**How Top Organizations are Using Data and Analytics to Stay On Top: Insights From Past Podcast Guests**

**Jacob:** Hello and welcome to another episode of The Future of Work podcast, I am your host Jacob Morgan, best-selling author, speaker and futurist. Since this week is a holiday I thought we would do another mashup from several previous podcasts who share their insights and ideas on one of the hottest topics today, big data and analytics and how these things impact and shape the future of work.

I’ll do a short intro before clip introducing the guest so that you know who’s speaking. Then we will move on to the next guest and so on.

I get a lot of questions about this topic, so I hope that this episode is helpful, interesting and motivating. As always, feel free to contact me with any feedback about the podcast or any questions you may have at jacob@thefutureorganization.com.

Alright, let’s get right into it. The first clip is from Paul Oyer, Professor of Economics at The Graduate School of Business at Stanford University and the faculty director of a new executive education program called Big Data, Strategic Decisions: Analysis to Action. In this clip you will hear Paul’s explanation of Big Data and the impact it is having on companies such as Uber.

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Jacob: Data has been around for, oh gosh, forever, but it feels like recently, the conversation around big data has completely exploded. It's all over the place. I mean, hence the course over at Stanford. How do you explain big data to somebody?

Paul Oyer: That's a great question. I actually like the way you asked that question because you're pointing out the way we think about it and how, in a way, it's kind of wrong or absurd. It's not like big data came out of nowhere. It's not like we were adding on an abacus last week, and now we're overwhelmed. It's been a slow course. When I started graduating from college, I had a PC with two floppy disks on it, but even at that time, that was just light years ahead of what people could do before, and then there's been a, well, a pretty fast evolution ever since. We're suddenly declaring, or at least a few years ago, we started declaring "this is the age of big data," but, of course we're already in the age of big data by relative standards, even if you go back a long way. It's true that the amount of data's getting bigger and bigger, but, of course, you go forward a few years, and we're going to look back on the current stage of big data as almost simple and we won't even be able to believe how complicated it was to get these computers up and running now that seem to incredibly easy compared to old standards.

Jacob: Especially we keep hearing about all these connected devices that are coming. Depending on the estimates that you look at, it's, what is it, 20 billion connected devices over the next couple years, if not more. Everything is basically producing data. I mean, wearables, everything produces data nowadays. Clearly there's a lot going on.

Paul Oyer: Yeah, and you can get overrun by that, of course. I mean, there's a lot of data that's being created by wearables that figuring out what's really valuable in that, that's the big business imperative going forward. All our Fitbits are creating a ton of data. Is that doing any good for anybody? I'm not sold on that yet, but I believe someday, it will, and we gotta figure out exactly how to make that work. My dog wears a Fitbit. Is that data doing anything for anybody? I'm not so sure it is. I'm doing a research project right now with Uber. Well, Uber's entire business is based on the fact that they have and can use data in ways that we couldn't have dreamt of 10 or 20 years ago. Why Uber's so much better than Taxis, because technology and the data makes it so that they can match supply and demand very quickly, and then also predict supply and demand a week out so that they can give incentives to drivers to make things run more efficiently. That's all driven by data. That company just couldn't possibly have existed or certainly wouldn't have been nearly as efficient, even if you go back 10 years ago.

Jacob: The next clip is from my interview with Jenny Dearborn, SVP, Chief Learning Officer at SAP. During my discussion with Jenny last November we touched on what data is available on employees, how to use data for leadership, how to stay human in a data driven world, along with many other fascinating things SAP is doing internally. In this clip you will hear Jenny’s advice on where to start with people analytics.

