

EP 16: Accelerating apps with Flutter

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Larry: More and more, [00:00:30] as we got into Flutter, we realized that the code-sharing was phenomenal.

Dirk Primbs: This is like magic right there, right? Was it Douglas Adams who said, "I love that line [00:00:40]. I love the whooshing sound they make when they pass by."

[music]

Dirk: Building native apps can be tricky [00:00:50], building them in less than a year with very specific and demanding target audience in mind. Well, it's safe to say that even trickier. For two tech leads at eBay, [00:01:00] that was the exact challenge they faced. With a little help from Google's UI toolkit Flutter, they were able to quickly deliver a high-quality, consistent experience across both Android and iOS, [00:01:10] but how did they get there? How vital was the role played by Flutter?

Tamzin Taylor: Welcome to the *Apps, Games & Insights* podcast. We are hosts Tamzin Taylor [00:01:20] and Dirk Primbs from Google. Alas, today is our final episode of series two but I think it's fair to say this season has been even better than the first. [00:01:30] For our grand finale, we're joined by Larry McKenzie and Corey Sprague, tech leads at eBay. They'll be talking to us today about their experience building new Android and iOS [00:01:40] experience for buying and selling vehicles on eBay. Something I'm sure most of you have done in your life, buying vehicles.

Now, we're going to talk about Flutter, but what's Flutter [00:01:50]? Well, Flutter is Google's UI toolkit for building attractive, natively compiled applications for mobile, web, and desktop from a single codebase. This is [00:02:00] what the guys used on eBay. One of the tools that helped them get to where they are today.

Dirk: Buenos dias. Bonjour. Hallo, and welcome. Great to have you both with us today. [00:02:10]

Larry and Corey: Hi, it's great to be here.

Dirk: Wow, that was synchronous. If that's not a finale spirit that I feel here, that's perfect. [laughs] Why don't you tell us a little bit about yourselves, [00:02:20] what you do? What your respective career backgrounds are? eBay, I heard, vehicle selling. Something programming.

Corey: Yes, I'll go first. My name is Corey. I'm one of the tech leads [00:02:30] for the eBay Motors app. I've been with eBay for a few years. Before that, I spent a lot of time doing back end systems architecture, and [00:02:40] finally realized that client development is a lot more exciting. I joined eBay, and I've been doing mobile ever since

and it's been a great experience getting to dive right into Flutter over the last year and a half. [00:02:50]

Larry: Yes, and it has been really good. My background, I've been with eBay for about six years now. Prior to that, I was a television newscast director and [00:03:00] started playing with Android as a hobbyist in my free time between newscasts and then eventually I decided I wanted to make it a career and moved over to eBay. [00:03:10] First few teams I was working with at eBay was just doing Android applications that you might know, like Gumtree or Kijiji. I spent a lot [00:03:20] of time there and then had this great opportunity to work on this new eBay Motors experience.

Tamzin: Awesome. As an Australian, I can say I'm very familiar with Gumtree, I even had a few friends who worked there. Excellent [00:03:30] platform. Newscasting, what is newscasting?

Larry: I was a technical director using computer automation, robotics, graphics, timing the entire [00:03:40] newscast live.

Tamzin: So no pressure, easy job?

Larry: Yes. No, it's a lot of fun. You do a little bit of setup and then you have a 30 minute to an hour window where it's all hands on deck, you got to [00:03:50] focus. My focus was automation there, so I would take what was normally a team of 12 to 15 people and turn it into a team of [00:04:00] one.

Tamzin: Wow.

Larry: It was kind of crazy.

Tamzin: You know all about making something become more efficient.

Larry: Yes.

Tamzin: Excellent. That's super interesting. Both of you [00:04:10] come from quite a technical background, and eBay's such a well-known company. Tell us about this Ebay Motors app you built from scratch because I just bought a car. We did look at eBay, [00:04:20] but I'm curious, what was the motivation?

Corey: eBay has actually had a pretty vibrant motors marketplace for a long time, you could buy a car on eBay 10 or 15 years ago. But a couple of years ago, [00:04:30] our leadership came to us and they really saw an opportunity for an experience tailored specifically for vehicles on eBay. Buying a vehicle is very [00:04:40] different than buying a pair of shoes or buying a phone, it's a lot more personal, it's a big purchase, right? It's one of the larger purchases people will ever make and they really thought there [00:04:50] was an opportunity for us to focus on that unique experience.

