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The Theory of Post-Economics

Part V – The Fork in the Road

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It may be straightforward enough to accept that the issues raised in part II of this text – chiefly around the need to redefine certain factors so that they are relevant to the digital age – are valid arguments in principle; acceptance not necessarily being tantamount to agreement with all that has been said, of course.

Picturing how a non-economic system would look in practice requires a keener leap of imaginative faith. Economics is so deeply entwined in every area of our lives that it becomes difficult to comprehend how it would apply past the high-level theory – at the level of the everyday tasks that people undertake, their routines, habits and relationships. We know how to be consumers, though many people probably don't think of themselves in that way – consumption has become synonymous with how individuals interact with the world around us, so the way that things are structured around consumers consuming just seems natural and inevitable.

What we don't know anything about is what happens when an individual becomes entangled in a system of total connectivity – how that person comes to act as a participant and how a coherent culture can be threaded around it that is designed to stimulate *participation* rather than *consumption*.

To help illustrate the difference between being a consumer and a participant, this chapter imagines how a typical day-in-the-life of an individual (who, for the purposes of this exercise is male, 25 and lives in London) could vary during three periods – today (when the infrastructure of society still regards us as consumers), in 5-10 years' time (in a more established decade of assistance, but one in which economics is still the dominant ideology and we are defined as consumers) and in 20-30 years' time (when technology has evolved near to something like total connectivity, the obsolescence of economics has been acknowledged and guidance is the chief operating principle).

Example one – today

Daley (for this is his fictional name) wakes at 07:25 on a Tuesday when the alarm he set activates. He goes through his usual morning routine of shower, brushing teeth, taking something out of the wardrobe to wear and eating a breakfast bar, as this is what he finds most convenient given the morning's time constraints.

He sets off for the office via the route he takes every day – which is a bus a mile-and-a-half up the road, which takes ten minutes longer than usual due to heavy traffic caused by an earlier collision, then a tube from Balham to Blackfriars, also experiencing delays, where his office is located. He gets a coffee on the way from Costa and arrives at 09:09 to start his 09:00 – 17:30 shift as a mid-level manager at a recruitment firm.

The morning consists of working through his emails, some of which are relevant to him, some entirely irrelevant, while others vary between having a small amount of relevance to him and involving him in things that probably don't really require his participation.

At 11:00 he has a meeting with an external agency who offer a software solution that promises to help his company manage an area of their operations more efficiently. It's unclear as to whether this is the best solution to match the business' requirements, so it ends inconclusively with further follow-up meetings to be scheduled.

For his lunch, Daley goes to a local supermarket where the full range of ready-to-go options are laid out – standard, low-calorie, free-from, multi-pack, meal-deals, sandwiches, pastas, salads, salad-bar and hot foods. He cannot decide what to have so eventually settles on a tuna and sweetcorn sandwich, which he consumes at his desk. During this time he browses through a news site, but doesn't find much of any specific interest.

The afternoon workload features much the same kind of flow as the morning – sifting through emails and attending various meetings.

After work he walks past a theatre where a play is on that night that he tried to get a ticket for, but it had sold out. On the way home he buys an admiral's pie microwave meal, which he gets halfway through eating before remembering he had fish for lunch already. Following this he eats a chocolate bar, telling himself it's fine as he 'hardly eats any chocolate'.

An online delivery arrived while he was at work and was left with a neighbour, who was irked about having to receive it, as it was quite large. It's a small trailer that attaches to the back of a bicycle, as Daley thought it might be a useful device for transferring goods back from the supermarket when he does a large shop. However, it doesn't quite fit onto his bicycle as it's the wrong size, so he decides to return it via a local newsagent.

He then sits in front of the TV and downloads an episode of Breaking Bad on his Sky box to watch. He gets half way through only to realise that he's actually seen this one before and meant to download the next episode.

Finally, he checks the calendar on his smartphone to see if he has anything planned for the weekend, only to discover that he had forgotten it was his aunt's birthday today. He goes to bed at 11:21 but isn't sure what time he actually falls asleep.

Example two – 5-10 years' time

Now imagine the same day occurring, but with the decade of assistance in full flow.

Daley wakes at 07:25 on a Tuesday when the alarm he set activates. He checks an app on his phone that is connected to a wearable strap he leaves on around his wrist at night that monitors a number of factors – pulse, sweat, phases of sleep – to get feedback on how well he slept, which was for a total of seven hours, having woken up twice during the night. By processing the data the app has amassed on his sleeping patterns over the past month, which is then cross-referenced with other datasets available within the smartphone device that relate to exercise (such as steps taken daily) and diet (using information from spend receipts), it concludes that he is possibly lacking in vitamin D and promotes some products containing that vitamin from paying advertisers to which it is connected.

The calendar on his smartphone flashes up an alert that it is his aunt's birthday today. He sends her a birthday message and asks if she liked the gift which he purchased on her behalf the day before when the calendar reminded him that it was due and pulled in gift ideas, drawn from paying advertisers, based on her demographic profile.

Following his usual morning routine of shower and brushing teeth, his voice assistant device suggests a series of products that will shortly be in need of replenishment. The list of products is based on previous purchase behaviour (his usual brand of toothpaste,

deodorant, floss and mouthwash) as the typical timeframe between buying these items has elapsed since he last purchased them. He accepts as all are running low. It also suggests adding in other items to the basket, sourced from paying advertisers or retargeted based on items he previously looked at on retailer websites but didn't actually purchase. The order can be delivered to his office at 14:00 where he currently has a free slot according to the diary within his smartphone, which is accessible to the voice assistant.

