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Digital, Culture, Media and Sport Sub-Committee on Disinformation

Oral evidence: Disinformation, HC 2204

Wednesday 5 June 2019

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Watch the meeting

Members present: Damian Collins (Chair); Clive Efford; Julie Elliot; Julian Knight; Ian C. Lucas; Brendan O'Hara; Jo Stevens.

Questions 1-55

Witness

[I](#): Aaron Greenspan, President and CEO of Think Computer Corporation.

Examination of witness

Witness: Aaron Greenspan.

Q1 Chair: Good afternoon and welcome to this session of the Digital, Culture, Media and Sport Sub-Committee on Disinformation.

We are pleased to welcome Aaron Greenspan to give evidence this afternoon. We are very grateful to you, Mr Greenspan, for travelling all the way from California to give evidence in person—we have tried to get other people to make similar journeys, but it has been less successful than it has been in your case.

We are anticipating that there will be a vote in the House of Commons Chamber in about an hour's time, so we will have to suspend the sitting for about 15 minutes at that point. Please bear with us. We will resume as quickly as we can afterwards.

There are a range of topics and questions that we would like to cover in this session. I wonder if I could start with some questions about an issue that the Committee has taken an interest in and that we raised in our report on Disinformation: the role of fake accounts on social media, particularly on Facebook. We were very interested in your report on that.

In our inquiry, and in the other inquiries in America, there has been a big focus on disinformation and the micro-targeting of adverts, but many people believe that that is the tip of the iceberg and that the bigger problem is the co-ordination of fake accounts. Our concern is that the number of fake accounts on Facebook may be far higher than the amount that has been disclosed. We were particularly interested in your report, in which you estimated that the number of fake accounts on Facebook could be as high as 50%. Could you explain that a bit more? How did you come to that figure and what is your analysis of the extent of the problem of fake accounts on social media?

Aaron Greenspan: Sure. Thank you very much for having me. Before I go into any detail, I should offer a disclaimer, which is that in the past, and at present, and possibly in the future, I have a short position on Facebook stock. I don't think that colours my analysis but, in the interests of full disclosure, I think you should know that.

As far as fake accounts go, I started getting interested in this more or less a year ago, when I noticed that most of the media coverage—as you alluded to—referenced advertising and privacy, which are certainly enormously important issues, but tended to gloss over the fake account problem, perhaps because the disclosures have historically been in Facebook's SEC filings. I do not know whether you have ever tried to read an SEC filing cover to cover, but they tend to be very verbose and dense—not the kind of thing that most people read unless they are security lawyers. If you look at the disclosures that Facebook has put forth in the SEC filings, they are alarming, in my opinion, because of a number of factors.



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First of all, if you look at the disclosures from, I believe, the end of 2017, Facebook say that something like 1% of their accounts are believed to be what they term “fake”. There are definitional issues here, but for the sake of simplicity I will skip over those for now. If you fast forward to a few weeks ago, Facebook are now claiming that 5% are fake, by their own definition. In the span of two years, their estimate has increased fivefold, with each per cent representing approximately 22 million accounts. That is a fairly large increase, with no explanation that I have seen thus far. That is the first issue.

The second issue is that the way in which those estimates are arrived at is extremely unclear, and in the SEC filings Facebook says that they apply what they call “significant judgment”, I believe, in order to reach those conclusions. It is anybody’s guess what that means. As a non-lawyer who spent some time at a law school, it is a red flag when a bunch of lawyers decide that they need to say that a number requires “significant judgment”.

Then, I believe because of public pressure, Facebook introduced what they call their transparency portal. They have a fancy name for the report embedded in that portal—I think it is the community standards guidelines report, or something to that effect. The transparency portal also addresses fake accounts, but it does so in a different manner, using different metrics with different units of measurement.

It is very difficult to reconcile the SEC filings with the transparency portal. The reason I wrote my report was to attempt to do that, and to see whether I could take the numbers from one source, which is ultimately Facebook, and put them together with a number from the other source, which is ultimately Facebook, and see whether they align. The simple answer is that they don’t. I did my best to perform an analysis that could take a number of contingencies into account, including whether fake accounts were part of monthly active users, or separate from monthly active users.

Looking at Facebook’s historical tendency to lie about metrics, and to exaggerate or minimise numbers in their favour, I reached a conditional conclusion, if you will, given that they will not really tell us what is going on, which is that something like 30% of accounts on the platform are fake, according to their current disclosures. That is the best that I could arrive at with their own numbers. I would guess that those numbers are being minimised to make the problem seem smaller than it is.

Based on my own anecdotal use of the platform and the historical trend, starting in 2006 when it was made public up until the present, it seemed like it was a safe bet that 50% were fake. I think it could actually be higher. If you look at the releases from a few weeks ago, when Facebook finally updated the transparency portal once again, they announced that in the fourth quarter, I believe, of 2018 they removed—sorry, they disabled, not removed—1.2 billion fake accounts. Then, in the first quarter of 2019, the number is apparently 2.2 billion.



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We now have an exponential growth curve in fake accounts, according to their own numbers, which have not been audited by any respected body that I can tell. If you add up all the numbers in that transparency portal report, starting I believe in 2017, you get 6.2 billion accounts disabled. Facebook claims that it has 2.2 billion active accounts, and that only goes back to 2017, so if you were to extrapolate and make a conservative guess of how many total disabled fake accounts there have been, you get something like 10 billion, for a platform that has 2.2 billion active users.

We know for sure that, historically, certainly more than 50% of all accounts have been fake in one way or another. As for the active accounts, if we take Facebook's word for it, they have done a perfect job at finding all of them and there is no problem, but reality suggests otherwise. In a nutshell, that is what the report attempted to do. It is difficult to reach precise numbers without more co-operation from Facebook, but I suppose that is why I am here.

Q2 Chair: The numbers you quote certainly suggest that the operation of creating fake accounts on Facebook is being done on an industrial scale by the people who are doing it. This is probably not just individual members of the public setting up fake accounts; this must be being done as part of a concerted operation.

Aaron Greenspan: I think it is both. Facebook distinguishes between duplicate accounts and fake accounts, but I don't; I think if an account is not in your name and you have a second account for whatever purpose, that is legitimately something you can call a fake account. But there are definitely members of the public who have more than one account, for whatever reason, on Facebook or Twitter or any social media platform, and then there are organisations such as the Internet Research Agency or various other subsidiaries of the FSB or GRU or the People's Liberation Army, which create many, many fake accounts.

