Hello Primer22, and thank you for your time.

The theme of "experiences of time" that we will explore over the next few days is arguably one of the most fundamental questions concerning each of our lives, and all of life.

It has been said that we "exist in time like a fish exists in water", and like water is encompassing to all aspects of fish's life, time is encompassing to all aspects of our lives.

As such all of the 6.5 million articles currently documented up on Wikipedia have a relationship to time, even if that is simply the fact they are snapshots of our current understanding of any given subject at this moment in time.

I make this point to caveat that no single presentation on the theme of time can realistically cover the entirety of its applications or implications.

My intention for this keynotes presentation is essentially to surface my own perspectives upon our experiences of time that have been formed predominantly through a **practice based** inquiry, levering the fields of speculative design and critical design.

The nature of my practice is self-initiated and independent, following the Dunne + Raby ethos of questioning the emancipatory potential of design when it is decoupled from the concerns of industry.

Finally I should note that what follows is "non-definitive by definition".

By comparison you might think of it as a dot-to-dot puzzle where I map out the dots but leave it entirely to your own interpretations to make both the links and the bigger picture.

However, the presentation is loosely divided into three sections; past, alternative presents, and futures.

With each section addressing key aspects of the PRIMER22 theme and questions.

As advocates of plurality I hope the PRIMER community will embrace this approach to a subject matter which itself still defies definition.

With that, let's begin.

PART 1 - Past

How can futures design affect how we perceive Chronos, Kairos, and their intersections?

Let's begin with first principles, what even is "time"?

On a fundamental level *time* is simply tense. The differences between past, present, and future as initiated by the Big Bang.

As far as we currently know, *time* can only travel in one direction between these tenses, as dictated by the Law of Entropy.

As such we could describe time as a value we place upon tense as a means for both understanding and making meaning of change.

This, in turn, allows us to question exactly how we value time.

The term 'value' can have two very different interpretations;

That of defining an estimated measurable worth as a *quantitative* value. Its metric value.

Or that of considering something to be important or beneficial as a *qualitative* value. Its moral value.

The financial value of a *house*, for example, is very different to the emotional value of a *home*.

Which reflects the differing notions of time defined by the Ancient Greeks as *Chronos* and *Kairos* we are referring to in PRIMER.

Chronos was seen as a sequential and quantified time of equal parts.

Whereas *Kairos* was seen as a fluctuating qualitative notion of time, where differing events are unequal in value.

Arguably the contemporary experience of time, that is highly favored by Westernised Modernity, has come to significantly bias *Chronos* over and above *Kairos*.

The clock and calendar have now become our primary tools for navigating time.

And yet both aspects of time are not entirely decoupled.

The Chronos of clocks and calendars promotes its own version of Kairos, that can be found in the moral values of punctuality and productivity.

It is through this overlap between differing interpretations of valuation that I want to address the question of '*is it time we revalued time*'.

Is it possible to redesign the tools we employ to quantify metric values of time in order to favour radically different, or more preferable, moral values?

Or inversely, is it possible to reframe our understanding of time primarily from the perspective of the moral values we deem critically important in how we individually and collectively spend our time, and then design tools to help us achieve those very values?

PART 2 - Alternative Presents

Can we immerse ourselves in the many perspectives of our multi-layered reality to envision futures?

What speculative worlds could connect people, nature and the universe(s)?

Should we consider time from a systemic pluriversal perspective?

In order to both explore and explain the core questions of PRIMER22 I will briefly present 8 of my own self-initiated speculative design projects, each concerning the nature of time.

The first four projects concern speculative and alternative versions of timekeeping tools, the second four potential applications of these different ways of thinking about time within broader culture and society.

Before I present these projects it is worthwhile to frame their positioning and intention.

By analogy we might compare the exploration of our experience of time to the field of quantum mechanics.

At present a unifying explanation for quantum mechanics remains a mystery to science, as such it is currently explored and understood through numerous conflicting and contradictory interpretations.

With no single interpretation agreed as an absolute explanation.