Jenny Dearborn: You don't start by putting together a team. You don't need to hire anybody. You need to start with the most important skill that you need is curiosity and skepticism and then resourcefulness and research. Eventually as you get really deep into it, you need people that can pull reports, and people that can triangulate information and then eventually you're going to want, once you get something preIy sophis;cated, you're going to want a data scientist, things like that. To start with, you say it's really, you have a consul;ng engagement with yourself, okay. You have been hired as a consultant to work at the company where you already work. Pretend you're somebody from the outside, what would that person ask? They would say what are your problems? How do you know that that's a problem? What are you trying to achieve? What are the goals of this company anyway? Do you have a dashboard that indicates whether what's working and what's not working? It's amazing to me how many companies when I ask them something really basic like what are your metrics of success? All my business is doing really well, how do you know? What are the six numbers that you can point to that says my business is doing well because this. Revenue is up, margin is up, cost are down, whatever. I talk to small companies and it's like they don't understand that they're spending a lot of ;me with a customer that is yielding a really small amount of revenue or they have some accounts that work really well and other accounts they're spending so much effort. You're basically losing money because of all the time and effort that you have to spend with this particular account or this par;cular customer or whatever.It's really starting with asking a ton of ques;ons and doing the research inside your company, and you don't need an MBA or an undergrad in statistics or anything fancy. You need to be really curious and very skeptical and dig, and make friends, and get this information everywhere you can. Probably a critical skill is being non-threatening, and building relationships, and building bridges in different parts of the organiza;on and get all the different parts of the organization really comfortable with you. That if they share their data with you, because you're gathering everything together, you're not going to embarrass some. You're not going to expose them. Make them look stupid. You're not some whipper snapper millennial smarty pants, that's going to come and be like, dude, I can't believe you've been doing it this way for all these years. I just did this whole analysis, and realized that you're a fool and here's the data to prove it. This is a very intimidating thing and people aren't comfortable with it, so a lot of ;mes people say we don't have the data in our company. I said I know that you do, but you have to convince the people that have it, that it's in their best interest to share it with you.

Jacob**:** Next up is a clip from my conversation with Ben Waber, the President and CEO at Humanyz, a social sensing and analytics platform that uses sensors in employee ID badges to measure important behavioral data. In this clip Ben explains how their sensors gather data and how this data can be used to get real time information about a company and its people.

Ben Waber: If you wear an ID badge at work you actually are already using a sensor. There’s typically a little RFID chip in it, a little radio, that’s what you use to tap into a door. Now if I put little RFID readers into the ceiling I can figure out where everybody is. Besides being kinda creepy, that doesn’t actually tell you how people collaborate. Now what we’ve done is really create a next generation ID badge, a sensor badge that has a little microphones--that again, don’t record what you say-- but in real time we’re doing voice analysis combining that with bluetooth and infrared to figure out who you’re talking to as well as with a motion sensor and accelerometer, just like in a FitBit or your phone to look at motion patterns. Now importantly again, we have this view into the physical world, which is critical because the vast majority of important stuff in almost every company in the world still happens face to face and that means if you don’t understand that kind of data, if you only rely on the digital sources there’s no question a lot you can do with that, but you miss the vast majority of the picture. What we’ve found, not just us, but other researchers also starting at MIT, groups at Carnegie Mellon, IBM--that really the digital metrics alone are not that predictive about things like productivity, turnover, but when you start getting the face to face data, you get many orders that are more predictive. And a big reason for that is, again, if I’m having coffee with a coworker, if I go over to someone’s desk and we chat for a little bit--those are incredibly important interactions that currently are not digitally captured. As more and more sensors get added to the workplace, though, not just in our badges, but every ID badge, sensors in the environment itself, of course there are going to be really huge privacy concerns that we have to deal with through increased regulation but it does mean that this data is going to start becoming available. And now the hard part is understanding that and turning that into metrics that really matter both for individuals but also for business. And once you can get to that point, which is really where we feel that we’ve gotten, companies can start to make decisions based on this data that is coming in all time time, instead of relying on a survey that you did once a year or relying on demographic information that doesn’t change. Not to say that’s not useful, but it’s so much slower than the speed at which you work at the speed of market changes, which really means you need to capture data at that speed to be able to react in a really intelligent way.

Jacob: Bill Schmarzo is the CTO of Dell EMC’s Services in their Big Data Practice and the author of “Big Data: Understanding How Data Powers Big Business”. In this next clip you will hear Bill explain why it is so important for companies to understand first, why they want to collect the data and second, how to analyze the data they end up with

Bill Schmarzo**:** Why have data if you’re not going to analyze it. It’s silly, it’s kind of like the IoT conversation, all these connected devices. Well, I don’t want connected devices, I want smart devices. Or I don’t want just data, I want insights of data to help me predict what’s likely to happen and prescribe actions. Data by itself is really nothing, it’s a glob of nothing. And until you start applying analytics to it, and you need to have an analytics strategy. That’s where we see most organizations by far, where most organizations fail. It isn’t that they lack a data strategy, they lack an analytics strategy that tells them what data that they need to have.

Jacob: Interesting. So it sounds like big data is only as useful as the analysis that you’re able to do on it. But just having data for the sake of data is kind of like, ah who cares.

