THE LIFE AND DEATH OF USER MANUALS

Over the last 20 years, the progression of technology has moved parallel with society's ability to adapt to it. Technological trends and changes have been informed by its relevance in society, and society has become accustomed to and adapted to the influx of technology in their daily lives. The socio-technological ecosystem of 2018 is the result of a relationship that has been influenced both by technology and society, and their growth and adaptation to each other. This relationship between society and technology is clearly evidenced by the changes that have occured in the technical documentation we interact with most often, user manuals; and their phasing out is a direct result of that relationship evolving. In examining the relationship between society and its adaption of technology, we can not only gain a better understanding of its history and influence, but can use it to look forward and assess what the phasing out of user manuals means for society now and society in the future.

USER EXPERIENCE

As we examine the relationship between society and technology, we need to look at their direct point of interaction and how that has changed over the years. User experience design is any measure made in the production of software to make its use and interaction easier and more enjoyable for its user (Kujala). Although the idea of designing software specifically geared towards usability had been around in one form or another since the 1940s (Merholz), it wasn't really until the 1980s until it became a priority.

THE FIRST WAVE

For the sake of this research, I will only be looking at technology based in computer science. This narrows the field of research considerably, and enables a more focused look at the

technology that has the most direct impact on society and the average person's day-to-day life. The societal impact of computers and computer technology in general cannot be understated. Looking at the history of computer technology and how it has evolved gives insight into the relationship society has with technology, as it has had the biggest and most direct impact on society, and evolved the most rapidly in the course of 80 years.

As we start our examination of the history of technology, we start in the 1940s. Though, strictly speaking, technology wasn't suddenly invented in the 1940s, that is when the issue of user experience became an area of focus in its development.

The first technological boom in the United States was born out of fear. Between the 40s and the late 70s, most if not all technological research and development was done for and by government agencies in response to world issues and not for the sake of furthering the field or creating technology the everyday person could use. John Carroll, the pioneer of user experience and an influential force for user design implementation at IBM, remembers what the technological community experienced in the 40s and 50s: "the Russian's Sputnik satellite in the mid 50s scared the hell out of the west. The U.S. in particular, as everybody knows, is very susceptible to fear mongering. And back then, we still had the economic engine to respond. There were labs like Watson, like Bell Labs, and like the original Xerox Park, that were very basic; that were doing fairly basic research" (Adlin).

As we examine history of our socio-technological ecosystem, we see that its very birth was brought about by societal need, even if that need was heavily influenced by governmental necessity. Carroll goes on to explain that while the first wave of technological advancement in

the United States may have been caused by fear, its impact quickly became a positive point of pride for the country. Carroll recalls:

> President Kennedy's goal of getting to the moon was intended to send a Cold War message to the Russians and the rest of the world. But it also was clearly all about big ambitions, human achievement, and hope. If we think about our own industry – computing, the 1960s were the years when the computer as we know it was being invented. Lots of big things were happening; cognitive psychology and modern linguistics were invented in that decade. (Adlin)

This pivot from technology being a point of fear and governmental control into a source of hope and inspiration cultivated an environment for technology to play a bigger role in society's lives as we headed into the 1980s.

THE SECOND WAVE

In the 1980s, things changed. Computers became less for governmental use, and were suddenly for kids, secretaries, principals, small businesses, education, and anything and everything in between. Suddenly, the people using technology didn't have degrees in computer information or electrical engineering or mathematics. The users of technology shifted, and technology followed suit. Here we see the birth of focused sociotechnology, "the convergence of technological and social insights in the creation, construction and use of [technology]" (Radziwill). For the first time, the user's desires and needs were starting to influence the development of technology.

As is the case with most important points in American history, consumerism and business drove the upswing of user-specific technology. The Walkman, the VCR, the Nintendo and Atari,

the cellphone, cable TV, and the first average consumer-level home computer were all born in the 1980s, and every single one of these items had a specific purpose: to serve it's user. While the technological innovation that took place in the 1980s may seem simple, silly, or weak when placed side-by-side with today's technological norms, the era cannot be understated in importance and in the foundation it laid for technology moving forward.