It is not just Governments; it is also done for corporate propaganda purposes. There are a number of major US corporations that use social media as a sort of battle zone to get their preferred message out. Unfortunately, the individuals who run it—by coincidence, the individuals in charge of Facebook and Twitter in particular—are extremely unconcerned about the problem and have an incentive to ignore it.

Q3 Chair: So it would seem, because if the total number of monthly active user accounts that were fake was far higher than the 5% that Facebook believes it to be, that would be a mass fraud on the advertising market. They would be knowingly selling fake accounts as real people.

Aaron Greenspan: That is correct. I personally believe—and this is my opinion—that Facebook represents the largest fraud in corporate history ever. At its peak, it had a market capitalisation of \$600 billion. Giving them the benefit of the doubt and saying that 50% of their activity on the platform is legitimate, that would still represent at its peak a \$300 billion market cap, and that would be five Bernie Madoff scandals. I don't think we have ever seen anything quite like this, and that is part of why the

regulatory response has been so slow and haphazard. There are certainly other considerations in the United States, given the political situation, but this is a big problem and I am afraid it is not something that many people understand well.

- Q4 **Chair:** In some ways, we have never really seen anything quite like this, because in most other media that seek to make money out of advertising, there is independent verification of the audience sizes. But, as with so much else on Facebook, the data about Facebook—even about the number of users—is generated by Facebook itself, with no means of independently verifying the numbers.

Aaron Greenspan: Correct. There is Facebook's own attempt to convince the public that these numbers are valid. I am not sure whether you are familiar with it, but it is the Data Transparency Advisory Group—what they call the DTAG. Back in the fall of 2018, that group convened. It is a number of paid academics, two of whom are in the UK, who were tasked with reviewing the data on the transparency portal, which again includes the fake account numbers from that source anyway.

A few weeks ago, I think, they finally got around to releasing their report. The report is vague to say the least. It is narrow in scope; the academics who put it together were careful to define, much like a corporate auditor would, that they are not necessarily looking for fraud, but merely looking at the numbers presented and seeing whether they kind of make sense, which the report basically concluded that they did—no surprise.

But if you look for references in that report regarding fake accounts, you will find almost none. I think it refers to fake accounts on three pages, and two of those references are sort of an aside, just quoting something that is on the website. There is no actual analysis of whether those numbers are legitimate or how they were arrived at, and there is no public document, to my knowledge, that outlines Facebook's methodology.

That is another problem with the disclosures, because the methodology is left completely opaque. All that is discussed in the SEC filings is the fact that a sample is used. Knowing that Facebook's user table has something like 12 billion rows in it, a number of questions are raised. How many users are in the sample? When is the sample from? If you are looking at fake account numbers from the period 2004 to 2005 you will find close to none, but if you look at the period 2017 to 2019 it is possible that 95% of accounts are fake from registrations in that period. All of those questions are incredibly material and no one is asking them.

- Q5 **Chair:** Given the number of accounts that were taken down—over 3 billion accounts in six months—they must have been using some sort of data analysis tool to do it. It cannot have been human checking.

Aaron Greenspan: Yes, there are numerous software applications that create accounts in bulk—on an industrial scale, as you said—with very little user intervention. The fact that that is even possible is testament to the completely ineffective nature of Facebook's safeguards.



Q6 **Chair:** Supposedly, one of the core elements of Facebook's values would be that the people you see on Facebook are real people.

Aaron Greenspan: Right. In my report I cite the example of one account. This is just one, but we are talking about numbers in the billions. I checked last night and this account is still active. The account is of a woman who appears, according to her account, to have been born in Mexico, lived all over the world, studied—it says in Spanish—at the “university of life,” which suggests no college education, and is a Facebook software engineer.

I would love for Mark to give a response to this question. I do not understand how a company, which knows who works for it and has the ability to remove any account on its platform at any time—so effectively this is the lowest of low-hanging fruit—can have such accounts on its own database that are linked to those known employees and allow those accounts to persist, even after they have been highlighted in a public report about how bad a job they are doing. It is amazing.

Q7 **Chair:** Presumably, using Facebook's own tools, it would be relatively easy to take a sample of known fake accounts and look for data matches on other accounts that share similar characteristics. This is the way that the Lookalike Audiences tools help to boost advertising audiences based on shared characteristics.

Aaron Greenspan: Well, this is where it gets tricky. If I was in Facebook's position—I should highlight that I am not, because I saw this coming 14 years ago—I would be afraid, because it is incredibly difficult to ferret out indicators of truth.

Based on the way IP addressing works, you can use something called network address translation, where a number of different computers or devices share one IP address. If you looked at everybody using the internet in this building, for example, from the perspective of another company on the internet, everyone might have the same IP address. Does that mean that everyone in this building is the same person or is using the same account? If one person has done something involving a fake account, has everybody? It is hard to say. Very quickly, it is tough to pull the needles you want out of the haystack. That is why I have come to the conclusion that Facebook is not really in anyone's control at this point. The company has lost its ability to control the platform and I do not think that is an ability that they can every truly regain.

The metaphor that I like to use is partly influenced by a recent TV show. One of the largest technological disasters in history was Chernobyl. In that situation you had a truly amazing and hyped technology that people thought was transformative and would make a lot of other problems go away. Coincidentally, on 9 January 2004, two days before Mark bought the domain name for thefacebook.com, he described to me what he wanted to do as involving the problem of reaching critical mass, which of course is a nuclear chain reaction reference. By designing the platform in way he did, effectively Mark removed the control rods from the reactor core, and the



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result is an enormous uninhabitable zone on the internet at this point, polluted with disinformation and falsity. It is not exactly the same as radiation, of course, and fortunately that is not the case. Much like radiation, once that transpires it is nearly impossible to reverse.

Q8 Chair: One of the things we have seen throughout our inquiry is that disinformation has the ability to spread. It can spread like a virus, like radiation, and contaminate the whole ecosystem.

Aaron Greenspan: Correct; it does and it happens very quickly and roughly proportionally to the number of fake accounts. That is why this is probably the largest problem that Facebook has, not only from the perspective of the enormous impact on the political ecosphere but also on its existence as a financial entity. It does require revenue, like any business, but if advertisers come to the conclusion—and I think they should be asking serious questions about this—that Facebook is not actually selling them what it claims to be, that puts a lot of its revenue in jeopardy.

Q9 Ian C. Lucas: Your description of the opaque nature of Facebook is very familiar to us. We share the difficulty in extracting information that you have described. What is the reaction of the regulatory authorities in the United States? Has there been any pushback from them on this?

