

Does Augmented Reality Need a Formal Industry Body?

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Abstract— Industry associations are a popular means of pooling resources of vendors to help a technology or group of technologies develop and stay relevant. There are many organizations and associations examining or undertaking an initiative having to do with Augmented Reality but none has taken the mandate to drive the growth of AR, develop open interfaces and serve an industry advocacy role.

In this position paper we examine three scenarios. The first is that an existing association “adopts” AR fully within its existing mandate. The second is that there continue to be no single industry organization. The final scenario is one in which an industry organization is formed and has responsibility for standardization and marketing activities on behalf of its members.

I. INTRODUCTION

Industry associations or consortia provide services to member organizations. There are industry associations for every discipline and most technologies. These are not only beneficial when an ecosystem is emerging. Vendors of certain widely adopted technologies, such as GSM, maintain strong and vibrant industry associations.

Augmented Reality is currently on the radar of many groups but not the focus of its own, dedicated industry association. There are virtually unlimited AR use cases that provide users professional and personal (mass market) benefits. AR experiences can be provided by leveraging multiple technologies, many of which are mature and already in the hands of users, and the focus of other industry consortia. Specifically, components for mobile AR such as GPS and compass, high performance chips for accelerating graphics, fixed and mobile broadband networks and powerful cloud-based services are already in place for other services and applications.

The key question we propose to examine via a discussion mailing list and, possibly during a break out session of the International AR standards meeting, is:

Is an autonomous Augmented Reality vendor-driven and supported industry association needed?

II. WHAT ARE THE ALTERNATIVES?

Before determining if an AR industry association is necessary, we must fully examine the alternatives. Is there an existing industry association that is sufficiently broad to encompass everything from geopositioning to marketing of AR applications and meets the needs of the current and future AR industry?

If a dedicated AR industry association is not formed, where could future vendor-neutral work on AR standards, advocacy and continuing ecosystem education efforts be coordinated?

In this section we provide the text that each of eight potentially interesting industry associations and a few grass roots communities publish about themselves on their web sites. There could be other candidate organizations and, as they are identified, they should be added to a public list.

A. GSMA

The GSM Association (GSMA) represents the interests of the worldwide mobile communications industry. Spanning 219 countries, the GSMA unites nearly 800 of the world’s mobile operators, as well as more than 200 companies in the broader mobile ecosystem, including handset makers, software companies, equipment providers, Internet companies, and media and entertainment organizations. The GSMA is focused on innovating, incubating and creating new opportunities for its membership, all with the end goal of driving the growth of the mobile communications industry.

The GSMA’s mission is to create value for operators and the mobile industry in the provision of services for the benefit of end users, so that those users can readily and affordably connect to and use the services they desire, anywhere, anytime.

B. OMA

The Open Mobile Alliance is the focal point for the development of mobile service enabler specifications, which support the creation of interoperable end-to-end mobile services. OMA drives service enabler architectures and open enabler interfaces that are independent of the underlying wireless networks and platforms. OMA creates interoperable mobile data service enablers that work across devices, service providers, operators, networks, and geographies. Toward that end, OMA will develop test specifications, encourage third party tool development, and conduct test activities that allow vendors to test their implementations.

The mission of the Open Mobile Alliance is to facilitate global user adoption of mobile data services by specifying market driven mobile service enablers that ensure service interoperability across devices, geographies, service providers, operators, and networks while allowing businesses to compete through innovation and differentiation

C. Web3D Consortium

The Web3D Consortium provides a forum for the creation of open standards for Web3D specifications, and to accelerate the worldwide demand for products based on these standards through the sponsorship of market and user education programs.

This consortium uses its broad-based industry support to develop the the [X3D](#) specification, for communicating 3D on the web, between applications and across distributed networks and web services. Through the coordinated efforts with the ISO and W3C, the Web3D Consortium is maintaining and extending its standardization activities.

D. *Khronos Group*

The Khronos Group is a not for profit, member-funded consortium focused on the creation of royalty-free open standards for parallel computing, graphics and dynamic media on a wide variety of platforms and devices. All Khronos members are able to contribute to the development of Khronos API specifications, are empowered to vote at various stages before public deployment, and are able to accelerate the delivery of their cutting-edge 3D platforms and applications through early access to specification drafts and conformance tests.

E. *OGC*

The Open Geospatial Consortium (OGC) is a non-profit, international, voluntary consensus standards organization that is leading the development of standards for geospatial and location based services. It is currently supported by the membership dues of **413** companies, government agencies and universities participating in a consensus process to develop publicly available interface standards. [OGC@Standards](#) support interoperable solutions that "geo-enable" the Web, wireless and location-based services and mainstream IT. The standards empower technology developers to make complex spatial information and services accessible and useful with all kinds of applications.