THE USER, THE VICTOR

The king of consumer technology heading into the 80s was IBM. The first company to embrace the user seemed unstoppable with its own line of personal computers at a competitive price point and a near monopoly on the business side of computing. However, a young man who led a young company sought to dethrone IBM as the source of personal computing, and in the holiday season of 1984 the battle between Steve Jobs' Apple Computers and IBM came to a head (Eicher).

The holiday season of 1984 is an important moment towards the development of our current socio-technological ecosystem, in that it signifies a turning point during which technology companies would be placing their focus for the next 30 years. Up to this point, IBM and Compaq were the main competitors, and in the winter of '84, they both had high-end computers that were readily available for the masses with the caveat of being out of most of the average consumer's price range. Enter Apple Computers and the "//c."

While necessity may be the mother of invention, the untapped marketplace is often the father of innovation. Apple went toe-to-toe with IBM in the neglected consumer market, and Apple's victory really came down to their ability to decipher user needs and create a technology whose user experience was more in line than IBM's (Eicher). Despite the fact that the IBM PCjr

had the more technically advanced unit, with technically better software and package options (thanks to a partnership with Microsoft), and Compaq was toting its own set of hardware, Apple's offering took into account what its users wanted. Even though the Apple//c wasn't as technologically advanced as its competitor, because it was built specifically with the user in mind and focused on what better benefitted the user experience, the Apple//c outsold IBM's PCjr at nearly 10 to 1 (Eicher).

This is, of course, a very simplified version of the events that eventually culminated in the Wild West of personal computing being won by Apple. And even though this is just one example, it's important to note that the reason Apple came out on top was because of its almost manic focus on the user and the user experience. This attitude and mentality not only propelled Apple into the forefront of personal technology, but changed the way technology and software would be developed for years to come. It's impossible to talk about the development of user experience and not discuss the importance of Apple in bringing its focus to the forefront of technological design and development. The history of user experience and the history of Apple computers go hand-in-hand.

THE THIRD WAVE

Up to this point in the 1990s, technology had been almost wholly informed by the user's needs and experience. According to Jobs, what really set Apple apart was its ability to let technology inform the user as much as vice versa. In 1989, Jobs explained "You can't just ask customers what they want and then try to give that to them. By the time you get it built, they'll want something new" (qtd. in Burlingham). This idea of anticipating what future user experience

needed to be was one that hadn't been attempted before, and has ultimately changed the way we as a society interact with technology for the last 20 years.

With each new iPhone and each new laptop or other technological update, the source of user anticipation has made a dramatic shift in the last 20 years. Where a society asked what problems could be solved with the latest technology from the beginning of time to 1990, they started asking in what ways would technology improve our lives in ways they didn't know they needed. It's a subtle shift in technological perspective, but an important one. Technology isn't developed for the sole purpose of answering questions anymore; it's developed to make us ask questions and move forward. Jobs summed it up as such:

> Some people say, 'Give the customers what they want.' But that's not my approach. Our job is to figure out what they're going to want before they do. I think Henry Ford once said, "If I'd asked customers what they wanted, they would have told me, 'A faster horse!'" People don't know what they want until you show it to them. That's why I never rely on market research. Our task is to read things that are not yet on the page.

This newly adapted attitude has led to a society that can't wait for the "next big thing" to improve their lives. Any time Apple unveils a new or updated devices, thousands of people flood to wherever they're making the announcement and hundreds of thousands more people watch the meeting online. Even if we base our assumption on these observations, it becomes easy to see that instead of society influencing the course of technology, the advancement of technology is dictating the reactions of society.

MEET THE MANUALS

This shift in the socio-technological relationship can be seen not only in the features of new technology and software, but perhaps is even more apparent in the changes that have occurred in the technical documentation and user manuals that have accompanied those changes over the last 20 years. User manuals once came extremely long and thorough, and have migrated to more simple version of their former selves.

If we look at the changes that have taken place in technical documentation in the last twenty years, we see changes not only in length, but in the type of content they provide, and the purpose of that content. This is due in part to the shifting socio-technological relationship between our devices and how we have become more adept at using them. Technology has become integral to our day-to-day lives, and it shows in the technical documentation we no longer need or care for.

Each user manual contains something slightly different than the one before it. or the sake of simplicity, let us group the type of content for each user manual into three sections: physical interactions, software usage, and troubleshooting. Across the board, over the last twenty years each manual has had these three types of sections built into their pages, and make up the bulk of what we know user manuals to be good for. These three categories and how they've changed over the course of the last twenty years give us a consistent indication as to what society needs and looks for in user manuals and technical documentation.