Aaron Greenspan: There are three primary regulators that could do something about Facebook. One is Congress. Unfortunately, the way that our Congress is set up, the ability of hearings to produce meaningful answers from witnesses is constrained by a lot of political theatre, as we saw back in April 2018.

The second regulatory body is the Federal Trade Commission, which is pending an investigation of Facebook. My understanding is that there are three Republicans and two Democrats. Because of that tension, that investigation has not yet concluded, but it may happen in the near future.

Then there is the Securities and Exchange Commission. The SEC has its DC office, but I don't think most people realise that it also has regional offices. There is one in San Francisco that has jurisdiction for Silicon Valley. The San Francisco office has had no regional director for the past six months, and its regional director left at the end of November. I think only this week it promoted from within the person under her to be the new regional director.

The SEC has been especially toothless lately, not just in handling Facebook but in handling virtually every technology company, and there are a number that merit investigation.

Unfortunately, I think it is fair to say that pretty much everyone is asleep at the wheel. The other problem is that regulating an entity as large and complex as Facebook requires technical knowledge and, by and large, United States regulators lack the technical knowledge to effectively enforce the laws that are already on the books.

- Q10 **Ian C. Lucas:** Are you suggesting that these fake accounts are created in any way by Facebook, or are they created by other organisations?

Aaron Greenspan: No, I am suggesting that they are created by other organisations but, once Facebook is aware of their existence, it has almost no incentive to eliminate them. In fact, it has an incentive to keep them active, because that helps its bottom line.

- Q11 **Ian C. Lucas:** It seems to me that this is potentially a massive fraud within the advertising market. It also seems that it has been very effective because Facebook is dominating the advertising market so much.

Aaron Greenspan: I agree with you; I do think it is a massive fraud. I don't think Facebook is alone in perpetrating this fraud. According to a paper released, I believe, last week, behavioural targeting, which has been hyped as this immense leap forward in advertising technology, produces something like a 4% benefit—this is measured in terms of revenue—to advertisers, so while ad exchanges such as Facebook or Google might charge 59% more, on average, for a targeted ad, or up to 4,900% more in some cases, the advertiser is actually only getting a 4% benefit. It is a market, so if people are willing to pay that much, then that is what they are willing to pay, but there does seem to be something deeply wrong there.

- Q12 **Brendan O'Hara:** Given the scale that you talk about, how difficult would it be for Facebook to actually detect these fake accounts?

Aaron Greenspan: As I said, it is difficult. At the scale they are operating at, I think it is verging on the impossible. But there are, at the same time, measures they can take. I don't think they would resolve this with 100% effectiveness, and maybe not even 90%, but they could do a lot better than they are doing. My first question for their team that handles fake accounts would be, again, what methodology they are using currently, so that you know where the starting point is, but since we don't have that information, we can rely only on what they are putting out publicly.

Facebook had a blog post in late May on their difficult questions blog—I believe that is what it is called—where they sort of rhetorically posed the question: how do we measure fake accounts? This was very exciting for me, because I had been asking that question for a while. Unfortunately, the blog post does not even come close to answering the question. It simply says that people should pay attention to other metrics, that fake accounts don't matter very much and that they are confident that, within the limitations of their undisclosed methodology, they are doing a good job. But of course the limitations are the important question: how are they limiting their own analysis to produce the numbers that they are giving the public?

- Q13 **Brendan O'Hara:** Do you have faith that Facebook actually want to tackle this problem?

Aaron Greenspan: No. I believe very strongly that—first of all, Facebook is Mark Zuckerberg's company; it's not his idea necessarily, but it is his



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company. And like Mark, Facebook is what Masha Gessen calls a bad faith actor. This is, as a corporate entity, somebody that has no intention of complying with the law. Clearly, Mark has no intention of appearing here or in Canada or anywhere where serious questions are going to be posed to him, because there is no legitimate answer, in many cases, to those questions. So I don't have any faith in Facebook. I don't think they can be trusted—I don't think they should be trusted—and I would encourage your Committee to do everything you can to get independent analysis.

- Q14 **Brendan O'Hara:** Would it be fair to say that you believe that Facebook are unwilling rather than unable to tackle the problem, and the reason why they would not seek to tackle the problem is, as you mentioned to Mr Lucas, that they are incentivised not to do so?

Aaron Greenspan: I would put it this way, again using the Chernobyl metaphor. Once your reactor blows up, there is not much you can do to fix it—it has exploded. The problem is that if you make a good faith effort to remedy the situation, you may inadvertently disclose the fact that crimes were committed before the explosion. And in this case I think that is what we are looking at. I think crimes were committed that led us to where we are today. I don't think it is possible to disrupt democracy in the way Facebook has without committing crimes.

- Q15 **Brendan O'Hara:** You have described it as the largest fraud in corporate history. Did we get to this situation by accident, or is it a deliberate or an inevitable consequence of Facebook's action?

Aaron Greenspan: No, I don't think this is a coincidence. It is such an extreme outlier kind of event that I find it difficult, in a way, to believe that I am even sitting here, because it seems so improbable, and yet, having been at Harvard in 2003 and 2004 and knowing Mark and knowing roughly what transpired—although I of course never worked for the company—it makes sense. Mark is somebody who lied to really everybody around him for years and years. He found willing enablers in Silicon Valley, in the form of Peter Thiel, his first investor, and Marc Andreessen, who I believe continues to sit on Facebook's board, and he has managed to align incentives such that the scale has grown so immense that it affects nearly everyone. I do not think that this is coincidental. It was not orchestrated to produce a catastrophic result—nobody wanted that—but in fact it has produced a catastrophic result.

- Q16 **Brendan O'Hara:** Finally, in the emails obtained through the Six4Three case, Sam Lessin said in 2012 to Mr Zuckerberg: "we are running out of humans (and have run-out of valuable humans from an advertiser perspective)". Was that the time when this changed, when these fake accounts became such a massive problem?

Aaron Greenspan: I actually think they became a problem before that. You said that that email was written in 2012. I think the fake account problem really came to the fore in about 2007, which is when the Facebook platform was officially launched and opened to the public. In late 2006, Facebook was open to everybody, but the platform wasn't quite there yet. The introduction of the Facebook platform gave rise to the app



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store-like system that they wanted to build, where Facebook would supposedly become the future platform of the internet—the new internet operating system.

That was the hype at the time, especially in the valley. Because they were using so much hype to get people excited about how many people would be using the platform and how many apps would be on it, it gave those with malicious intent a huge incentive to start creating fake accounts to boost whatever apps or messages they were associated with.

