

# Music Lessons - Learning from the failure

Dan Frost

## Contents

<b>1</b>	<b>Summary</b>	<b>3</b>
<b>2</b>	<b>CONTENTS</b>	<b>6</b>
2.1	PART 1: WINDOWS & STRUCTURES . . . . .	7
2.2	PART 2: FLOWS AND NETWORKS . . . . .	8
2.3	PART 3: THE MEDIUM . . . . .	9
2.4	PART 4: HEROS . . . . .	10
2.5	PART 5: WHAT IS THIS? . . . . .	11
2.6	PART 6: CREATING . . . . .	12
2.7	PART 7: VALUE . . . . .	13
2.8	PART 8: TRANSIENT . . . . .	14
<b>3</b>	<b>Chapter Zero</b>	<b>15</b>
3.1	The plan for this chapter . . . . .	16
3.2	Music Industry, Napster and Spotify. . . . .	18
3.2.1	The innovator's dilemma . . . . .	19
3.2.2	The key question . . . . .	22
3.3	Non-music examples of disruption . . . . .	23
3.3.1	Boats & Roads . . . . .	24
3.3.2	Money . . . . .	27
3.3.3	Broadcasting . . . . .	34
3.3.4	Communication . . . . .	35
3.3.5	Machines for thinking (AI) . . . . .	36
3.3.6	Devices (Smartphones, laptops) . . . . .	40
3.3.7	Amazon vs publishers . . . . .	42
3.3.8	Uber vs taxis . . . . .	46
3.3.9	AirBnB vs hotels . . . . .	47
3.3.10	<i>Other forms of disruption - Covid</i> . . . . .	48
3.4	Temper the argument . . . . .	49
3.5	Slave trade; Climate; Migration . . . . .	50
3.6	Using Music as a lens . . . . .	51
3.7	Summary - what we want to answer / explore . . . . .	52
<b>4</b>	<b>PART 1: WINDOWS &amp; STRUCTURES</b>	<b>54</b>

## CONTENTS

---

4.1	Windows hide the truth. . . . .	55
4.2	Structures create value. . . . .	58
4.3	A tiny universe with huge possibilities. . . . .	61
4.4	What is normal changes. . . . .	64
4.5	Noise becomes music. . . . .	65
4.6	What is normal doesn't come from the crowd. . . . .	67
<b>5</b>	<b>PART 2: FLOWS AND NETWORKS</b>	<b>69</b>
5.1	Flows of value (not necessarily money). . . . .	70
5.2	Networks have to start somewhere. . . . .	71
5.3	Rates of change matter. . . . .	73
<b>6</b>	<b>PART 3: THE MEDIUM</b>	<b>74</b>
6.1	You are not your medium. . . . .	75
6.2	The new medium is never a copy of the old. . . . .	77
6.3	The format of the new medium emerges. . . . .	78
6.4	The value you can capture changes. . . . .	79
<b>7</b>	<b>PART 4: HEROS</b>	<b>80</b>
7.1	Survivor bias. . . . .	81
7.2	There isn't necessarily a canon or grand narrative. . . . .	82
<b>8</b>	<b>PART 5: WHAT IS THIS?</b>	<b>86</b>
8.1	Being right matters much less than doing. . . . .	87
8.2	Discussion the industry is part of the industry. . . . .	88
8.3	Newness and originality isn't as important as we say. . . . .	89
8.4	You only live in the market you live in. . . . .	90
<b>9</b>	<b>PART 6: CREATING</b>	<b>90</b>
9.1	All value is created from nothing. . . . .	91
9.2	Creating value doesn't start with creating value. . . . .	92
9.3	Creation requires practice, sketching and creativity. . . . .	93
9.4	Success is manufactured luck. . . . .	94
<b>10</b>	<b>PART 7: VALUE</b>	<b>94</b>
10.1	Important details can become unimportant overnight. . . . .	95
10.2	Artistry will be sidelined. . . . .	96
10.3	How do you measure value? . . . . .	97
10.4	Product can become identity. . . . .	98
<b>11</b>	<b>PART 8: TRANSIENT</b>	<b>98</b>
11.1	Everything is waves . . . . .	99
11.2	Everything is transient . . . . .	100

**BUILD DATE: Wed 30 Nov 2022 22:47:03 GMT**

**\*\* Blank page \*\*** # Music Lessons - on one page

Hello! I'm looking for some feedback on a book idea I've been working on for a while. It looks at how the disruption to the music industry is a lense through which we can understand the disruption which will happen over the rest of this century. It's not what you'd expect - the history goes back further, the technology goes wider and the psychology (possibly biology) goes deeper. I'm looking for some feedback on a 2-3 page summary.

