

Trends that Change Everything

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Intro

- As primarily a business-to-business company, Sabre often flies a bit under the radar. But our consumer business – Travelocity -- has recently taken on some new celebrity spokespeople. Here are a couple of clips....

[Obama video: "I'm accused of a lot of things, but I don't think I'm stupid enough to go around saying, 'This is going to be like shopping on Amazon or Travelocity a week before the Web site opens if I thought that it wasn't going to work.'"]

[Rep. Marsha Blackburn (R-Tenn.) video: "There is a concept that Newt Gingrich has pushed forward with -- like a Travelocity-type concept, where you could go in and compare rates and compare what is offered in insurance plans."]

- I assure you Presidential speeches are a tough product placement. The President was followed by Representative Marsha Blackburn, a Republican from Tennessee. They're both making the point that technology can and does deliver outstanding value, when done right.
- Now, if a Democratic President and a Republican House member can agree that our technology is valuable...just imagine what it does for our customers!!
- Actually, that's my focus today: The outstanding value technology can deliver to enterprises, organizations and consumers. And specifically, I'll look at the combination of Big Data, Analytics and Mobile. These are trends that apply to any business, big or small – that means they apply, or will soon, to everyone in this room.
- We are in a good position to talk about these trends – because we are a technology provider to the global travel industry, and we live and breathe data. And we do so at extremely high volumes – during peak times, we process 85,000 data transactions per second.
- We're very proud to be based in North Texas, and I am humbled by – and take great pride in – our talented team that is keeping us at the forefront of industry trends.

- I hope some of the things I'm going to share with you today will be helpful to your business, or at least stimulate some ideas that might turn out to be worthwhile. I'll focus on showing you examples of how technology can and is being applied, as opposed to talking about the technology itself.
- I'll start with what Big Data actually is. Big Data is characterized by 3 Vs...Volume, Velocity and Variety.
 - Volume – means lots and lots of data, and in unprecedented amounts.
 - Velocity – means data comes in rapid streams that you can capture and leverage in real time. And finally, Big Data implies ...
 - Variety – meaning it's not just the structured data businesses are already using. It includes unstructured data from non-traditional sources, such as social media feeds like Twitter and Facebook, weather patterns and even the latest paparazzi pictures of Kate Middleton – yes, it's true, and we'll get to that!
- Now, Big Data isn't valuable unto itself – most of us struggle to make valuable use of the data we have in our businesses today. But Big Data solutions are providing real value in a number of ways... most importantly its predictive capability across everything from customer behaviors and operational performance and even to predict employee success.
- You can do that by sifting through volumes of data to identify patterns and conclusions that you simply couldn't reach, at least not quickly, without a lot of relatively new capability.
- Capability that a host of technologies make possible, including storage, access, analytics and visualization – all foundations of Big Data.
- Big Data depends on cheap storage. Back in 2008, it cost about 30 cents to store one gigabit of data. Today, you can do that for under a nickel.
- Once data is stored, you have to access and analyze it to discern patterns and derive actionable insights. Both accessing and analyzing are enabled by advances in compute power – and you all know how quickly increases in computing power come to market.
- Today, a high-end smart phone has about the same computing power as the Cray 2 supercomputer, which was the world's fastest computer the year I got out of college 1984 – it was the size of a washing machine and cost a few million dollars – and the smart phone is significantly more usable! That is a 30 year look back, the acceleration in compute power is significantly greater today.

