



Usama Fayyad on ChoiceStream's Effort to Save Online Display Ads from Irrelevance

Wade Roush | 2/11/09

If you're like me, you don't pay much attention to display ads on the Web—the big “banner” and “skyscraper” ads that run along the top or the side of many media sites. The problem is that few of these ads are for products or companies that interest me, so I tune them all out.

Well, it turns out I'm not alone—and that's a big problem for both advertisers and publishers on the Web. “I've always felt that display ads were giving the industry a bad reputation,” says Usama Fayyad, a widely respected expert in data mining who resigned his position as Yahoo's chief data officer last summer. “Banner ads were shown without targeting all over the Internet for many years, without a lot of thought to the long-term negative cost of showing the wrong ad to the wrong person. Every time you show that wrong ad you are subtracting from the value of that medium.”

Now Fayyad is working with Cambridge, MA-based **ChoiceStream** to reverse that trend. The nine-year-old company, known until recently as a maker of recommendation and personalization technology that gave Web publishers ways to entice visitors to stay on their sites, announced earlier this month that Fayyad had joined its board of directors. It's a big catch for ChoiceStream, and it comes at the same moment when the company is making a major push to apply its personalization techniques—which depend heavily on mining data about customer behavior—to display advertising.



The company believes it's come up with a way to make display ads more effective by increasing their relevant to specific Web users. In a nutshell, ChoiceStream uses cookies—little data files saved by your browser—to store anonymized information about where you've been on the Web and what kinds of products you've browsed. Say you've shopped at KensKayaks.com. Next time you visit a kayaking site where Kens advertises, ChoiceStream's cookie will recognize you, and the company will serve up an ad customized to show a few new products at Kens that ChoiceStream thinks you'd like, based on its detailed, data-driven

models of the preferences of people with certain brand affinities. Users click on such personalized ads more than twice as often as they do on regular ads, according to ChoiceStream. And the all-important “conversion rate”—the number of click-throughs that lead to an actual purchase—is two-thirds higher. As a result, publishers can charge much higher rates for personalized ads.

But ChoiceStream is far from the only company exploring so-called “behavioral targeting” techniques—we've written about a few of the locally founded or funded ones, including **Tacoda**, **ZoomInfo**, and **JumpTap**. So when I caught up with Fayyad last week, I wanted to know, first, what he thought was so special about ChoiceStream. And toward the end of our interview, which appears below in abridged form, I also got a chance to ask Fayyad—a veteran of NASA, Microsoft, and digiMine (now Revenue Science)—about his other post-Yahoo ventures.

Xconomy: You said in a statement last week that ChoiceStream has “the deepest and most comprehensive recommendation and personalization technology I have seen.” That's saying a lot coming from someone who was at

Yahoo, where there was so much R&D poured into those exact problems. How did you first become aware of ChoiceStream, and why do you think so highly of their technology?

Usama Fayyad: I actually learned of ChoiceStream maybe two or three months after I joined Yahoo. They were doing a trial on one of Yahoo's sites, and there were a lot of people excited about it. The results were a lot better than the internal recommendation engines at Yahoo, which had maybe 14 different engines at the time, about half of those in my world. When I saw those results, I got a bit more involved.

At the same time, ChoiceStream was trying some of their personalization technology on search, so it became a strategic opportunity, and there was a drive to acquire ChoiceStream. I met the team for the first time when I went out to Cambridge to do due diligence on them. But we moved slowly at Yahoo; we had some concerns. And what's really funny is that one of our concerns, about what we thought was their biggest weakness, in the long run turned out to be their biggest strength. Their technology required them to do a lot more modeling of the world in order to do recommendations in a given domain, and we thought it would take them a very long time to switch domains. You could take a long time to model, say, movies, what movie-goers like, and all that stuff, and as soon as you moved to the next property you would have to do a similar effort all over again.

We moved slowly in terms of reaching a decision to buy them, and by that time they had gotten a pretty amazing strategic investment that gave them a very high valuation, so it became outside our scope to buy them. But in the meantime they had become a pretty big vendor, they had spread to six or eight properties at Yahoo, and were consistently beating all of our internal tests, and at one point I had to kill some internal groups trying to build recommendation engines because we already had a pretty good product from ChoiceStream and we were wasting our time doing yet another one when we could be focusing on other stuff that was more core to Yahoo.

That was how I noticed them. To me that was the end of it. The recommendation technology was exciting but it was not the be-all and end-all. I was very familiar with this area; when I was running Revenue Science, we acquired a recommendation company out of the Bay Area. So I was pretty comfortable saying that these guys are head and shoulder above the rest. But their approach still seemed too knowledge-intensive. But it turned out that over the past four to five years they built out a lot of tools for automatically moving from one domain to the next. That's what I mean when I saw their greatest weakness turned out to be their greatest strength.

X: How did you end up joining ChoiceStream's board?

UF: In June, I announced I was leaving Yahoo, and in September I got a call from [ChoiceStream founder and CEO] Steve Johnson saying 'I want you to join the board,' and he was updating me on the company, talking about how the company expanding from offering companies ways to personalize their sites with content relevant to you, to the much easier problem of figuring out which ads are more relevant to you. They came up with a technology where the ad creative would contain, for example one or two or more products that are very relevant to you, drawn from the merchandise of this advertiser, along with personalized landing sites that these ads would lead to. That caught my attention. They were doing an extensive test with Overstock.com, and they were being tested against different vendors and against internal technology. I told Steve, 'Great, I'm a data guy, so I will wait a few months before I accept your offer, because I would like to see how this test turns out.'

