

production of LEDs for solid state lighting.

As reported by Yole Développement, while sapphire is a key material for LED manufacturing, 20 percent of 2015 global sapphire consumption (see illustration below) will be used in Apple's iPhone, for the camera lens,

fingerprint readers and heart rate monitors covers, and the Apple watch's "crystal."

As these examples illustrate, engineered materials are at the heart of many if not all manufactured products. Continuing to engineer materials into new and more useful

forms will enable further options and improvements going forward. I eagerly await these developments.

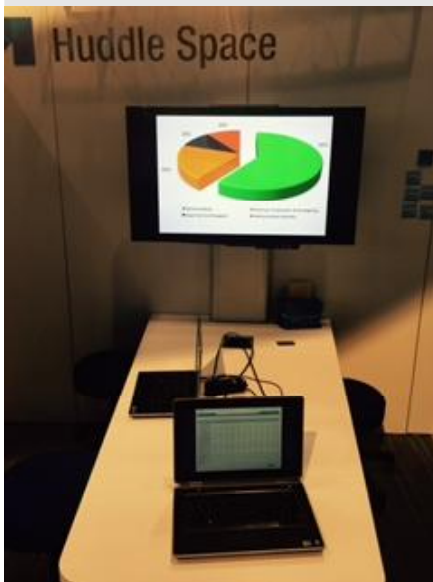
- Phil Wright

Huddle Up! Huddle Spaces and K-20 Education



One of the most pronounced developments appearing at InfoComm 2015 this year involved the stately arrival of the venerated "huddle space" in a featured posture in the exhibit hall. (I stopped counting at 12 huddle station solutions in the cavernous Orlando expo hall.)

The venerated "huddle space", with associated displays



The solid emergence of this meme met with perfect personal timing. This month, I have a meeting with a school architect, who asked to meet with me on the topic of new trends and developments in educational teaching spaces. His firm wants to stay current in the design of instructional spaces.

As stated previously, huddle space solutions were to be found in most rows and

many exhibits throughout the InfoComm complex. Some had a corner showing their huddle space solutions; others proudly featured this layout in their booth, and still others divided their entire exhibit space into multiple huddle spaces (as opposed to auditorium, bench, bar, or walk-by tables). These latter exhibit spaces were quite effective, drawing many customers into seated, small-team discussions. Participants clearly appeared much more comfortable, drawn in, and communicative in these settings.

Huddle Spaces in Education

The meme repeated itself at the ed-tech ISTE conference in Philadelphia, with huddle spaces also being featured, although more sparsely, in the exhibit hall. In fact, Panasonic offered one of the most delightful booths, entirely constructed of huddle spaces. It really worked for interfacing with educational customers. In fact, the experience was great.

Although huddle spaces are not entirely new in education, the specific term "huddle space" is in fact relatively new. Instead, a babylon of other terms are used to describe this instructionally powerful seating configuration in education. Steelcase calls them active learning environments; Bretford calls them teaming tables; and Smith Systems call them media tables. And, depending on what their marketing genies have decided to use as the magic words, other firms and educational institutions also call them lounges, hublets, coves, team gardens, collaborative learning environments, informal learning environments, learning suites, or learnlabs. But they are all the same idea, and the idea is growing. Here are some interest-

ing developments:

- Many universities, like the University of Wisconsin, are busy replacing computer labs with *multiple* huddle spaces;
- Many K12 schools and higher-ed institutions, like Emory University and NJIT, are installing huddle spaces throughout their buildings: in libraries, in classrooms, in common spaces, in dorms, and any place else they think fits
- A recent Steelcase whitepaper (<http://tinyurl.com/peuprj5>) outlines the rationale for carving out such technology-enhanced workspaces
- This video (<http://tinyurl.com/pp92k4s>) goes a long way in showing how these spaces can operate

Implications for the Display Industry

The growth of this new huddle space meme in education settings has some noteworthy implications for firms selling display



Panasonic's booth at ISTE was made entirely of huddle spaces. It worked!