- Q17 **Chair:** You have laid out another frightening dimension for the company, because it suggests that it is out of control, and that not even Facebook themselves can control the creation of fake accounts and the manipulation of the platform through fake accounts, which really means that bad actors have a massive opportunity to shape and influence the way that people use Facebook, what they see on it and so on.

Aaron Greenspan: I agree. I am shocked that it has come to this, but I really do think that they cannot control what they have built at this point. They can certainly try, and they will try, but I think that is going to be very difficult for them. *[Interruption.]*

Chair: We will have to pause for a vote in the Chamber. It is only one vote, so we will hopefully be back in about 10 or 15 minutes, when Clive Efford will ask questions.

Sitting suspended for a Division in the House.

On resuming—

Chair: Now that the Division is completed, I call Clive Efford.

- Q18 **Clive Efford:** Can I ask about your report? In your report, you claim that, “The evidence in this report demonstrates beyond a reasonable doubt that Mark Zuckerberg is a bad faith actor.” In fact you have referred to that in your evidence already. What do you mean by a “bad faith actor”, exactly?

Aaron Greenspan: My definition of somebody acting in bad faith is somebody who tells a lie not because they are making a mistake or because there is some exigent circumstance that requires them to; they are actually lying because they do not care. They view telling that lie as the best way to improve their own lot in life, whether that is financial or otherwise, and they are willing to do that in public, in private—anywhere, at any time, as long as it helps them. I unfortunately have come to the conclusion that that describes Mark Zuckerberg fairly well.

- Q19 **Clive Efford:** You knew him at Harvard. Are you saying that you have seen this sort of trait in him consistently in all your dealings with him?

Aaron Greenspan: Yes. I met Mark in 2004, although we corresponded earlier, in 2003, by email, and records of that correspondence I have made public. Mark has not. Specifically, I think there are additional



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conversations we had that he probably has copies of that I don't. In one case my computer crashed and so a file was effectively erased.

Yes, in my dealings with Mark in 2004, it is now, in retrospect, very clear that he lied to me. Putting together the report I think is the first time anyone has really comprehensively lined up the timeline of what happened to me with what happened with the Winklevoss twins. It is clear that Mark, while he was lying to me, was also lying to the Winklevosses. He was also lying to Harvard College. He may have also been lying to his parents, because I find it difficult to believe that his parents would have approved, as he claimed, of exactly what he was doing. That was just the start, of course, and since then we have seen a number of occasions, which I think were put into a nice concise timeline by Geoffrey Fowler of *The Washington Post*, where Mark has had to apologise and make promises to do better at least 14 times. So it does seem to be a pattern.

- Q20 **Clive Efford:** In your report, you suggest that in order to understand the current state of Facebook we have to go back to the very beginning, so can you tell us what you know about how Facebook was built and the early years of development, and what were the motivations and aims behind it?

Aaron Greenspan: I can answer that question in a couple of different ways. Are you interested in the technical aspect or the sort of cultural aspect?

- Q21 **Clive Efford:** I think what I am looking for is more about what was the driving force behind Facebook. What has brought it to where it is today? What inspired the creation of Facebook?

Aaron Greenspan: At the time that Mark and I were undergraduates, Harvard was a very fractured landscape, culturally and socially. Based on the British system, each house had its own Face Book, both paper and electronic, and the problem that I ran into was that if I wanted to call my friend in Winthrop House, for example, I had to actually have access to Winthrop House Face Book, in order to find their phone number. Because I lived in Lowell House, I couldn't get on to it, so I couldn't actually find contact information. This was a very basic, concrete sort of problem.

I built my face book in order to solve that. I called it the universal face book, and this all happened around the same time that *The Harvard Crimson* put out sort of a public cry saying, "We need a universal face book. This is ridiculous, already." The Harvard administration, for whatever reason, was not particularly receptive to that request. So I built mine in September 2003. Mark got into his kerfuffle with the Winklevoss twins in November/December 2003 and then we had dinner on 8 January 2004, discussing the fact that I wanted help to build my system, because I was being overwhelmed by homework and coding and all the other responsibilities of being a student, and he wanted help with his undisclosed, unnamed project, which he wouldn't really tell me a whole lot about and asked me to keep confidential, even though I didn't know what it was. I guessed that he was building a friends tool for Harvard based on



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our previous discussions, but I wasn't sure. Then three days later, without telling me, he bought the domain name thefacebook.com, hoping to keep the secret from me and from the Winklevoss twins, who he met, I think, three days after that, to tell them that he would not really be able to finish their project.

From my point of view, the initial need was based on Harvard's structure as an organisation. From Mark's point of view, I think he was looking to build something cool. That definitely came up a few times as we talked. I think he wanted to build on prior work that he had done with something called CourseMatch, where you could sort of see who was in your courses. Of course, before that there was the infamous Facemash, where you could compare images of usually female classmates, to see who was hotter. So I think we came at this from slightly different angles. Mine was a little bit more utilitarian. His was more just building something cool.

- Q22 **Clive Efford:** Do you think that he saw something in what you'd created that could go way beyond a closed student community? Do you think he saw that opportunity that early?

Aaron Greenspan: No, I don't think he quite saw it that early. I think he saw the opportunity to open to other schools pretty early, because he started doing that as early as March 2004, I believe, so we are talking about a month or a month and a half after the initial launch of the site. Certainly, neither of us in Kirkland House on 8 January thought that this was going to be a global all-encompassing system. I would have found that horrifying, had I known that that is what would happen.

Within the first few minutes of talking of Mark about his unknown project, I had already expressed that if he was building what I thought he was, it could end up being a privacy nightmare, and I used those specific words. Again, we are talking about thinking that this would be a scale far, far smaller, with maybe a few thousand members. Mark clearly disregarded that sentiment and has managed to sideline everyone since who has expressed something similar, such that he has always been surrounded by sycophants who are willing to agree with him that growth is the only worthy goal for an organisation like Facebook.

- Q23 **Clive Efford:** And that is what drives him.

Aaron Greenspan: That is what has driven him.

- Q24 **Clive Efford:** Who are the sycophants?

Aaron Greenspan: There have been so many. Unfortunately, the media, for a good 10 or 12 years, propelled Facebook to stratospheric heights. There was really nothing anyone could say that was critical that would make it into print for a very long time. I was supposed to be interviewed for the "60 Minutes" segment, the first one, where Lesley Stahl interviewed Mark. The producer, Shachar Bar-On, was somebody I talked to. He knew my position. He knew I was critical. They cut my involvement from that. I was supposed to be on Bloomberg TV at one point, involving a law suit that I filed that included Facebook for money transmission issues.