Message me if you can share a bit of time to give some feedback.

Thank you!

**\*\***

See draft here: <https://docs.google.com/document/d/14tPVthQUGIta-CVrWUIFhPPWVLI6Jnr3XoBFVeNW0O4/edit#>

**\*\***

## 1 Summary

Music is a strange microcosm of everything human: transient, cultural, technological, emotional, organised, chaotic. The turn of this century saw the industry we think of as music utterly disrupted, all but destroyed. While there are obvious lessons, it turns out that if you dig deeper you find far more lessons.

We learn that how we frame something's history dictates how we see its future. Normal is both not average and not static. The flow of value changes over time, but not simply to a new version of an old thing - sometimes new types of value emerge. How you think about value determines whether you see progress or decline. But, regardless of your view, things keep changing.

I could have written this about many industries from food to commodities, fashion t art, literature to sports. My reason for using music as a lense through which to view disruption, innovation and change is because I graduated in music around the time the internet started eating away at the music industry. This led me to research the economic history of music, which has led me back here - to reflect on how the disruptions, choas, unfairness, destruction and creation are all normal, mundane and somewhat poetic. And that the ideas from this industry might help us think about other industries.

Why does this matter?

We are living at a time when we need more, different, bigger and better ideas. We have achieved a lot through industrialisation, capitalism, communications and all the associated progress but we are, at the same time, awash with an endless supply of pointless industries and activities. Social media connected us but then they sold our attention. Our political life is spent discussing, not the nuance of an idea or how to progress it but some vague, partisan or personality

issue which hardly makes an dent in the problems we ought to be solving. We have entire industries designed to trick people into parting with their money for things which will bring no long term value to humanity, solve no problems and arguably will just reinforce the shallow, cultural deadends.

Despite nearly 30 years of information technology progress, we spend a gigantic portion of our time copying and pasting information from one system we hate into another. Our productivity may not have improved according to pre-internet measures [get/check these], so perhaps the productivity is buried in new forms such as our ability to create and share information for free and instantly? Maybe, but we all know of the huge increase in noise and nonsense these technologies have created.

How do we get out of the societal and commercial rut? Where do we look for ideas which will make us see what systems we are wallowing in? How can we think really differently rather than just copying the thinking of whichever hero of commerce is on the cover of whichever magazine we happen to be leafing through?

Everything new requires fusing together material from multiple places. From photosynthesis, which fuses [photons and ??] to create..., to [find another example], the fundamental activity of creativity is bringing unlikely ideas together. All breakthroughs in human activity require fusing ideas together to create something new.

What I bring is exactly that: a fusing of unlikely ideas in a way which, I hope, sparks some new ways of looking at the rut we're in. My offering is an unusual study of music, in which I personally find huge richness of ideas.

This is not, though, an endless sycophantic blurb about my top 10 western male composers. This is part of the problem - even the way we tend to study the history of music is typical of the way we approach ideas. We think of it as a narrow frame of reference.

I am also not going to put any artist, style, school of thought or movement on a pedestal as this takes us down a dangerous alley of thought which ends either in confirmation bias, praising of geniuses or giving up. I am also not going to present you with biographies of famous composers, because you will only end up looking for the same lessons - confirmation bias of what you want to hear.

Instead, we can use music, this peculiar human phenomenon around which we have built various cultures and industries, as a microcosm to understand how to see ourselves as humans; how to see ourselves before, during and after major change; and how to get out of the mental models which lock us in.

Studying music in this way is also timely. Music, in a way, set the scene for our century.

The disruption of music come at the start of a century which promises yet more disruption, be it through changes of geopolitical power, migration spurred by

climate, war or the hope of a better life; or through technological change, financial shifts in power or financial innovations which may untie us from institutions or tie us to them in stronger ways.

Napster's disruption of the music industry was strangely prescient, demonstrating what happens when an industry and a culture think that they understand their value.

How might this help the bigger problems?

We humans are too easily locked into ways of thinking through language, culture and convention. We forget that everything around us which was created by a human was created by a human like us. We have a hierarchical idea of human creativity where those who make are at the top and those who consume are underneath and must follow. We need to think better of ourselves.