Larry: eBay's inventory is also really interesting. It's not your typical kind of repeat product over and over. [00:05:00] All the inventory's unique, and that's pretty typical with cars, but eBay tends to attract very special cars. Cars that have been modified in some way, [00:05:10] someone cared about in a unique way and they made little changes, unique things, and then they're looking for someone who's going to love that car like they loved it already. [00:05:20] As they move into something that fits their creative needs more, sometimes it's a lifestyle need that's changed, but we find with a lot of eBay buyers and

sellers, they're looking for something that [00:05:30] is more personal, more unique, and we really thought we could build something special for those people.

Dirk: You're saying the kind of car and the kind of sales [00:05:40] presentation drove what kind of client you built? Now I'm even more curious. I have to say full disclosure, I don't own a car, so I haven't bought a vehicle in quite a while. [00:05:50] I'm maybe not the one who's loving his car to death and then sell it on eBay, but maybe you can create a picture of mind, [00:06:00] what is it that those people look for in a client app and what bells and whistles did you include for them?

Tamzin: I'll have to ask a followup question, if you could, is it the auction model still? How does [00:06:10] that work if this is such a personalized service? I'm curious.

Corey: It's a bit of both. You can list your vehicle as an auction. You can just list it for a fixed price. You can allow people [00:06:20] to make offers. We've got a chat experience, so people kind of negotiate. There's a lot of different ways to actually transact on the vehicle. I think back to [00:06:30] Dirk's question, the target audience we've been going for is a group of auto enthusiasts. These are people who love cars. This is their daily hobby. [00:06:40] One of the things that we really wanted to address with this app is that most people aren't going to buy a car every year. It might be every few years, but we really [00:06:50] wanted to appeal to those people who live and breathe cars, that want to come into the app on a regular basis. Maybe they're window shopping, or maybe they're looking for inspiration, or [00:07:00] maybe they're looking for their next project vehicle.

We focused a lot on trying to understand, what are those people's motivations and how do they want to engage with the larger auto [00:07:10] enthusiast community? What can we do to help enrich that experience?

Larry: Yes, I just want to add to that. When you're looking for a car this way, eBay is a global marketplace. We [00:07:20] have buyers and sellers who are sometimes in different countries, but they're still looking for that very specific car. They want to see every angle. They want to look at [00:07:30] every picture, whether that's inside, outside, the engine, drive train, they really want to understand the car. They want to understand how the current owner [00:07:40] used the car. Did they drive it every day? Was it kept in a garage and polished? Driven once a year or only brought the car shows? There's so many interesting details. [00:07:50] We had to take all of that in mind. We did a ton of user research and we continue to do as we add features.

We really want to understand how these specific people [00:08:00] want to buy and sell cars, and what's important to them. Our team has built among a number of, I say, varying degrees of auto enthusiasts. [00:08:10] Our product people love cars. They live, breathe cars, everything they do is cars. [chuckles] They're there in the app every day using it. From the engineering side, it [00:08:20] ranges. I wouldn't ever have considered myself an auto enthusiast, but I do love Teslas. That's something that I jumped on that bandwagon early on and I'm always [00:08:30] evangelizing them. In a lot of ways I didn't realize it, but I'm kind of an auto enthusiast in a very specific category.

Tamzin: Larry, what surprised you the most when you [00:08:40] were doing your research and you learned more about cars that you didn't know before?

Larry: Yes, that's really interesting. As I said, I'm not a traditional motorhead or [00:08:50] car guy. I don't really spend a ton of time at car shows. I might stop by one if I'd happen to be in an area that has one and I think they're neat. They're pretty, but [00:09:00] as we

talk to users, really understanding that they care a lot about who they're selling a car to. It's not always price, a lot of times when we talk to people, [00:09:10] they would sell the car for a lower price if they felt the person they were selling it to was going to care for it the way they wanted them to. That's something interesting. That's very different [00:09:20] from a traditional marketplace where you're just looking to get the most money for the car. We needed to look at a feature set that would allow people to understand [00:09:30] who they were selling the car to.