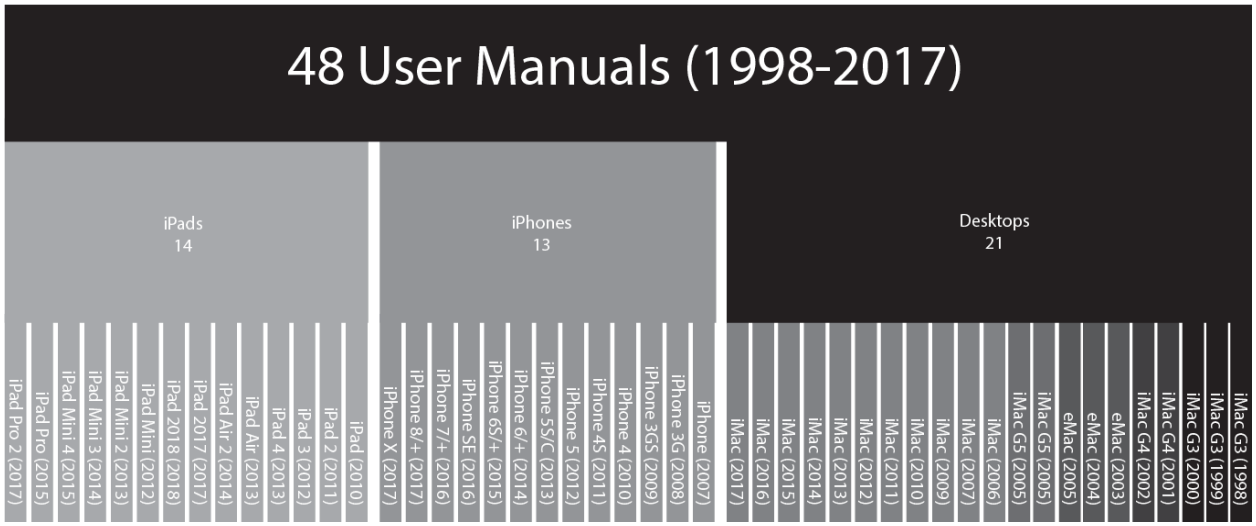
Also, since I am concerned specifically with devices that are heavily focused on user interaction, I am only going to look at manuals for Apple's 3 most popular consumer based products: the desktop computer, the iPhone, and the iPod. These three types of devices have been

the defining technology over the last twenty years, and have served as the pinnacle of Apple's user centered products.

Using this criteria, these types of devices, and these manuals; we can analyze Apple's user manuals to assess the current state of technical writing as it pertains to user manuals and technical documentation. We can also use these manuals and the content they hold to evaluate where we as a society are in our relationship with technology and how that socio-technological ecosystem has evolved over the last 20 years. Gathering this data in tandem with what we know occured in the previous three waves of technology, we can use the findings to also speculate and suppose what the future and potential fourth wave of technology will hold.

As mentioned before, the manuals I will be using to assess the current socio-technological climate will be limited to three types of devices (though a variety of models), between the years of 1998 and 2018. Below, Table 1 breaks down the device that serves as source material for each manual researched and analyzed.