Bill: Right, there’s a lot of organizations that have tons of data, and they think they can sell their data, which is why I always get into this discussion with customers about data monetization. And I go old school on them. I go Adam Smith, Wealth of Nations 1776. In the book Wealth of Nations Adam Smith talked about value creation and one way he talked about it is called value in exchange, right. What you can sell it for, in fact, our whole accounting system is sort of based on the concept of value in exchange. But Adam Smith also talked about value in use and how you use the data to optimize the operational processes and gain customer insights and uncover new revenue opportunities. It’s really the value in use that is more important. So getting organizations to start thinking about, well how am I going to use this data to get value? What kind of analytics am I going to apply? And so organizations, while they may have a strategy for capturing their data, they really lack a strategy and approach for how to do the analytics, and by the way, if you don’t know what problems you’re trying to solve, if you don’t know what’s important to the business then you have no idea what analytics are important. So it really boils down, everything boils down to--What is the company trying to accomplish? If you’re a hospital whose trying to improve quality of care for your patients, well you’re going to want to make analytics on readmissions, on hospital acquired infections, types of procedures that are going on--GRG 9s and GRG 10s--All of a sudden if I know what problem I’m trying to solve, now I know what kind of analytics I’ll need to build and now I’ll know what data I’m going to need to do that. It drives everything. And when you do that, by the way, it becomes very actionable and it also becomes very easy.

Jacob: Jennie Carlson, who recently announced her retirement from U.S. Bancorp, was the CHRO there for the last 15 years. I spoke with Jennie back in 2016 and in this clip you will hear how U.S Bancorp evolved in their ways of using data and why they moved analytics out of HR.

Jennie Carlson: We fall into the bucket of people who collected a lot of data but weren’t really sure what to do with it. Now we’re transitioning, and part of the reason we are transitioning is we took the HR analytics team and moved them out of HR into Strategy and we moved them into Strategy because our customer analytics team is there and we have a much more robust tool set for customer analytics, we have a much more interesting career path for people in analytics when they’re in the larger group and we are basically taking what we’re doing for customers and applying that to employees. So we’re still pulling data from the same sources--from our payroll system, from our recruiting system, from our applicant tracking system--but we’re looking at it differently through the lens of our customer analytics department. And I saw a quote in Harvard Business Review a couple of weeks ago, actually I didn’t see it, somebody gave it to me, but the new power couple inside the best companies is an ironclad partnership between marketing and HR. We’ve got that with our strategy and marketing group and a really strong area is with the shared analytics.

Jacob: That’s really interesting that you said you moved the analytics piece out of HR, because I think a lot of HR practitioners are trying to move analytics and data science in to HR. But you’re actually the second person in HR that I’ve heard leveraging their customer experience team. The other one is the National Cash Registry, there’s a lady there named Wendy Smith who’s the head of new employee experience and she also told me that they are working very closely with their customer experience and their customer analytics team to do that same kind of analysis for employees. So why don’t we talk about that for a few minutes, starting off with do you think the analytics piece should be in HR or does it make more sense out of HR?

Jennie: Here’s what I say, it depends on where your company is. We had a small team of very dedicated employees, but they were a little bit homegrown within HR, we didn’t have the tools and the sophistication of our customer analytics team. So practically it made a whole lot more sense to basically leverage those existing resources outside of HR then to build them in HR. In another company that may not be the case. We also have a very big focus right now, as a lot of companies do, on the customer experience and we’re able to piggyback on that with the employee experience as well. And I can tell you it was a little bit of a hard sell for some of my HR leaders to give up control over some of the data, but the results we’ve gotten back have been so powerful and the service we’ve gotten back has been so strong that we have a group of believers now.

Jacob: Towards the end of last year I had Jeremy Welland on the show. Jeremy is the Global Head of People Analytics at PayPal. In this clip you will hear a very detailed example of how PayPal is using data to track retention and attrition.

Jeremy Welland: One big space, and certainly vendors are always apt to want to talk to us about it is, is with the retention and the attrition modeling. A lot of this ... Some great work actually started in the marketing space around customer churn, lifetime value of the customer, and looking at segments and profiles, using some statistical techniques like k-means clustering, or even some more advanced techniques like some of the latent profiles and other things. We've actually borrowed a lot from our marketing brethren and sprinkled some industrial organizational psychology in some of our own models to bring about an attrition risk model as well as, actually, say, a set of models, as well as a retention campaign.It's really around identifying and defining out your critical talent pool.