That's really where we took an angle. We wanted to build a group that was really a community where people would understand, they would even check back in on the car. [00:09:40] They would continue to talk to the people they sold it to. They would even have other ideas. Then buyers would then want to check-in like, "Hey, I was looking at making this change, [00:09:50] but I saw you did some of these other changes. Can you tell me about it?" There's all these stories. We really wanted to make sure we incorporated that into the product. [00:10:00]

Tamzin: Which is almost like you're creating a community among car lovers, isn't it?

Corey: That's part of the goal.

Dirk: Checking in with cars that you sold, like having visiting rights on Saturdays [unintelligible 00:10:10] [00:10:10]

[laughter]

Larry: it's an emotional experience. As Corey said, a lot of times, these are [00:10:20] some of the bigger purchases people will make in their life. They tend to be kind of important. You put your family in them. You want to be able to trust it. It's important. It builds [00:10:30] that relationship.

Dirk: The app, how did you go about it? How is the app facilitating that community angle and that special relationship?

Corey: Yes, getting back into [00:10:40] the initial launch of the app. We had a lot of requirements that we had to meet. Taking a step back, leadership came in with this idea, "Hey, we're going to build [00:10:50] a new app. We don't know exactly what it's going to be yet, but you guys have about a year to do it." On top of all these aspirational goals, we've been talking about really catering [00:11:00] to auto enthusiasts and building a community. We knew we also had to build all of the feature sets that eBay users have come to expect. Supporting auctions and [00:11:10] supporting messaging and the ability to list your car for sale. How do you search for cars? All the things that are table stakes for marketplace, but also for an eBay marketplace. [00:11:20] We had a very large chunk of work to do and all these great ideas. We really were faced with the dilemma of, can we actually build this in the timeline [00:11:30] that we're being asked to build? This is very, very aggressive.

We worked with our product manager, worked with our designers and figured out, what are the things that we have to get [00:11:40] there? Then how can we start dipping our toes into some of this, I'll say, uncharted water of building an enthusiastic community?

Dirk: You had quite a steep [00:11:50] challenge ahead of you, a demanding audience, but I imagine eBay users come from all walks of lives, all platforms, from everywhere.

[00:12:00] Knowing that Flutter is a cross-platform toolkit, has this been your tool of choice right from the get-go, or what led you to that choice? **[00:12:10]**

Larry: That's a great question. When we started, we were given a lot of autonomy in terms of what we were going to build. Our leadership didn't tell us we had to build a community for **[00:12:20]** auto enthusiasts. They said, "Look, we have this specific category, these are our users, here's what we noticed about them. We think we can do a better job, go do a better job." **[00:12:30]** Product design needed a little bit of time to understand, to digest that information, and figure out where we were headed. From an engineering perspective, we needed to **[00:12:40]** figure out, "Okay--" As Corey described, "these are the table stakes". Plus, "how do we make it special?"

We knew our scope was going to be at least a certain size. **[00:12:50]** We had to be able to search, we had to be able to sell and we needed some way to actually do all of the stuff that eBay does, and eBay users expected. From there, we were like, **[00:13:00]** "Okay, how do we approach this with our team?" Now, I'd worked with Corey a little bit before we took on this project. As I said, we were working on other eBay platforms. **[00:13:10]** I worked specifically with other Android engineers. We had two separate teams. Corey was on the iOS team. What we were doing is we were actually **[00:13:20]** evaluating with the resources we were given, how do we actually meet these deadlines? How do we make these things happen?

We had done a little bit of evaluation of **[00:13:30]** cross-platform before with those other brands. We really hadn't been that impressed by what we've seen. At this time, we were like, "Okay, we have a little bit of time. **[00:13:40]** Let's see what we can do and do another investigation." It happened to be that Flutter had just gone to 1.0. It was brand new, met the requirements for **[00:13:50]** minimum availability for eBay, that we could actually make it an option. From there, we started to do an investigation.

"Okay, let's play with this a little bit and see **[00:14:00]** if it meets the needs," we put it through the challenges we knew we already had. We were really impressed. I think there's a ton of stuff that we've talked about already a little bit **[00:14:10]** in terms of where Flutter has really shined there and initially grabbed our attention. Within a number of weeks, early on, we were fairly confident that this was **[00:14:20]** going to be the best choice for this particular task.

