

## High Fidelity Surgical Simulators



**Dr. Pat Banerjee PhD**  
CEO & Founder

**CEO CFO: Dr. Banerjee, what is the concept behind Immersive Touch?**

**Dr. Banerjee:** We are a company that manufactures surgical simulators. This is a high fidelity simulator meant for very specific surgeries, such as open and/or percutaneous surgery for neuro-ortho spine. That is one part. The other is general surgery. The uniqueness of our technology is that we provide very high fidelity haptics or very accurate sense of touch when the surgeon is actually performing the surgery on our simulator. The sense of touch or haptics is created using our very, very sophisticated software and patented technology, which is the best in class out there in the field. That is because most other simulators either have negligible haptics, although they claim they have, but when most people try it they feel nothing and it is primarily a visual simulation of the surgery.

**CEO CFO: You say very sensitive touch. When using your simulator, what is the surgeon going to feel? How will it going to make a difference?**

**Dr. Banerjee:** The surgeon can feel the bones, tissues and muscles very precisely as he or she is planning the surgery. That is what the difference is. Secondly, the sense of touch is very sensitive in the sense that it really mimics what they actually feel in surgery and it can be adapted to individual patient anatomies from CT or MRI scans. That is the other big feature of our simulator. Most of the other simulators use some kind of manikin and some kind of pre-determined anatomies.

**CEO CFO: When will a surgeon typically look for a simulator? How common is it today?**

**Dr. Banerjee:** The simulators are becoming more and more prevalent. Every year it is growing. There are a whole gamut of regulations that have come in and more are going to come in the future which would make the simulation based surgical education more of the norm than what it is today. That is because right now the residents and the trainees, believe it or not, many times they get their first actual practice on the patient itself! Therefore, the patient becomes a guinea pig. With more and more advanced simulator technology, patient safety and systematic training approaches would become more common and that would streamline the whole process.

**CEO CFO: How would your simulator compare to a 3D and 4D model that they are starting to produce?**

**Dr. Banerjee:** Our simulator is at the forefront of 3D and 4D models, because that is the bread and butter of what we do. It is one of the most advanced simulators that are out there in the whole industry. That is because most of these other simulators do not use the 3D and 4D technologies to its fullest and we have basically built a pipeline combining the patient images to the 3D and 4D data. Therefore, it basically makes it all very seamless.

**CEO CFO: Would a hospital or a surgeon be purchasing the simulator? What is the business model?**

**Dr. Banerjee:** For the business model, we offer a variety of options for the end user. They can either purchase it or they can lease it or they could opt for monthly payments or they could opt for us to do training at certain intervals and so on. All of these options are possible.

**CEO CFO: What training is involved for the surgeon?**

**Dr. Banerjee:** Basically, they can come to our facility to get trained or we can go to the different professional societies or individual customer sites to do the training for them. The training involves a variety of procedures that we go through systematically. Also, for various residency programs we have training modules that have been developed by surgical educators. Leading surgeons have published their curriculum and validations in peer-reviewed flagship journals. Their publications have even gotten best paper awards at leading conferences. It is a very thoughtful sequence of steps that we have put together for training surgeons.

**CEO CFO: Would you typically be working with a hospital or a surgical practice? Who are your customers today?**

**Dr. Banerjee:** Actually, it would be both. The teaching hospitals would have a different set of requirements compared to a surgical practice. We actually cater to both.

**CEOCFO: *Is it easy to get a foot in the door with the surgeons and hospitals? Are they looking for simulators?***

**Dr. Banerjee:** It depends. The answer is both yes and no. Surgeons who have studied and know what a simulation can do; they would be more apt to be using the technology verses others who are trying to figure out what this is about and form an opinion. Therefore, I think the educated customer is our best customer. Otherwise, we have to educate the customer first.

**CEOCFO: *Is cost a big factor for your potential clients or is it more adjusting to new technologies?***

**Dr. Banerjee:** I think the younger generations of surgeons are more used to technologies like ours, with graphics, the sense of touch; robotics and haptics. With the older generation of surgeons, I find a mixed bag. Some of them who are very involved in teaching like our technology. On the other hand, the ones that are primarily into practice; we have had the hardest time with them. They have already performed so many surgeries that they do not feel the need to do more on the simulator. However, if they want to become teachers and teach the next generation of surgeons or go into surgeries that they have rarely seen or performed or if they want to dust off their surgical skills after a break, a simulator can help them do that.

**CEOCFO: *Would you tell us about the recent FDA clearance on the Mission Rehearsal® 3D haptic technology?***

**Dr. Banerjee:** Those basically allow us to take actual patient data from the hospitals and put that into our simulator. We are running some pilots to help us do that. Therefore, hopefully over time this would help us integrate better with the hospital information system. We are also working with various simulation centers to develop more customizable solutions for them, so that is a big step in that direction.

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**CEOCFO: *Why would you need clearance to use the data?***

**Dr. Banerjee:** We need clearance because there are some issues related to patients' safety. Therefore, basically the FDA wants to insure that the patient, as it is represented in our simulator, is accurate enough so that the conclusions they derive by performing the surgery on our simulator is accurate and does not lead to conclusions which would be contrary to what they would actually be doing in the OR. As a quality check the FDA wants to make sure whatever we have in our simulator is precise and accurate enough in their judgment, so that the surgeons and the other users can use that with confidence. That is the main reason. It is mainly to insure that errors are minimized and safety and security is at the forefront.

**CEOCFO: *Is the FDA receptive to simulation? Is it an area that they look at with favor?***

**Dr. Banerjee:** The FDA is not really involved in the education side. However, if you want to use the simulator for pre surgical planning, yes, the FDA would have a big role to play in that.

**CEOCFO: *What was the key to getting the higher quality, the higher feel and the higher touch? Is it in the software? Is it the hardware? Is it the combination? What have you figured out that others have not?***

**Dr. Banerjee:** It is mainly our software, which is very, very sophisticated. It is much better and miles ahead of anyone else out there in the field.

**CEOCFO: *Are you funded for the steps you do? Are you seeking partnerships or investment?***

**Dr. Banerjee:** Yes. We are looking out for funding partnerships. We are also basically generating our revenue. We are trying out all different forms at partnerships that would help us grow rapidly. We are willing to take a very serious look at meritorious proposals that come our way.

**CEOCFO: *Why take note of Immersive Touch today?***

**Dr. Banerjee:** They should be paying attention because we offer a combination of users, both for the educational and pre surgical planning. We represent some of the most advanced simulation technologies and we are constantly breaking new grounds. Therefore, whatever the simulation is looking for, we are significantly contributing to this new body of knowledge. That is why we are quite important and we are becoming more and more important every year as the field seems to be moving more in our direction.

Interview conducted by: Lynn Fosse, Senior Editor, CEOCFO Magazine

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