And so we might be better placed to consider time in a similar manner, subject to interpretations rather than a single unifying explanation.

Clocks and calendars represent just one interpretation of time, and of course there are currently countless other interpretations as authored by diverse cultures, communities, and individuals.

The works I will present are intended to situate themselves within this interpretation space. A space that we will no doubt further inhabit and populate throughout the duration of forthcoming PRIMER22 talks, workshops, and roundtables. And ultimately beyond.

So to the first project, an interpretation of interpretations. *Sense of Time*.

Sense of Time was an artist-academic collaboration first commissioned by Somerset House Studios in association with the King's College London department of Philosophy.

Its core premise was to explore time as sense.

Whereas our five core senses of hearing, sight, touch, taste, and smell are each associated with discrete physical attributes of our bodies, time seemingly has no such physical attribute.

As such we have come to rely upon external 'extensions of self' in order to perceive and sense time.

Given the ability of such external extensions to interface with the dimension of time it begs the question what might happen if we redesigned the clock?

Sense of Time proposes 10 alternative timekeeping ideologies and mechanics, each prototyped for digital smart watches in order that they could be installed and considered by an audience within a context they are highly familiar with.

The design *Celestial* simply measures time in relation to the orbits of our Solar System. From the single rotation of the Earth on its axis signifying a day, to the orbit of the Moon around the Earth signifying a month, to the Earth's own orbit around the Sun signifying a year.

Time is finally put into a far greater perspective with a final rotation of the Sun's own orbit around the Galaxy, a journey taking a staggering 250 million terrestrial years. Not only does this design remind us that time is cyclical in nature, but an individual could own this watch for a lifetime and see no observable movement of this final ring of temporality.

The design *Closure* takes a much more immediate and non-numerical perspective on time.

Following a theory by philosopher Hilary Lawson that sees "the world as open and it is we who close it through our stories" the face alludes to the closing of moments of time, each relative to where a 24 hour rotation of an hour hand might reside at that particular moment and yet too imprecise to render an exact measurement.

Such a design challenges the notion of "the possibility of a single true account of the world" and instead advocates a plurality of experiences, or individualised moments of closure.

The design of *Anticlockwise* does exactly as it suggests. It is one such example of existing alternative interpretations of time, and reflects the 2014 act of Bolivian congress to alter their clocks to turn left, rather than right.

This was an act initiated in accordance with Bolivian culture, or what the then Bolivian Foreign Minister dubbed the "clock of the south".

Measuring time in reverse becomes not only a radical act of decolonisation, but affords a new appreciation of time as ultimately finite through continually counting backwards to zero, rather than counting forwards to a supposed infinity.

The design of *Tempo* takes its inspiration from musical temporality. Presenting 7 basic tempo terms from slowly, to stately, to leisurely, to walking pace, to fast, to lively, to very quickly. The owner of such a watch is free to choose the tempo of their desire, matching

the pace of times passage to the intention of their actions. Whether that is maximised productivity or holistic relaxation.

The design *Localised* reduces time down to an immediate level of lived experience.

Rather than rendering a 12 hour face duplicating two 360 degree rotations of an hour hand each day, *Localised* contains the measurement of time down to a small pocket of roughly 45 minutes into the future and 45 minutes of the past.

A perception of time which reflects the scientific understanding that there is in fact no universal 'now' to the physics of time, but just a series of local 'nows'.

Finally the design *Diurnal* presents a view of time that surfaces the daily and seasonal fluctuations between the clarity of day and the mystery of night.

The face renders localised sunrise and sunset times to a visualisation of the ratio of daylight to night.

With a single hour hand effectively disappearing into the darkness of night inviting us to equally appreciate the mysteries of night alongside the clarity of day.

Alongside exploring a far broader potential for how we consciously design time, the project also surfaces contemporary neurological research into the relationship between our primary senses and our perception of reality, as explained here by the leading neuroscientist David Eagleman using Mr Potato head as analogy.

It is such a "sensory expansion" that I will talk about next, specifically the lived experience of using the design of *Diurnal* in my own everyday life, and continuing the duration of the project's own life as an applied speculative design project.