Corey: I would go a step further and say that when we made the choice to go with Flutter, the alternative was for us to remain as two separate teams **[00:14:30]** building native Android, native iOS applications. With a team of our size, I don't think we could have done it if we had not chosen Flutter. It allowed us **[00:14:40]** to pool our resources together in a way that just wouldn't have been possible if we had actually built two separate apps.

Tamzin: More to the point, did you guys change the way you worked as two separate teams? **[00:14:50]** How did you have to change your working practices to accommodate that?

Corey: We absolutely had to change. I think that was one of the most valuable things that happened early on. As Larry said, we **[00:15:00]** started off as really two separate teams that had touchpoints. We were both building the same products before, but we had two very different ways of working, different working arrangements, different styles of **[00:15:10]** programming. There's a lot about our two teams that were very different. Early on, once we reached alignment on choosing Flutter, we had to sit down and figure **[00:15:20]** out, "Okay, how are we going to take these two very different philosophies and

different team working agreements and mesh them together so that we can [00:15:30] move effectively?" I think the biggest thing we knew was that we had such a tight timeline that we couldn't afford to bicker or argue or get disagreements about [00:15:40] how we're going to build it. We all had the same goal, which was that we wanted to build an awesome product with high quality, and move quick and exceed expectations. With that goal in mind, we [00:15:50] sat back and said, "Okay, what are the things that we need to value as a team in order to reach that goal?"

I think both teams came with their own perspectives and we ended up compromising on various [00:16:00] opinions and mindsets. I think we ended up in a really, really great spot that set us up for success.

Dirk: We spoke about Flutter now, we were beating around the bush a little bit. [00:16:10] It's a cross-platform toolkit that we established. It helps building off one code base, but maybe it's worthwhile to, for a moment, explain what the problems were that [00:16:20] Flutter was specifically solving for you. For somebody not experienced with Flutter, other than having heard it's a cross-platform toolkit, what was it that you used it for?

Larry: [00:16:30] Flutter solved a lot of problems eventually that we didn't even realize or expected to solve, but when we chose it, it was about pooling those resources. We were [00:16:40] given basically a small group of Android resources, a small group of iOS resources. Then we knew the problem was going to be hard to solve using traditional Android and iOS development. [00:16:50] When we adopted Flutter, we were purely looking at engineering resource like, "Okay, we can focus from an engineering perspective and [00:17:00] we'll build from there," just shared code, it's just time savings. That was just the base efficiency that we expected. As Corey described, bringing two teams together [00:17:10] that were very different was a challenge and in solving that problem which we took early on. We just were like, "Okay, let's all get in the room and let's define [00:17:20] how we're going to work. We literally documented it in our repository, "These are the things we do. This is how we solve problems. This is how we [00:17:30] resolve disagreements," so on and so forth. Obviously, getting into technical details of exactly how we were going to work, it was defined as well. From that, that opened up [00:17:40] the conversations of, as we got to our first product requirements which came roughly March of that year. This is 2019. From there [00:17:50] we really got to define then how we worked with product and design. That came to coming to agreements like, "Okay, we want to [00:18:00] make sure that our UI is not really divergent across platforms." On Android and iOS, we want it to be the same product that we're building but we still wanted [00:18:10] to keep platform normals, like scroll physics and navigation mechanics. We wanted to keep those things but we wanted, otherwise, the product to look like the same [00:18:20] exact product, really focusing from a design perspective on eBay Motors, rather than eBay Motors Android, and eBay Motors iOS.

This meant that [00:18:30] our designer could really eliminate a lot of the extra work because they only needed to build one design. Then, from there, when it came to [00:18:40] product's requirements, we didn't have really divergent requirements that happened because of iOS things or because of Android things. As this happened, instead of having [00:18:50] separate meetings for grooming features, and trying to understand how we were going to work, overheads just started to melt away. We had fewer [00:19:00] meetings. We had much less effort involved to get to the same spot.