He takes something out of the wardrobe to wear and dresses, then considers eating a breakfast bar from his kitchen cupboard but opts instead for an offer alert from the Costa on his route to work for a croissant and coffee combination meal deal, which they will prepare to be ready for 08:40 for him to collect, as that is when he is estimated to be passing.

As he sets off, Daley receives alerts from various Uber-esque transport networks (using geo-targeting based on the location of the connected device he carries) offering paid lifts in various vehicles as they have detected the heavy traffic caused by an earlier collision. He accepts one, taking a different route to avoid the traffic, dropping him off at Balham to take the Tube to Blackfriars, even though he knows this is also experiencing delays, as that is still the cheapest way to reach his office and keeps the additional car transport fee he pays low. He collects his coffee and croissant on the way from Costa, roughly on time, and arrives at 08:55 to start his 09:00 – 17:30 shift as a mid-level manager at a recruitment firm.

The morning consists of working through his emails. This process is a lot quicker at this stage than in the previous example, as AI systems that underpin his email package are more sophisticated at being able to sort out those communications assumed to be of high relevance from those of low relevance. In the instances where he has never opened anything from the sending address, despite receiving regular emails from them, the emails are relegated in the display window while those from sources with whom he has previously engaged are promoted; others that may be new but seem to be relevant to Daley are also given a suitable level of prominence. Some emails receive strong prominence, despite not meeting the criteria of high relevance, as the senders have paid to have their communications pushed out to a demographic group to which Daley belongs. They cannot be deleted or moved from this position of prominence until they have been read.

At 11:00 he has a meeting with an external agency who offer a software solution that promises to help them manage an area of their operations more efficiently. The meeting was recommended by an AI system that assessed the marketing text on a range of agency sites to make the best matches for the requirement that Daley's company has. Some of these matches were able to elevate themselves higher in the ranking by paying that AI system, so the top three were actually not the best matches to suit their individual circumstances; they had just paid to be there. The fourth one in the ranking would have the highest chance of helping them given their exact situation and requirements – although they may not get that far down the list before making the decision on who to go with.

For his lunch, Daley receives alerts from various cafes and restaurants with meal offers, but opts for the local supermarket. When he enters, he again receives alerts with

recommendations and offers based on previous shopping experiences there as well as products that some suppliers have paid to have promoted to certain demographics. One of these promoted products, a tuna and sweetcorn sandwich, looks quite appealing so he selects that and is directed to its location on a shelf. He consumes it at his desk while browsing through a news site, where the content is sorted according to topics and themes that it assumes Daley will be interested in based on previous behaviour on the site, as well as sponsored articles and ones that use native advertising (which is where a piece of content is sponsored and therefore influenced by the sponsor, but without marketing their product or brand explicitly and instead made to appear like a genuine story. For example, a dog food manufacturer sponsoring some content about the need for dogs to have strong teeth).

The afternoon workload features much the same kind of flow as the morning – sifting through emails and attending various meetings.

After work he walks past a theatre where a play is on that night that he tried to get a ticket for, but it had sold out. He is instead going to another play at a different theatre, as the theatre ticket company targeted him with alternative options based on the theme of the original play. It's not quite what he wanted, but a reasonable enough second-best. He eats at a nearby restaurant beforehand, that was able to offer him a pre-event meal offer as part of the overall experience. He chooses a fish pie from the menu, which he gets halfway through before remembering he had fish for lunch already. Following this he has a dessert; when he makes the selection an app alerts him that he has already eaten chocolate a few times over the past week, based on a scan of supermarket receipts and restaurant bills, but he doesn't regard it as excessive overall.

He received his online delivery while at work, which was slightly annoying to transfer home as it was quite large. It's a small trailer that attaches to the back of a bicycle, as Daley thought it might be a useful device for transferring goods back from the supermarket when he does a large shop. It doesn't quite fit onto his bicycle as it's the wrong size; as he is looking at the return options available to him, the retailer he made the purchase from market an adapter and some other associated materials that make it look a lot more appealing, so instead of returning (which requires effort on his part), he selects some further purchases which will arrive tomorrow.

Before going to bed he sits in front of the TV to watch an episode of a new series that has just come out. The normal version can be viewed for a nominal fee, but an enhanced version exists which allows the viewer to participate in an experiential way in some of the scenes (using 3D glasses to 'be' inside a battle scene with a full 360-view of what is going on rather than just seeing what the camera recorded for display in a more traditional sense). He opts for this more expensive option.

He goes to bed at 11:21, which his phone app tells him is toward the latter end of the usual time scale for a Tuesday. He will find out in the morning what time he actually falls asleep.

Example three – 20-30 years' time

Now imagine the same day occurring, but with somewhere near total connectivity in place and guidance installed as the core leading principle in place of economic assistance.

Daley wakes at 07:29 on a Tuesday when the alarm that was set for him activates. This time is based on assessing how long he usually dozes for in the morning and how long it generally takes him to get out of bed. As he doesn't really need to get up until 07:35, this was selected as the optimum time for waking. He checks an app on his phone that is connected to a wearable strap he keeps on around his wrist at night that monitors a number of factors – pulse, sweat, phases of sleep – to get feedback on how well he slept, which was for a total of seven hours, having woken up twice during the night. By processing the data the app has amassed on his sleeping patterns over the past month, which is then cross-referenced with other datasets available within the smartphone device relating to areas such as exercise (steps taken daily) and diet (using information from spend receipts, plus all food-providing places visited), as well as assessing the data alongside other people with similar attributes to him who have been included in a benchmark tracking sleep patterns over a long period, it concludes that he is possibly lacking in vitamin D. It has the option of connecting him to businesses that either produce or could supply something containing it locally, or starting to seed an order to relevant businesses within the supply chain to arrange for regular access to such products – but, instead, it recommends he spends some time outside today between 15:00 and 16:00 when sunshine is forecast, as this is by far the most efficient and least resource-intensive solution for increasing exposure to a source of vitamin D. Daley accepts that suggestion, having a slight but positive impact on his value rating due to his participation in the most efficient solution available for all parties involved.

