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Executive Insights
Reprint

Kris Kolo, Global Executive Director of the VR/AR Association, On Business Value of Virtual Reality and Augmented Reality

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Ron Exler, Alex Bakker

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Executive Insights - Kris Kolo, Global Executive Director of the VR/AR Association, On Business Value of Virtual Reality and Augmented Reality

Summary and Key Insight

As part of our ongoing Executive Insights research program, ISG's Ron Exler and Alex Bakker recently caught up with Kris Kolo, Global Executive Director of the VR/AR Association. In this two-part interview, Kolo provides business use cases, insights, and guidance on the value of Virtual Reality (VR) and Augmented Reality (AR) investments. He also shares and how applications of the technologies translate to improved business outcomes. The interview wraps up with his view on the challenges and misconceptions the industry faces for reaching broader adoption of VR and AR applications. Learning first-hand from industry leaders who are regularly in the field with customers and vendors provides valuable insight into current and future trends. This interview, with an experienced leader in VR/AR projects, illustrates the opportunities and challenges – both business and technical - in the emerging VR/AR sector.

Perspective

Ron Exler: Kris, thank you so much for joining us for another in our ongoing Executive Insights research series with industry thought leaders. To start our discussion, please tell us a little bit about your organization.

Kris Kolo: I am the Industry Advisor and Global Executive Director for the **VR/AR Association**. We are the international association for Virtual Reality and Augmented Reality. It is in its second year of operation. We have 1,700 companies registered and more than 20 chapters worldwide. Our mission is to educate the market, establish best practices, and accelerate the industry.

Members include a lot of well-known brands. A lot are content creators - it's a very wide mix. They fall into six categories:

1. Hardware providers
2. Apps and content including games
3. Education and training
4. Distribution/discovery
5. Infrastructure and tools – VR tools, SDKs, stitching
6. Universities, researchers, and labs

About 50% of the market is apps and content - which is good at this stage in the market. A lot of this started with hardware and a couple of games. Now 50% or so are content creators, which is what the market needs.

Ron Exler: Our audience is comprised of enterprises who work with the technologies, providers of technologies, and third parties such as outsourcers. What are you hearing in terms of how these technologies are being used?

Kris Kolo: In the enterprise, a lot is happening. Existing categories where we are seeing a lot of activity include architecture, construction, product design, training/simulation, and merchandising/retail. I can get into examples.

- In *Merchandising/retail* we are seeing big brands such as Walgreens and Sears already using AR technology. For example, Walgreens did a pilot using **Google Tango** to digitize the inside of stores to enable an AR world where they can provide product information and electronic coupons while the customer moves around the store. Consumers can see the AR information on smartphones or with AR glasses.
- The *Medical* vertical is using VR for training. **Mativision** offers solutions to hospitals for training surgical teams for procedures. It can be use both to help prepare the surgeon and to help explain the procedure to the patient.
- *Product designers* are using **Microsoft HoloLens** to visualize product design for products that can range from cars to homes.
- *Architects* are also using HoloLens to visualize designs for homes and office buildings.

Ron Exler: Why are those approaches improvements over how they always did things?

Kris Kolo: Going back to retail, Walgreens is investing in this technology for several reasons. One is to increase engagement with the customer. Google's think tank Google Thinks did a survey of consumers. 60% of smartphone users were interested in technologies f that lets them visualize floor tiling or furniture in the home before they buy.

Alibaba (of China) created a pilot VR mall. It broke sales records while cutting product returns dramatically. The VR mall lets shoppers visualize what they want to buy – a dress, furniture – to see how it looks before committing to buying. It helps customers make more and better selections. Alibaba was saving on return costs because once customers experience the product inside VR they are surer that it is what they want.

So we are promoting this technology to retailers. Questions that came back focused on: what are the KPIs for VR and AR? We found several major benefits to VR/AR in retail. First, brand perception increases by 75% with VR. Shoppers perceive brands that use VR/AR to augment shopping as on the cutting edge of future technology. Second, it enables shoppers with new services. Third, sales and conversions increased. The KPIs showed a 30% increase in conversion rates. That's really good. Customers that try VR have a very high conversion rate.

A hotel chain used VR to sell vacation destinations to travelers. It put up a popup in Times Square (in New York City), inviting people to come in and explore their resorts using VR. People who tried it were so amazed they bought the trips on the spot. The conversion rate showed that VR was very effective.

Another metric is feedback. Retailers have seen 30% higher positive feedback from customers when they use VR/AR. Retailers also see 50% fewer returns when shoppers try VR/AR.

Media is another category of early adopters. USA Today, the New York Times, Fox, and other major media publishers are very active in VR and in most cases already have VR teams developing material. It is a way of telling a story, engaging in a powerful way with emotions, and encouraging

empathy. It is a new way for consumers to engage with storytelling - when they see a commercial in VR they want more.