More and more, as we got into Flutter, we realized that the code-sharing was [00:19:10] phenomenal. I think currently, in our repo, we're sharing-- I would say it's like 98.6% of code is shared on Android and iOS. We have maybe [00:19:20] 0.5% that is specifically

Android code, and specifically iOS. The remaining is all for our CI pipelines and automation and stuff like that.

Corey: [00:19:30] From a pure technical perspective too-- obviously, we get to write things once. When you're building a new product, there's so much overhead and just bootstrapping it. You've got to build your [00:19:40] CI pipelines. You have to get your deployment automation. You have to set up all the base infrastructure, like crash logging, analytics. [00:19:50] What's your navigation structure going to be like in the app? All the things that have to get set up. By writing those things once, we eliminated entire swaths of work [00:20:00] that we would have been doing if we had built this as two separate apps.

There is definitely tremendous savings there. I think we even still realize savings that we didn't expect, just in [00:20:10] the fact that now that the app is in production, and we've been supporting it for a while, things are predictable. We don't have iOS only bugs or Android only bugs. It's the [00:20:20] same experience on both. We might push a new release out to the Android beta channel and that gives us confidence that the iOS release will be smooth. There's so much savings that we've been able to [00:20:30] yield by being able to really just treat this as a single app.

Tamzin: Excellent. That's very informative. I think that just goes to show some of the definite benefits of using [00:20:40] Flutter and how to work together as a team.

Dirk: Are you the outliers in the eBay universe right now piloting this awesome framework or [00:20:50] have others adopted the beauty of the Flutter framework as well?

Corey: We are definitely the outliers at the moment. I think even on multiple levels, we're the [00:21:00] only vertical app that eBay has right now. There's really just the eBay app and the eBay Motors app, so we're an outlier from that perspective and then from a technology choice, we're definitely an [00:21:10] outlier. I think we've shown very promising results with Flutter. I think it's exceeded our expectations and as a team, I think we've meet or beat every deadline we've [00:21:20] been given, I think we've been able to continue to move very quickly.

I think Larry and I are both hopeful that we can expand Flutter's adoption throughout eBay but that's to be seen. [00:21:30]

Larry: Yes, there's been a lot of interest as far as formal adoption and moving forward, right? It takes a lot and it's not magic, it still takes effort. You can write a bad Flutter [00:21:40] app, you absolutely can write bad code, you can have bad working agreements and have a team that's ineffective using Flutter, but as a tool, if you start to solve those other problems, [00:21:50] Flutter is just the grease that helps you move, it really just solves a lot of problems there.

The other benefits we didn't get into is from a testing perspective, [00:22:00] Flutter has one of the best testing stories of any platform I've worked with and that's really one of the things that helps us move very quickly, [00:22:10] and gives us a lot of confidence as we're releasing. We adopted a policy of doing 100% or effective 100% test coverage from the beginning [00:22:20] and we codify that with our CI pipeline so no code merges unless it's covered.

From there, sometimes you have the setup, and it'd be really hard [00:22:30] on Android. I expect it's hard on iOS. Corey, you'd have to speak to that.

Corey: Yes. It is.

Larry: It's really easy with Flutter and that's really what [00:22:40] shines, so that we can have these really interesting, complicated kind of user flows and we can make sure that they work every time, and because of those [00:22:50] changes, we had our quality engineer resources we were allocated, they just started picking up features, and started writing code and now they're just part of our engineering team. [00:23:00]

None of us had any experience with Flutter or Dart, the language you write Flutter in, but it's very easy to learn and with these kind of guardrails that we put in place for our team, [00:23:10] it's very easy to be successful. That really shines. As we're moving forward, and we're making big changes to major features, or adding entire new feature sets, [00:23:20] we can be very confident that we aren't creating regressions in our other features.

We're not breaking them as we move forward and as a result, we don't have to waste time going back [00:23:30] and manually checking them to make sure they work or spending a ton of time just trying to fix all the issues we create along the way. We're not creating a ton of new issues as we go forward. [00:23:40] You still have bugs that happen and we had a policy that like, "Okay, when we fix a bug, we reproduce it with an automated test case." So it was just a spot that we missed our first time through. [00:23:50]

We add the test case, we fix the bug, we move forward, and then we don't have that bug again. These types of policies within our team with Flutter, [00:24:00] enabling those policies, is what drives us at an accelerated rate.