He is alerted by a device reading his calendar that it is his aunt's birthday today. He sends her a birthday message and asks if she liked the gift which was created on his behalf over a period in the lead-up to today, having suggested and agreed the gift idea based on everything known about her as an individual and her relationship with Daley. Value is built throughout the whole supply chain in relation to the outcome, which in this case is defined by certain key performance indicators (KPIs) – a common measuring method used by companies to assess how successfully an area of the business is performing. For the manufacturer it relates to the quality, usefulness and resourcefulness of the thing (a personalised picture frame) created for his aunt, for distributors and supply it is getting everything in the right place within expected timeframes as well as fulfilling requirements using the best transportation option available in terms of keeping emissions low, reducing road congestion etc. For the service companies whose role it is to track, measure and calculate the success or otherwise of the endeavour, it is how the information is used, how accurate it is, how useful. For the companies involved in processing the feedback, it's how they help other companies and the system overall improve efficiency and quality of outcome(s). The initial results are positive, in the sense that his aunt is pleased with the gift, and it arrived on time with a good level of efficiency achieved throughout the processes involved.

All this building (or otherwise) of value is of course not set in stone; it is in relation to initial relevant metrics but these can change from negative to positive or vice versa depending on what happens subsequently. Daley's aunt, for example, while initially pleased with the gift may actually never end up using it, or perhaps even try to use it but find it awkward or unhelpful for her requirements. As an outcome, that would have to be regarded as a failure but again this is not the end of the sequence in building value; the item may be identified for another purpose, returned and perhaps adapted to be personalised for a different individual's use, which may represent a far more efficient

outcome overall. The opportunity to salvage a negative value activity is always present, if complex and technically unending.

Following his usual morning routine of shower and brushing teeth, his smartphone (or other connected device – it's difficult to future-gaze on devices this far ahead) pops up with an alert for a suggestion of products that he can order. The products in the list are suggested as the typical timeframe between buying these items has elapsed since he last bought them. They are based on a calculation of value – for both business and individual – created through previous connections made. For example, the toothpaste recommended is based upon his most recent dental record and dental history, along with information on diet and lifestyle, while the deodorant takes into account allergies and sensitivities encountered in the past, in addition to feedback sourced from him on the effectiveness of previous brands he has tried (any sign of irritation, how long it lasted into the day, whether he rated the scent etc). He gets a fairly standard toothpaste brand as he doesn't really have any special requirements, so the higher quality brands can go to the people more in need of such assistance, which has a positive influence on his value rating due to the subsequent boost to efficient use of available resource. Daley is also prompted to enable an AI system to do a general stock scan in certain areas of his house, such as bathroom, bedroom and kitchen, by allowing it to 'see' through a camera on a device in his home. It then references this against a scan taken the previous day to determine what has been used, whether anything else needs to be replaced and whether he has some things that he doesn't appear to need. This helps it to understand what is potentially available locally for other people to have if the connection is right and Daley no longer has any immediate use for it (and, by extension, determines whether Daley is lacking something that can be locally sourced). He has had an aftershave for 2 weeks which he has only used once, so it requests that this is sent through automated means to a nearby individual who would make more regular use of it, which Daley accepts. Overall, the AI system assesses his stock against other local individuals' stocks to ascertain how best to manage it all so that the best use is made of everything by every appropriate individual in the most efficient manner.

A scan of his wardrobe allows the AI system to cross-reference his current collection of clothing against images captured of him every day (compiled through multiple potential means at various points of each day) to see which are popular and which he never seems to wear. Those that are seasonally-relevant (ie appropriate to the time of year and temperature) but that have not been worn yet this season are flagged up to Daley as items that could be returned for modification into a style, size or design that would be more appealing to him. He sends two items back but isn't sure about the others so leaves them for now.

Today it recommends he wears a light shirt as he has a meeting this morning where the average temperature in the room tends to be slightly uncomfortable when more than five people are in there. The meeting has six attending according to his diary.

All his orders can be delivered to the place of greatest efficiency for both business and individual. As his location can be known throughout his daily activities, this could be anywhere in transit in addition to a physical destination such as home. Although not the most convenient option, Daley accepts his journey into work as the place to receive it, as an automated delivery vehicle with his item onboard can be passing that way at that time,

hence it represents the most efficient option. For helping to increase efficiency, Daley builds up additional value.

For breakfast he was planning to have a bowl of muesli, but due to the importance of the morning meeting the AI system recommends something a bit more substantial – scrambled eggs. Even though he wants a coffee, it prompts him to have a tea instead now and a strong coffee around 10:30 – as this is the optimum time to do so to extract maximum benefit from it in time for his meeting at 11:00.

For his journey in, the vehicles on the roads are completely autonomous so he is able to board any in theory, and within reason. He receives alerts offering him a lift where space is available and the vehicle is roughly headed in his direction. This involves a degree of ‘vehicle-hopping’ and sharing, with each able to take him some of the way before switching to ensure maximum efficiency for the overall fleet. Doing so helps him to build value by participating in this way. It also recommends that he gets out a 15-minute walk before arriving at his final destination as, having worked out his likely movements throughout the day, this offers him a good start toward his daily target of achieving 11,400 steps, which is adjudged to be the optimum number to take given his body mass.

He arrives at 08:55 to start his 09:00–12:30 shift as a mid-level manager at a recruitment firm.