Circa Solar evolved directly from *Sense of Time*.

Its own premise was to explore the 'nature of time', as an apparent and universally observable phenomenon, in the same way that we might objectively explore the nature of any other phenomenon.

When considering time from this perspective we are arguably left with a day, lunar month, and solar year as the apparent measurements of time that are both empirically observable and verifiable.

Rendering seconds, minutes, hours, weeks, calendar months, business quarters, calendar years, decades, and endless other fractions of time as mere imaginary constructs.

Prior to the invention of clocks and calendars these later attributes of time simply did not exist, and arguably will no longer exist outside of their continual maintenance and ideological belief by humankind.

As such *Circa Solar* took the *Diurnal* design and extrapolated it into a real world cross-platform app for both smartphones and smartwatches, that was crowdfunded on Kickstarter.

The design remained essentially the same, but now linked a device's geolocation function to an API that actualised the localised sunrise, sunset, three stages of twilight, daylight, and night anywhere in the world.

When rendered as daily and annual fluctuations between light and dark we can begin to appreciate the influence of day-night cycles upon our lives, and the lives of all of nature.

These cycles form the temporal 'entrainment signals' that nearly all living organisms attune to in order to effectively situate themselves within time. Through daily circadian rhythms, but also as seasonal and annual behaviors.

For diurnal creatures, such as humans, sunrise signals the beginning of a wake cycle and sunset its end. While for plant life gradually longer days signal the commence of spring and growth cycles, while shortening days signal the commence of winter and dormancy.

This leads us to a critical observation that along with the universal recognition that our Sun provides the Earth with *solar energy*, it also provides the Earth with a far less recognised dimension of *solar information*.

A source of information that has networked and informed life on Earth for billions of years, far preceding and extending our current understanding of *information* as purely embodied within human culture.

Our relationship to light, as a form of timekeeping, might seem obvious, and nothing that you can't ascertain for yourself by simply looking out of the window.

And yet Westenised Modernity has almost entirely decoupled our everyday lives from this most fundamental aspect of cosmological, biological, and psychological time.

To consider this in a far greater critical perspective let's take onboard the closing remarks of the late Mark Fisher's 2011 lecture to the University of Warwick's Virtual Futures conference entitled '*No Time*'.
–
It is the notions of '*a dilation of time*' and '*digital psychedeli*a' that particularly resonate with my experience of using *Circa Solar* as an alternative to mechanical clock time.

As such my own experiences of embedding *Circa Solar* into my life brought about three distinct psychedelic-esque experiences.

The first concerned a very visceral experience of cosmological velocity as I gradually observed day lengths increasing, and then decreasing, over the course of a midsummer.

I liken this experience to the sensation of going around a corner in a fast car, yet extrapolated to a cosmological level of going around the corner of the Solar system.

The second experience involved a reappraisal of my relationship to time across a cyclical year. I increasingly found my productivity growing in spring and summer, only to dilute in autumn and winter.

What was more, the types of productivity I was concerned with also fluctuated. Summer became more concerned with reading and research of non-fiction and clarity, while winter biased fiction and mystery.

Finally, my relationship to time became so bound to the rhythms and cycles of light that I began to experience a form of *synaesthesia* - the sensation of experiencing one sense as another.

In this case my 'sense of time' was coupled with my sense of light. Throughout the day, and throughout the year, I became increasingly aware of the quality of light as a direct indicator for a place in time.

These experiences overlap with what both David Eagleman refers to as "sensory expansion" and Mark Fisher as a "dilation of time".

A means to decouple from the mechanics of time, and recouple with the nature of time.

A further iteration of this theme then continued with the project *Circa Lunar*.

Where *Circa Solar* sought to create a viable alternative to the clock, *Circa Lunar* seeks to create a viable alternative to the calendar.

Again crowdfunded on Kickstarter as a cross-platform app for smartphone and smart watch *Circa Lunar* renders the phases of a lunar cycle local to a user's location.