If we are going to make the big leaps in industry, politics, culture and any other area, we need to be able to identify what of the current world is real, what is made up by humans, how to identify different ways of seeing things/thinking about things and where the new ideas come from.

There is a problem, though. A reason why you'll think this is all utter nonsense.

In professional life we are too grown up. Too sensible. Too professional. We narrow what we talk about, ruling out anything which isn't part of the business or the culture. There is work and there is play. There is learning, which is where someone else instructs you and then there is doing, which you can get paid for.

What nonsense. All human progression is made through a confusing, sometimes unhealthy mix of what we are taught combined with rambling walks through mistakes, disasters, sketching, playing and, sometimes progress. Playful does not mean wasteful - it means observing an idea and seeing what emerges. Playful is looking at something you notice every day and wondering if there's something new about it.

For many serious professionals, this book would be better left on the bookshelf. Walk away. Bank to the job (which someone else invented). Stick to what the world knows. Don't suspend disbelief. Everything is fine.

If you aren't a serious professional (and I hope you're not), let's play with some trivial ideas. It's these trivialities where new ideas are found. We need a fresh injection of ideas all the time otherwise we become stale and pointless. These ideas do not come from your favourite business networking site or business magazine, but unlikely places. By definition, they have to be.

So my other reason for writing this is to break the patterns of thinking, introduce a new and potentially confusing idea.

These ideas have lived almost exclusively in my notebooks for years only to come out when I'm trying to solve a particular strategy problem or understand why something in the world has happened. As with so many ideas, either there is

something useful there or they are the ravings and scribbles of someone who has spent too long with their own thoughts. I leave that judgement to you.

## 2 CONTENTS

*Below are the chapters I have planned. Each is an unusual observation of music and how it might make us see things differently. Each will have stories, examples and ways of translating this into practice.*

## 2.1 PART 1: WINDOWS & STRUCTURES

1. Windows hide the truth. We narrow our field of view either by time, geography or some other factor to suit the judgement we want.
2. Structures create value. Without structures, there is infinite possibility but no language and no way of creating any scale.
3. A tiny universe with huge possibilities. You don't need to be or do everything. First, narrow down the possibilities to create a tiny universe with huge possibilities.
4. What is normal changes. We use windows to hide variation in what is normal. Every "norm" is temporary, or might be.
5. Noise becomes music. What is noise to one group is interesting to another and, given a bit of attention becomes music to yet another group. This happens in everything from music to devices. The trinkets and toys of weekend nerds somehow become nearly viable and then, out of nowhere, inevitable. The lesson is to listen to the noise.
6. What is normal doesn't come from the crowd. We interpret much of history in terms of the winners, the majority and the successes - i.e. what's liked by the crowd, what's normal. But this "normal" never starts with the whole crowd. But what's normal now probably didn't start in the crowd - it probably started with crazy tinkering. The future probably isn't in the crowd.

## 2.2 PART 2: FLOWS AND NETWORKS

1. Flows of value (not necessarily money). Everything should be understood in terms of flows of value before it's understood in terms of money. Disruption is simply changes in flow. Most people don't look for the flows in value they look for flows in money.
2. Networks have to start somewhere. Networks create value but we only are only aware of the end result - the networks we use every day. Starting a network is extremely hard, but shouldn't be ignored. Networks will trump almost all other flows of value.
3. The funding model will change. The person who pays will change and the priorities will change. The value will need to change with it. The artefact might look the same, but because the funding model changes, the nature of the value changes with it.
4. Rates of change matter. Things don't change as often or as rarely as you think. As the flows, networks and funding change it's easy to focus on the short term rates of change but there are always many strata of change.



## 2.3 PART 3: THE MEDIUM

1. You are not your medium. Every industry over-identifies with the specific artefact it makes, to the extent that it creates identity and culture which defines the value as the medium. Then something happens, as it always does and the medium changes.
2. The new medium is never a copy of the old. Each medium is better and worse than what came before, but it's never a copy. The mistake is carrying over your ideas of value, economics and business into the new.
3. The format of the new medium emerges. Film was not just theatre on screen. Streaming music is not just CDs on demand. The format of each medium affects what the value can and (economically) music be. This happens across every medium and every industry.
4. The value you can capture changes. New technology doesn't mean making things more efficient - tapes were not more efficient records, they increased the available listening time.

