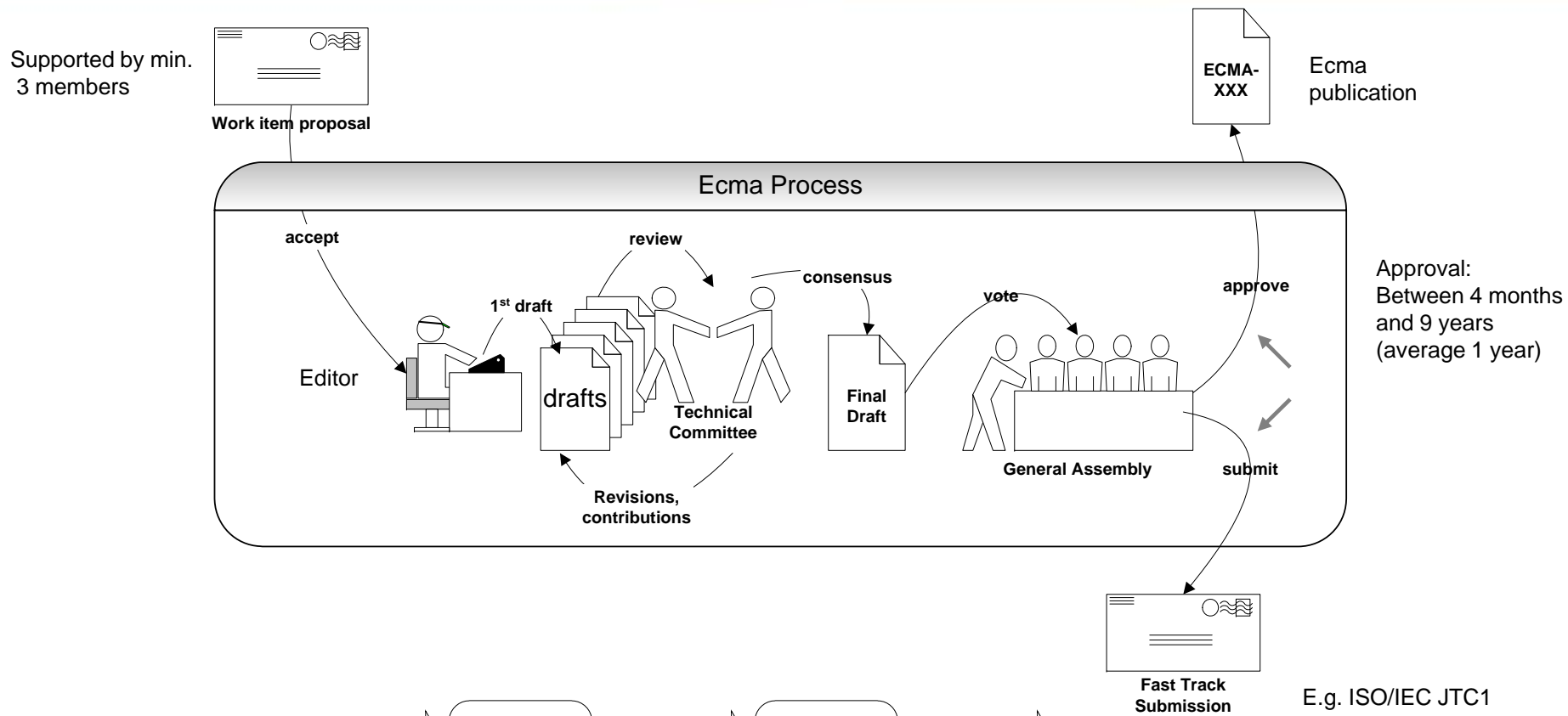
Many of them were submitted to fast-track to ISO/IEC JTC1 (e.g. 191 lately between 2000-2016), and many (67) joint standards also with ETSI.

Ecma's "business model"



- We are small, so do not aim to cover everything, but
- try to fill in the "holes" in standardization:
- We can also standardize difficult standardization projects that other usually can not
- High speed
- High efficiency
- Flexible procedures
- Own – usually small - expert teams in harmony and co-operation with other SDOs

- *Programming Languages*
- *ECMAScript*
- *Multimedia Coding and Communications*
- *Near Field Communications*
- *High Rate Wireless Communications*
- *Product Safety*
- *Environmental Design Considerations*
- *Acoustics*
- *Electromagnetic Compatibility (EMC)*
- *Optical Storage*
- *Universal 3D open file format*
- *Office Open XML Formats*
- *Open XML Paper Specification (OpenXPS)*



Some aspects where Ecma is different from most SDOs?

- Any SDO and Consortia needs to fulfill the WTO Open Standards Criteria
- Regarding IPR policies for Internet and Web standards
 - *Freely available (downloadable) standards needed*
 - *Flexibility in the Patent Policy*
 - **"Base" Internet and Web standards MUST be Royalty Free (RF)**
 - **"Add-on" features (Special Media Codecs, Security Features etc. can be Royalty Bearing (RAND)**
 - *Software Copyright Policy that supports barrier-free, easy implementation*
 - *Some SDOs can offer only a part of this, but Ecma the whole set.*

- IoT and “Wearables” are hot current subjects. Timely standardization would be essential to the industry and to customers.
- Therefore Ecma International would also launch standardization projects on “Wearables”.
- Ecma has the history, the experience, the capabilities to grab some of the “Wearable” standardization topics.
- For us an important outcome of this Summit / Workshop to get input into the definition process
- Ecma has already created an “Ad hoc Group on sensors in wearable and small intelligent devices”

Sensors in wearable and small intelligent devices

- *Motivated by recent technological advances in miniature bio-sensing devices, smart textiles, microelectronics, and wireless communications*
- *Continuous advance of wearable sensor-based systems that will potentially transform the future of life style*
- *Sensors include: motion sensors, acceleration sensors, atmospheric pressure sensors, temperature sensors, audio sensors, position sensors, humidity sensors, blood pressure sensors, heart rate sensors, respiration sensors, skin conductivity sensors, muscular activity sensors, etc.*
- *These sensors can be used in many products and applications*



Need to interwork with each other in a seamless fashion

- *e.g. an intelligent watch from manufacturer A to a smart phone of manufacturer B or to a WLAN hub, or directly to a mobile operator's public network services*

Some initial standardization topics:

- *Formats of sensor data for general data interchange*
- *Requirements for the needed interfaces and protocols based on use cases*
- *standard interfaces and communication protocols (including data formats)*
- *Ensure privacy and data security*
- *Openness for extensions that include MM systems*
- *Interoperability testing?*

Some further initial standardization topics:

- *Since Ecma has a great history on “horizontal standardization” like on ICT related noise, chemicals, environmental aspects, etc. subjects like “Wearable” environmental testing and aging might also be an interesting standardization subject.*





Thank you!
Wishing you a fruitful workshop



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