Breaking from a linear, and grid based calendar, *Circa Lunar* reflects the spectrums of 28 day lunar months, over a period of 13 equal cycles - rather than the 12 months of varying lengths dictated by the Gregorian calendar.

Circa Lunar helps to attune its user to the influence of full moons and new moons upon our psychology and physiology.
Given the fact that the Moon's gravitational forces control the tides of the oceans, and our own bodies comprise around 55% to 60% water, it might come as no surprise that the Moon has a distinct, but still little understood, influence upon our lives.

Like *Circa Solar*, rather than representing an entirely new design of time, *Circa Lunar* reflects one of our oldest forms of measuring duration.

The first time keeping tool known to track lunar cycles dates back to circa 32,000 BC - a design so enduring its modern equivalent can be seen to present little difference, other than its means of delivery.

Both *Circa Solar* and *Circa Lunar* can be seen to represent a fundamental a/b paradigm shift in our perception of time.

From linear to cyclical. From rigid to rhythmic. From units to spectrums. And from a short-term perspective to a long-term perspective.

Again, of course none of this is anything new to many non-Westernised cultures, who have remained constantly critical to the tyrannical impositions of mechanical time that have been all too often coupled with colonialist projects.

In this way our task in questioning our experience of time might be as much about unlearning current ideologies and structures of timekeeping, as it is in learning new ones.

The final project in the *Circa* series is entitled *Circa Flora*, and as its name suggests involves measuring time with, and through, plant life.

Circa Flora speculates upon a hybrid form of both clock and calendar that aligns to native flora blooming cycles specific to its user location.

In this example the bloom cycles of a Hawthorn Bush, or May Flower, local to the UK.

Traced over the course of four seasons the Hawthorn transitions through distinct stages, a transition that *Circa Flora* would digitally reflect encouraging its user to better syncronise with the far more paced temporality of nature.

Subtle shifts in budding and flowering growth cycles would gradually manifest over days and weeks, as it does in nature.

Each traditional calendar month would then be paired with a native plant whose blooming cycles loosely align with that time of year, allowing us to ride a wave of continual natural growth and degrowth cycles.

Whereas *Circa Solar* and *Circa Lunar* were realised as fully functioning downloadable apps, the sheer logistics and variability of aligning an app with individual fluctuating blooming cycles on a global scale made its own digital realisation an impossibility.

And so I subsequently sought to create a 'living prototype' of *Circa Flora* rather than a digital one. An organic calendar of 12 potted plants.

The project involved procuring and planting the same local plants whose blooming cycles aligned with a calendar year.

And then observing each plant's growth cycle across the seasons.

Although the prototype is still currently only a few months into an annual cycle, its premise is now validating itself.

The bloom cycle of Lavender, for example, marked the transition of mid to late May.

A distinct learning from these projects has been a renewed appreciation and understanding of nature's own research and development capabilities.

As Louis Harnett O’Meara argues are far ahead of our own when stating;

"Humans have only inhabited Earth for a blink of an evolutionary eye. Meanwhile, nature has had a 3.4 billion year head start in research and development, and actually designed a fully circular and regenerative system that is self-sustaining."

Let's now move from alternative timekeeping tools to real-world applications of the thinking behind these tools.

Weather & Climate was a speculative provocation to reconcile two differing temporalities of the same phenomenon.

We are all highly familiar with viewing localised weather reports, yet weather is just a short-term window into the long-term climate.

Given that the current fragility of our shared climate is one of the greatest risks we all face, this project attempts to use the familiarity of weather reports as a vehicle to broaden our innate forecasting abilities over decades, rather than just days.

Here illustrated as a weather forecast for the next three days paired with a climate forecast for the next sixty years.

Reflecting the fundamental differences in data points between weather as measured over hours and days, and climate which is measured in 30 year increments.

The design embeds the Hawaiian island of Mauna Loa as the equivalent to an offshore territory to all nations.

For it is the atmospheric carbon count calculated at Mauna Loa's remote measuring stations, far from any data interference from localised pollution, that a single measurement for the shared quality of the air we all breathe is taken.