F. *NFAIS*

National Federation of Advanced Information Services, NFAIS, is a global, non-profit membership organization serving all those who create, aggregate, organize, and otherwise provide ease of access to and effective navigation and use of authoritative, credible information. To improve member capabilities and contribute to their ongoing success, NFAIS provides opportunities for education, advocacy, and a forum in which to address common interests.

G. *I3A*

The International Imaging Industry Association (I3A) is the global go-to organization for making images easier to create, view, work with, share, preserve or integrate into company offerings. I3A's vision is to enable the use of imaging to simplify and enrich people's lives through visual experiences that connect generations, communities, information and services. I3A drives the global imaging ecosystem toward this vision by bringing members together to create standards and collaborate on initiatives that advance shared interests, foster growth, and open pathways to new markets.

To further its mission, I3A develops standards, specifications, recommended practices, testing metrics, technical reports and white papers, and makes them available to the public.

H. *Others*

And, let's not be naïve! The options are not limited to very large and mature industry associations. New and

potentially suitable industry associations are being formed. On December 29, 2010, PrimeSense, a provider of sensing and recognition solutions, announced the launch of its Open Natural Interaction consortium, an industry-led, nonprofit organization formed to accelerate the introduction of Natural Interaction applications into the marketplace. The OpenNI organization is an industry-led, not-for-profit organization formed to certify and promote the compatibility and interoperability of Natural Interaction (NI) devices, applications and middleware.

As a first step towards this goal, the organization has made available an open source framework – the OpenNI framework – which provides an application programming interface (API) for writing applications utilizing natural interaction. This API covers communication with both low level devices (e.g. vision and audio sensors), as well as high-level middleware solutions (e.g. for visual tracking using computer vision).

In 2010, the GeoWeb Forum was set up. This is a portal where a community that shares an interest in geospatial topics gathers to blog, create groups and form an audience for industry workshops and conferences. An AR group has formed in the GeoWeb Forum.

Then there is the Wireless Industry Partnership. WIP calls itself the **connector in the mobile industry**, supporting the overall ecosystem by encouraging discussions, co-creation and exchange. Making the path easier for mobile developers/ISVs, to reduce cycle times and increase innovation in the mobile ecosystem. WIP members represent the broad range of the mobile developer ecosystem - from the application and content developers, the operators, devices and O/S; to the resources of tool companies and organizations that aim to make mobile development easier and faster.

It provides a directory of all companies in the ecosystem and a marketplace for offers but only a subset of those listed in the directory are officially registered as members of the partnership: <http://www.wipconnector.com/wipmembership>

More closely tied to AR there are a few grassroots communities around the AR DevCamps and AR Meetup Groups. There are the AR meetup groups' web site that aggregates information about AR meet up chapter activities and AR wikis such as www.augmentedrealitywiki.com. In 2009, the closed but vendor-driven AR Consortium was established but did not flourish.

Outside of these, there are developer communities, specifically organized by vendors such as Qualcomm, metaio, Layar and Total Immersion. They conduct events for customers and developers.

III. THE "NO INDUSTRY ALLIANCE" SCENARIO

The questions that this position paper proposes for discussion during the international AR standards meeting are if Augmented Reality needs such a body. If not, then where will the activities that could drive open AR growth happen? What are the possible consequences of not establishing such an association and having AR simply be a partial focus of one or many of the above described organizations?

Some technologies and industries don't have industry associations or any formal vendor-driven organizations. For example, there isn't an Operating System industry association. Or a dedicated Windows application developers association because these are proprietary environments and the community forms around the holder or developer of the core technology.

What about social networking? Let's examine the case of social networking further. Social networks have come of age and continue to expand without a formal (or informal) vendor-driven industry association. There is a community manager association called the Social Networking and Media Association, SNAMA, which states that its mission is to bring together anyone who has an interest in social networking and social media. It has over 1,000 individual members and represents one of the largest dedicated communities focused on sharing best practices and information on social media and community management. It is a discussion forum and community for those who are running or using social networks.

The lack of a vendor-driven industry association in social networking is evident in the lack of standards in this domain. The W3C Social Web incubator group says in its final report [1] "Social-networking sites and other user-generated-content services on the Web have a potential to be enablers of innovation, but cannot achieve this potential without open and royalty-free standards for data portability, identity, and application development.

The Social Web Incubator Group (SWXG) was founded in spring 2009 as an outcome of the [W3C Workshop on the Future of the Social Networking](#) to uncover and document existing technologies, software, and standards (both proposed and adopted) needed to enable a universal and distributed Social Web. The group also sought to identify gaps, conflicts, and other areas for future standardization and research to increase adoption of the Social Web."

