

Big screen test

The LED display market is suffering from high costs, lack of consumer knowledge and a declining supplier base. With jittery buyers unwilling to take risks, standardisation and improved sharing of information across the industry represents the way forward



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The need for standards in the display market

Can you imagine any NBA game or World Cup football match being played without a replay screen? Can you imagine a Formula One race without the LED screens around the track? How about an important pop concert? What would Las Vegas be without the omnipresent video screens? Ever since Shuji Nakamura invented blue and pure green LEDs, the market for these displays has been growing at a rapid pace.

It is assumed that the companies making them must be going from strength to strength. Why then, have we heard reports of the leaders in the field folding? Why, if the economies of scale and high profile installations virtually ensure the future success of these companies, does it look as if no one can guarantee their survival, let alone growth?

Let's start with the notion that anybody can make an LED display. While the basic concept of a display is fairly simple, and readily available tools and components can be used to design one, not everybody is successful. So what are the reasons for this?

LED displays bring together a wide range of seemingly unconnected disciplines – optics, optoelectronics, electronics,

mechanics, software, communications, video technology, graphic design, and more. Every single display company lacks knowledge in one or more of these categories. In addition to this, strong sales, marketing and financing are needed. Therefore, we are still some way away from a really good video LED display.

Risks of purchase

LED displays are hi-tech devices. They have improved immensely over the last few years since the first full-colour LED screens were installed. Every year, they have more power

and features. Second, by the nature of LED, they last an incredibly long time. Some people even claim they are the most reliable electronic components of all.

The LED technology is the visual communications technology of the future. Its general characteristics are close to ideal – long life, low maintenance, environment friendliness, energy efficiency and flexibility in shape and dimensions.

No customer will pay millions of dollars for a screen and expect to replace it in three years. While even the best PC today will be at the low end of the market in three years,

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and features. So, if we look at the computer industry, it seems we should get a good idea how the big screen industry will fare.

But this is not true. A number of differences between the industries exist. Firstly, these screens cannot be sold as consumer products. Their primary purpose is to

there are no reasons why good LED screens should not last five, 10 or 15 years.

This presents a concern – how do you market products that last so long? How can you guarantee anything for such a long period? From the customer's perspective – how can you be sure that the company you

choose will be around until the end of its product's life?

In the motor industry, for instance, there are some car companies that are better than others. Based on the perceived quality levels, people generally assume that they will have less trouble for years to come with a luxury German car than a small Korean passenger vehicle. The quality difference, along with some intangible properties, is reflected in the purchase price of the car. But, you can safely assume that all these companies will be in business for the next decade or two.

In the LED industry, even the best known names are faltering. It is as if you cannot rely on anyone. If you go for a small company, you are taking a risk. So, the safe choice should be to go with a company that is a conglomerate, has established its name in another (usually related) industry.

But, there is a danger that sooner or later the conglomerate will decide to get rid of its LED business, simply because it costs too much. In this business it is not enough to spend millions on development, but one needs to build samples that cost millions, too. Over a few years until the business starts turning a profit, the shareholders must also be prepared for heavy spending on marketing. This may simply be too much for the corporate boards in time of falling profits.

The 'mom-and-pop' shop that has been making displays for years is another avenue of exploration for purchase. They care for their name sufficiently to be able to survive, right? In reality, there is no guarantee that this is the case. One wrong decision and millions can be wasted. They cannot survive that.

How about a signage business that has great experience, has been making various types of signs for decades and is large enough to sustain itself through the slow periods? The experience that sign companies have is largely irrelevant to making good LED displays. The knowledge of neon, incandescent electric signs, or plain static billboards does not solve most problems if one is trying to design an LED display.

Supply concerns

While there are hundreds of companies making displays, the suppliers of some basic components, namely blue and pure green LEDs, can be counted on the fingers of one hand. Some people see this as a huge problem for the industry. This, they say, prevents the prices from falling, and any profits go to the primary suppliers of LEDs.



This is obviously not good for anybody in the display industry. A small number of primary suppliers and high demand opens the door for all kinds of abuses – from unnecessarily high prices to no lack of quality standards. It is possible to encounter problems in LED selection, consistency of production and pricing, as well as LED characteristics, like wavelength and brightness.