Another good example is Verizon, which is investing heavily and bought a VR-service startup. Now they produce new stories weekly in VR. Consumers are hungry for new engagement and content and publishers want to tell these stories in a new, engaging way.

In the movie business, several production companies are working on big feature films using VR, and Google was nominated for a 2017 Oscar for a short VR film.

In advertising, a lot of brands like Coca Cola already have 360-degree commercials. We already have case studies on our Web site that show success with these. Bottom line is consumers buy more of a product advertised in AR/VR/MR.

Alex Bakker: One area I'm particularly interested in is field service work. I've seen work from the Arizona Public Utilities Commission of early AR use in conjunction with tagging for electrical power grids.

Kris Kolo: For AR you don't need a headset. You can do a lot of AR use cases using your smartphone or tablet. There are a lot of smart glasses on the market that are affordable for enterprise construction purposes. We have a lot of use cases on field work where even an entire warehouse is set up with AR. Enterprises use AR on smart glasses to provide information to help with tedious tasks like labeling, knowing which electric pole needs to be worked on, and examples like that.

Alex Bakker: Do you have any performance indicators for what classes will benefit most?

Kris Kolo: On the ROI for smart glasses, companies are now investing in glasses for workers because it lets them use both hands to be more effective while seeing the overlays of information with the glasses that you previously had to type in with your computer. So effectiveness definitely increases.

For example, DHL drove a 25% increase in efficiency using AR Smart glasses as part of a solution. Also, Boeing cut production time by 25% and reduced error effectively to zero using AR smart glasses in its assembly plant.

Alex Bakker: With two hands available rather than one hand, safety might increase.

Kris Kolo: Safety is a big area where companies invest in AR glasses. If you are working in an area that requires safety glasses, you now can get AR safety goggles that provide the overlay information on the same goggles. That means workers don't have to switch between safety and AR goggles constantly to read instructions.

We are seeing new forms of user interaction for these devices. A good example is gazing. The latest addition to VR/AR is eye movement tracking, which tells the system what you are looking at. You can just gaze at a product or other object for a few seconds, and the system lets you select that item, for instance to purchase or manipulate. You can put your hand in front of the HoloLens and do gestures that the HoloLens recognizes, for instance - to order a machine to carry out some action.

Alex Bakker: I assume you will rely more on eye movement and gesturing in an industrial setting because of the noise.

Kris Kolo: Yes. For instance, Google and Facebook both acquired startups in the eye tracking space.

Ron Exler: What's the interaction of VR and AR with artificial intelligence?

Kris Kolo: We are trying to learn from users how they are using the devices. For that reason, some companies are not rushing to sell millions of units. Microsoft is happy selling a couple thousand HoloLenses because it is learning from those users and then building those learnings into new releases. Not only are we learning how users use specific designs, we are also collecting information from wearables. All of this feeds the AI learning methods.

Ron Exler: Are there other related technologies that are important to the VR/AR/MR world?

Kris Kolo: Definitely. What effects other technologies will affect VR. One issue is network bandwidth for delivering the large volumes of data involved with VR in particular. The network may just not be fast enough to support delivery of AR. Companies are looking at opportunities to monetize AR/VR. The industry needs to enable experiences that are even more exciting. That often requires real-time data, which again creates issues with network speed.

Another issue is enabling wearables – watches, smart glasses. Snap initially acquired several hardware companies and was successful in launching limited volumes of AR. It then acquired five other companies for AR. We can expect that the next version of the technology will have some simple AR overlays for enterprise applications.

Alex Bakker: You mentioned networks are a critical area of concern. One area of coverage I have is drones. One of biggest use cases I look forward to is using AR glasses to facilitate controlling drones. Because of the visual line-of-site requirements and the operator's need to see the data of speed, altitude, direction, etc., from the drone, users want to see the data against the backdrop of the real world. Often that happens in places with poor network coverage. Are you seeing any good drone applications?

Kris Kolo: You have probably heard the term "extended reality." Companies would use these drones with extended reality. We don't have any specific case studies in this area. I know Apple and others are using drones for mapping, but to have real time feed of that data into your AR device, I don't think that's happening yet.

Ron Exler: When you talk to business leaders, people in charge with specific lines of business or CIOs, what myths do you have to dispel?

Kris Kolo: When we talk to user organizations, we need to focus on three things.

1. We spent a lot of time educating potential users last year. Many people have concepts that do not reflect the present reality. The industry is constantly moving forward.
2. We have a lot of case studies now that we can show, including the studies in retail. DHL drove a 20% increase in efficiency using AR for picking in a warehouse. Boeing productivity went up 25% and reduced errors to zero using Google Glass in the assembly factory. Seeing is believing. Now we can show these success stories.
3. The third is price and cost. It is coming down. The price for content creation is coming down.