If the Amazon rainforest is commonly known as "the lungs of the world", then Mauna Loa could be considered to be the "nostrils of the world".

Additional elements to the speculation also extend world temperature forecasts across decades.

While splitting those temperature forecasts into a Global North, and Global South, in order to emphasise the most extreme impacts of the climate crisis upon the Global South.

A final element would quantify the current status of climate warming probability by percentage against three scenarios of 1.5 degrees, 2 degrees, and 2.5 degrees of warming.

A probability based upon a matrix of live data points across; political / regulatory / industrial / social / and technological trajectories.

For example successfully agreed international mandates and protocols might see the likelihood of staying within 1.5 degrees of warming go up, while interim reports failing to significantly show material progress in lowering carbon emissions by its largest contributors would then see that same likelihood go down and hence higher forecasts become more likely.

While representing quite a simple iteration to existing weather forecasts, the design would ultimately be intended to transition a broad public fixation from the "here and now", to the "there and then".

By this I mean a consideration of not only if it's going to rain where we live tomorrow, but if it is going to be uninhabitable somewhere we've never been by the end of the century.

It is arguably Westernised Modernity's obsession with the 'here and now' which is driving many of our most existential crises, and our ability to imagine the world beyond our own most immediate circumstances that might mitigate those same crises.

The next project is entitled *An Anthology of Digitised Chronologies*.

The work presents a collection of 25 distinct means to order to time within digital spaces.

Chronology classically refers to the arrangement of events or dates in the order of their occurrence.

This singular concept of chronology has largely been abandoned by digitised technology.

The chronologies we are now accustomed to have little to do with an absolute order of occurrence, and far more to do with algorithmic interpretation.

Our digital technologies have come to embody the modern equivalent to a musicians metronome, each device and each app is set to a distinctly different tempo.

But unlike the traditional metronome, digital users most often have no control of the tempo, and quite often no awareness that a distinct concept of a digitised chronology has been chosen for them.

Each tempo is precisely engineered by the technology's creator in a cynical bid to maximise the profitability of their product(s).

The "infinite" scroll of feed is designed to retain a users attention indefinitely, as are the "continuous" and "suggestive" defaults of video streaming platforms.

Digitised chronologies have also come to reflect broader societal shifts, such as the increasing desire for privacy encapsulated in "evaporative" content, and shifts to rapid and segmented storytelling found in "storified" content now adopted and replicated by numerous platforms.

Every platform has seemingly taken up a differing chronology;

Tik Tok, Instagram, Facebook, and Twitter all recently jumped into "storified" content on "algorithmic" and "infinite" timelines that heavily favour "self-centric" threads of temporality.

While SnapChat for example has built its chronological signature around "evaporative" content.

Wikipedia has committed to a "revisionist" chronology where past, present, and future are openly edited in real time.

Digital broadcast media such as Netflix, Amazon Prime, Disney+ and Apple TV, for their part, have taken to "continuous" "suggestive" "emotive" and "skippable" chronologies.

Surfacing these chronologies not only expose the techniques employed by Big Tech to cynically manipulate the highly lucrative commodity of user attention, but also allow us to explore alternative opportunities and potentials of the plasticity of digital technologies to emancipate and democratise our perception of time.

The penultimate project might be familiar to anyone with a grounding in futures design.

Preferability takes the classic futures cone and further extrapolates its framework.

The project builds on an iteration of the cone by J Paul Neeley, augmented with a curve to express the *exponential* nature of change.

Iterating this idea a stage further I've augment the conditions of *deceleration* and *decline* into the model. Now giving us a collection of four altering ways of futuring.

Rather than simply being an exercise in the visualisation of semantics, the project seeks to critically question "how change changes".

We all too often fall into a linear interpretation of change.

Yet as Steward Brand has illustrated through his *Pace Layering* model, change in fact changes at very different independent and interdependent temporalities.

The recent experience of the COVID 19 pandemic should teach us that these layers of change aren't in fact fixed.
In some instances seemingly glacial systems and phenomena can be subject to near instantaneous change.

