

# Everyone needs standards

D. Wood

*Head of New Technology, EBU*

***In this short article, based on a presentation given to the ABU Technical Assembly in Shanghai, China, the Author argues for a rationalization of the ITU-R in order to strengthen its position as a major standards body in the audio-visual field.***

## Introduction

What makes new media delivery technologies successful is not one, but a combination of three elements: *technology, infrastructure* and *content*.

The technology needs to be feasible. So, the first question that needs a positive response, if the system is to succeed, is: “*can I make it?*”. This might be a pertinent question for some new technologies such as flat-panel HDTV, but it is often not the biggest barrier to success.

The infrastructure also needs to be possible in the sense of the spectrum space being available. Also, the production equipment, transmission equipment and reception equipment must be available and affordable. So, the second question that needs a positive answer is: “*can I deliver it?*”.

The third area is programme content, which needs to be desirable and sufficiently compelling for the viewer or listener to want it, given that it is available. The third question that needs a positive answer is thus: “*if I supply it, will they want it?*”. The added value of content and technical quality must exceed their cost to the viewer or listener.

Success depends on having all these above things right at once. It is not a “best of three” or “either one or the other”. Everything has got to be right at the same moment – the time of the launch – for success to be achieved.

Standards are one of the means to make the technology and infrastructure elements strong. Infrastructure means frequency availability, production equipment availability, transmitter cost and availability and – critically important – receiver cost and availability. It includes the standards for the different elements of the broadcast chain.

## Choosing a standard

Given that you need a standard, how should it be chosen? For a nation, or an organization, there are three routes:

- ⇒ The first is to develop it yourself. This isn't always possible. Maybe your market size is not sufficiently large to support a standard of your own. Possibly, in order to create the standard needs some know-how that you don't have.
- ⇒ The second route is to choose someone else's own standard. This too has drawbacks. If you choose a system that is proprietary or only used in some places, you could be left trapped with just a small number of suppliers. There could also be diplomatic dimensions to selecting one or other country, or company, for the standard. It is also always difficult to know if the one you have selected is genuinely the best one.
- ⇒ The third route is to choose a common internationally-agreed standard. This is arguably the best option – you are surer that the standard is a good one, and it may even be the best one, and there are not likely to be supplier problems or political problems.

## The case for common standards

Common standards make sense from many directions. They help to create economic efficiency – the best possible goods at the lowest possible prices – and they help competition. In a world of open agreed standards, competition can be on price and features, and not subject to technological barriers. Markets are larger, so production volume can be larger.

There are many cases where open standards have been the making of an industry. We could include here the ISA IBM-compatible bus in personal computers, the GSM telephone, and many more.

No one can claim that the use of open standards is the guarantee so success – it certainly is not. All the infrastructure elements and – most important – the content elements are needed too. But at least with an open standard, you minimize many of the barriers to success.

In the recent WBU-TC handbook on digital radio, the editor notes with regret that there are currently 11 different digital radio systems being used, or being defined, in different parts of the world. He contrasts this with the world of analogue radio, where there are just two standards in use throughout the world. Is this really progress?



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### Reasons for multiple standards

Why do multiple standards arise? There is a catalogue of reasons.

The development of new systems can be done at different times, and the developers have thus different technical toolkits to use, because of technical evolution. Even a few months can make a difference.

The developments can be done by different groups of people. Give a team of engineers the choice of either using someone else's system, or spending money to develop their own, and most will go for the latter.

It can also be that needs are different in different organizations, and different parts of the world. What the system is required to do may be different. There may also be differences in infrastructure – such things as transmitter density or population density. They may cause different priorities. It is also not unknown for some organizations to see a business advantage in having their own system.

Agreeing common standards is inevitably difficult. But even if it isn't always possible, a few successes can be well worth the energy spent.

### Arranging for standards agreement

How can we help common world-wide standards to happen? There may be four principle ways to do so.

- ⇒ the first, and main one, is to arrange effective standards organizations;
- ⇒ the second is to disseminate information and encourage innovation throughout the world, to prevent time-differential development;
- ⇒ the third is to start early with the standards process and to give it all the energy possible, before positions become too entrenched;
- ⇒ the fourth is to be fair, in terms of technology and economic advantage.

All of the world's technical standards should not come, for example, from one country or region. We need a balance, so that every organization is encouraged to continue in the pursuit of world-wide standards. They must feel that any efforts they put in to the development of standards are not a waste of time, because of a dominant actor.