## 2.4 PART 4: HEROS

1. Survivor bias. You only know about the winners which means you don't know if you're behaving like a loser.

Example (of the not-survivor bias): The Lost Flute, Tchernin I can't find a recording of it. And it pre-dates "His Symphony No. 1 (1927) is remarkable for including the first symphonic movement ever written completely for unpitched percussion; this preceded by four years Edgard Varèse's Ionisation of 1931"

2. There isn't necessarily a canon or grand narrative. If you only know about the winners, and the winners stole from the losers then you are missing a huge chunk of history. Most of what most of us do is that bit.
3. Superstar economics; normal disruption vs exponential distribution. We think success is distributed normally, but it's not and this makes us confused about why one things succeeds and another fails.
4. Short term and long term performance don't correlate. The heros of the short term won't necessarily carry over into the long. The big names will eventually shrink.
5. It takes someone doing something stupid. Normality evolves out of something ignored or actively hated. Someone has to be doing something stupid to change the future. Otherwise it's not the future, it's just more of now.

## 2.5 PART 5: WHAT IS THIS?

1. Being right matters much less than doing. You can write the perfect thesis about how the world works but all it takes is one person doing things differently to throw all that out.

(I am very aware of the hypocrisy of this one!)

2. Discussion of the industry is part of the industry. Commentary helps society absorb each artefact into itself - criticism, fan writing, commenting, sharing are all part of the machine.

(I am also aware that this contradicts the previous one...)

3. Newness and originality isn't as important as we say. We walk about newness, but radically new and radically original aren't that attractive.
4. You only live in the market you live in. We can imagine a world where the parameters are different - where the instrumentation, the styles, the tuning are all different. Pitching to an imaginary market might not work.

## 2.6 PART 6: CREATING

1. All value is created from nothing. Most of our activity is spent turning things of value into new things of different value - selling a product that exists, building a shop to sell something, shipping things around the world, managing an industry which is well understood. But all this came from somewhere. We forget about creating value out of nothing.
2. Creating value doesn't start with creating value. Inventing and creating doesn't look like normal work. You have to play, sketch, make mistakes. Watch any composer or musician in the early stages of creation and they look like a child. Fun, playful, throwaway. This is important work.
3. Creating requires sketching and practice. Almost nobody practices. We all rush to work - to look busy doing our jobs. But creating doesn't start with doing the job, it starts with sketching and practice.
4. Success is manufactured luck. There is no repeatable recipe for creating the right thing. Sometimes the thing we create lands and sometimes it doesn't. The trick is building the muscle and habit of creation - manufacture the luck that the output hits the world at the right time.

## 2.7 PART 7: VALUE

1. Important details can become unimportant overnight. Industries obsess over details long after they don't matter, chasing ever higher quality when the world has moved on. Obsession over the fine details of counterpoint may not be the detail that the world today values. And the details the world values today will shift tomorrow. This is true in the art, the industry and the consumption.
2. Artistry will be sidelined. We talk about the skill and value in music, but in truth there are diminishing returns which are sidelined by the ability to network and distribute. Artistry is important to the world but, perhaps sadly, only up to a point.
3. How do you measure value? This isn't at all clear. Popularity? But exponential distribution means that what's big gets bigger. Longevity? But what has traction will continue, and what has no traction now may transform the world very soon. Is it the number of compositions? Or the impact of those (yet many influences aren't tracable). How you think about value determines how you view the world's work and your own.
4. Artefacts become identity, rather than the underlying value. Whether it's the instrument, the style of music or the physical media - we will create identity around the artefacts we make. But those artefacts are a coincidence of time, not something eternal. The danger is when we rail against the change in artefact. Every industry at some point over-identifies with the artefact instead of the underlying value

## 2.8 PART 8: TRANSIENT

1. Everything is waves. We see the world as fixed - fixed objects, institutions, countries. Behind everything, though, there is a wave which led to the thing existing or a vibration which keeps it alive. Everything is waves, nothing is static. Even the presence of a cloud suggests a wave of pressure which is invisible. Seeing the world like this, we start seeing out the early vibrations or early parts of the waves rather than the obvious, loud waves. We need to seek out the invisible.
2. Everything is transient. Every wave ends. Every trend, technology or idea has its origin, its peak and its end. But that's half the fun - riding the wave, seeing where it goes, trying to see how far you can push it or how much fun it can be.