The morning consists of working through his emails (or equivalent communication form, should email be rendered obsolete by then – far from a guarantee though, its demise has been predicted before). This process is again quicker at this stage than in both the previous examples, as AI systems that underpin his email package are more sophisticated at being able to sort out those communications assumed to be of high relevance from those of low relevance. But there is a fundamental difference in relation to what he receives and why. Communications sent to him from an individual are ranked by perceived prominence as in the previous ‘5-10 years’ time’ example, but mass marketing communications (which are often labelled, not always fairly, as ‘junk’ today) are distributed in a completely new way. Whereas today the sending company would have a marketing list of email addresses, provided by individuals who have actively signed-up to receive mass marketing email communications from that company (either overtly or somewhat more covertly and might include newsletters, product launches, offers, event invites etc), this tends in many cases to be fairly unpersonalised and sometimes entirely blanket without any segmentation at all (ie they don’t take factors such as demographic profile or previous behaviour into account to decide appropriateness to receive a message). As Daley is able to rely on advanced AI systems to sort out what he receives, they instead go out and find relevant information that he may benefit from receiving, irrespective of whether he is signed up to a marketing list or not. This includes an invite to an event which is put on by a company he has never heard of but that is structured around a topic of current (perceived) interest to him. It also promotes communications that appear to have strong potential for forging useful connections between both external individuals and businesses that present a strong possibility for improving efficiency in some of the activities that his company undertakes.

His 11:00 meeting is with three external agencies at the same time who offer a software solution that promises to help them manage an area of their operations more efficiently. The meeting was recommended by an AI system that assessed the marketing text on a

range of agency sites to make the best matches for the requirement that Daley's company has. The intention behind it is to find the match that will provide the greatest boost to efficiency, from the perspective of both client (Daley's company) and business (agencies). To help with the decision, existing users are bought in remotely to answer questions, act as case studies and provide information on services. The final decision may include having something bespoke developed, with one of the agencies being used in the interim, or potentially all agencies taking on a part of the role that best suits them.

For his lunch, Daley receives delivery of a tuna sandwich that he agreed to two days earlier, which has a special herb included that provides a vitamin he is currently lacking. This enables him to build value in two ways – firstly because it is part of a weekly schedule of food that helps balance the amount of nutrients that he consumes that week, and secondly because giving the food preparation and supply businesses a bit of notice enables them to order and distribute the ingredients and final order in an efficient way. He could have put his order in later, or gone to a supermarket to get something on the move, but on this occasion he used it as an opportunity to build value. He consumes the sandwich at his desk while browsing through a neutral news site, that functions as a space specifically dedicated to Daley, pulling in content from any source – both those he frequents regularly and those he may never have visited before – according to topics and themes that it assumes he will be interested in based on previous behaviour and a number of other factors calculated through cross-referencing all that is known about him.

Lunch concludes his work commitment to the recruitment company for the day, but not to employment as a looser concept. He receives a number of 'job' offers for activities that need an individual to complete them locally in the afternoon, with each building value based upon the length, difficulty, inconvenience and importance of the activity. He accepts performing the role of delivery person on the way home – with parcels and other items that need to be moved around for various reasons placed into the autonomous vehicle he takes home, stopping at numerous locations so Daley can complete the final steps to actually post or hand-over the item. He also accepts the offer of dropping in on an elderly and infirm individual to do some washing-up for him.

While in-transit between these various endeavours he receives communication updating him on things that are being planned and developed on his behalf to invite feedback. This includes reworking some of his clothes into new designs, some DIY equipment to fix a shelf in his house that has gone a bit wonky (some of these items are to be kept, such as screws, while other equipment – ladder and screwdriver – will be returned centrally after for usage by someone else).

He receives one 'job' offer that he turns down, as it requires the operation of a small machine that he is not trained on using. In order to be eligible to do so, he would need to complete an online task to a required standard, but it doesn't really interest him so he turns down this role and opportunity to further influence his value rating positively.

At parts of his journey home, he is prompted to leave the vehicle to take a brisk walk a certain distance before boarding another vehicle, to help approach his optimum exercise target for the day and maximise efficient use of the vehicles based on other individuals along the same route who would benefit from being transported at those times.

After work he goes to a theatre where a play is on that night that he wanted to see. He initially tried to get a ticket, but all had been reserved already. However, the AI system is

able to monitor people who did get a ticket, but that may not be intending to attend anymore based on various criteria – such as those who are currently still quite far away from the theatre near showtime, or whose diaries show up clashes with other events and activities. One such person was identified as no longer being able to make it and the ticket was redistributed to Daley instead.

He eats at a nearby restaurant beforehand, having selected a meal earlier comprising potatoes, vegetables and a steak and kidney pie, with the portion kept to a reasonable size given that he will be sat in a dark theatre for three hours afterwards. It isn't prepared at the restaurant he is in but a dark kitchen 10 streets away, with the ingredients sourced from various restaurants and stores. He opts for dessert, as he thinks he 'hardly eats any chocolate', but his app flashes up that he has already eaten two that week and it's only Tuesday. This pushes him up quite high in a comparative benchmark with other people similar to him, so he decides against it.

When he gets home, he reviews an online delivery he received during his commute earlier. It's a small trailer that attaches to the back of a bicycle, as Daley thought it might be a useful device for transferring goods back from the supermarket when he does a large shop. It fits onto his bicycle, as it has been designed from scratch to be appropriate to his exact circumstance rather than relying on Daley to make the right decisions and get the sizing right.

