The next 20 years of planetariums: What challenges and opportunities are we facing?

If someone had asked the thinkers and leaders of the planetarium industry anno 1995 what 2015 will be like for planetariums, what would their answer have been? This was a world where most people did not know what the Internet was, 0.8% of the world's population was connected1. Smartphones only existed in labs and the digital planetarium was still using almost exclusively analog slides and stars, sometimes coupled with digital monochrome vector graphics2. Watching and extending the major tendencies in technology at the time, we could probably have said with some confidence that the development of computers is likely to drive the development of planetariums.

I've spent a lot of time this year analyzing and researching the potential future of planetariums. My findings and thoughts made me want to try to identify where the winds are blowing for the next 20 years. By understanding where we stand today and what the major tendencies are, those tendencies that are bigger than any single innovation, company or institution, planetariums can shape a strategy to grow and remain increasingly relevant. And by relevancy, I mean maintaining current, growing and recurring audiences, and providing to them an experience that feels meaningful and inspirational.

The competition for talent
Whether we like it or not, planetariums are just as involved as any other industry in the competition for talent. The International Data Corporation (IDC)3 estimated in 2014 that there were approximately 11 million professional software developers in the world, 18.5 million with hobbyists included. The best ones will choose a career in those industries that reward them best, financially, creatively and, perhaps most important of them all, socially. The best ones will create those audio-visual experiences, whether under the dome, online, or in gaming, or in the virtual reality headsets of the very near future, that everything else will be compared against.

A market study4 that Alan Caskey presented at the IMERSA (Immersive Media Entertainment, Research, Science & Arts) Summit in 2013 listed user interfaces and real-time system functionality as the two most important features of a planetarium (from a survey of 139 responding planetariums). The ability to encourage repeat visits and availability of new content were the two top concerns. All of these points are directly related to advanced software and content development, work that will be carried out by some of those 18.5 million professionals for whom we are competing with every other IT industry on the planet.

Public perception of astronomy and planetariums: The world's population is just as interested in astronomy now as they have ever been. Data from the United States (which, admittedly, is not "the world") General Social Survey from 2012 (see graph on facing page) says that approximately two thirds of the American public thinks government spending on space exploration is too small or just about right.5 European numbers are similar; data from other parts of the world would be most welcome and paint an even more complete picture.

There is surprisingly little data that addresses the public's perception of planetariums as places to pursue this interest. A qualitative study from the Field Museum in Chicago6 (not a planetarium) discussed what visitors expect from a museum. One of their findings is that visitors come to the museum with a mental model of knowledge as infinite, rather than finite. Since there is no way they could know everything about a topic anyway, visitors are not looking

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1 www.internetlivestats.com/internet-users; viewed 2015-06-22 9:39pm GMT
2 GOTO Virtuarium and Evans & Sutherland Digistar
3 www.idc.com
4 www.imersa.org/resources-2/materials/category/summit-2014
5 gssdataexplorer.norc.org/variables/181/vshow
to fill in gaps in their knowledge, but rather to have their sense of the world reshaped and expanded. This single point is worthy of significant consideration when we debate how to use our planetariums.

For quantitative data, we conducted our own survey by analyzing reviews on the travel website TripAdvisor. Visitor satisfaction appears to come from four primary factors: things to do outside the dome (24%), good shows (23.5%), location, view and the building itself (16%), and good live-presenters (15.5%). Disappointment appears to come primarily from worn down or poorly maintained facilities, alongside bad or low quality programming (14%), technical issues or lack of quality (8.5%), lack of things to do outside the dome (6.0%), and cost of admission (3.5%).

So how are we doing?

According to the annual Dome Theatre Compendium survey from Loch Ness Productions, approximately 107 million people visited a planetarium last year. That sounds like an amazing number and I think we can be proud of our industry. As a comparison, the documentary giant screen industry attracts a total of 36 million people per year, and that’s including their flat screens. How many of those 107 million are school groups, and how many would go away if you charged an extra 50 cents per ticket?

Anecdotally, on a recent vacation trip to a city in Europe that boasts a big planetarium, I paid more for an ice cream for my son than I did for his admission to the planetarium. And it was a very normal ice cream, just two scoops, vanilla and strawberry. There is just no way around the fact that it takes money to sustain the positive virtuous circle that is gradually being set in motion in our industry today. We don’t have to choose between science and economic sustainability, in fact I will set out to prove that the opposite is true.

The next 5 years: Big data

Transforming the public’s perception to regard planetariums as a primary place to follow events in astronomy and space exploration appears to have great potential to grow audiences and repeat visitations. These audiences will expect planetariums to maintain scientific integrity.

Fortunately, the planetarium industry is increasingly successful in the competition for talent. As an industry, we are increasingly investing in research and development of products that are technically stimulating, considered relevant by a majority of the public, and socially much cooler than the conventional planetarium technology.

The next 5 years inevitably will be about “big data,” the vastly increased amount of meaningful data accessible to the public. Space exploration will produce an ever-increasing amount of data and make it available to the public. Private initiatives in air-and-satellite-based imaging, remote sensing, and laser scanning will help accelerate what the International Planetarium Society’s Science and Data Visualization Task Force calls the data tsunami.

Big data is relevant and interesting to the public. It is socially cool and attracts talent, and thus the virtuous circle can accelerate and turn planetariums into what they need to be, places where people go to pursue their interest in astronomy and space exploration.