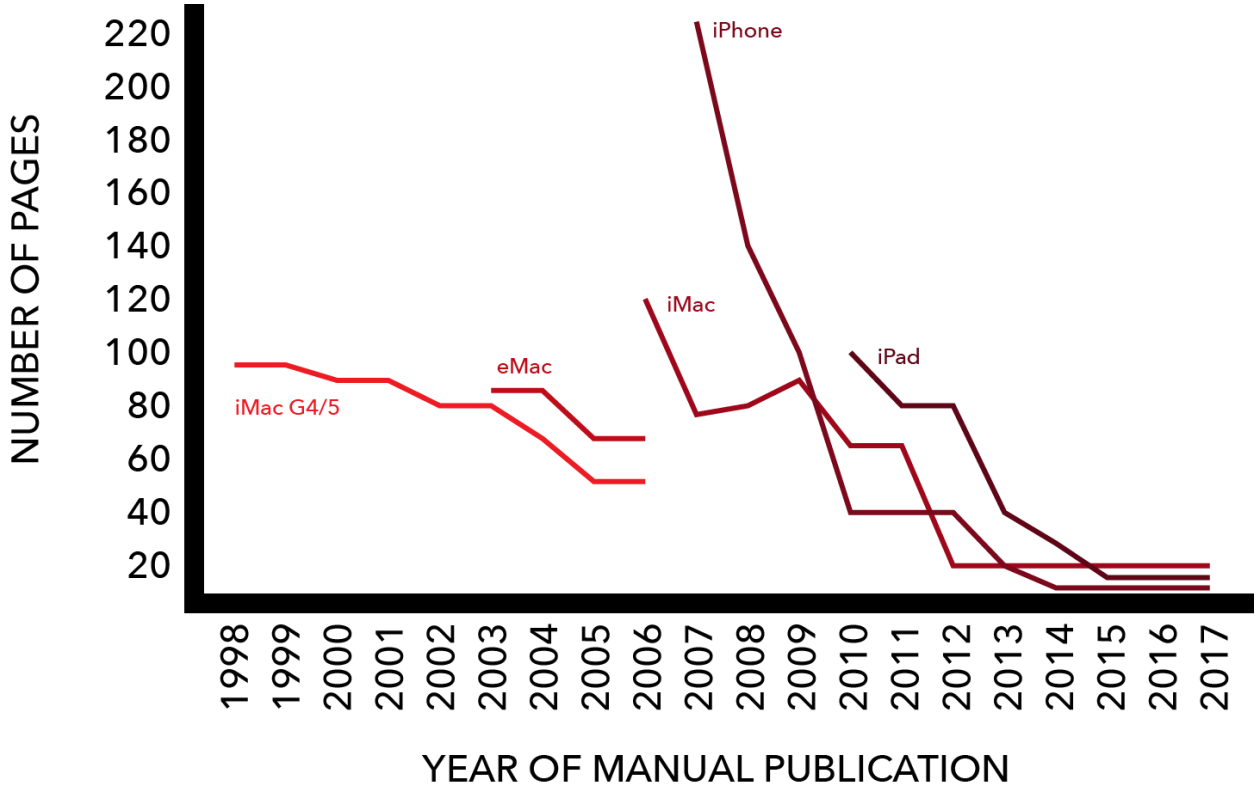
Table 1: User Manual Identification and Break Down



Thanks to Apple's online resources, and having every manual its ever created ready to download in a digital format, we are able to look at 48 user manuals over the last twenty years. Of those 48 user manuals, 21 manuals are for 5 models of desktop computers between the years of 1998 and 2017, 13 iPhone user manuals from its first iteration in 2007 to its current model in 2017, and 14 iPad user manuals spanning the years 2010 to 2017.

Before diving into the specific categories within each manual, it is worth spending some time discussing the actual length and page count for these manuals over the years. In the last twenty years, though the technology has become more complicated and high powered, the size of our user manuals and technical documentation has shrunk. In Figure 2 below, we see the oftentimes rapid decline in page count with each iteration.

Figure 2: User Manuals Page Count



PHYSICAL INTERACTIONS

First, we'll examine the physical interactions that are outlined in each manual. Physical interactions are quite simply, how the user physically interacts with a device. Turning the device on/off, how to manipulate the software by keyboard, mouse, touchscreen, etc. How to charge the device and how to physically care for the device (keep cool, don't get wet, how to clean, etc.).

Looking at the manuals, we see that anytime a new product or device is released, a significant portion of of those manuals is dedicated to the how a user will actually physically handle and use the device. For the most part, this section takes up more than half of each

device's first few iterations of user manual. But, we also see a fairly significant and sudden drop as Apple assumes its user now know how to the use the devices they have purchased.

Perhaps the best example of this drop-off phenomenon is found in the user manuals for the iPhone. The first version of the iPhone user manual was 226 pages long (the longest user manual in all of those analyzed), and focused mostly on how to actually physically use the device. The iPhone was the first mass-consumer, user-centric smartphone, with touch screen capability. As such, Apple took great care in the first version of its user manual to make sure the people that bought and used the device could physically interact with it properly. Of the 226 pages, 152 were dedicated to physically using the device.

