How You Can Profit from Imagined Worlds

Buildings are troublesome things to design. Some cost billions – and if there's a tiny misjudgement in the plans, it can be astonishingly expensive to put right. One way to address potential problems is to use virtual reality (VR). This allows people to walk through a building before any work is done on site. Another approach is augmented reality (AR) – which means that people can stand where the building is to be constructed, and look "through" their phones at the planned building. Both these technologies have the capacity to revolutionise the design process. It's a topic we've looked at before in *Exponential Investor*.

I came across Tengio at VR World, and I was genuinely stunned. Its work on building modelling is both beautiful and shockingly realistic. Sitting here and writing this, I can picture myself in a bathroom it'd designed. The attention to detail was astonishing. For example, the bathroom I saw had perfectly rendered tiles, which were both reflective and textured. It'd even added a little grime, to make the scene even more believable.

This is a firm that clearly understands the potential of VR and AR. Not only does it have a great vision – but it's also making a business out of it. Now, I'll hand you over to Akshay Dashrath, director of Tengio – to tell you more about how VR and AR is revolutionising the property marketing and architecture industries.

AL: Hi Akshay. Can you start off by telling me a bit about Tengio and VR Architect?

AD: Tengio is an agency, focused on building mobile apps and websites for companies such as Gumtree, Monzo, Groupon, Depop, etc. However, we've been working on a VR and AR service – mainly for property developers and architects.

AL: What exactly do you do?

AD: Our service essentially can be split into two. Firstly, there's the virtual reality (VR) experience. This is best experienced on the Oculus Rift or HTC Vive but can also be ported to Gear VR, Google Cardboard and Google Daydream. This lets people walk though planned buildings. Secondly, we provide an augmented reality (AR) experience, built on the Google Tango platform. This is focused on showing how new buildings will fit into their surroundings.

AL: What does the VR service do?

AD: The VR service is about taking an architect's 3D model, then adding necessary flourishes, such as lighting and furniture, to make the experience as realistic as possible.

Once we are done you just have to put a VR set on to visit the place – and that's when the real magic happens.

AL: How is the AR different?

AD: The AR service is about virtually generating a scale model of the actual structure, and placing it in the real world. You can then see how the building will fit into the surrounding environment. It's not unlike the way that you can see Pokémon characters, hiding in your local train station or park.

AL: What is the benefit of using VR and AR for architects?

AD: With AR, the architect or builder can render and explore a scale model of the structure on a table, or have a full-sized version of it magically appear on site. These AR models can serve as more accurate and cheaper replacements for the wood/paper models used today. They can also be modified much more easily.

AL: Can you give me an example AR project?

AD: We are working with a company in India who are developing a 100-acre piece of land into a golf course and gated community. They're using the Tango tablet and our service to convey to their clients what the 100 acres is going to look like once it's been developed.

AL: It was the VR service I tried at VR World/Apps World. Can you explain how that's used?

AD: VR is great for developers, architects and their clients. It gives the ability to explore a finished structure, before construction even starts. This means we can do away with show homes, letting clients experience the property as soon as the initial architect's models are ready.

When planning larger buildings, such as shopping centres and airports, we can use VR to study behaviour. By tracking users as they explore the model, we can help plan placement of signs, escalators, toilets, etc.

This level of detail extends to home design. For example, placement of light switches and plug points can be optimised by letting users experience the building in VR.

AL: Are there any drawbacks?

AD: Property development and architecture are relatively conservative, low-tech industries. They can be slow to pick up on new technologies. Consequently, there needs to be a mind-set change, where VR and AR are seen as an essential part of the process. This affects clients, too – and we can expect demand for virtual show homes to grow over time. This will come from both availability of hardware, and the increasing familiarity of consumers with the technology. At first, VR will be complementary – but in time it may replace existing show homes.

AL: What are the costs?

AD: There is some initial investment required for companies wanting to use VR. sets are from £350 upwards, with either the additional cost of a powerful desktop or a PlayStation 4. However, the increasing availability of phone-based VR is helping to address both cost and accessibility issues.

There are also some teething troubles with the technology, which we are trying to overcome. Free movement in VR causes "cyber sickness" in some individuals. The extent of sickness varies from person to person.

AL: I can certainly relate to the sickness issue! What interest has there been in your service?

AD: We've had various requests for rendering existing buildings. We've also got the client in India, using our AR solution.

AL: Can estate agents also benefit?

AD: When it comes to existing buildings, the easiest solution is a 360 photo or video experience. However, you can't have free movement with these approaches. The closest exploratory experience you can get with 360 photo or video is similar to what Google have done with the Abbey Road Studios project. What we do is take an architects model and adapt it for VR. This involves adding furniture, wallpaper, etc. Going for VR, as opposed to 360, means that the viewer is in full control. They can take any viewpoint they wish.

AL: So does that mean if you have an existing building there is no way your team can build a VR experience – like the Matterport scanner can?

AD: It's still possible, but it's a lot of additional work. We would have to model the room, as well as model the existing furniture and surface textures. It's a longer process, but it can be done.

AL: What's your business model?

AD: We usually charge per square metre if we are working with an architect's model. We can also price for generating the model from drawings, if needed. For larger projects we price on a bespoke basis.

AL: How soon do you think property developers will begin adopting VR?

AD: I've already seen VR sets at Foxtons, so penetration is happening already. Adopting this technology is a no-brainer – it saves money, material and labour. It also makes designing and planning easier, with fewer errors. The only minus point I can see is for getting clients comfortable with the VR experience, plus the cash investment.

AL: What drew you to working on this project?

AD: My business partner Luigi [Agosti] and I started Android development in 2009. We managed to build a good list of clients and connections, as we were early in the market. Last year one of the software developers wanted to explore VR. My in-laws are property developers in India and we basically put two and two together.

AL: Can you tell me about the firm itself – your future plans, fundraising, that sort of thing?

AD: Tengio is around three years old now. We are ten people strong, and based in London. Previously, we have been generating most of our revenue from consultancy and agency work. VR and AR began as a 20% project for some of our team, just over a year ago. Now, we have people working full time solely on VR and AR. In our road map, we also have a tool for architects that auto-generates a VR experience from their 3D models.

AL: Moving into software tools sounds like a great strategy. More generally, have you got a lot of competition?

AD: We know of architects with in-house teams building VR experiences, but these are the larger firms. There are also other VR agencies out there doing the same thing. However, we have focused on visual quality, and supporting free movement within the model. Not everyone offers such a complete experience to the end-user.

VR and AR are certainly becoming an increasingly important part of the property landscape, so I hope you enjoyed our “deep dive” on the subject. For your information, our interviews are ordinarily conducted in writing, using an iterative and collaborative editorial process. If you’d like to know more about our methods, or subjects, please do write in. We’d also love to hear your views on all our articles: andrew@southbankresearch.com.

Best,

Andrew Lockley
Exponential Investor