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That interview was cancelled. There was a *GQ* magazine article that was supposed to profile my early involvement. This is many years ago. That article was, I believe, turned into a profile of Mark's genius. There was a lot of cheerleading from the media.

Then you have the notable contribution of Ben Mezrich, a popular author who created the book that the movie "The Social Network" was based on. "The Social Network" had an enormous impact on culture in Silicon Valley and in venture capital circles, in terms of what people thought the goal was. For many years, venture capitalists thought that the goal was funding another Mark Zuckerberg and another Facebook. I could go on, but there is a very long list—I should at least acknowledge that Sheryl Sandberg and Andrew Bosworth and other Facebook executives from the early days are in that list—of people who have enabled Mark.

- Q25 **Clive Efford:** Going back to a point you made earlier on about the fake accounts and non-existent people, as I understand it, companies pay Facebook to advertise or to gain access to them. You are alleging that what is being paid to Facebook is inflated because they are assuming that they are advertising to more people than actually exist on the platform?

Aaron Greenspan: That is correct.

- Q26 **Clive Efford:** Given that this is market driven, are there companies out there that are coming back at Facebook and saying, "Look, we're paying to advertise to this much bigger market than we seem to be getting in terms of sales"? Is that happening?

Aaron Greenspan: It has happened. There have been times when companies that are well known, such as General Motors or Procter & Gamble, have decided that they are not going to go forward with more Facebook advertising purchases. Some of them have come back and then dropped off over time. But certainly, concerns have been expressed to Facebook that advertisers want to see that they are getting what they have paid for. There is a lawsuit ongoing right now, I believe in the Northern District of California, called *Singer v. Facebook, Inc.*, where these exact allegations are being made. I did not know about the lawsuit when I wrote my report, but I found out and released an update.

It basically says that, if you are an advertiser and you want to advertise in Dallas, where the population according to the US census is something like 379,000, Facebook will tell you that you can reach 1.2 million in Dallas—but there aren't 1.2 million people there, so there is a fundamental problem. My understanding is that that lawsuit has been allowed to proceed, so it has moved past the motion to dismiss stage. We will see what happens with it, but I think advertisers are starting to get more clued in to the fact that they need to be more vocal.

- Q27 **Clive Efford:** You would expect the market to react quite quickly. If I am spending this much as a company on advertising and I don't get the return on that, because I am not really advertising to the number of people I thought I was paying for, would I not quite quickly go back to Facebook and say, "Hang on a minute, this is not reflecting in the sales.



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What's going on here?" Should we not be seeing a lot more of that?

Aaron Greenspan: Unfortunately, that involves the assumption that everyone has perfect information, and with Facebook, as I think this Committee has seen a lot of times, what you have is a black box. Advertisers are really in the dark when it comes to how effective their campaigns are. Their numbers are coming from Facebook, so if Facebook says, "You're doing great; 1 million people just saw your advertisements," they are not also saying, "and 450,000 of that 1 million are not real people." There is no indication of what could go wrong, just what is going right.

With the lawsuit in the Singer case, and also in a different case that I cite in my report, the litigation is starting to highlight times when Facebook's engineers have said that maybe their video metrics were—I can't remember the exact numbers; it is in the report, but to use an example—10% off, and then it turns out they were actually 900% off. Those kinds of things are happening with enough frequency that even with imperfect information, people are starting to figure out that there's a problem.

Q28 **Julian Knight:** I have to say I am struck by your evidence and some of the words you have used in your evidence so far. One phrase you used earlier on was that Facebook "lost control" of the platform and will never get it back. Is that basically it?

Aaron Greenspan: Yes.

Q29 **Julian Knight:** That is quite startling. In that respect, if they are now looking at effectively merging the infrastructure of Facebook Messenger, Instagram and WhatsApp, what sort of potential pitfalls does that open up?

Aaron Greenspan: My view is that the discussion that you are hearing from Mark publicly now about privacy and encryption is really just an elaborate dodge, given the anti-trust train that is barrelling toward them. The great thing about using encryption with communications is that it makes them very difficult to separate, because encryption requires the use of keys. I do not want to get into a long technical description here, but effectively if you have a key on one side, there needs to be some way to transmit it to the other side. If the platforms are separate, that becomes more difficult in terms of trust and technical abilities.

I think that that has relatively little impact on the fake account problem. It does have the potential side effect that if you have fake accounts that are spewing disinformation, and that disinformation is now encrypted, it may be even more difficult for regulators to monitor and address obvious cases.

Q30 **Julian Knight:** Can they just pop up and then go again, and never really be traced?

Aaron Greenspan: It depends on the type of encryption and the capabilities of, effectively, Government agencies to break that encryption, but it would be much, much more difficult in a reasonable amount of time.



Q31 Julian Knight: That sounds absolutely terrifying. On Facebook, to a certain extent, over the last year or so that we have been looking into it, we have got used to there being a page that you can see, with certain key things that identify it as a fake account—although you say that it is clear that their systems analysis in tracking and taking down such pages is grossly inadequate. In this instance, there seems to be an added layer of potential problems, with the ability for outside actors effectively to use these messenger services to mask what they are actually doing and to lead in a systematic way to the disintegration that you have spoken about.

Aaron Greenspan: It is troublesome, for sure. I do not want to be too alarmist about that, because you have to keep in mind that right now a lot of this information spreads through a one-to-many relationship—if I post something on Twitter, I do not have that many Twitter followers, but maybe 1,000 people will see it.

If you are dealing with encryption, it is not going to work that way: it is going to be a one-to-one relationship. It would potentially take a bad actor using an encrypted communications device or account 1,000 times longer to reach those 1,000 people, or they would have to put in 1,000 times as much effort. On the other hand, there are programmes that are probably capable of doing that.

It certainly complicates things, and it gives Facebook the excuse that they cannot regulate it because they cannot see what is going on—but of course they are going to be the ones enabling that state of affairs, so it is important to always get to the root of the problem.

The old lie that Facebook used was that openness was a universal good, and the new lie is that encryption is the same as privacy, which is not true, and that privacy is a universal good. We are seeing Mark doing a total 180° here out of necessity, because the old model is not working for him anymore, so they need a new model. After this model, there are going to be other models.

Q32 Julian Knight: Why is encryption not the same as privacy?

Aaron Greenspan: You can have privacy without encryption, so they are not exactly the same. Encryption aids in creating a private environment, but it comes with a lot of pitfalls—it is not perfect, and for many users it is very difficult to use. I think it is technically incorrect to say that they are the same thing, but they are definitely related.