Interestingly enough, the very next year a new model of iPhone (the iPhone 3G) was released, and while it came with new functionality, its user manual shrunk by 40% to 135 pages. The section that was cut back was physical interactions. This is just one more example of Apple anticipating the ability of its users, and deciding that it didn't need to be included in its user manuals.

This assumed adaptation is something that is prevalent in each iteration of a device's manuals. To contrast the 226 manual of the first iPhone with 152 dedicated pages teaching users how to use this brand new device and it's brand new technological implementations, the most recent version of the iPhone manual doesn't even include instructions on how to turn the device on. Apple assumes that anyone buying the latest iPhone has either previously owned an earlier version of the iPhone, or know someone who knows how to operate the device.

So the question must be asked, who are these manuals written for? If they aren't being written with the intention of teaching users how to operate their devices, what purpose do they

actually serve? The most current versions of every user manual in each of the categories being researched each take on a fair amount of assumption about it's users. This certainly emphasizes the social aspect and impact of this technology; if someone doesn't know how to use the device, chances are, they know someone who does. Chances are, anyone under the age of 40 has had the distinct "pleasure" of teaching someone over the age of 40 how to use the shiny new device they just bought. This is just one more example of technology dictating how society uses and interacts with it.

Physical interactions take the bulk of a user manual each time a new product is released. However, the amount of space dedicated to physical interactions drops significantly and suddenly once the device the user manuals are for is adapted into mainstream use by the users and society. Here we see society and its adaptation to technology manifesting itself in shrinking user manuals.

SOFTWARE USAGE

Software usage is defined as how the user interacts with the actual software on each device, how to open software, and how to use the software once it's open. This isn't limited to just programs or apps on any given device, it also applies to the operating system of each device, and how to navigate and use the software in that way.

Like physical interactions, software usage took up a fair portion of each user manual, initially. Unlike physical interactions, however, while physical interactions still have a place in the current and most recent versions of Apple's various user manuals, software usage has virtually disappeared. This is puzzling for two reasons: first, the rate at which software is updated and changed is almost always done in quicker succession than the updates and changes

that occur to the devices themselves; second, if there was something that someone would have trouble with when using a device, chances are still pretty high that that problem stems from a software problem. Yet, in current user manuals, how to use the software is gone.

The solution, it seems, is part of a much larger and overarching theme in the way that user manuals are changing and adapting to society. Each time someone starts up a device for the very first time, instead of relying on someone to read the manual and learn how to use their brand new device, more often than not, the device itself gives the user a walkthrough on how it is to be used. This is one example (and we will look at another in the troubleshooting section) of technology informing the user, and adapting to the user then informing technology. We are literally using software to learn how to use new software.

TROUBLESHOOTING

Troubleshooting is usually presented as a Frequently Asked Questions section at the back of a user manual. It gives instructions to the user on what to do if something goes wrong or breaks. It usually includes both physical and software based solutions, and sometimes a number to call if users can't figure out exactly what to do.

While troubleshooting hasn't always taken up a lot of space in user manuals, it's been consistent in its inclusion until recently. In every user manual leading up to 2012, there was at least two or three pages dedicated to helping the user solve any problems they might encounter. But, in 2012, that changed. Since 2012, the troubleshooting section has been eradicated in most technical documentation and user manuals.

This is another example of users using software to learn about software, and in this case, solve any issues they might encounter. For most of us, our first instinct when we happen upon a

problem is to turn to the internet or search engine to figure it out, and not the manual of whatever we are struggling with. The troubleshooting portion of user manuals is all but gone, thanks to society's newfound preference to look elsewhere for answers.

To further reiterate this point, if a manual does include any mention of problem solving or troubleshooting, it is usually just to tell the user to visit a website, or contact support. In the case of Apple user manuals, in recent years, the only mention of solving any issues that might occur with a device is followed by "Please visit apple.com if you have any questions." Society has changed the way it solves problems and troubleshoots its devices, and user manuals have responded.

ANALYSIS SUMMARY

It goes without saying that the relationship between society and the technology it uses is one that is informed by both sides. We have seen a penetration of technology in the last twenty years that surpasses any other technological implementation in the last few hundred years. The third wave of technology has enabled us to interact with each other and information in a way that has propelled it's own advancement at a speed previously unthought of. As a result, computer technology has become integral to almost every aspect of our day-to-day lives, and the technical documentation that we rely on to learn about and use that technology has shifted and changed in parallel with the society that uses it.