- And finally, visualization technology is very important. It lets us present insights from Big Data and identify trends in ways that the human mind can quickly grasp. This is a field that is literally exploding today – venture capital funding is flowing into it in high numbers, and start-ups are providing powerful tools that allow businesses to use new visualization technology on a self-serve basis... meaning you don't have to wait for assistance from your IT staff or external experts to visualize data.
- I'll illustrate how all of this comes together with a few examples, starting with one that's not related to my business, but it sets a foundation for the disruption that is occurring.
- Historically, retailers have tracked their sales over time, looking at results monthly, then weekly, then daily, or now even several times a day – for example, it's my understanding that Walmart captures sales data up to 6 times per hour.
- These results help retailers know when to order more inventory, and in many cases generate automatic purchase orders to global vendors. That's when the data converts to real advantage, because there isn't an infinite supply of a "hot product" in the time a retailer might want it on their shelf, so getting purchase orders out ahead of your competitors matters.
- And then along comes something I'll call the "Kate Middleton Effect." A photo of Princess Kate wearing something new is posted on Twitter, and it doesn't matter what historical data says. History can't warn that the item she is wearing is going to start flying off store shelves around the world.
- But by integrating that unstructured data feed into their powerful systems, retailers can get purchase orders for the silk scarf Kate is wearing – or something like it – to vendors before their competitors can. A retailer has to ACT NOW – at the moment the photo hits the web – not tomorrow when it might be in the newspaper or worse, three weeks from now in a magazine. Its disruptive, real time, unstructured data that provides a clue for the start of a trend.
- Retailers are definitely paying attention, and they're combining historical sales data with unstructured social data to make more accurate predictions about sales trends and results – and to get product on their shelves more quickly.
- Here is an example from Sabre. This one is most interesting because it shows something that was very difficult and cost prohibitive to do just a few years ago.

- Here we are using real shopping data to understand sales opportunities. This is an example of a heat map, and it's one way we visualize data for our customers – in this case, to help hotels turn shopping activity into improved sales.
- We process more than a million hotel shopping requests every day, working with inventory from more than 100,000 hotels. We are capturing that shopping behavior and distilling it into usable information...
- On heat maps like this, we create market segments of consumers and map their shopping and buying volumes at a particular hotel property.
- On this heat map we have created market segments (on the left)...and the top view shows shopping volume for a specific hotel property, while the bottom map shows bookings -- shoppers who purchased a room. In this case, the weekend getaway segment is shopping a lot, but they're not buying much at this hotel.
- Armed with these patterns, we can recommend specific marketing campaigns that will improve the hotel's conversion rate, some enabled by our technology.
- We have always had access to these massive amounts of shopping data, but it was prohibitively expensive to store, access, process and visually represent the data. Today, it's practical. We are now learning to access and deploy the data in an intelligent way, and we have dozens of examples like this heat map from across our company.
- Flight Explorer is another example and it truly is a Big Data application. We monitor millions of flights, as well as weather conditions, flight restrictions and more to give airlines critical data – in a visual way – to help them run their operations. What you see here is a sample of air traffic on the Mid-Atlantic tracks – essentially the highways in the sky that separate planes in spaces where there's no radar coverage.
- Each dot represents an aircraft – in real time we would be showing movement – and you can see just how crowded the airspace is in the Northeast. My point in showing this is to cite another example of how technology can correlate, visualize and give meaning to massive sets of data.
- I use this example for a couple of reasons: First, new data sets -- like data from aircraft sensors that Boeing and Airbus are building into their next-generation airplanes -- will be used to predict aircraft issues and adjust real-time flight plans.

- And we are looking at some new, more detailed government weather data in conjunction with the Department of Commerce' NOAA – National Oceanic and Atmospheric Administration – that could be added to make Flight Explorer even more valuable to our customers.
- The important point here is that companies can increasingly use data to help them serve their customers better. I'm sure there are many examples of that inside the companies in this room.
- The second reason I chose this particular example is that Flight Explorer is a great lead-in to another company that uses Big Data at its core, but you might not immediately think so.
- The company is Uber... and those of you who are familiar with Uber might view it as just a car-on-demand service.
- Uber is not part of the Sabre family, but we have been watching it closely. I think it's one of the most disruptive technology companies in any industry today, and they're definitely shaking up the taxi and town car industry across the globe. I happen to use Uber quite a bit myself and have had the opportunity to talk with their executive team about how they're using Big Data as a competitive differentiator.
- If you're not familiar with the concept, Uber provides an app that lets you summon a car at the tap of a button on your mobile device. As you can see, the app shows you where participating drivers are located, and when you order a car, it lets you watch as the driver approaches your location.
- Uber is focused on creating a new experience in car service – it's on demand, predictable, accessible, cool... and they are doing a great job with that. But their secret sauce and sustainable advantage is in data. They have a dedicated team they call the "Math Department" that is working on a variety of algorithms for routing, pricing, and predicting.
- And they're doing all that by using a huge amount of data they are collecting. Every day, they're tracking every Uber car and collecting data on how they maneuver through a city – they're mapping cities and traffic flow at a very detailed level. They track customers and drivers... and the app collects everything.
- Combined with customer behavior analytics, they can predict demand, match supplies, position vacant cars and optimize dispatch and drive times. All of this helps keep wait times low and car utilization high.