As Lenin once stated: "There are decades where nothing happens; and there are weeks when decades happen".

Considered through our most existential challenges this might lead designers and futurists to question what exactly is it that we need to *exponentially* change for the better, when might we need to transition into a future of *deceleration*, and how might we begin to mitigate a potential future of freefalling *decline*?

The final project, *Mapping,* explores how we might practically begin to embed a far greater appreciation of time and temporality into our everyday experiences of the world.

Asking the question 'what if smartphone apps were designed to be a **process** rather than a **product**?' the project reimagines the current Maps app as a means to understand and navigate time, as well as space.

Speculative features and functions would allow a user to trace the known mapped history of a location in order to appreciate both historic changes to the environment, and changes to cartographic aesthetics and ideologies.
.
While more present and future focussed functions might allow a user to perceive real time information related to a location, such as live travel data.
.
Extrapolating these temporal features an order of magnitude further we might be able to appreciate the ever evolving social and geopolitical shifts to seemingly fixed national borders over time.
.
Or indeed the same fluid shifts we see in national borders mirrored in the shifts of tectonic plates.
.

An additional transgression from classical maps might allow a user to redefine the hidden ideological perspective that the map has been rendered within.

In this case switching from the Westernormative topological world map which enlarges and visually centers Europe and particularly Britain, to an equal-area projection that shows continents at their true relative sizes.

In this way we might begin to reconsider maps as living information systems, rather than static ones.

As our world continually changes, so to do maps.

Maps are always mapping.

Such a change might mark a shift away from an obsession with noun-like fixed absolutes, in order to awaken a new appreciation of verbs-like relative transformations.

As such we might look forward to apps representing far more verb-like interpretations of; weathering, timing, calculating, messaging, or musicing.

With each app now rendering the core functions of these tools as ever evolving processes, rather than fixed products.

This is a perspective of time that links to all of the 8 projects I have just shown.

Part 3 - Futures.

How can futures design ride the theme of our experiences of time to deepen the practice?

Contrary to popular belief we live in a world made up not of *things*, but of *events*.

This is the view of the renowned Italian theoretical physicist and author Carlo Rovelli.

Rovelli describes a world made of events, not things, as such;

“We can think of the world as made up of things. Of substances. Of entities. Of something that is.

Or we can think of it as made up of events. Of happenings. Of processes. Of something that occurs. Something that does not last, and that undergoes continual transformation, that is not permanent in time.

The destruction of the notion of time in fundamental physics is the crumbling of the first of these two perspectives, not of the second. It is the realization of the ubiquity of impermanence, not of stasis in a motionless time.”

The case for the absolute permanence of things is fragile.

Given that everything exists as an event between the states of nothingness prior to the Big Bang, and an end of everything, however that might occur.

As such even the most thing-like-of-things, such as Mount Everest, are in fact events.

In Mount Everest's case the event of two tectonic plates slowly colliding to form the Himalayan mountain range.

An event that is still gradually occurring as we speak.

We seem far more accustomed to inhabiting a world made of things, however.

This mindset has no better example than our relationship to contemporary products, which we experience as appearing from "magic manufacturing holes" and disappearing down "magic waste holes".

What actually happens down these holes is most often little known, even to those commissioning the manufacturing, or facilitating waste.

Take for example the now ubiquitous product of an iPhone. When we go into an Apple Store, or similar, and request an iPhone it magically appears to us fully formed from the stock room.

Its unwanted packaging will then likely be placed into a waste container, to then be removed from our perception as if down a black hole.

This highly engineered phenomenon, now universal to nearly all consumer products, was suddenly breached in August 2008 when a rare slippage occurred in the reality of the world as we have come to experience it.

On purchasing a new iPhone 3G, a UK consumer identified only as "markm49uk" found the brand new phone to have pictures taken by an Asian factory worker already installed upon the screen settings.

Posting the incident to the MacRumors forum the factory worker quickly became known as "iPhone Girl" in an early internet meme.