As a society that is influenced by the evolution of technology, it makes sense that as technology has changed over the years it has done so with society in mind, so to speak. The way we learn about these devices and technology they exhibit has changed almost as much as the

technology itself; with the older and outdated booklets full of sometimes hundreds of pages being reduced to quick leaflets of summaries of what they once were.

The amount of content of user manuals been getting smaller and smaller over the years, but also the type of content that is included has changed and been simplified down to what in some cases is essentially a leaflet for the super computer and camera we all carry in our pockets. What we need from user manuals as a society has changed, and it is clear that the way user manuals are written and created have changed in response to our ability to adapt, and our comfort with using the devices at our disposal.

User manuals have changed because the user has changed, and the user has changed because the technology we use has changed. Each of these elements have evolved over the last 20 years, not independently of each other, but in sync. Instead of technology adapting to users, or users adapting to technology, we are entering an era where both grow and change in tandem and with each other.

WHERE TO NEXT?

So, what has happened to the user manual? And what does its future look like? In 1999, we began to see what most of us would recognize as the current form of user manual, though most wouldn't recognize as such. When someone buys an iPhone, they are given what is basically a brochure with the smallest amount of content possible; but when they turn the device on, it walks them through step-by-step how to set their phone up. The later models of iPhone and the most recent software updates include a "tricks and tips" walk-through that explains how the new software works, right on your phone, right as you're using it. Software usage and troubleshooting are now built directly into the user experience of the device itself, two of the

three elements that are typically present in a user manual. The user manual as we knew it was starting to disappear, and maybe that's not such a bad thing.

In July of 1999, *Newsweek* ran an article titled "Just Skip the User Manual," by N'Gai Croal. Written from the perspective of someone who had just bought a new product they couldn't wait to use, the description the author uses when illustrating the feelings of a printed user manual are indicative of how most people felt and still feel. "There's nothing like the thrill of coming home from your local electronics store with the latest gadget--until you open one of those impenetrable manuals and struggle to make the thing work. And when something goes wrong months later, you probably won't be able to find the manual at all. (Croal)"

It has become pretty clear through the analysis that the way we interact with technology has changed drastically over the last twenty years. Using this data and research we can look forward and attempt to anticipate what the future might hold for our socio-technological ecosystem.

THE DEATH OF THE USER MANUAL

Will we ever see a day where user manuals are completely done away with, and obsolete? The research would suggest that we are definitely trending that way. But does that mean that the user manual is dying or dead? Or, could it mean that user manuals *as we know them* are casualties of a bygone era?

In observing the analysis of Apple manuals over the last 20 years, it can be said with confidence that the printed technical documentation that has been prevalent is on it's way out. However, just as technology has evolved with society, and society with technology, user manuals have evolved as well.

When a user powers up their brand new device for the very first time, the physical user manual it hardly touched and usually thrown away because the device itself walks the user through the things that the user manuals of the past have taken care of. Setup, tricks, tips, and how to use the device are all given to the user as they use the device, seamlessly. User manuals are dead because they've been replaced by the technology they used to teach users how to use. It is almost poetic, in a way.

THE FOURTH WAVE

As we move forward into the fourth wave of technology, the line that separates user experience and technology itself is going to become more and more blurred. Already, if we need help with a piece of technology, our first instinct is to consult another piece of technology, usually a search engine, to find the answers.

User manuals are not completely obsolete, though to say that there will be a time in the near future where user manuals have all but disappeared isn't too far of a leap to make. We've already seen the severe decline, and "thinning out" of what has been previously the main point in user experience documentation.

CONCLUSION

The user manual is dead because we as a society no longer need them. Up to this point, technological innovation has served at the behest of societal needs. In recent years, the inverse has become true, with society adapting to technological advances. Technological trends and changes have been informed by its relevance in society, and society has become accustomed to and adapted to the influx of technology in their daily lives. The socio-technological ecosystem of 2018 is the result of a relationship that has been influenced both by technology and society, and

their growth and adaptation to each other. This relationship between society and technology is clearly evidenced by the changes that have occured in the technical documentation we interact with most often, user manuals; and their phasing out is a direct result of that relationship evolving. We can't predict what the future of technology will be, but if the last 20 years are any indication, society will welcome it with open arms, and no user manuals.

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