Before going to bed he sits in front of the TV to watch an episode of a new series that has just come out. The normal version can be viewed by anyone, but an enhanced version exists which allows the viewer to participate in an experiential way in some of the scenes (using 3D glasses to 'be' inside a battle scene with a full 360-view of what is going on rather than just seeing what the camera recorded for display in a more traditional sense). This more expensive option is only accessible by people who have a sufficiently-high value rating to qualify, which he does.

He goes to bed at 11:31, which his phone app tells him is the optimum time for him based on daylight hours, tiredness level, diary tomorrow and the fact it will bucket with rain at 03:00 and wake him. He will find out in the morning what time he actually falls asleep.

These examples of how a fairly ordinary day could vary over a few periods in time are obviously artists' impressions of those periods. Technology is evolving at a rapid pace and transforming the way that things work, so it is of course impossible to really know what devices, systems and networks will be in place in even 10 years, let alone 30. These are instead intended to illustrate the character of a future in which AI has become an integral part of every interaction we have with the outside world.

If we maintain the idea – or, as I have argued, the illusion – that economics is a relevant and essential component of the digital age, then the character of AI will be that we see in the 5-10-years'-time example. It is helpful, resourceful, convenient and to a certain extent indispensable – capable of pulling together streams of information that present the user with options that are likely, in several cases, to be accurate and useful to the kind of experience that the user may be seeking. But – it is an AI that operates within walls, restricting the information used to sources from whom the AI-owning business can generate some kind of commercial up-kick. It doesn't necessarily find the best matches in

the interests of the individual user, it finds the best within its ecosystem with paying advertisers able to circumvent the logic of personalisation to secure exposure to a desired audience. It is not, then, genuine personalisation.

In the 30-years'-time example, where economics has been removed from the standard relationship of individual to external entity, these restrictions are removed and the logic of personalisation is adhered to primarily and exclusively, as the success of outcomes is measured in other ways – linked to the level of efficiency that activities enable.

All this, of course, is dependent on the direction we take with AI as we are approaching a fork in the road – and the path chosen will determine what the internet, this intangible force that is coming to enshroud us and everything we do, is actually there to do.

It's easy to see why some of the most successful movie franchises have such a capacity for endurance. Consider Star Wars – it may feature action from across multiple planets and galaxies, with interwoven storylines about concealed family bonds, intergalactic smuggling, death stars and rebellions but at its core it is a simple story about good versus evil; with some practitioners of 'the Force' dedicated to preserving life and others dabbling in the dark side focused on control and destruction. It's pretty clear who you're supposed to root for. Or Lord of the Rings, where simple rustic folk who exist in bucolic self-sufficiency (good) have to battle a rampaging orc horde conjured up by a wizard who has been contorted by the dark side of his magic powers (evil) and who tear down trees and devastate the natural habitat. Or any of the Marvel or DC superhero films where, granted, the hero might struggle with the conflict inherent to his or her post, but ultimately they still come through as the team the viewer backs, with the bad guys always much more identifiably evil and conveyed as the ones you most certainly don't want to win.

For all the complexity of plot, these dividing lines exist to make it easy for us to choose sides as a viewer so we can understand that, in spite of all the trials and tribulations, things work out well in the end. The baddies always *almost* win, but the good guy's hand gets to the bomb timer with a second to spare and the reinforcements turn up to the battle scene at the exact point it seemed all was lost – and so order is restored.

We like these narratives precisely because they remove the complexity of reality – we like to believe that the world is ever engaged in some kind of eternal struggle between good and evil and that, while things may not always go as we would like, we can have faith that the balance will be restored to keep us on the right path in the long-run. And this certainly doesn't just exist in blockbuster movies. Social media is awash with attempts to join the right side, condemn the wrong actions (in 140 characters), demonstrate that we are one of the good guys on the right side of history. We identify the baddie and hold them up as the purveyors of all that is wrong with the world (President Trump has been a godsend for this kind of approach, truth be told, willingly seizing his role as pantomime villain with both hands and revelling in it).

In the 'real' world (define that how you will), we don't have 'the Force' or orcs or superheroes to make these divisions easy to track, but the concept finds expression in various ways nonetheless. In our age, one of the most consistent and apparent is in the media characterisation of consumers and businesses – and never any more profoundly than when it comes to tech businesses. Consumers are the undisputed heavyweight champions of goodness in this split – playing the part of the downtrodden and afflicted, who are constantly cheated, lied to, miss-sold and monitored without their knowledge or consent. Consumers just want to be able to consume in a fair and just environment, but evil corporations cut corners and engage in all manner of corporate scandals in pursuit of higher profit targets all the time – consider the likes of Volkswagen's faked emissions tests, the rigging of the Libor rate, the misrepresentations of Enron – but it's the tech companies that bear the perception of evil incarnate the most (to the point that Google's guiding principle is '*don't be evil*' – why would you need to state it so explicitly?). Tech companies play the role of supervillain as they can go far further than just cheating the law to boost commercial performance – these are the ones that snoop on us, trick us into clicking on things, sell our data in ways over which most people have very limited understanding. They are the archetypal bad guys who shower us with fine talk of

democratisation and utilitarianism, but really they serve themselves secretively and primarily.

This is what the narrative has been consistently reduced to, with news stories and documentaries promising to expose the machinations of Silicon Valley – lifting the lid on how consumers are being maltreated by these organisations and why they are not to be trusted as they penetrate ever-deeper into every area of our consumer-focused lives.