While the buyers can punish bad display companies, do they have any effect on the LED manufacturers? The primary suppliers have no incentive to offer good customer service or high performance levels, due to the fact that if one display company fails to order their product, someone else will.

The industry cannot be directly compared to any, and it is difficult to predict what will happen. But there is one similarity between LED displays and other industries in the world, be it snack food or high-definition televisions – the market decides. It is such a young industry, and that sometimes makes buyers jittery.

Sometimes buyers are pushed, without proper explanations into purchasing products that have features they don't need. Sometimes the need to get the lowest price is so overwhelming, and the level of knowledge of the customer is so low, that wrong choices and expensive mistakes are made. This is to be expected, due to the short time the industry has had to educate the buyers.

Today, it is impossible to predict who will be the largest LED company in the world in two years.

Location, location, location – if you have the space, then an LED video screen can be designed to raise revenues from any prime location.

Buyer education

In this young industry the products are not only expensive, but extremely complicated. There are no set standards. But, if conventional wisdom is followed, the industry should simply let the buyers decide, and everything will be all right.

Those who bought products made by the recently closed companies are naturally unhappy with the turn of events. But they, in a small way, helped bring it about.

The price cannot be the most important factor when buying an LED display. The discounts that help display companies gain market share, quickly turn into losses. If they are to survive, they need to make money. The company size, too, cannot be the most important factor when buying an LED display. Even the largest can fail – just as easily as the smaller ones.

There are few reliable sources of accurate information about the industry. There are few reliable market research houses, consultancies, and industry standards and there has been no time to measure product longevity and performance. Anyone can claim anything, and with a sufficiently persuasive sales force, the buyers will buy it. But for how long?

Call for standards

What is the use of the LED suppliers specifying LED life-times at certain forward currents, when some display makers soon realise that their displays can be made brighter by driving them harder? They fail quickly, but who cares about what happens in a couple of months or years.

How is it possible that display companies using the same LEDs – same type, from the same manufacturer – get viewing angles of 120-170°? What exactly does 10-bit colour mean? Can anyone really differentiate 64b colours? Who should pay the penalty for not obeying this standard, whatever it may be – the display companies, or the LED manufacturers?

There are no bodies that are willing to take responsibility for the industry – one just has to look at the wide range of different associations that organise the trade shows that LED display companies exhibit at: ISA (International Sign Association), NAB

(National Association of Broadcasters), ICIA (International Communications Industries Associations) and IAAM (International Association of Assembly Managers).

This doesn't even take into account all the other sports, traffic and directional signage or information technology shows, that also feature various types of LED displays. For some display companies, annual trade show expenses run into hundreds of thousands of dollars.

Suggested solutions

It is clear that there are a lot of problems in the industry, and that the buyers are the ones who suffer the most. They should be the ones at the forefront of the efforts to standardise the industry.

A trade association that serves both the suppliers and the buyers may be a solution. It could help with the standards. It could collect all the different market research documents from various small organizations, and present an inexpensive source of information for both suppliers and buyers. If it was independent, it could publish reliable product reviews, and regularly updated customer satisfaction surveys. It could present a

single source for buyer education. It could organise consultant certifications, too.

The present market research agencies that cover the industry do not have means to visit every corner of the globe. But there are large display companies on almost

every continent. An international association would have the power to investigate all the display companies and their facilities, as well as interview the clients.

LED displays have many applications. The industry is sufficiently large today to warrant having its own trade show, which could be organised by the association outlined above. This could bring together all relevant LED manufacturers, LED display companies serving different markets (sports, entertainment, commercial, airports, traffic, offices, shops) and buyers.

Instead of hopping from show to show and doing research for two years, the buyers could find everything in one place. The answer, as usual, seems to be in transparency, information and organisation.

When the dust settles from the fallout of

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companies going under, the new and lasting pillars of the industry will be those who intimately understand the technology and its potential. Those who continually invest into people, equipment and knowledge. Those with a very long-term outlook, who are prepared to understand the customers' needs and to co-operate with them in all phases of system design, specification and implementation, as well as its day-to-day operation.

They will be those who possess that one quality that cannot be bought and is extremely difficult to learn - vision. ■

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