technologies to the education market:

- This new group-focused learning space requires connectivity, device agnostic solutions, and transparent operation
- The impact on display sales will be positive: schools will order more and larger displays to accommodate huddle space growth in libraries, conference rooms, classrooms, dorms, engineering and

medical spaces, and large common spaces

- The impact on display sales will be negative: schools will order far less individual small displays when replacing an entire computer lab with huddle spaces
- The emergence of huddle spaces in education requires that manufacturers seek out new partners, new integrators, and

new technologies that can support these emerging learning hubs

- Large displays, interactive displays, or projectors are certainly not out of the equation; these valuable learning technologies remain important and constant for full-group viewing and pull-together experiences.

-Len Scrogan

In Brief - Channel, Smartphone, Supply Chain

Channels in Europe

In-Store Experience Moves to Digital

A study by IDC (paid: <http://tinyurl.com/q6q8tvz>) has found that retailers in Western Europe are increasingly moving towards in-store digital transformations, to gain a competitive edge. All top retailers in the region are currently evaluating how digital impacts them, and what their approach and strategy should be. Two areas are being prioritised: equipping sales assistants with mobile devices, and replicating personalised online engagements in-store. eCommerce is a growth area, specifically mobile commerce.

Smartphone News

In-House AP Use Rising in China

Huawei and Xiaomi will use more in-house developed application processors in their smartphones in the future, say Asian sources. Huawei's subsidiary, Hisilicon Technologies, has raised its technological capability, while Xiaomi has obtained licences from China's Leadcore Technologies, to develop own-use processors.

Smartphones Overtake Laptops in UK

Smartphones have overtaken laptops as the UK's most popular device for accessing the internet, according to research by Ofcom. 66% of Brits now own a smartphone, using it for almost two hours every day to browse

around online. 33% said that their smartphone was their most important tool for reaching the internet, compared to 30% who stuck with their laptops; in 2014, these figures were 40% and 22%, respectively. The rise in 4G availability was given as the main reason for the jump in smartphone use.

Smartphone ownership was found to be high among 16-24 year-olds (90%), although ownership among 55-64 year-olds has more than doubled since 2012 (19% to 50%).



Foxconn Set for Success in Emerging Markets

As more smartphone vendors look to Brazil and India, Foxconn will benefit, say sources from Asia. Vendors are seeking local production partners, as Brazilian and Indian governments are imposing high tariff rates on imported mobile devices - and Foxconn already has a presence in these markets.

Supply Chain News

AUO Fights Slowdown With High-End Panels

Expecting a weak second half for the panel industry, AUO is aiming to maintain profits by producing large-size, curved and UltraHD TV panels, say sources from Asia. High-end

notebook panels, automotive and wearable displays will also be produced. UltraHD notebook panels will be mass produced in Q3'15. A 30% and 40% rise in automotive display revenues and shipments, respectively, is expected; 12.3" panels are seeing the highest demand today. AUO also expects its 1.4" circular AMOLED panels to remain steady; these are mostly being supplied to Chinese customers.

Samsung Beats BOE With G10.6

Korea's ET News claims that Samsung Display is to construct a new G10.6 LCD facility, which will begin production in the second half of 2017. The firm intends to stay ahead of Chinese competitors, such as BOE, which is building a G10.5 line that is due to start production in 2018. An announcement is expected in September.

Samsung has talked for some years about building a G10 fab, but any investment in LCD capacity would be a difficult investment decision. Samsung and others have reduced the advantage of G10 class plants by developing Multi Mother Glass technology which improves the efficiency of making very large panels on G8 fabs. (BR)

China Will Overtake Korea's AMOLED Capacity

Sigmaintell Consulting predicts that global small-to medium-size LTPS AMOLED capacity will rise 30% YoY in 2015. Both South Korean and Chinese vendors are investing in production; Sigmaintell believes that China may overtake South Korean capacity by 2018, if current speed is maintained.

Approximately 40% of LTPS AMOLED capacity will be for flexible applications in 2018.