### Standards bodies

If we look at the world media standards bodies, and put aside for the moment the regional bodies, we find two kinds. There are *official* standards bodies and *private* bodies. In the official category come the ITU-R, ITU-T, IEC TC 100 and the ISO/IEC JTC1. In the category of private bodies come DAVIC, DVB (well, almost world-wide), DRM, the W3C, the IETF and others.

Both types of bodies have had their successes, and lack of success. In the ISO/IEC JTC1, to cite an example from the official sector, we have seen remarkable world-wide agreement on JPEG



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(compression for still pictures), MHEG (multimedia content decoder), and MPEG (video compression, now also Metadata). In the private sector, we can cite as examples of success, all the WWW standards developed in the IETF.

As an example of the particular dilemma that private bodies face, there are two ways of working that can be employed. The first is to keep technical details to yourself during the development via a non-disclosure agreement. This was done, for example, in the HD-MAC project and is now being done in the DRM project. There are advantages to this way of working, particularly the clarity of patent rights when any money comes to be made.

The other way is to keep the technical details open, as you develop the system. This was and is done for example in the DVB, MPEG, MHEG, JPEG and DAVIC projects. It has the advantage that there is a greater chance that people outside the project will buy in to it, if they have been able to follow it, and understand why technical choices are being made.

## **The ITU standards activities**

In principle, the ITU-R should score heavily as a standards body. Its very essence is the need for solidarity of all nations, rich and poor, large and small. Furthermore, it has highly trained and competent staff. It also has great technical communications infrastructure and facilities. It should be the focus of the world's media delivery standards. However, in spite of this promise, the attendance at the ITU-R is diminishing, and other standards bodies – both official and private – are increasingly drawing larger crowds and are agreeing matters relating to broadcasting.

Why should there be a drift away from the ITU to other bodies? The reasons given by delegates to other bodies include:

- ⇒ it is no longer possible to agree unique common standards in the ITU-R;
- ⇒ the ITU-R simply catalogues other people's multiple standards;
- ⇒ some also say that the ITU-R is dominated by administrations;
- ⇒ others say that the procedures are too slow.

But what determines if a standards body is successful? Can we use this to instigate steps to give the ITU-R back its pole position? A standards body needs good leadership quality, good secretariat quality, breadth of membership, and a structure that matches the environment.

What steps should be taken? We probably need to make the structure fit the current world of media delivery better. We need to get the best chairmen around. If we do that, there is a chance that, like a "field of dreams", if we build, then they will come.

## **The media delivery environment**

What is the context of the media delivery environment that needs to be matched?

Perhaps there are two important specific trends. The first is that baseband standards will eventually become software platform standards. The second is that radio frequency stand-



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ards will be agile standards, able to respond to different parameter sets by means of broadcast configuration information.

However, the real dominant trend today is “convergence”. This is the coming together of all media, with common generic systems. This is the fundamental change ahead of us. What is transported will not specifically be pictures, sound and data – it will be multimedia which includes sound, vision and other elements. What is more, this will need to be transported in an interchangeable manner by all delivery systems. If there is a fundamental concept for the ITU to respond to, it is convergence.

The EBU has offered some suggestions to the ITU-R about how to arrange the studies in future. These suggestions are as follows:

- ⇒ ITU-R Study Groups 10 (sound) and 11 (Television) should be merged to take into account the future multimedia transport environment. Sound and Television will always have individual identities, and permanent separate futures at the level of content. However, at the technical level, they need to have compatible coding and transport systems.
- ⇒ The combined Study Group should be arranged in a horizontal structure with horizontal generic slices that cover all delivery platforms. These might be groups on (all aspects of) studio systems, coding and multiplexing, radio frequency systems, and frequency planning. The ISO/IEC JTC1 made the same suggestion at their last meeting, in an effort to encourage co-operation with the ITU-R in future.

## Conclusions

Common standards help everyone. In order to prepare them, active efficient standards bodies are needed. In the media standards world, the ITU is ideally placed to be the pivotal body, but some changes are needed to align it with technological trends - principally *convergence*.

Any change is painful, but it will be worth it. The media delivery horizon is exciting, to say the least. We can look forward to systems for broadcasting multimedia to mobiles, for a range of synergies between the Internet and Broadcasting, to systems which use client storage in the home receiver, and systems which use the Internet to deliver television and radio broadcasts.

If we can move towards greater common standards in these areas, we will certainly have the gratitude of our grandchildren. Let us try.