The last thing I'll bring up is Apple. A lot of this is happening on the smartphone. AR can be done on any smartphone. Apple is promising something big for iPhones and/or iPads. AR will be mated to the iPhone, and all applications on it will be able to sue AR. Your iPhone camera will recognize the product and provide information.

Ron Exler: So all that capability translates to the businesses.

Kris Kolo Most new smartphones shipping in 2017 will have this capability.

Ron Exler: It sounds like there are great existing use cases where big-name companies are successfully using these technologies. One thing we often are asked is, "what are the challenges of getting into these technologies?" What do businesses have to overcome to get into this space?

Kris Kolo: A lot of big businesses are already leaders in this space. Others are not adopting these technologies. We find a few groups that want to do AR/VR in these companies, but the corporate culture is not progressive. Those are challenges with any technology. However, AR/VR technology is effective, becoming more affordable and available.

Ron Exler: What's happening in the provider ecosystem? Are they in tune with reality?

Kris Kolo: There's chaos - a lot of fragmentation. A company that wants to get into this has clear choices - Microsoft, Google, and Apple with their ecosystems, and some smaller players. Once Apple comes out with its promised new AR system this year we should see some new momentum. We can expect every OEM to provide its own solutions.

Ron Exler: Do you see Intel in the mix with Machine Vision?

Kris Kolo: Yes. One of the most interesting things I saw this year at the show was Intel with its own environment. This includes sensors to track hand movement. Systems used to need sensors attached to the fingers to get those movements. Intel doesn't require those external sensors. They capture movement just using the headset. It is interesting to see that you don't need external sensors any more for movement tracking**.**

Alex Bakker: What will keep AR/VR from progressing in business?

Kris Kolo: Last year we got a lot of feedback that VR/AR is the next 3D TV. 3D TV never took off because of the issues around the special glasses that were required. A particular set of glasses would only work with one brand of 3D TV. AR/VR glasses don't rely on any TV, so that makes 3D TV less of a hassle.

Bad experiences are the biggest issue hindering AR/VR adoption. As an association, we are concerned about that issue. Last year we saw negative news reports that VR is boring. That probably was because reporters were watching 360-degree videos in VR. As more interesting content becomes more widely available that issue should be minimized. Content, privacy, and bad experiences can prevent any market from taking off.

Network performance is another issue in delivering AR/VR. Another is the perception that the equipment is expensive. However, prices are coming down drastically, particularly for the smartphone version of AR, so that problem should be short lived**.**

Another potential issue is the health effects of wearing headsets. This is not talked about much, but there is a lot of published research. Of course, just staring too long at your computer can give

you a headache. I'm sure there are some negative effects of wearing a headset too long as well. So the advice to take frequent breaks from technology screens applies here too.

Alex Bakker: As we wrap up, consumer adoption has led enterprises use in many technologies. Users were already familiar and comfortable with the technology. If people see AR/VR in an ad-supported enterprise environment first, will that impact how they use them?

Kris Kolo: Today many people are getting experience with AR as overlays on photo services like Snapchat that give the effects of photo filters and lenses. All the overlays on Snapchat are AR. Pokémon GO is another example of AR. Location-based AR has been taking off for some time now. We need some more of the successful products in the consumer market to help lay the groundwork for broader market acceptance.

Ron Exler: Kris, thank you! This was fascinating and insightful.

Net Impact

Key takeaways from our discussion with Kris Kolo regarding virtual and augmented reality:

- VR/AR carries with it many misconceptions, including that it is only important for gaming. We see business use cases in several industries that indicate positive ROI using VR/AR.
- Business solutions are evolving rapidly. There is crossover of providers between hardware and software, with ongoing acquisitions and a litany of startups. So the ecosystem can seem chaotic. Business use cases combined with increasing consumer successes will grease the skids for enterprise acceptance, as we saw with smartphones, for example.
- Bandwidth availability is a critical but often overlooked infrastructure requirement for broader uses of VR/AR.

Guidance

Enterprise IT and business leaders should review the VR/AR use cases in their industries. The technologies are growing in capabilities while prices are dropping. So we expect broader adoption to gain momentum in 2017. So it makes sense to review the business opportunities in depth and establish requirements up front before seeking specific technologies. With a scattered ecosystem of providers, enterprises can leverage the VR/AR Association as well as service providers with implementation experiences.

Technology vendors and service providers should consider how they might integrate VR/AR into their existing products and practices. Specific vertical applications with proven deployments as discussed above offer the highest promise in the near term. Partnerships with the big-name players make sense, while acknowledging there are many market actors with specific capabilities that could fit provider technologies, applications, and service lines.

CORPORATE HEADQUARTERS

Two Stamford Plaza | 281 Tresser Boulevard | Stamford, Connecticut 06901 | Phone +1.203.517.3100

insights.isg-one.com | isg-one.com