- They are building a competitive advantage through their massive and expanding database of information, and in my view it will be very difficult for someone else to replicate what they're doing.
- The company was founded just 4-1/2 years ago. They are expanding rapidly, and investors -- including TPG, one of our private equity owners at Sabre -- have put a value on the company of roughly \$3.5 billion! Needless to say, I wish we would have thought of Uber, because it isn't too far from what we do! They have created "Flight Explorer on the ground" and integrated the customer and driver into the data sets! It's brilliant.
- Now here's another cool example, this one is ours -- a prototype we call "HotelSnaps." Our team mined Twitter, Instagram and Four Square for hotel photos, check ins, and "vacation" hashtags. We found thousands of posts, and used Amazon's Turk crowd sourcing to tag whether posts were related to the hotel's lobby, pool, guest room, beach, etc.
- Then we looked at this data for six of the most popular hotel brands. And what did we learn? Well, we saw that ... Marriott properties were the most popular in terms of total check-in volume, but Westin had the most check-ins with a photo attached. And we learned photos are usually aligned with a positive view of a hotel, while negative experiences are usually text only. We also saw that most photos were taken at the bar and in rooms, so investing in making these areas look great could drive positive social awareness of a hotel's property.
- This was just an experiment, and admittedly, we don't yet know how valuable the findings are.
- But from here, we'll look for ways to use this kind of data to help hotels serve their customers in real time. For example, the service could allow hotels to get very quick feedback on improvements they have made or might help brands better engage with customers posting photos who can become brand ambassadors.
- This is early work, but I am confident we are on to something -- and that's giving our customers a much better understanding of THEIR customers, who are often either promoting or damaging their brand on social media.
- Some of these examples have involved mobile devices, and mobile is becoming wholly intertwined with Big Data. Together, they will drive dramatic changes in how we live our lives.

- We're paying very close attention to how consumers interact with their devices, and we've seen interesting patterns emerge. For example, we've learned that people who use Macs have different purchasing patterns and behaviors from those who use Wintel PC's... which is different from choices they make using their iPhones... which is different from iPad purchasing patterns. It really was breakthrough learning that could only be done by capturing data that gave us insights into how people modify their behavior based on the technology they are using. Or better said, a device is increasingly being selected to perform a specific task.
- To be clear, this means that the consumer you thought you knew is acting and buying differently depending on the device they are using. This is counter-intuitive to traditional marketers whose segmentation relies on demographic data or purchasing history.
- Just as the Internet changed everything in the prior decades, the adoption of mobility is changing everything today. In our industry, mobile travel bookings are projected to comprise about 25% of the U.S. online travel market in 2015 - up from just 2% in 2011.
- Mobile offers new opportunities to interact with customers and observe their behavior. Here's an example from lastminute.com
- Let's say you're with friends in the lounge of the Sofitel London St. James. It's 6:30p.m., and you've just finished your first or second cocktail, and you decide you want to book a hotel room rather than drive or train home.
- You pull up lastminute.com and enter a hotel search. The app is location-aware, so we know you're at the Sofitel. As a "smart retailer," we use that information to display a list of hotels with Sofitel at the top and a few other 4- and 5-star hotels in the neighborhood, all with good, discounted deals from about 250 to 300 pounds. PERFECT—right? We have you on the hook! But you don't buy...and we make no money!
- Why didn't you buy? Well, we learned from analyzing purchase data that -- regardless of where a person actually is at the moment -- the thing you can almost perfectly predict is that when they shop for a same-night hotel room after 5 p.m. in London, they almost never spend more than 100 pounds on a room.
- So we changed our display algorithms, and anytime someone shopped for a same-day hotel after 4 p.m., we narrowed the search results and capped the price range at 120 pounds. Within a week, we saw a 400 percent increase in bookings.