The battle-lines are pretty well established as far as many journalists seem to be concerned. There are constant calls for large tech companies like Facebook to be more transparent, even to be nationalised in more extreme casesⁱ. To illustrate this attitude, I executed a search for ‘Facebook’ on Google on 4 September 2017 (ie at time of writing this paragraph) and, of the top 10 results returned in the news section, five of them were negative in toneⁱⁱ. This is perhaps not a huge surprise in itself – it may be explained by a general theme of cynicism toward private business in some areas of the British press, or the need for ‘clickbait-friendly’ titles that have a better chance of attracting attention through social networks. Or it might be representative of the anxiety-ridden era we are living through, in which we are constantly being tracked in ways we don’t understand or have any visibility of, that we never overtly agreed to, but that we are anxious about – businesses are able to do it because of clause 23(c)(iii), or whatever it may be, in the terms and conditions we never read because they are the length of Hamletⁱⁱⁱ. Cynicism is a line of defence against such enforced ignorance.

The consequences of this cynicism (a cynicism which, to give it its due, is repeatedly proven by the regular exposure of business scandals) are more profound than we give it credit for. As we have established who the goodies and baddies are, action is taken in the guise of legislation to prevent the baddies from winning too easily. Consumer protection regulations are pushed through to tighten up the loopholes left by the general trend of deregulation over the past few decades, so it seems like the good guys (ie consumers) are getting their victory overall – but all this does is justify a narrative in support of the continuation of consumerism, by reconfirming that it is how people should be defined and making businesses structure the way they operate around that framework. Consumerism is being buffered up and underscored in direct response to the perceived threat of tech companies – and that, we are told, represents battles won in the name of the good guys.

As there is so little trust put in companies’ capacity for having access to individuals’ data, regulators act accordingly. A draft proposal put forward by the European Parliament’s Committee on Civil Liberties, Justice, and Home Affairs in June 2017 recommended that end-to-end encryption be enforced on all digital communications, covering *‘current and future means of communication, including calls, internet access, instant messaging applications, email, internet phone calls and personal messaging provided through social media’*^{iv}. What this means in essence is that companies who provide services in these areas will not be able to monitor, track or listen to what is being shared through these services as they will not possess the encryption key. In an October 2017 iOS software update, Apple also brought in new restrictions around passive tracking – which refers to one smartphone app or third-party software programme being able to use tracking technology to monitor what is happening within other apps. Apple likes to portray itself as the custodian of consumer privacy, though that’s perhaps easier for them to do than a company such as Google or Facebook due to the fact they make the bulk of their money from hardware sales; data is less necessary to their business model.

It all sounds very positive from the perspective of consumers of course, defending our privacy against the snooping propensities of governments and businesses. The public are coming around to the idea of greater regulation too, which represents a challenge to the free-market ideologies that enable these companies to be so dominant and is even acknowledged as a growing issue by free-market thinktanks, such as the Legatum Institute^v.

Yet it is very 'unconnected world' in approach – by putting these limitations in place, which might be sensible enough in some respects, such as where personal security is concerned, it reinforces a common-sense culture of aligning the digital world with the way things were previously as much as possible. The problem with this is that it prevents the systems and services companies provide from being able to benefit from genuinely understanding an individual's personality, their wants and needs, from the endless streams of data that we produce. It restricts the potential for personalisation, which has a knock-on effect for the experiences that AI can provide and finally the efficiency of the operation of services between individual and business.

In industry speak, this whole area often centres around the concept of the 'the right to be forgotten', which means giving people the power to demand that information on them is deleted by companies. In the Queen's speech in June 2017, it was confirmed that this would be enshrined in UK law by a new Data Protection Bill and it is a core element of the EU's new GDPR regulation mentioned earlier in this text. Again, it seems logical enough upon initial consideration, but do we actually have the right to be forgotten if it inhibits the capacity for the infrastructure of society to function efficiently? Don't we all lose in the end if that is the route we take, rather than adapting that infrastructure to be more appropriate for digital? Why limit the potential of DCT just to keep economics relevant?

Sometimes, regulation isn't even required as the pressure of public perception is enough. For example Google, who offer the free Gmail email service which they claim has 1.2 billion user accounts, announced in June 2017 that they would no longer scan email content for ad personalisation^{vi}. Meanwhile Uber announced in August 2017 that they will stop tracking users through their phones after their journey is complete, sticking to just tracking location data while they are using the app. Again, from the perspective of personalisation, restrictions such as these ultimately hinder what the services are capable of knowing and doing. They haven't been legally forced to do this, it's just that the pressure of being too perceptibly bad has told.

We are constantly marketed the idea that we are in the grip of a revolution – the digital revolution, the mobile revolution, the transport revolution, the AI revolution, it has many names – in which our lives are going to be transformed by technology with almost no business, process or activity too large or small to escape being disrupted. The leaders of tech companies speak of connecting the world, saving the environment, making web access a human right, empowering communities and making the world a fairer and more inclusive place to exist.

Yet this revolution has, in a very fundamental way, failed to materialise as the standard-bearers for it overlooked one elementary point – they forgot to change the system that this technology has to function within. They forgot to have a revolution. When Facebook first started to add new users by the million, it seemed that Mark Zuckerberg had the world at his feet, with a new digital model that defied conventional logic about how a

business operates. Would he usher in a fresh and innovative era, under which the rules would need to be completely rewritten as the world adapted to the realities of digital?

Quite simply, no, he wouldn't. Facebook was a social network, it is now a capitalist advertising platform. A business above all else, with investors and markets to satisfy through financial performance. No-one could possibly argue that Facebook – among other tech companies – hasn't had a big impact on how things work, but the change has been *transformation* as opposed to *revolution*. It's perhaps not that surprising, given that the average age of a Facebook employee is 26 (for Google, it's 29^{vii}) – do they lack the experience to genuinely understand how to bring about systemic change, or what that even means? We have witnessed wide-reaching change in how things happen, no question about it – some industries have experienced a period of sharp adjustment, long-established household-name businesses have been swept away, the ways in which people communicate and access information will never be the same again – but it has not been extended to why or for what purpose they happen. It has not been extended to whether economics, which is what characterised and defined our lives in the unconnected era, is appropriate for digital.