We had an exercise where we looked at key talent, defining the aspects of key talent. Is it a potential employee, is it a high-performing employee, is it a critical role that's maybe difficult to hire because it's a hot talent market space, and also, it's very important for the company. It's not something that you could, say, just give out to a consultant or job task out or offshore it or something like that. After we defined out that basket or bucket of what key talent were, we can then, of course, look at aspects of predictive modeling of what are the features and attributes that we know about these talent groups that are important for driving whether they want to continue to show up to work and bring their talent and strengths to the organization, or they take that elsewhere It's interesting to me because I'll have vendors come in, and they'll say, "Oh, I have a machine-learning model. You just flip on a switch," and oftentimes, I think it's, we wanted to slow down and really ask, well, what's the psychology of this? Do we understand the employee? Is there a one-group solution where all employees think alike, or do we have certain segments that we have to model on? If we were to model, let's say, we actually ended up with three different models, are the parameter estimates that we pull out of those models, which are the drivers of engagement or drivers of staying and leaving, are they the same parameters across different groups. If not, what are the idiosyncratic drivers for certain populations, and how can we align some of the insights and knowledge that we're getting out of that to policies and program investments or de-investments?

We can see maybe we're spending in an area where that spending can be redeployed based on some of the findings. We settled on three models. We actually have, first of all, we have a very large contact call center, and we know that the psychology of folks answering phones, working on the frontlines with our customers and merchants is very different than, say, our tech workers or some other professionals that are doing much different work. For us, there was a little bit of art also sprinkled in with the science. That was the first big segmentation of taking the thousands and thousands of contact call center folks and doing a separate model compared to tech and other professional workers.

Then we also additionally made the decision to model a leadership team. We actually looked at our top 1,000 out of the 18,000-plus folks and said, "When we look at directors and above, is there a psychology to the folks that are leading those teams and creating strategy and driving a really important scoped work for the business? What does that look like?" Of course, you also want to think about the outcome. Are you modeling to just all terminations, or are you going to separate it out, and do you have information in your HRIS would suggest involuntary versus voluntary terminations? Even for voluntary terminations, do you want to look at just regrettable versus the folks that voluntarily are leaving the organization but maybe aren't regrettable leave. We actually decided on, again, looking just at a subset of the terminations of voluntary regrettable. We're actually predicting on the left-hand side of the equation to that, and then on the right side, modeling all of the features and attributes and bringing, talking about what does theory and some other companies or consultancies, what do they have to say about what would go into important features and attributes, variables and fields that would be necessary?

We're really proud of the model. We use lots of different modeling techniques. I sometimes call it a nomological net, which is just sort of a fancy way of saying we use lots of different approaches to arrive at the same watering hole, so different paths all to get to the same water source. That source, for me, is what's the source of truth around what drives people to want to stay at PayPal, or in some cases, the obstacles or hurdles that tend to push them out or where they may want to leave and take their talents elsewhere, or they might be getting pulled out by hot markets and folks like that.

There's a lot that goes into that. I guess it's a long way of saying, yes, we have looked at retention campaigns and attrition modeling. We've presented that to our people leadership team, so it's our CHRO and all of her direct reports, and we even ask them, like hey, what are your lay hypotheses around why you believe people might be leaving.

What's interesting to me is it typically can result in one of three scenarios. Either someone has a hypothesis, and we confirm it, which, it's pretty vanilla activity. You think something's going to happen, and our data and analyses shows that it does, so we'll just call that hypothesis confirmation, but the other two of three areas are really interesting. The first is actually myth busting, so they say, "Oh, I bet long commutes are going to drive people out," and we can calculate their home address to office distance and include that in the model. They'll start coming up with these hypotheses, and we may find that either it's not as strong as what the leadership team thinks in the top 10, or maybe there's no relationship at all. Now you have to go out and go back to people and say something that you intuitively thought in your gut is actually turning out not to be the case. That's myth busting.

Then the last one is interesting, which is finding unexpected surprises, things that weren't on your radar screen before, but now that we've dug into the data, dove in a little more deeply, it actually turns out to be the case, that you're going to have to pay attention to this particular feature or attribute parameter estimate. Those are the three things, either hypothesis confirmation, myth busting, or sometimes what I call finding a purple swan right behind a tree. Didn't expect to find it, but it's there now, and you have to contend with it.

Again, trying to translate that into what policies do we need to edit or create new, or what programs do we need to invest in or de-invest in, move some money around that can help retain some of the talent groups that we believe are important like the key talent, high potential, high performers, critical roles, or looking across those other groups like the contact centers versus tech and professional.

We learned a lot by diving in deeply. What I often say to someone is get to know your data. Know it forwards, backwards, all different directions, even some of the, just the data management, data wrangling, data cleaning is some of the most important aspects because you get to know your data, and I think that's much more important than just, say, flipping on a switch in a tool, and then having that tell you here's what's happening. This space is advancing, and that's been a fun project for us.