- That is the revenue-generating power of data, catering to the ways people actually use their mobile devices to drive more business.
- I like to say Sabre is “all in” when it comes to mobile. Some of you may be familiar with TripCase, our mobile app used by millions of travelers to manage their travel journey. TripCase is a data-rich, location-aware tool that sends travelers updates, alerts, alternate flights, maps and contextually-relevant offers. To do this, we rely on multiple sources of data.
- Understanding how a traveler interacts with their mobile device during their trip helps us build features and services that cater to their personal preferences. We still have a lot to learn, and we know that travelers’ behaviors are changing rapidly.
- So where do we go from here? One of the focus areas is advancements in location and proximity technology. Something we believe will have a serious impact on TripCase and other mobile services going forward.
- The first example of this is Field Trip, a new mobile app from Google. When you’re traveling, Field Trip lets you know when you’re approaching something that is interesting to you. This can turn the shortest journey into a little exploration or allow the streets of NY or Paris to “speak to you” as you walk – clueing you into a unique exhibit in a building, or directing you to the calm of a secret garden tucked off a main street.
- And we recently kicked off a pilot with AT&T using their latest in geo-fencing technology. This allows TripCase to know precisely where a traveler is in their trip, which can enable our customers, such as airlines and hoteliers, to provide a more personal experience for the traveler.
- For example, custom geo-fences can be set up around the airport to include, say, a 5-mile radius around the airport, or at entries for security inside the terminal, or even a 15-meter radius around your departure gate.
- When you break through a geo-fence, the airline can be notified of your location – whether you’ve just passed through security, or you’re close but still on the road.
- While this is in pilot phase now, you can easily see the impact of incorporating this type of capability to the travel environment. And I don’t think this is specific to travel – I suspect many of you will take advantage of geo-fencing or services like Field Trip relatively soon.

- As it relates to the advancement of mobile, we are still in early days. It's almost inevitable that within the next 5 years, the line between offline, online, mobile and social are going to blur to such a point it will eventually disappear. The virtual world will blend into the real world. Just as we use electricity without thinking about it, data connectivity will penetrate every aspect of our daily life.
- It is already happening with Google Glass and similar versions from Vuzix and Recon. And, yes, there are even rumors of an iGlass and an Oakley designer set. You have all seen the possibilities – health monitoring built into clothing or wrist bands, information streaming to you via glasses or an earpiece, embedded screens in windshields....all just around the corner.
- So, what does all this mean for companies today?
- I recently spoke with the owner of a small ground transportation company I used in Boston, and he felt that Uber – that app that calls a car for you – was irrelevant to his business. It isn't a threat, in his mind, because he has loyal customers and provides great service to them. Is he safe?
- A company that can do something faster and cheaper than you can is a definite threat -- at minimum he needs to understand what Uber does...our conversation made it clear he did not...but I think I may have helped open his eyes just a little...
- There are many more Uber-like companies out there that have the potential to use software and data to completely destabilize industries... to "eat industries" whole.
- And what industry will get disrupted next? Zillow tried in real estate and, while interesting, it didn't turn it upside down -- at least NOT YET.
- Payment services like M-Pesa and Hong Kong's Octopus Card are challenging traditional credit card services. Entertainment everywhere and on-demand is changing much. Traditional education is being challenged. All of these industries can AND WILL BE transformed by data and access.
- So yes, Big Data, Analytics and Mobility will change everything. They already are, and it's important to pay attention to these trends and assess how they will affect you and your business.
- There's little doubt that whatever line of business you're in, someone ... somewhere ... is working with data to gain a competitive advantage. Who in the room would have thought a car service company could emerge, without owning a single vehicle, and grow to a \$3.5B market value in a short time?

- Social media, mobility and e-commerce actually favor startups that are not constrained by legacy processes. And what that means for established companies is that we must think and act like a newcomer. That means... we must be relentlessly focused on our customer's experience... and how to use accessible technology to bring new value to our customers.
- We have to be open to new business models because, after all, if you think an outsider is going to cannibalize your business, then you should do it first... and better.
- But it's not about the technology industry... It's about how you and your companies will use technology to reshape your industries, regardless of your line of business.
- The good news is that the technology is less intimidating and more accessible than ever before. It used to be only large enterprises could do this, but today companies of all sizes can serve their customers in new and different ways by taking advantage of these trends. I hope some of my examples today have sparked some ideas for you and your businesses.
- I want to thank the Dallas Chamber, its members and supporters. We appreciate your vision and all your efforts to make North Texas a better place to work, live and play
- Thank you for having me here today, and thanks to all of you for your kind attention. I believe we have time for some of your questions.

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