This failure to evolve the thinking that underpins digital has led to personalisation itself – the very concept that should be the greatest achievement of this technology – being hit with negative connotations. During recent elections – and particularly the US presidential election in 2016 – political party campaign teams have acknowledged how powerful platforms such as Facebook have become for them. Using all the data these platforms know about individuals, it becomes possible to optimise the message users receive to better target them. So at a basic level, a factory worker could see something different from what an investment banker is shown, but this is only the beginning. Facebook uses algorithms to put people into psychological segments based on the types of content they have clicked on or liked, so two people who work in the same role at the same company might either see a very different message, or the same message but with subtle variations to help it resonate with their personality.

The Republican National Committee, who were involved in Donald Trump's election campaign, said that it was common for them to be running 40,000–50,000 variants of ads on any given day of campaigning, assessing performance when certain elements were adapted such as use of imagery, video, subtitles or the overall layout of an ad's content^{viii}. The team have publicly acknowledged Facebook as having been hugely influential to the final result.

Here, personalisation is conveyed as something nefarious, a tool that can be mobilised to push us into taking decisions that have deep and unforeseen consequences without perhaps understanding what we are even doing. Personalisation is not seen as a liberating force that can improve the efficiency and effectiveness of how things work, but as a shadowy and controlling technique to be used against us. Personalisation is becoming entrenched as a baddie in this narrative.

Another battle that we might identify represents a continuation of this tension – digital versus economics. The terms are frequently spliced together to form the 'digital economy' though in truth all this actually seems to refer to is the idea that things purchased through digital means contribute to the overall economy – it's not really anything new or innovative in that respect. The fact is that, as I have argued throughout this text, these two concepts

are not logical bedfellows, they don't complement each other in any sensible way under their current definitions, so one, or both, has to change to form a better fit with the other. Our inability to even imagine, never mind believe, that digital could provide a new system that doesn't require economics to function means that economics is winning this struggle – so that digital has to be moulded around the economy in a way that will eventually lead to the two being indistinguishable, but with the characteristics of economics being dominant in that new hybrid. Digital has to adapt to economics, rather than the other way around.

In fact, it's not even too much to suggest that digital is an economic inconvenience that must be curtailed and tamed so that the concept of economics can survive. If the likes of Facebook, Uber, Google et al have to operate within an economic framework, specifically a capitalist one, then we have to accept that they are businesses first and foremost, then widely-available, essential components of the infrastructure of modern life second. They may have access to individuals on a wide scale, with an ever-expanding well of understanding on them and so many of their activities, but if their current definition as a business means they have to focus on driving revenue in a highly competitive, fast-evolving and disruptive environment, then we cannot act surprised when that is exactly what they do.

Tech companies, particularly those that function as platforms, are among the richest companies in the world even though they are ostensibly free at the point of use. How this could possibly be the case is a bit of a mystery to most people, but this is because economics can whirl away in the background when it comes to digital. There is no need for a comprehensive view of the subsequent associated business contracts and records generated behind the scenes to be communicated to the user. In a way that can seem akin to magic, we click on things and somewhere hidden away from view revenue is generated between two or more entities, many of whom most people have probably never heard of, nor ever will.

Things happening in this way isn't a problem in itself, as it is just expressive of how digital works. It isn't required to inform you of everything that is happening in the background, it would be a terrible experience to constantly have alerts updating you about what data has been tracked, where it is being stored, what it might be used for and why. Where regulators have forced this degree of transparency, we end up with 'solutions' such as the cookie legislation (officially the EU's E-Privacy Directive), which stated that sites must obtain consent from visitors for cookies to be used. Sounds fine in principle, but it's resulted in annoying pop-up windows on every site, disrupting the experience and being almost universally ignored anyway. If people did want to know exactly what was going on in the background all the time, we would all read the terms and conditions, privacy policies and cookie declarations on every site we visit, but we don't. We just need a system in place that ensures all the necessary processing that happens, behind the scenes, when we interact digitally is being done in the user's best interests – that we can have some trust that it isn't being used for purposes that are too heavily skewed toward the enabling businesses' interests.

This is a particularly potent point as we continue the move toward AI. These systems, operating within a walled-off internet, will be designed to keep users within a given estate as much as possible so that the owning business can maximise the exposure individuals have to things they can track and benefit from. The only people who can build AI are

those with the resource to do so (there are rumours, which may be just that of course, that the best new graduates in this area are able to command salaries of hundreds of thousands of dollars; universities also cannot compete to keep their best PhD students, as they get snapped up by the big tech firms who can offer them such enormous salaries), which limits it to major tech companies who will develop these systems for themselves and their stakeholders – indeed, as we see with the way that their own voice-activated devices function, already are.

The biggest threat here is that this technology will become so good at providing experiences that are relevant, accurate and convenient that we will come to regard it as a reasonable trade-off that the enabling platforms are able to extract high and increasing commercial gain, all the while knowing more and more about our daily activities. It will seem fair when it gets to a certain inflection point, we won't even feel like we need to know what is going on behind the scenes. But we will never get genuine, done-in-our-interests assistance from a profit-focused AI system – why would it assist someone toward activities that may be in the interests of that user, but where there is no potential for it to generate revenue out of it somehow for the business it serves? Or for a competitor to benefit?