Jacob: This last clip is from Gordon Wright, the director of Workplace Design at HOK, a global design, architecture, engineering and planning firm. During my conversation with Gordon I asked him what their design process is like, and he gave us a step by step look at how they would begin a new project, and as you will hear, it is a very data-driven process.

Jacob: Can you give people a sense of what the process is like, because most of us have no idea. When a company goes to a firm like HOK and says, "Okay, we want to redesign our space," we have no insight in how that works, what you guys look at, what you consider, the research, anything that's done. Maybe you can walk us through what a process might be like. I don't know, let's say I was running a company, we had 10,000 employees and we wanted to redesign one of our spaces somewhere. Can you walk us through what that's like and what you do to come up with what that space should look like?

Gordon Wright: Sure. Well, the first thing is a ready admission, we don't have all the answers. Really, it starts with an investigation to understand that organization, what its business objectives are, what its employee workplace objectives are and workforce objectives are. It's really more and more the workforce and the workplace coming together in many of our conversations. It begins with an investigation to understand them. Once we have that, we then begin to do some interviewing of key groups, leaders, key users. That information is played back, and then that begins to inform the design process. In some ways, it's very data-reliant and driven. Sometimes that's not well known outside of our industry, but really, design is becoming more and more what ... I'm going to use a term which may be foreign, but it's a combination of the science and the art. The beginning steps are really about the science, collection and making sense of the data about what's going on today and where the organization wants to go. Then, we get into the design process, more of the artful side of it. We go through a fairly tried-and-true process, but really, again, driven by that unique organization, their unique requirements. It's not a one-size-fits-all approach. Finally, then we begin to realize space. The space goes into construction. We're there to help make sure it gets implemented and realized in the way it wanted to be, needed to be. Then finally, we go back once the client has occupied that space and gather more data to both inform ourselves on what worked and what didn't and then to allow us to help the client make the appropriate adjustments. We're now seeing more and more clients where that adjustment period, if you will, that preoccupancy evaluation, as we term it in the industry, is not just a one-time thing, but it goes back to the blend of art and science, is that we're encouraging our clients to revisit their space on a regular basis to kind of take the temperature and make those tweaks that are required to, again, get the most out of the space, the most out of their employees.

Jacob: When you say that you guys look at data, what sort of data do you guys look at? Because I visit a bunch of different corporate headquarters in different parts of the world when I give talks there, and I'm always amazed how different the spaces are. You visit a company like an Airbnb or you visit a company like a Capital One or a Swiss Re, and the spaces are very, very different. I'm always in there thinking, how did they come up with this? Do they look at how employees work, what sort of work they're doing? Are there focus groups? Are they looking at traffic patterns? Do you sort of match the space to the values of the company? Can you give a sense of what you actually look at when trying to come up with this design?

Gordon: Yeah. There's a variety of data sources, and it doesn't mean every project or every organization is going to use all of those, but we look at ... I'll give you a few, and I'll provide a brief explanation. We look at utilization data, how space is being utilized, how employees are occupying the space. We sometimes look at badge data, how employees go in and out of a space. Again, that goes back to utilization, but also goes to patterns of behavior within the building. We also do focus groups to understand the organization, its leaders, the goals, and how the real estate organization is a part of the bigger company goals and how space can support or perhaps is not supporting the larger company goals. There's a variety of data sources we look at. Many are of the traditional what I'm going to call real estate metrics or real estate data, but more and more this is being driven by cultural and social activities inside the organization versus just the traditional real estate metrics. We do collect some hard data. There's data about how many people are in a space. That's pretty hard data. You can say at this moment in time there was X number of people in this defined space, but I think more and more ... You alluded to some of the ways space is collected. We're beginning to see more technology use in the collection of the data, sensors, et cetera, and obviously sometimes we can run into legal issues around that, but I think many organizations are sorting through that. The other side, the sociological side, the psychological side, if you will, of the space, of being in a space, the use of the space is really coming to the forefront. That's where those one-on-one conversations or group conversations about, firstly, what the organization is trying to achieve as an organization, and secondly, what they're trying to use their space for, how it's used, how it supports the goals of the organization is becoming more and more a part of our conversation with our clients.

Jacob: Well that concludes this week’s episode, I hope you enjoyed these clips about data and analytics and that you are more inspired to think about how you can leverage these concepts and ideas inside of your organization.

Have a great week and for those of you in the States, have a safe and enjoyable 4th of July. I’ll see you next week and I have amazing guests lined up including the Chief HR Officer of Lego, CEO of World Wide Technology, Chief Learning Officer of Unilever, and many others.