Drink: Very cool. I'm still sure, though, that it's not only just rainbows and unicorns. [00:24:10] I guess there are a few challenges you still had to face. Maybe they move to other areas you didn't see coming or is there the 'starter's guides', the [00:24:20] 'pro-tips' from those who have walked the path before for new projects kicking off with Flutter. Is there anything that you were surprised by or that you learned along the way that you would [00:24:30] advise others to watch out for?

Corey: Yes. I think there's quite a bit. I think the first thing for me was, you need to shed some of your preconceived [00:24:40] notions about how you would solve certain problems in a mobile app because the paradigms you use are very different than traditional iOS and Android. It was really [00:24:50] easy to come in at first and want to just try to shoehorn all the patterns that I already knew from iOS development.

I think once we realized that we needed to let all [00:25:00] of that go and just try to embrace the way that Flutter wants you to build applications, everything got smoother. I think the best way to do that is actually [00:25:10] to spend some time studying the Flutter codebase. One of the great things about Flutter is that it's open-source. You can go in, and you can look at how the Flutter team built every single [00:25:20] component that you use. There's a lot of value that can be gleaned from that.

I think even today, we're almost two years into [00:25:30] Flutter and I still go into the Flutter repository, and I go look and say, "Oh, how did they solve this problem? Google is way smarter than I am. I'm sure that if I can't figure it out, someone else probably has." [00:25:40] I think that was a huge revelation when making this switch. I also think the Flutter community is very, very active, and engaged. If you're in need of a solution [00:25:50] that's not provided by the Flutter framework itself, chances are someone has built a package that gives you that functionality. Encouraging people to explore [00:26:00] and find the thing that they might need, or maybe even contribute back and embrace that open source culture. Anything you want to add there, Larry?

Larry: I agree [00:26:10] with you 100%. For me, on Android, I was very much into specific patterns, and tools that we use to approach problems. Early on, that's [00:26:20] right where I went. That was where I was comfortable. That's what I wanted to do, it was what I already knew. It wasn't until some members of the team were able to challenge those preconceptions [00:26:30] when we got in, and we were just exploring in the early days, that was really like, "Oh, this doesn't make any sense. I'm making it harder." That's where I'm saying you can absolutely screw it up. [00:26:40] With a little bit of thought and letting go of those things, you start to realize, "Oh, there's a different way." In this particular case, it happens to be a better way.

Tamzin: Very good. If you had [00:26:50] three tips for app developers or businesses who suffer the same constraints you did when it comes to building successful apps, what would your three tips be?

Corey: I think first and foremost, [00:27:00] always focus on your customer, what is the audience and what's the problem you're trying to solve. I think the other one is, don't be afraid to take risks. When we made this decision [00:27:10] early on, I honestly was a little bit terrified. I consider myself to be the realist on the team, where Larry is maybe more of the optimist. [00:27:20] Larry was gung-ho, he was excited, and he was like, "This is going to solve everything." I was sitting there, and I was like, "Well, it seems like it might be okay but am I going to be looking for a job in six months?" [00:27:30]

Looking back, I don't believe we would have launched this app on time, not even close to on time if we hadn't gone with Flutter. [00:27:40] Being willing to take a risk, definitely an educated risk. Don't be foolish. One of the things that I see a lot when we're talking with other [00:27:50] developers who are maybe on the fence about Flutter, is there's a lot of fear and trepidation. "Oh, I don't know if we can start this, [00:28:00] what if Google stops supporting it? What if Apple rejects us from the store?" There's all these what ifs that are based in fear, but not necessarily based in [00:28:10] any factual reality. I think just letting go of that and taking a leap, I think is something that everyone should consider. [00:28:20]

Larry: I would add, I found that for our deadlines, we had various milestones throughout the years to hit. Like I said, we got our first product [00:28:30] requirements in March but we had a deadline that was: we needed a beta of our app that had a working search and sell experience in three months. We had to have that [00:28:40] in our CEO's hands. That was an aggressive deadline and we had to approach it in an interesting way. We knew we couldn't solve [00:28:50] all the problems, we couldn't build the entire community and all of the messaging and all of the features, we had to focus.