Over the course of the SWXG's activity concluding in the fall of 2010, the participants discussed a wide variety of topics and heard from over thirty invited guests from within and outside the W3C.

"We conclude that while the Social Web is a space of innovation, it is still not a "first-class" citizen of the Web: most social applications exist in technology "silos" and thus implementations and integration are inconsistent, with little guarantees of privacy and enforcement of terms-of-service.

Further, the members of the XG conclude:

- The Social Web does not suffer from a lack of potential standards. A large number of diverse groups have evolved data models, communication protocols, and data formats at tangents to one another, addressing a large number of communities, each of which has its own terminology and viewpoint.
- While there has been a large amount of work done in this area, in terms of both current potential and standards, these tend to address basic issues around identity and portability, but do not address more complex and vital issues such as privacy, policy enforcement, and provenance. All of these issues are present scope for further research and the development of future standards.

- The creation of a decentralized and federated Social Web, as part of Web architecture, is a revolutionary opportunity to provide both increased social data portability and enhanced end-user privacy.
- One key to make ordinary users take advantage of a decentralized Social Web is to build identity and portability into the browser and other devices. "

IV. EXAMINING THE INDUSTRY ALLIANCE SCENARIO

So, keeping in mind the conclusion of this in depth study of an ecosystem of vendors where an industry association focusing on standards does not exist, the questions we propose to examine in a break out session are:

- Is there an existing industry association which is sufficiently broad to include everything from geospositioning to marketing of AR applications and meets the needs of the current and future AR industry?
- What are the possible consequences of not establishing such an association?
- If a dedicated AR industry association is not formed, where could future vendor-neutral work on AR standards, advocacy and continuing ecosystem education efforts be coordinated?
- Is an Augmented Reality vendor-driven and supported industry association needed?

This final question is explored further. If it were to be organized, the priorities of an independent, vendor-driven but vendor-neutral industry association would include:

- providing an independent impartial voice for all stakeholders in the Augmented Reality sector, including content publishers, developers, vendors and operators. This is a global commitment, with all this implies in the context of technology options and choices;
- developing a policy framework that encourages and drives the standardization of key aspects of AR related technologies worldwide;
- building and maintaining dialogue with other relevant industry and official standards bodies to further Augmented Reality for the benefit of the consumer, the industry and Forum members
- the promotion of such standards-based solutions across the industry and to the relevant industry standards bodies, opinion formers and the broader communications community;
- building and maintaining an ecosystem that delivers the most commercial and technically efficient solutions.

This implies focus on two main areas of activity:

1. Standardization, regulation & interoperability – An AR industry association would support and drive forward the adoption of industry wide standards, regulatory enablers, common architectures and interoperability to enable the widespread adoption and deployment of AR by content providers around the world.

2. Marketing & promotion - An AR Industry organization would direct and implement a multi-faceted campaign to raise the profile, drive technology development & deployment and to promote the potential of AR solutions across many different industries, developer communities and to journalists, analysts, regulators, special interest groups and standards bodies.

The resources necessary to provide the above services to the Augmented Reality community and vendors could be considerable. The activity would begin modestly with one part-time paid executive and several part-time volunteer resources. At optimal operating capacity there would need to be a full time executive director, possibly a few staff people, an advisory committee that would meet probably at the same time as member meetings (two times a year) and costs related to travel and the outreach/promotional activities.

In order to cover the costs of the AR industry alliance or consortium, there would need to be membership dues or another mechanism to generate income. A tiered membership system is customary in such associations for other industries. Membership is a popular choice because it places the “burden” directly on those businesses most likely to benefit but this might be considered low priority for existing companies if the business is already a member of other industry consortia and organizations that have some AR activity.

V. CONCLUSION

The optimal market development investment strategy for those who will most benefit (e.g., the service providers and providers of technologies specifically enabling AR) to get involved for the overall growth of the AR market is unclear. There are many existing organizations that view AR as within their scope. It is unlikely that an existing organization will be able, however, to achieve the same objectives that would be mandated of a dedicated industry alliance or organization.

ABOUT AUTHOR

Christine Perey has been working in the domain of rich media communications for 20 years, initially in the area of dynamic media technologies on personal computers; she founded, was the editor and publisher of the QuickTime Forum, a publication for QuickTime developers 1991-1993. When enterprise and wide area networks emerged as a means of distributing rich media created and consumed on personal computing devices, she expanded to provide a variety of services to the companies in the rich media communications industry, and accelerated adoption of videoconferencing and streaming media.

Since 2006, Perey studies and assists companies to better understand their opportunities in the domains of Mobile Social Networking and Augmented Reality. Perey is an active leader of new industry initiatives, organizing thought-leadership meetings and think tanks about mobile AR topics.

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