

Why is the ICT International Standard Important?

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The importance of the ICT international standard.

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One of the Key Goals

Bridging the digital divide is a “must”

All ICT policy should include a
plan for
“bridging the digital divide”

This paper assumes that the reader understands the importance of the international standard. The general importance of the international standard is discussed separately. Actually, the lecture on this paper followed the lecture of the “Importance of the International Standard” by Dr. Sakakura of JSA.

This paper does not discuss the importance of “Bridging the Digital Divide.” This paper assumes that a consensus on the importance of the bridging has been made separately.

This paper focuses on the digital divide due to cultural and language differences, and it does not discuss the digital divide due to poverty and rural location.

Digital Divide:

To bridge the digital divide is the most important item of an ICT policy of any country or region. Poor accessibility of digital information that creates a handicap between people is the basis of the digital divide discussion.

One of the causes that discourages access to digital information is culture and language difference; if people cannot use ICT devices in their own language and culture, it causes a digital divide. ICT national policy should include a plan that is sufficiently ICT-friendly for the people of the country or region.

ICT should be available to the people in their own language and culture. “The international standard is playing a key role in making friendly-ICT available to all people in the world” is a key message of this paper.

Key factors

- Literacy
- Interoperability
- Availability

There are three key elements for the ICT solution to bridge the digital divide created due to culture and language.

- ICT Literacy
- Interoperability
- Availability

Literacy

The average person should be able to use
ICT
thus
ICT should be available in
the local culture and language

ICT Literacy:

To make ICT available to the average person, it is necessary to utilize ICT in the local language and culture. The basic element of ICT literacy is the input and output (I/O) capability of the local language using local characters, but the I/O are not sufficiently user-friendly for the local users.

User interfaces with devices such as PCs should be in the local language and custom. Messages sent out from the PC should be in the local language, and the local message should use consistent terminology throughout all of the messages to avoid user confusion and misunderstanding. And all communication with the PC should follow the local custom. For example, the mm-dd-yy date format could create a potentially high rate of error if used by people using the dd-mm-yy format.

Interoperability

The ICT solutions in the local culture/ language should be part of the world network.

Thus,
the solution should be designed under common principles with other cultures.

Otherwise,
another digital divide may be created.

Interoperability:

In the age of the ICT network, the ICT solutions in the local language and custom should be part of the world network. It should not be closed within the local community.

In other words, an interoperability of the local solutions with worldwide solutions is necessary. To make the interoperability available, the ICT solutions should be designed under the same design principle as the others and the data format should be the same as others (or at least compatible with each other).

An ICT solution that is not interoperable with others invites a new type of digital divide.

Availability

- All state of the art solutions should be available for any person (in the local language)
- All up-dates should be available at the right timing
- Small difference causes a problem

Availability:

Since the ICT solution is a tool to make the local network competitive with others, the solution should be the same or better than others. In practice, all state of the art solutions should be available for local use and user-friendly for the average person. Any down graded solution is not accepted.

The solution should be available at the same timing as others. Any delay in the introduction with other counties / regions is not accepted.

All solution up-dates should be available for the local network without any delay with others.

No difference in the solution cost is preferable.

In short, any small differences invite a digital divide.

To satisfy the three requirements

No simple way to make it available

Many people focus only on culture and language

To satisfy the three requirements simultaneously is very hard work. There is no simple and easy way available to satisfy them at the same time.

Many “so called localized solutions” are placing too high a focus on the local character I/O. And to make the I/O available is a relatively easy task. If “Interoperability and Availability” are not required, the simple solution might work well, but because of the interoperability and availability, further consideration of the development of a solution for the local network is necessary. Many people are missing this point.

Local development?

- **Early stage approach, many people start from local development**
- **This is an impractical approach**
- **Too many solutions, up-dates and resource requirements for nothing new**
- **No useful fall-out technologies**

Locally developed solution?

In the early days of computers like the 1970's, the most popular approach was to develop the same type of ICT solution in the local language using locally available resources. Many people started local solution supply businesses using this approach. Also, one hope at the time was to create a local industry by developing equivalent products.

Before the network, the approach did work reasonably well.

Increasing the data and information exchange unveiled the weakness in the local development approach, and the worldwide network has accelerated reconsideration of the approach for the local solution development process.

Incompatibility between locally developed products encouraged the digital divide as a result. This is the opposite result to that the local developers had hoped for. And this is a serious problem.

In addition, small farms in local areas cannot afford the high development cost that is equivalent to the amount a world class vendor is spending. Therefore, the product performance difference becomes larger and hence, the digital divide also becomes larger.

The next approach was the modification of popular world products. By taking the source code of a world-class product, the idea was to add necessary modifications to the source code to meet the local needs.

By that method, the level of interoperability increased, but the increased level was insufficient. In particular, once the original product is up-dated, then new incompatibility is detected and costs and resource requirements reflecting the up-date for the modified product are recognized as sufficiently significant for new development. Soon the source code modification method was recognized as an "inadequate" method for localization in the network age.