Having this deadline actually made us [00:29:00] make aggressive scope cutting decisions, we had to be strategic around how we built an app, rather than just building and following whatever happens. [00:29:10] In that way, that forced a lot of conversations, and it created a lot of focus. It also meant that our team could rally around these things. We could really swarm on problems, [00:29:20] we could focus in on that particular issue for a user. It focused our research, which then focused our development. From that, we were able to [00:29:30] effectively hit these deadlines in ways that we didn't even expect. Every time you do that, it rallies your team. It's exciting, you get to celebrate that particular [00:29:40] milestone. From there, we just continued to create new milestones. We went from the beta in our CEO's hands and then we went to an internal beta that we did [00:29:50] company-wide at eBay. We sent it around-- got thousands of eBay users playing with the app. Then a month later we went with a public beta, we started putting it out and just letting [00:30:00] people play with it. Then by the holiday time we had shipped iOS and Android live in the marketplace. Each of those moments was just huge for us.

[00:30:10] It built the team's confidence. We got to learn along the way because as we did each of those things, we put it in new user's hands, we got new feedback, which helped us make little corrections and **[00:30:20]** adjustments, and that cycle of iteration, but still driving towards a goal really, really helps a product team. Whatever you're building, whatever you're doing, you're focused on that user. **[00:30:30]** It keeps you there, and there's these fast, tight iterations, where you really spend time trying to meet a very specific deadline, I just found to be incredibly **[00:30:40]** valuable.

Dirk: I've heard meeting deadlines multiple times. This is like magic right there. Was it Douglas Adams who said, "I love deadlines, **[00:30:50]** I love the whooshing sound they make when they pass by." [laughs] You sold me right there. Pretty awesome. I can totally imagine **[00:31:00]** hitting the mark and actually overachieving, basically, in terms of expectations, timing-wise, feature-wise, delivery-wise, this is an awesome place to be in. **[00:31:10]** Especially I imagine in times like these. You had also-- on top of all of this, you picked the perfect year to test drive some new processes and team-building exercises. **[00:31:20]** It sounds like you had a lucky punch with getting all the stars aligned that turned you into a positive experience overall, that's very cool.

Larry: Yes, I do think our team really had a great time. Especially 2019 leading into 2020. We got our release out, like I said, that December, and then we had new features, we **[00:31:40]** had to be aggressive in our scope cutting. We didn't have-- on launch, we didn't have a chat experience. That wasn't there. We knew that was part of the vision, but it wasn't what we could ship in that amount of time. **[00:31:50]** Same with our community explorative ideas, we had a lot of ideas that we wanted to build, but in order to meet deadlines, and actually meet business **[00:32:00]** needs along the way, we had to be strategic about how we did it, because we had solved these problems, because we put automation in place, because of all of the decisions that we made stacking up on top of **[00:32:10]** each other.

We hit January, we all came back from the holidays. It's January 2020. We start building. We launched our community **[00:32:20]** from scratch, I want to say right at the end of January, beginning of February, and then we had our chat features that we launched initially right after that. I want to say that was end of February, March. **[00:32:30]** these were major features. In a lot of cases, 50% of the app experience that we added in a couple of months after launching. These were **[00:32:40]** critical things and all of those decisions led to that, and because we have made these decisions, and it's good decision built upon good decision, fixing bad decisions along the way. Then **[00:32:50]** we got to 2020 when we hit the point we're all working from home, we're not co-located anymore, and all of these challenges we actually saw and we had to make corrections for this. **[00:33:00]** We actually saw over 100% code output increase from March, April and May. Everyone was just working more which was good and bad. It was great because it was like, **[00:33:10]** "Wow, we're doing a ton of stuff." But, we also needed to make adjustments there and make sure we have to sustain that. That's a change that we had to make. Still, those **[00:33:20]** decisions codifying it into our repository as much as we could, have still allowed us to accelerate through 2020.

