Knowing audiences

Assessing return on investment requires measurement, but it's not something the a-v business has always been good at. *Adrian Exton* examines the application of audience measurement to signage

Any professional performer who is to appear in front of an audience will, as part of their preparation, want to know about the people in that audience. Will they be sympathetic or hostile? Have they been warmed up? What is their mood? What are their expectations? By knowing the answers to these questions, the performance will go that much better.

During the performance, the professional can modify their act by reacting to audience feedback and try to please as many people as possible. Therefore, one of the most important commandments for any performer is 'know your audience'.

This is relevant for many other spheres in life. Knowing how best to interact with people can make us successful. Every sales person knows this and there are a multitude of courses available to try to teach what perhaps should be a natural skill. The commandment translates to any situation where there is a desire for effective communication and it is especially relevant for the advertising and retail sectors.

For example, the on-going discussion about the effectiveness of digital signage can benefit from solid, reliable measurements of viewers and their attention time.

Image processing

Technologies are emerging that are able to provide some key audience measurements. Generally, the technologies were developed by universities or research organisations and are based on image processing. Several parallel advances such as the growth of digital signage, more powerful computers and algorithm improvements have created a situation where the technology can now become mainstream.

It has been quite a challenge to get a computer to 'see' a scene in the way that humans can, and even more difficult to get the computer to interpret the scene. High accuracy measurements are now being achieved after many years of refinement.

Useful audience measurements may include the gender of the viewer, the number of viewers and their attention time. Humans have developed the ability to rapidly assess other humans by glancing at a face and drawing a wealth of information from that glance.

Once we understood all the human processes involved we were able to programme computers to achieve the same tasks.

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The processes can be simplified into four discrete stages: Discover, track, compare and identify (or measure).

- **Discover:** A camera views a scene and the image-processing software will scan the scene for key features that would identify a face. Features such as a pair of eyes contained within a head shape are the first to look for. Other confirmatory features can then be tested for and the face is identified.
- **Track:** People move around, so once the face has been discovered, it must be tracked for the time that it is within the viewed scene.
- **Compare:** Now specific metrics concerning the face are compared with known metrics of male and female faces. It is then possible to determine the gender and age of the viewed face based on these comparisons.
- **Identify or measure:** By observing the relative position of the eyes with respect to the head shape, we can determine whether the person is looking straight at the camera or at an oblique angle. This allows us to infer viewing duration and dwell time.

While this audience measurement process could be classed as surveillance, no video is stored or transmitted. The system is anonymous and discreet, ensuring that the audience members do not modify their behaviour because they feel watched. Data is delivered from the sensor to a central processor where it can be analysed or integrated with third-party business intelligence systems.

Digital signage needs

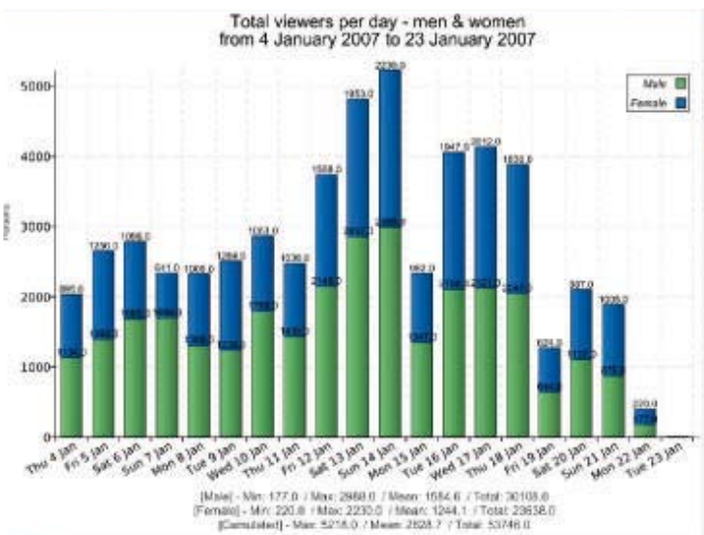
Let's specifically examine the digital signage requirements for audience measurement. There are broadly two main drivers for this technology; the need to measure effectiveness and the desire for targeted messaging.

A number of industries have evolved audience measurement methods and created organisations such as Postar for outdoor advertising, BARB for TV viewing figures, RAJAR for radio audiences and so on.

There is no industry-wide methodology for digital signage, yet. Several companies are starting to develop measurement methods, including Médiamétrie, a French company involved in measuring TV and radio audiences. By measuring the effectiveness of digital signage, media campaigns can take a holistic view of all available platforms and understand the total audience.

Imagine we are considering a digital signage screen located in a department store. By measuring how many people enter the store, we know the total available audience who have the opportunity to see (OTS) the signage. We can then determine the number of people who saw the screen and for how long their attention was focused on the content.

VIEWERS PER DAY



By comparing the measurements for different sites and times of day, we begin to build up a profile of what our audience reacts favourably to. This starts a cyclical process of measurement, analysis and reaction. By continually refining the variables we can hope to optimise performance which, in this case, is to maximise the number of viewers and their attention time.

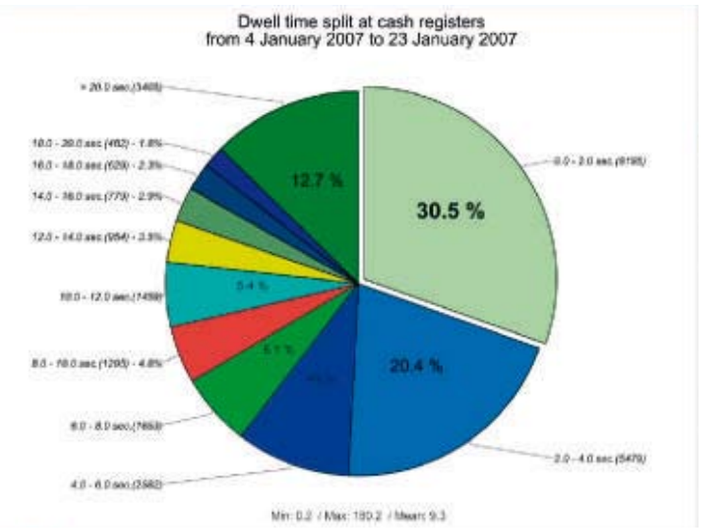
Measuring our audience in real-time allows us to react immediately. For example, if we discover that the current audience is mostly women, we can play content specifically targeted at women. We may decide to play a certain advertisement when a group of at least three people are within viewing range. The aim is to deliver content that is highly relevant to the viewer.

Wider applications

Of course, it is not only the digital signage market that benefits from an improved knowledge of its audience. Retailers want to discover which items in their shop window are being looked at most. Store planners want to know how customers move around a store and whether gender has a bearing on the routes taken. For example, what is the proportion of wives and girlfriends buying ties and cufflinks and should the advertising be aimed at them, rather than the recipient? How does the gender proportion of visitors to a store change throughout the day and can this influence the product lines carried and where they are placed?

None of the tools described are an instant key to success, but they aid those whose decisions may maximise performance in this increasingly competitive world. After all, if you don't measure it, how can you manage it? ■

MEASURING DWELL TIME



KEY FACTS

Adrian Exton is a director of BlueSight Systems, a specialist distributor of smart sensor technologies. Smart sensors detect and analyse events and scenes, creating a wealth of data that can be used to optimise performance, trigger alarms or report. Specific modules perform tasks such as identifying, counting, tracking and measuring. The technologies may be put to a range of tasks such as retail planning, security, transportation management, traffic analysis, queue management, crowd monitoring and visitor counting.

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