The case still represents a rare instance when consumer culture was able to perceive a *thing* as an *event*, or the inherent eventness of things.

And so, if it is true that we live in a world made of events, and not things, how might we extrapolate this phenomenon even further than rare occurrences such as "iPhone Girl"?

The answer might, surprisingly, come from the 1990 film *Back To The Future Part 3*.

When Doc Emmit Brown berates Marty McFly for not thinking "fourth dimensionally" he might indeed be identifying a fault with the entirety of Western modern thinking.

We have arguably gained a highly sophisticated understanding of one, two, and three dimensions of space - hence our fixation on things over and above events.

Yet our understanding of the fourth dimension of time is lagging far far behind.

To think "fourth dimensionally" might be to afford to time the same degrees of creativity, of plasticity, and of exploration that we afford to space.

Essentially to think of things as events.

Signals of such a new understanding of the world are increasingly emerging.

For decades Apple thought it suitable to project the bright blue light our bodies associate with mid-day into our retinas at any time of day, causing us highly disrupted sleep patterns.

It was only in 2016 that Apple introduced Night Shift mode to iOS allowing screen light to transition to warm hues in the evening that pose far less risk to hijacking our circadian rhythms.

The very rhythms that as we saw embedded within *Circa Solar*, are essential in binding us to time.

Further examples of Apple's newly awoken interest in *fourth dimensional thinking* can be found in Mac OS Dark Mode, iOS Screen Time, and most recently iOS Smart Stacks.

As we saw in *An Anthology of Digitised Chronologies* the potential for choreographing tempo into technology is almost endless.

A further signal which addresses the aforementioned issues of perceiving products as existing between magic manufacturing holes and magic waste holes is the project *An Anatomy of an AI System*.

Here the artists Kate Crawford and Vladan Joler research and map the entire lifecycle of an Amazon Echo Dot, from the deeptime of mineral formation and extraction to mineral degradation.

The project again succinctly surfaces the eventness of things, and arguably could, and should, be applied to all products in order to transparently make themselves accountable to both consumer and regulatory scrutiny.

My own projects are also, hopefully, examples of the practice of fourth dimensional thinking.

Exploring and experimenting with time as a medium in the same way we might explore and experiment with any other medium.

To conclude I'll return to the question of the presentation: is it time we revalued time?

I hope that the examples I've presented and arguments I've made not only illustrate that it is possible to revalue time, but in many ways it is essential.

For time, as we know it, is in exnovation.

Exnovation is described as the opposite of innovation, a state that occurs when products and processes that have been tested and confirmed to be "best-in-class" are then standardised to ensure they are not subject to further innovation.

Since the invention of the Longitude Prize winning H4 Timekeeper in 1759 that eradicated all fluctuations in timekeeping over long sea journeys while locking itself in as a "best-in-class" standardisation, every watch and clock has followed the same exact model of measuring time.

By hours, minutes, and seconds over the course of two 12 hour rotations a day relative to a Coordinated Universal Time, with each day precisely mimicking the previous day, and next day.

The digital clock on every smartphone in the world follows this design.

As does every watch and clock depicted in even the most progressively future focused imagnations of timekeeping, such as WIRED magazine's annual supplement of timekeeping technology.

We have been in a very similar level of seismic exnovation before, in both a metaphorical and metaphysical capacity.

Our understanding of space previously took a *Geocentric* view, where we believed the Earth to be at the very center of the universe, and the Sun to rotate around the Earth.

Simply because we seemed to experience it that way.

The *Copernican Revolution* of the 16th century entirely upended that understanding of our position in space.

Shifting us to the perception of a true reality of a *Heliocentric* view, where it is the Earth that rotates around the Sun.

I will leave you with a critical provocation:

Given that we have been able to revise our fundamental understanding of the dimension of space to reflect its true nature, then might we next be able to do the same for our understanding of the true nature of the dimension of time?

Might we now be on the precipice of such a seismic shift, and what might lay beyond it?

Might within our own lifetimes we witness the revision of our entire understanding of time?

Only time will tell.