Corey: Everyone on our team came from a background of either native iOS or native Android. **[00:33:30]** I think pretty unanimously, everyone loves Flutter so much more, the developer experience is so much better, it's so much more rewarding to get the rapid **[00:33:40]** feedback as you're coding from hot reload and to be able to just solve problems quickly just because there's so much less friction in the process that people do work extra voluntarily. **[00:33:50]** We have the problem that our manager says, "Hey, you need to take some time off, you're working too hard, slow down." I think even up till now, we love

this app, we love building in Flutter. [00:34:00] We'll be in our Slack channel and someone just says, "I love Flutter. I just found this neat trick," and there's still that excitement two years in.

Tamzin: It's a really nice segue, [00:34:10] Corey, to one of the final questions, which is, where do you see the future development opportunities for Flutter? It sounds like you hear a lot of requests and ideas from your community. [00:34:20] What do you see coming up for Flutter that excites you?

Corey: I think what's exciting to me is that the Flutter community overall, there's been a lot of momentum there. When we first started [00:34:30] this and we made the decision to choose Flutter, we didn't see a lot of large companies using it, it seemed like a little bit of a niche toolkit, still a little unproven, maybe. [00:34:40] I feel like what I'm observing now is a lot more momentum just across the board, there's a lot more interest, it's rising in the popularity charts, it's just the amount of [00:34:50] people that are experimenting with it, is growing. I am seeing a lot of momentum of other companies starting to embrace it. I think all of that's exciting, because [00:35:00] I think that, to me, Flutter brings the most modern and I think the best app development experience that's available. The more [00:35:10] momentum there is there. I think, one, it raises the competition for everyone else. Even now, you see, iOS is trying to play catch up on the whole notion of declarative UI.

[00:35:20] I think that's good for app development as a whole but I also think as more people jump on to Flutter, I think it helps build confidence for all the other people that are [00:35:30] on the fence. I think that's really exciting. I'm hoping to see a year from now that the amount of jobs available for Flutter has quadrupled and the [00:35:40] interest continues to skyrocket.

Tamzin: Excellent. I'm sure after they listen to this podcast and hear about the eBay Motor app and try it out, they can get some inspiration, for sure. [00:35:50]

Larry: I want to piggyback on what Corey said there for a second, in that the growth you're seeing not just in Flutter as UI framework but also the underlying language Dart. [00:36:00] I think that one of the early questions is very common, it happened in our team, it was like, "Why Dart?" It felt like an obscure language, but understanding [00:36:10] why it was chosen and its impact on Flutter is really interesting. Getting that native ahead-of-time compilation performance on the device is great, but being able to run in a VM [00:36:20] and have that instant stateful hot reload that is just on point when you're developing. You start to understand like, "Oh, this language is very versatile." [00:36:30]

Then as the community's grown, there's been just a ton of investment into Dart. The language is growing. Probably the next big thing on the cusp that I'm super excited about is [00:36:40] null safety. Currently it's alpha or beta right now. I'm very excited about the growth there and what that brings to building Flutter apps. Not just [00:36:50] in general, there's a level of quality and polish that's coming that actually starts to distinguish a Flutter app from any other type of app. It's really, really incredible to watch. [00:37:00]

As big companies start to embrace Flutter more and more, as small businesses start to go, "Oh, this is insanely valuable to do it this way. I can have a desktop application. [00:37:10] Oh, I can reuse the same components and have a mobile application. Oh, that works on my website too. People don't even have to install an application." You start to see from a business, this [00:37:20] drives insane value. As that happens, more investment will come into Flutter.

Tamzin: I can see how that would help your reach if you need more people in the marketplace buying and selling cars. **[00:37:30]**

Dirk: With that, I would say we wrap it up. Many thanks, Larry and Corey, for joining us today and sharing your insights. Thank you to you, too, our listeners, for tuning in to **[00:37:40]** Series 2 of the podcast. If you have any thoughts on the topics covered on today's episode, we'd love to hear from you. You can find us on Twitter at #GooglePlayDev. **[00:37:50]** Keep an eye out and subscribe to our podcast wherever you listen to this particular episode. Also, if your podcatcher of choice has an option to give feedback there, feel **[00:38:00]** free to drop it there. We look at all the usual places for any type of feedback you may have for us. Finally, thanks to all our wonderful guests **[00:38:10]** who've joined us and shared their intriguing stories and exceptional expertise. As always, keep playing and learning. **[00:38:20]**

[00:38:20] [END OF AUDIO]