Marketing in the era of big data

Every now and then the discussion about brand name pops up in our industry. Planetariums, dome theatres or visualization theatres? I don’t want to linger on this discussion, as each institution will find its own name and it’s not the most significant success factor for the industry.

Increased focus on marketing, and understanding our identity and value proposition, is more relevant. Dr. Jim Sweitzer illustrates, in his SPECTACLE model, the effects of the many factors at play during the early months and years of a new planetarium. In the model we can see the long-term importance of having a balance between good marketing, innovation, high quality of the programming, and the ability to attract new markets.

Marketing today can be much more refined than it used to be. We can pinpoint target groups online. We can give them compelling reasons to go. Many of the most successful planetariums are already refining their offerings in a good way. Planetarium after dark, science cafés, special events, and guest lectures. The key, besides spending money and effort on marketing, is to make sure that the overall content and marketing message align with the overall identity of planetariums.

Planetariums vs. giant screen cinema: An identity crisis?

There is an argument to be made that the digital planetarium technology is converging with giant screen cinema. While this is arguably true for technology, I would say there is very little such convergence in terms of purpose and use of the technology.

Planetariums have a value proposition that they are centres of excellence for astronomy and space exploration. We have already proven that this is an attractive proposition to the public, especially if we keep it real and maintain our scientific integrity. This is a sustainable value proposition, and if planetariums don’t fill it, something else will. The formats will vary: fulldome shows, live presenter-led discussion formats, audience-driven experiences, and more. But don’t mistake format for value proposition.

Giant screen cinema, on the other hand, have a completely different value proposition. They are documentary screens, not necessarily about astronomy and space exploration. Giant screen cinemas show documentaries about butterflies, artificial intelligence, dinosaurs, and aviation. They don’t have deep knowledge about all these topics, they have an amazing cinema format and people visit giant screens to pursue their interest in documentaries and film, not the particular subject matter.
The next 10 years: New platforms

The data visualization explosion will obviously happen foremost on other platforms than under the dome. With this, the sense of identity in the industry will change. At the moment, most planetarians think of their planetarium as a building and everything under the dome. However, increased visualization capabilities online are already starting to change this. And pretty soon, virtual and augmented reality glasses will change the perception and value of immersion. In 10 years’ time, to think of the planetarium as only the dome, will be a conservative standpoint. Rather, the planetarium is a mission to evangelize and breed interest in astronomy.

Supported by multiplatform software solutions, planetarians will gradually start to roll out programs and extend their relationships with their visitors. This creates new business opportunities, thus injecting more resources and more talent into our industry. The planetarium becomes the magnet, the central point of gravity around which a vast number of satellite programs are orbiting. Experiential hubs for astronomy and space exploration first, buildings second. Which is an incredibly strong position to use to increase attendance to the building itself.

The next 20 years: ducation redefined

Two decades out, the very way we think about learning will have been dramatically transformed. In Building the Future of Education: Museums and Learning Ecosystems1 from Center for the Future of Museums, Katherine Prince describes what she refers to as vibrant learning grids. These are communities where learning is not bound by a time and a place, but happens everywhere, all the time. Where our relationship with formal institutions have changed so the place we refer to as “school” may be the classroom, the library, the internet or, yes indeed, the multiplatform planetarium. Where learning is not motivated by authority, but curiosity.

This theme is everywhere already today. But it will take two decades to transform the world’s education system. What we are talking about is redefining the purpose of education. Sugata Mitra,2 an educational researcher and TED Prize winner, has shown that in the absence of formal teaching, children can teach themselves and each other, if they are motivated by curiosity and peer interest. And with planetariums now having attracted a large pool of talent, expanded to multiple platforms, we will be the world’s primary source for inspirational and engaging experiences about astronomy and space exploration. As such, we have a given role in these vibrant learning grids.

Conclusions

I suppose it is wise to be careful with conclusions from a speculative 20 year vision. But there are some clear tendencies that go deeper than any individual trend, event or product, and the following points is what I believe will be of importance:

The competition for talent will define our success or failure. If we can attract and pick from the top layer of those 18.5 million developers, science visualizers and artists, planetariums will flourish. Planetariums should continue to try to attract data visualization talent from this group. And for those who cannot afford an in-house content developer, reach out to other planetariums and share a content developer resource between you. It is about getting out there to find that latest data, massage it into consumable content and ultimately experiences on the dome, using the software systems you have will help with this, the visitor can be more attached to the experience by engaging and participating online.

Finally, we need to evolve with the educational system. With learning increasingly unbound by a time and a place, planetariums who have expanded onto multiple platforms can take a strong position as their communities’ centers of excellence for astronomy and space exploration. Hopefully the educational paradigm will also have evolved by then from a facts-first model to an interest-first model, which makes the planetarium value proposition both for the in-dome and out-of-dome experience even stronger.

If you want to access the complete white paper, The next 20 years: A vision for Planetariums in the 21st century,3 please send an email to info@sciss.se.

1 www.aam-us.org/resources/center-for-the-future-of-museums/future-of-education
2 sugata_mitra
3 http://sciss.se/blog/staffan-klashed-a-vision-for-planetariums

Staffan Klashed is the CEO and co-founder of fulldome theatre company Sciss. He holds a vast experience in the field of science visualization and immersive digital spaces. Over a decade ago, Staffan introduced the visualization software Uniview to the fulldome industry, a project that started as a thesis project in cooperation with the American Museum of Natural History. Sciss and Uniview were quickly established in the industry, and today Sciss is the principal of one of the world’s leading fulldome system vendors with over 150 installations worldwide.