Q33 Julian Knight: What about the cultural mix of WhatsApp, Instagram and Facebook and the potential amalgamation of those services? Also, it appears from senior executives such as Mr Acton and Mr Koum and reports in the *Washington Post* and *The New York Times* on the process that effectively the founders have now gone. What do you make of that? What do you think it says about Facebook culture, and what does it indicate for consumers and consumers down the line? What do you think it could actually mean?



Aaron Greenspan: I am hearing two questions: “What does it mean that all these founders have left?” and “What does it mean to combine these products?”

As far as the founders leaving in concerned, I sort of figured out what they figured out, but just much earlier: Mark is not a trustworthy person. Some, if not all, of these founders have become fabulously wealthy because of their willingness to put up with Mark’s quirks, if you want to call them that, for a time, but at some point that dependence upon somebody who can’t be trusted grates on you, and if you have made a few hundred million dollars, you probably feel like you can leave when you want to. So I’m not at all surprised that Chris Hughes, Adam D’Angelo, Dustin Moskovitz, Jan Koum and Kevin Systrom, who are some of the others—

- Q34 **Julian Knight:** It is not unusual, though, is it, Mr Greenspan, that when a big company effectively takes over little ones, management eventually goes? They normally lock someone in, don’t they, for a period of time? And then they want to take it in different directions. It is not completely unusual in that regard. I am just interested that you attribute this to Mark’s personality rather than to a cultural issue, or are the two indivisible?

Aaron Greenspan: I think they are related. The cultural issue, in terms of merging the companies together, is a product of Mark’s so-called vision. Mark is interested in building a very large, integrated communications network—he of course already has a very large communications network in Facebook alone. This is something that is coming from him, so to the extent that they disagree with that direction, they are really disagreeing with him as well—that is my impression.

As far as the prospect of merging these platforms all together is concerned, I should say I have actually never used WhatsApp; I don’t really know a whole lot about it. I know only slightly more about Instagram. But what I have heard and seen with my own eyes is that Instagram’s popularity has been built around the idea that it is simple and uncluttered, relative to Facebook. Many of the design decisions that the company has rolled out have started to make Instagram look progressively more like the core Facebook product, which has the effect of making it a better source of revenue, but also potentially it has the effect of turning users away, because that is what they were trying to escape in the first place. So it remains to be seen whether this initiative to merge these products together will be successful, anti-trust issues aside, but if anti-trust regulators do step in and file an action, it is certainly conceivable that these will actually remain separate for the foreseeable future.

- Q35 **Julian Knight:** Is Facebook in trouble?

Aaron Greenspan: Oh yes—absolutely. They are in a lot of trouble.

- Q36 **Julian Knight:** How would you quantify that?



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Aaron Greenspan: Well, I think the fake accounts are one way to quantify it. Unfortunately, we don't have proper numbers to look at ourselves. The other way to quantify it is to look at their growth numbers, and this is something that troubles me a great deal, because on the last two SEC-regulated earnings calls, as far as I can tell, Mark has flat-out lied to investors—which is a federal offence, if I am not mistaken—telling everyone that Facebook is growing. Facebook is not growing. I am not privy to their internal numbers, but every indicator that I can find, as an outside observer, suggests that usage is falling precipitously, that users are concerned about privacy and that actually is having an effect, yet what you hear on the earnings call is that the company is growing because it's growing in India, the Philippines, Vietnam and Indonesia. But those are also the countries in the disclaimers where Facebook says, "We have more fake accounts coming from these countries than anywhere else."

So effectively, if you put this all together, it says that Facebook is growing in countries where there is a known problem with fake accounts that is far more problematic than in the rest of the world, and to me that sounds like fraud. I don't know about other people, but if you tell me that we are growing in the place that has the most problems and we can't do much about it, that doesn't sound like a good kind of growth.

Q37 **Jo Stevens:** Do you think Mark Zuckerberg believes in the concept of personal data?

Aaron Greenspan: I am not sure. What do you mean by personal data?

Jo Stevens: I suppose it might mean different things to different people, but any data at all is personal to me if I use Facebook.

Aaron Greenspan: No, not really. Statements that he has made in what he thought were private settings suggest that he really has no regard for other people's privacy.

Q38 **Jo Stevens:** During our inquiry, we have spent a lot of time on the Cambridge Analytica issue. In your report, you say that you made him aware of serious data protection issues in 2005.

Aaron Greenspan: That is correct.

Jo Stevens: You told him that there was a security flaw in the architecture that theoretically allowed hackers to access swathes of personal data via friends-of-friends networks. How did he react when you told him about that?

Aaron Greenspan: The short answer is that he didn't; he took no action to remedy the problem that I had identified. When I followed up with him, he essentially blamed it on Dustin Moskovitz, saying that Dustin had been travelling to Italy, and that as a result of his travels he had not been able to fix the issue; that he, Mark, had not written the code himself, so it was not his to fix; and that it was not that big of a deal and I was incorrect in how I portrayed the flaw. That was untrue; I was correct, and I followed up by telling him that it did not matter where Dustin was travelling and



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that it was his responsibility, as CEO, to actually do something about it and to do it right away.

It was really only after I had brought the issue to the attention of the Yale newspaper—because I knew that *Crimson* would not write anything negative—that it actually got fixed, because it made Mark look bad.

- Q39 **Jo Stevens:** What, in your opinion, are the parallels between the 2005 security flaw that you spoke to him about and the Cambridge Analytica scandal? Were there early warning signs for Cambridge Analytica?

Aaron Greenspan: I think there were. In 2005 the issue was that there was a friend export feature. Ironically, that is something that different bodies are now calling for to have interoperability between platforms, but at the time it was thought of as a nice add-on to allow people to export their friend list to a certain Excel spreadsheet—a CSV file. The way that it had been designed at first was that the server would receive a request from the user to export friends; it would create a file in memory and then move the data from memory to the server's hard drive, giving it a predetermined file name. Then, the file would just sit there, so that if any other user on Facebook—we are talking about a lot of users—came along, understood that those file names were predetermined and that they were all just sitting around on the hard drive, they could download anybody's exported friend list, which contained birthdays, cell phone numbers, screen names, home addresses.

That is not necessarily going to ruin someone's life instantaneously, but it is not really a good thing to have around, for the purpose of preventing identity theft. The most glaring problem I saw was that if you had an especially popular user—the example I gave to Mark was the former president of the undergraduate council at Harvard, the student government, who had somewhere between 700 and 1,000 friends—all I needed to do was find his one file. With one person's ID number, I could get the birthdays, home addresses, cell phone numbers and whatever else, of 1,000 people. That seemed like a pretty big issue to me.