The results were pretty phenomenal, as far as I'm concerned. They consistently achieved a 10x increase in click-through rates, but more importantly a 10x increase in ROI. So, three times the revenue realized from each dollar spent on ads. That really caught my attention for a couple of reasons. One was the economic downturn. There is a hell of a lot more pressure towards performance-

based advertising. And two, I've always felt that display ads were giving the industry a bad reputation. A lot of sites, especially in the social networking area, have flooded the market with a lot of untargeted or untargetable inventory. Banner ads were shown without targeting all over the Internet for many years, without a lot of thought to the long-term negative cost of showing the wrong ad to the wrong person. Every time you show that wrong ad you are subtracting from the value of that medium. So any technology that takes us out of that—behavioral targeting being an example—and takes display ads into another regime where you can get high click-through rates and more important, higher conversion rates, is a very important technology.

Long-term, I am a believer that display ads are here to stay, and as we apply these advanced technologies to stage them, they were become much more competitive with search ads, and long-term they will even dominate search ads. The right thing to do will be a combination of search and display advertising. That's a controversial view today, with everybody thinking that Google is the end-all of marketing. Search alone is not efficient. You only get to show your message once, and that's it. Users may see it or not. In real marketing, everybody knows that if you don't get frequency and repeatability, it's not worth it. So this is a great direction, at the right time, and that's why I agreed to join the board.

X: I guess that because I haven't written about ChoiceStream, I wasn't very aware of their history of producing recommendation engines. You're saying that the early ChoiceStream technology you used at Yahoo was not advertising-related?

UF: It was not advertising-related at all. It was very much focused on content —'Let's figure out what else a user might be interested in seeing so that we can increase their activity.' That's the reason I like them a lot. They were focused for the longest time on solving the problem of doing personalization of content, which is way harder than optimizing ads. The other part I like is that if you look at the instrumentation that publishers and networks use to track user behavior and figure out how to target ads, it's easy for a publisher to remove one instrumented ad network and put another one in place. The difference with ChoiceStream is that it's a very sticky implementation. The reason publishers install it is because they either want to increase activity on their website, or increase sales through cross-selling and upselling. So there is a huge barrier to removing Choicestream, because it's plugged into increasing the revenue of the site. It sounds like a no-brainer today, and I wonder why for years none of us thought of this.

X: What kind of instrumentation are you talking about? Explain a little bit about what ChoiceStream actually does, behind the scenes.

UF: The instrumentation is the same kind you would use if you were doing any kind of website tracking. What's different is what you do with the data. ChoiceStream has in the background some pretty deep models of what the products are and what they mean to people. What does the brand someone is buying tell you about the person, in terms of their preferences and their affinities? It's not just about suggesting products that are similar to the ones already in your basket. ChoiceStream has these knowledge bases, so it's a lot more powerful. It will include things like 'Is this product a high-end product that is really liked by people who have esoteric tastes in X, Y, or Z;' or 'Is this product associated with consumers who are looking for such-and-such an activity.' So an event captured by ChoiceStream is worth a hell of a lot more because of the knowledge they can add from outside.

X: How much information does ChoiceStream have about users? Do they know that 'This is Suzie and she's planning a wedding' or 'This is Chuck and he's into Jeeps and ski equipment?'

UF: The tracking is not based on any personally identifiable information. They use anonymized cookies that say only that this user is a unique user, and the question is, when do I see him again? The other thing is that ChoiceStream doesn't mix data between different advertisers. Let's use the Overstock example. On

Overstock the engine is being used to do cross-selling and upselling on the site itself. And there's an agreement with a network of publishers where they basically say, 'If I ever see a customer whom I know has been to the Overstock site before, I will use whatever I learned about that customer from their visit to Overstock to pitch them the right message to bring them back to Overstock.' So think of it as increasing the reach of Overstock across a network of publishers. That's important. They are not trying to mix data from different companies. These things about data exchange have not been figured out completely, so ChoiceStream is going with the more conservative approach, and so far it's been pretty effective.

X: Where is the pull for this kind of advertising personalization coming from? Do the advertisers get more excited, because it brings more people into their sites, or do the publishers like it more, because they can charge higher rates for these types of ads?

UF: It's both. The people pushing it are the technology companies like ChoiceStream, and the publishers like it, obviously, because they're very eager to move toward more premium inventory. The reason ChoiceStream has decided to focus initially on the retailer vertical [as advertisers] is that they are today the most motivated and the most responsive. They are the most highly attuned to performance-based marketing. The equation is very simple: if you show them a higher ROI, they will spend more.

X: As a board member, how closely engaged will you be with ChoiceStream?

UF: I am on the more active side as a board member. I'm spending at least a couple of days a month with the company, and going in depth in certain areas. My style is that I like depth, so I will pick certain areas and focus on them, and in those areas we will use the next few months to solve certain puzzles in certain areas, and then move on to other ones. And of course, I help them think about the high-level strategic questions like which markets we should go after.

X: What else have you been up to since leaving Yahoo? Any new ventures that you care to talk about?

UF: I'm not ready to discuss it in detail, but I'll tell you what I've been telling people, which is that the reason I left Yahoo was that I had a very clear vision for a startup I wanted to start. But I had an agreement with Jerry [Yang, then Yahoo's CEO] that I wouldn't just open up shop the next day across the street. I had great relationships at Yahoo and I still do. The agreement was that I would use the next four or five months to do advisory positions on a couple of boards and explore what's going on and work to prepare for the startup.

What I'll share with you is that the economic downturn has turned me on to accelerate some of those plans. Suddenly there are a lot of these companies, quality companies, that are becoming distressed because they are running out of cash and their VCs are not willing to put more money in. That opened up the opportunity of buying some companies. I have not approached any VCs yet. I have been bankrolling it myself. But I've been putting feelers out to a couple of companies, and have a couple of offers in the hopper.