(Furthermore, many local vendors expected the modification to lead to fall-out technology, but this did not happen as expected). Also, as original developers did not feel obliged to de-bug the

modified product, the maintenance cost for the local user was much higher than they expected.

Finally, the internationalization/localization (i18n/l10n) approach was proposed and accepted. The approach expects the developer of the original product to provide a generic solution to cover all local requirements of local users. By i18n/l10n, the interoperability and availability issues are covered. This is the approach that today's world-class vendors are adopting.

Request local solution for product developer?

No way!!

It is impossible to let all product developers of the world understand all local cultures and languages

Can a vender understand all local requirements?

In the case of the i18n/l10n approach, the development engineers of the original products should develop products bearing in mind all the local requirements. Is this a practical approach? No way.

It is impossible for all product development engineers of the world to understand the requirements of all local cultures and languages. The i18n/l10n approach may fail if there is no new method(s) to inform the entire world of requirements of the local users. This is an issue.

Can local people communicate local requirements correctly?

No!!

Fish cannot teach swimming

Specialists in the local area should state the requirements using common technical terms

Can local people communicate local requirements correctly?

It is impossible for all development engineers to understand all local requirements; also, there is the question of whether or not local people can communicate the local requirements both correctly and timely. The answer is “No” unfortunately.

Put simply, fish cannot teach people how to swim. Local needs are so natural for local people that it is very difficult for local people to recognize how locally unique most of the requirements are. In addition, an explanation of local customs as they are creates confusion and understanding for engineers. The local needs should be translated as technical requirements using a common world language. This is another issue.

Specialists in the local area should state the local requirements clearly without any ambiguity. This is not a simple job.

These two issues may simply be called communication difficulty.

Use the international standard as a communication tool between the world product developers and local requirements

**Disclose local requirements in technical
terms and in common form**

Let developers supply localizable products

International Standard as a communication tool:

The solution for the communication difficulty is to “Use the international standard as a communication tool between the world product developers and the local requirements.

Developers of the world follow the specifications of the international standard.

Local people express (disclose) local needs for the international standard by using (and in) generic technical terms in common world forms.

This is the only way to make a world usable solution available to all peoples of the world at a reasonable cost.

By means of the above, it is possible to have all developers supply easily localizable and dependable products (i18n/l10n solution) to the world.

Digital divide due to cultural and language difference should be bridged through the international standard

This is a new role of the international standard, and why it is important for ICT

As a result:

The digital divide due to cultural and language difference should be bridged through the international solution.

This is a new role of the ICT international standard, newly added to the traditional role of the international standard.

This is why the international standard is especially important for ICT.

Is it possible for all developing countries to participate in the standard development activity?

Not easy

Regional corroboration might reduce the load

For developing countries:

Even though the above idea is great, the essential point is the participation of all countries in the world in international standard developments. Is it practical?

It is not possible for developing countries to participate in all development activities of the international standards. From the perspective of specialized resources and expenses for technical investigation and participation in international meetings, it is impractical for developing countries.

How do we resolve this issue?

CICC is proposing and promoting regional collaboration activities to overcome the problem in the Asian region.

Related activities of CICC

- AFIT
- AFSIT
- AFSIT - SIG for cultural conventions
- MLIT for multilingual character code
- DocSII for documentation style
- SEISA AP/IT for standard development

Activities of CICC:

One segment of CICC activities is standardization support.

Based on the above view, CICC has held several activities for “Bridging the Digital Divide” from the perspective of international standards.

AFIT/AFSIT: Annual Forum of 19 Asian countries/regions to discuss many ICT promotion related topics.

AFSITs (Asian Forum for Standardization of IT) have been held for 15 years (AFSIT-15 was the last AFSIT), and in 2002, AFSIT was expanded to AFIT (Asian Forum for IT, not only limited to standards, but any IT related topics). AFIT-2 was held in Ulaan Baatar, Mongolia in October 2003.

AFSIT-SIG: Provide information/data on cultural dependency in Asian countries. 1992-1995

MLIT: Multi Lingual Information Technology: Resolved the character code issue of Asian countries 1997-2001

DocSII: Document Style Interchange Information: Added requirements of unique Asian document style to the international standard. 2002-

SEISA AP/IT 2000: Is the international standard alone sufficient?

After engaging in international standardization activities, CICC has recognized that the international standard alone is not good enough. National standard publication after establishing the international standard is necessary for those cultural language related standards.

This is because the international standard is a compromise between pure national needs, the needs of other countries and international technology direction. It is not always necessarily true that the solution in the international solution is the best solution for the country. Arguments and objections are always expressed in countries. If the international standard accepts the opinions, it may create an incompatibility and, thus, digital divide. Therefore, an explanation on why the solution has been selected for a particular country in their language is

necessary. The national standard is a tool to make this happen.

SEISA-2002 in Lao PDR and SEISA-2003 in Mongolia covered the national development topics.

SEISA-2002 covered the necessity for the national standard, and SESA-2003 covered the necessary technical contents of the national standard.

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