I have only heard about Cambridge Analytica as a person on the street—I have had no involvement whatsoever—but my understanding of the issue is that it is pretty much the same thing. It is a friend-of-friend issue; it is a functionality that was designed into the Facebook platform. A lot of the media coverage, and possibly even Facebook's own descriptions, have referred to this as a data breach. It was not so much a breach as a designed behaviour. That design was made so on Mark's orders. To say when Mark knew about Cambridge Analytica, I do not know the exact date, but I told him about the friends-of-friends issue on 7 April 2005. That gave him plenty of time to mitigate that concern going forward.

- Q40 **Jo Stevens:** You have talked about the fake accounts and how in your view there is effectively fraudulent activity. It is obtaining money by deception from advertisers if you are exaggerating the audience that you can reach. I am going to call it lying about the number of accounts to advertisers. Do you think that Facebook and Mark Zuckerberg are also



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doing that to shareholders and investors?

Aaron Greenspan: Yes. I think that Mark has committed securities fraud on a number of occasions. I think it has been incredibly blatant and the SEC has done nothing about it because it is afraid of targeting a billionaire, and also because it has one commissioner in particular, Hester Peirce, who believes that the market will sort out all issues and that there is really no role for the SEC. That is a common theme in the Trump Administration with any federal agency now. I think it is egregious, and frankly I cannot believe that it is allowed to happen with the frequency that it is, yet there is seemingly no repercussion for lying to shareholders.

To be fair, Mark is not the only executive who lies to shareholders on a regular basis. We see it with Elon Musk and pretty much every large company in some form or another. It is unfortunate that that is the state of affairs, but I think it has been very clear and in broad daylight. If people heard the calls that investment banks have with their private clients, they would see that the public research reports they put out bear little to no resemblance with what the analysts actually think. We have seen that movie before with the financial crisis and the dotcom crash. It is really nothing new, but it is still how business is being conducted.

- Q41 **Jo Stevens:** I saw a piece in *The New York Times* yesterday about pension funds that are investors in Facebook. There is a quote here from New York City Comptroller Scott Stringer, who oversees a city pension fund that has Facebook shares. He said: "Facebook's insular boardroom must be cracked open because the company has no accountability to its users, its investors, or our democracy". Would you agree with that?

Aaron Greenspan: Absolutely.

- Q42 **Chair:** It sounds like what you are saying is that, from your perspective, from the birth of the company there was a trade-off between growth and privacy, and the dial was set very firmly in favour of growth.

Aaron Greenspan: Yeah. The way I would describe it is as a trade-off between quantity and quality—the quantity being the number of users, and the quality being the type of user on the network and the quality of the content produced.

- Q43 **Ian C. Lucas:** Does Facebook share personal data with app developers it works with?

Aaron Greenspan: I am not exactly sure what they are doing right now, but my sense is generally that they do, but the degree to which they have shared information has changed over time.

- Q44 **Ian C. Lucas:** When the Cambridge Analytica story broke and Christopher Wylie gave evidence, there was a huge furore about the transfer of Facebook data, the involvement of Aleksandr Kogan and so on. At that point, Facebook's public face was that they were shocked by what had happened. Do you think that was a genuine response by the company?



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Aaron Greenspan: I know that it wasn't. I previously worked with someone who would be best described as having been on Facebook's growth team. His name was Ed Baker. Ed was one of the recipients of at least one of the emails that this Committee made public from the litigation in San Mateo County—the 643 case. When I worked with Ed, which was just before he began working for Facebook, at one point he made a suggestion for the software we were building. I was a co-founder; it was a tiny company, but I was not someone who would have no knowledge. I was the other co-founder with Ed Baker. Ed suggested that we should ask users for access to their address books on their iPhones. It would be a yes or no question, "Can we have access to your address book?", and regardless of whether the answer was yes or no, he said we should take that data anyway and use it to send emails to other potential users based on what we obtained, and in that way we would grow our product. At that point, I quit, because so far as I was concerned, that was unethical. I did not know at the time whether it was illegal, but it is illegal. Ed was involved for years with the growth of the Facebook platform.

Q45 **Ian C. Lucas:** What date was that? What year was that?

Aaron Greenspan: 2007.

Q46 **Ian C. Lucas:** So right from the early days?

Aaron Greenspan: The early days of the Facebook platform. He didn't yet work for Facebook at that point in time, but just after I quit he continued working on that product for a few more months and then he went to Facebook.

Q47 **Ian C. Lucas:** We had evidence from Lord Allan of Hallam on behalf of Facebook, and I asked him to provide me with an example of a company that Facebook had stopped working with for sharing data. My understanding is that apart from those companies that become public—for example, Aleksandr Kogan or Cambridge Analytica—there are no examples that we have been supplied with by Facebook.

Personally, I have come to the conclusion that the reason for that is because there aren't any, because it is the *modus operandi* of the company. In other words, their shock was actually invented. Do you agree with that?

Aaron Greenspan: Yes.

Q48 **Ian C. Lucas:** On the question of bad faith, we are politicians and one of the areas of particular interest to us in recent times has been the impact of Facebook and social media generally on elections. One of the concerns I have on the issue of privacy relating to that is the existence of closed Facebook groups, and of WhatsApp, which are not visible outside the membership of those groups.

So my concern, on the basis of your evidence and on the basis that Facebook might be acting in bad faith, is that we cannot rely on Facebook to give us information about what is happening in closed Facebook groups or in WhatsApp. We don't know what's going on.

Aaron Greenspan: *indicated assent.*

Q49 **Ian C. Lucas:** In those circumstances, how do we regulate political advertising, when we can't see what is actually being advertised?

Aaron Greenspan: Well, it is a deep and important question. I have a number of suggestions for ways to regulate, and I don't know if they will go exactly to the issue of closed groups, but I think that more broadly they should probably cover it.

I think that the No.1 suggestion I have to put forward is that Mark needs to be removed as CEO. I do not think he is capable of being a responsible CEO; I do not think he should be allowed to be an executive at any publicly traded company, or a director for that matter.

Given that that is a complex procedure under current US law, I think the next best option is to regulate Facebook along the lines that Government regulate a bank. In the United States, and I'm sure in the UK as well, there is a comprehensive set of federal statutes and also state statutes that surround bank regulation. There is the Bank Secrecy Act, which I believe has "know your customer"—KYC—requirements, and requires banks to set out anti-money laundering plans.