Again, as we try to maintain the prominence of consumerism and economics, we can wall ourselves off and try to limit the ability of connected technology to become entangled with our daily lives. Consider what the EU's GDPR is bringing into law in 2018, for example – one requirement it introduces is the need to get an individual's permission to contact them via email. This is to cut down on aggressive sales tactics in which the sender 'guesses' someone's contact email because they know the domain and format (firstname.lastname@company.com), then hassles them consistently or adds them to newsletter lists. It may seem like a victory for consumers, but it cannot be adjudged as so for the future of the web if that approach is meted out to all areas of connectivity generally. It's just more walls, more siloes; privacy – and economic thinking – enshrined in law.

It's the narrative of businesses vs consumers situated centrally in our thinking, whereas the way to bring about better outcomes from such connections would be to integrate AI directly and neutrally into the interfaces between business and individual, giving it agency to decide who needs to be connected to whom, when and where to produce the best or most mutually-beneficial outcome. It necessitates the opening of all avenues of communication between people, things and places – far from the marketing 'free for all' we fear could happen (arguably actually is happening at the moment), it could lead to a very rational and agreeable management of connections, if overseen intelligently and in the best interests of all involved.

Consumers are private in character and nature, but the web is the exact reverse. When the two things come together, something has to give. As much as we value privacy, indeed are very wary of any intrusions into it (a wariness justified by history, specifically relating to the various dictatorial regimes of the 20th century), from the perspective of efficiency it is clearly in the interests of all parties – businesses, people and governments – for us to be better understood as individuals. Digital, for the first time in history, makes that possible to a highly advanced degree – but keeping economics and consumerism alive can only prevent it from being achieved. The digital world will be walled off with a small number of large tech companies owning the divided-up segments and working hard

to keep us within their bit. And everything that can be understood – all the little points of interaction between individual and business and, indeed, individual and individual will become commercialised.

And so we have to take a decision on direction at the fork in the road. One has to give way to the other – either digital allows itself to be moulded around economics, or economics recognises that digital is different from anything that has come before and accepts it has to be retired to make way for it.

Whichever way it goes, what we currently think of as choice is going to undergo fundamental change. Our choices are going to increasingly be made for us, as machines come to understand so much more about us on the individual level that they will become very effective at connecting us to things of high relevance and logic; we won't be so necessary to the process of whittling things down from scratch anymore, as AI systems will be far more capable of guiding us down the 'right' track in any given circumstance than we could ever hope to be.

So many of these decisions will be taken without us being actively consulted on every aspect that underpins them, it's just not practical to expect that we could be. The choice to cede control of choice has been taken out of our hands, the technology is already advancing past the point at which it could be feasible for us to continue to grasp it. The lingering question concerns the character of the AI systems that will inherit choice – will it be owned by a handful of tech companies who use it for their own benefit, or can the results of the endeavours of AI be shared more democratically between everyone and everything involved?

We can of course demonise the tech companies, turn them into the baddies for the purposes of our narrative, legislate against them, restrict what they are able to track and how they can use it. This is a solution of sorts, the easiest to swallow from the perspective of consumers, but one that lacks imagination and curtails the potential benefits that DCT offers. The alternative is to opt for something that has thus far been impossible to countenance, evidently – to restructure what a business is and how it operates, redefine what a human being is under a digital system, and acknowledge that economics shouldn't be an automatically assumed piece of the puzzle for that digital system; to start to seriously and openly debate the possibility that it could be retired as a concept and embrace the heresy of our times:

Because we just don't need it anymore.

ⁱ The Guardian, *We need to nationalise Google, Facebook and Amazon. Here's why*, 30 August 2017, <https://www.theguardian.com/commentisfree/2017/aug/30/nationalise-google-facebook-amazon-data-monopoly-platform-public-interest>

ⁱⁱ These were: 'Facebook knows exactly where hundreds of millions of people live' (The Independent), 'The murky world of Facebook raffles' (BBC), 'Here's why you can't block Mark Zuckerberg on Facebook' (The Telegraph), 'Creepy Facebook feature reunites woman with her great aunt – who she had never met' (Metro), 'Officer's murder trial paused due to judge's Facebook post' (Daily Mail)

ⁱⁱⁱ Which?, *Online T&Cs longer than Shakespeare plays – who reads them?*, 23 March 2012, <https://conversation.which.co.uk/technology/length-of-website-terms-and-conditions/>

^{iv} European Parliament Committee on Civil Liberties, Justice and Home Affairs, *DRAFT REPORT on the proposal for a regulation of the European Parliament and of the Council concerning the respect for private life and the protection of personal data in electronic communications and repealing Directive 2002/58/EC (Regulation on Privacy and Electronic Communications)*, 9 June 2017,

<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-%2F%2FEP%2F%2FNONSGML%2BCOMPARL%2BPE-606.011%2B01%2BDOC%2BPDF%2BV0%2F%2FEN>

^v Legatum Institute, *Public opinion in the post-Brexit era: Economic attitudes in modern Britain*, October 2017, <https://lif.blob.core.windows.net/lif/docs/default-source/default-library/1710-public-opinion-in-the-post-brexit-era-final.pdf>

^{vi} Google, *As G Suite gains traction in the enterprise, G Suite's Gmail and consumer Gmail to more closely align*, 23 June 2017, <https://www.blog.google/products/gmail/g-suite-gains-traction-in-the-enterprise-g-suites-gmail-and-consumer-gmail-to-more-closely-align/>

^{vii} Payscale, *Tech Workers Are So, So Young*, 15 July 2013, <https://www.payscale.com/career-news/2013/07/tech-workers-are-so-so-young>

^{viii} Wired, *Here's How Facebook Actually Won Trump The Presidency*, 15 November 2016, <https://www.wired.com/2016/11/facebook-won-trump-election-not-just-fake-news/>