I think there need to be KYC requirements for social media companies at this point, which is not to say that all anonymous speech should be banned; I think anonymous speech has an important role, historically and today. But fundamentally if you want to use an anonymous account, you need to be held responsible for that account at some point, if there is a problem. So, for that reason, I think that KYC requirements actually make a great deal of sense.

There is also the precedent of what happened with Wells Fargo and the United States Office of the Comptroller of the Currency. This has been an unravelling story for many years, but back in 2011, I believe, there was a consent decree that the OCC required Wells Fargo to sign, because, to make a long story short, they just kept laundering drug money. Then, there was another one in 2015 and another one in 2016. The bank just kept breaking the law, and they needed to exert control in some way, so what they ended up doing, among many other measures, was effectively installing a group of people who worked in name only for Wells Fargo but really reported to the OCC. Those people were physically located in a Wells Fargo office, and their job was to conceptually and physically oversee the activity at the bank.

This is especially important when it comes to Facebook, or any similar software technology company, because fundamentally Governments move too slowly to regulate a software company, and they do not have the technical expertise. Even if Mark were here today, which he clearly is not, or any number of other Facebook executives, the fact that most politicians are not programmers would make it very difficult for you to ask the right questions to get the answers you really desire.



If there were actually people on the ground in Menlo Park or Palo Alto, or wherever else they have offices, especially here in the UK, who knew how to code, who knew what the Government's concerns were, and who were responsive to the Government, I think that would drastically change the situation. It is the thing that Facebook probably fears the most, even more than antitrust, and I think it should be done immediately.

Otherwise this is going to drag out for years and years, and in those many years there are going to be more elections, and a lot of people are going to be put at risk. I can go on to others if you want, but you may have another question.

Ian C. Lucas: That's fine. That is very helpful—thank you.

- Q50 **Chair:** What you have said is certainly in line with one of the Committee's main recommendations, which is that there needs to be a system of regulation in law, established by Parliament, which gives a regulator the legal authority to go into companies such as Facebook and request data and information as part of an investigation, and to end the era where we are simply reliant on Facebook self-reporting.

Aaron Greenspan: Right. Transparency is the flipside of the same coin. If Facebook could be made to provide documentation, and actually provide it honestly, there would not really be a need to put people on the ground, but since, at least internationally, that has been a difficult endeavour, I think we are at that stage already.

Certainly, there are laws on the books, as I have mentioned—security laws and the Sherman Antitrust Act—which can be enforced. SEC commissioners could decide tomorrow that they are not going to tolerate this anymore, and suddenly there could be an SEC action. Unfortunately, that seems unlikely.

Can I just mention my thoughts on the antitrust debate, because I think it has gained a great deal of attention in the US right now? I do not have any objection to an antitrust action against Facebook, but I do not think that it is going to be effective in the long run. The reason I say that is that, at the end of the day, even if you were to split off Instagram and WhatsApp from the company, their core asset is that table of 10 billion to 12 billion users.

My understanding is that that will not be split up; that would still be the intellectual property of Facebook Incorporated. As long as Mark Zuckerberg is the person in charge of that table of data—it is probably more than a table at this point, but I will call it that for the sake of simplicity—that is going to be a huge problem. That is not something that antitrust law can really solve, so antitrust might be one tool in the toolbox, but it certainly should not be the entire toolbox.

- Q51 **Chair:** You alluded to it earlier, but do you think that Facebook's bigger concern is our investigations around data acquisition and usage and data privacy, rather than just pure antitrust action?



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Aaron Greenspan: I am sorry—I didn't quite hear that.

Q52 **Chair:** Do you think that Facebook is more concerned about data privacy laws than it is about antitrust?

Aaron Greenspan: It is hard for me to say what their general council views as the biggest threat. I would say that they are probably about the same order of magnitude. They will require a lot of changes internally.

One of the effects of antitrust cases, or at least scrutiny, is that it makes a lot of communication in the company move offline, so it will potentially slow down the development of new products, and slow down fixes that they need to get out for, if nothing else, at least PR purposes. They are probably both viewed as disruptive, but transparency around the fake account issue is probably the No. 1 problem.

Q53 **Chair:** Finally, you said earlier you thought that Facebook prioritised the quantity of users over the quality of users in the way in which it was grown. You said that, obviously, at the start of Facebook the policies allowed the gathering of friend data and allowed developers to have access to that data to encourage them to develop tools that would make people want to use and revisit Facebook. Do you agree with one of the contentions that has come out of the San Mateo 643 case that the purpose behind the platform policy changes in 2011 or 2012 was not to protect users' data but to stop developers acquiring too much Facebook data?

Aaron Greenspan: I don't want to speak to their exact intent there—because I haven't read enough of the case materials—but something that is fairly easy to believe is that a lot of these policies were made up as they went along. I don't think they fully realised how much interest there would be in the platform, and how quickly developers would figure out how to exploit it. Much like the fake account issue, they probably started off with a suite of protocols and policies for how it would work and thought that that would be adequate, then quickly realised that they needed to do a great deal more if they wanted to have tight control. It appears that tight control was never really even considered, or achieved, but I would generally agree that this is not something that they planned on exactly, and that they are sort of in catch-up mode now.

Q54 **Chair:** Certainly. You said that your assessment would probably be that the motivation for these changes was not a sudden change of heart and belief that user data should be kept more private—

Aaron Greenspan: No, that has never been their main concern.

Q55 **Chair:** Thank you. I think that concludes the questions from the Committee. Unless there is any other statement that you wish to make, Mr Greenspan, we can conclude.

Aaron Greenspan: Just one last regulatory suggestion, if I may have another minute. In alignment with the KYC suggestion, there may be a role for taxation here as well, in terms of imposing a social media tax. It is clear that there are economic externalities to allowing social media to



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function the way that it does today, and if users were required to pay a small tax in order to register for a social media account, that would, first, provide revenue to fund countervailing forces such as investigative journalism and, secondly, by virtue of the fact that payment is being made, require some sort of identification.

Identification, as we have been talking about, is really key. Quickly going back to another point about elections, Facebook is now claiming that they have solved the election ad problem because they verify advertisers with a postcard—so they have a physical mailing address. All that does is encourage the creation of shell companies—that someone has a physical location somewhere does not necessarily mean that you know who they are—so having a social media tax would make this entire process far more manageable for Governments. Certainly there will be politicians and users who hate the idea of a tax, but it does not have to be a very large dollar amount—or pound amount—it just has to be enough to prevent the sort of runaway catastrophe that we have been seeing.

Chair: Thank you. That concludes our questions. Thank you for travelling all this way to give evidence to the Committee.