*\*\* Blank page \*\**

### 3 Chapter Zero

*This draft is for feedback - I just need coherent words and some good examples to show that this disruption thing happens again and again.*

Plan: 1. Music example of disruption (briefly)

2. Non-music examples of disruption

3. Temper the argument - not everything has changed, but sometimes it does

4. We can use music as a lens because what we see in the arguments for/against disruption of this industry and what we see in the human and market behaviours (I think) applies to many other industries.

What is industry disruption? Is it simply the how we replace computers with smartphones, or (for those who remember) how we moved from records to CDs and (briefly) to minidisk? Or how we moved from bookshops to Amazon, or record shops and then internet piracy to Spotify. Isn't it what explains why Kodak went out of business when digital cameras were introduced? And isn't disruption why everyone is now having to go through digital transformation programs and why every company insists on having an app?

These are the surface level foam of disruption. They are what we see and what we talk about. They are often what gets talked about in the press because the fuller story of disruption is much more confusing, less obvious but, to my mind, far more exciting and for more about the humans involved.

Disruption is probably the wrong word to use because it has been co-opted by the tech-bro, capitalist cliché. I have nothing as such against tech-bros or capitalists, but they do tend to use disruption as code for the future, what's good and what should be funded or supported. Again, this is overly simplistic.

But I don't have a better word, so I am going to use disruption but before we get into looking at how we can use music as a lens to understand it, we need to look at different aspects of industry, technological and social disruption. We need to look broadly because the patterns of cause and response are easier to understand with more examples and more ways of looking at the phenomenon.

### 3.1 The plan for this chapter

In this Chapter, we need to start by looking over one of the canonical examples of disruption: how the music industry was disrupted by the internet. We will pick over the bones of this example over the course of this book, but we need this to set the scene for us.

In order to understand this classic example, we need to bring in the innovator's dilemma - a brilliant way of reading how companies and industries evolve. But we then need to broaden out from this narrow (in a good way) definition because, as I think you'll find if we have a wider frame of reference and relax our definition we can start to see similar things happening throughout history and throughout many industries.

This achieves something which I've come to think of as "seeing and labelling blue". The ancient greeks didn't have a word for blue even though they obviously had a lot of blue above them all the time - the sky. They used many different words to describe the things that were blue but had no need for the word or concept itself. Only later ((Get the ref when)) was the idea of blue needed and the label created. My use of this is to squint at the world, observing lots of samples, case studies and from many different angles. After a while you start to see patterns. After a while you "see blue".

This can sound utterly wishy washy nonsense. I think it's the opposite. This is how we humans make progress: we squint at the world and realise that what we are looking at looks like something we've looked at before. We roll the ideas, the form and the behaviour around in our mind creating a mental model of this thing, whatever it is. At some point, either quickly or after years or even many generations we give it a label which means it's a concept we talk about.

My view is that we talk about some aspects of industry, company and social/economic disruption but we haven't yet built up the intuitions for how a lot of change comes about. We often seem confused or upset that things aren't like they used to be, even though this not-like-used-to-be-ness is exactly what the world should be doing all the time.

So we start by playing with examples to get our mind in gear. The first examples are all on the disruption-heavy side - the tech-bro, capitalist, everything-must-change-now side. These are valid but they are biased so we then temper the argument by showing what *doesn't* change in an attempt to protect us from succumbing to the idea that everything is changing, everything is going to be disrupted all the time and there is no stability. There *is* stability, often caused by slower rates of change which provide a kind of stability.

Seeing disruption in the world from many different angles and then tempering this potentially frantic view of the world with a bit of stability should, I hope, give a picture of the kinds of phenomena that we are trying to understand. From this selection of samples, observations, ((there's a term - something from geology??)) we should have a sense of the things we want to get to grips with.



All of this will, I hope, give us the sense of the kinds of things we should have a feel for. It should feel like we've just stepped on a boat and started to feel the way that it moves. If I describe the way the boat tips or the way it bounces over the waves, you know what I'm referring to. If I talk about the jolt as the boat turns (or "tacks" in the sailing jargon), you know the force you feel as you're pulled towards or away from your seat on the boat.

As we move into the last section of this chapter, we should have a shared idea of the things in disruption we're looking for. Some examples - We want to understand why one technology replaces another and why it looks like it'll never happen until it's obvious why it did. We want to understand how a new wave or new use of technology changes how we see certain human activities - computers made manual arithmetic a less important workplace skill; what might AI generated content do to workplace skills? The purpose of human activity changes, but why and how?

We will also be trying to understand why the thing that wins doesn't seem to have all the possible features or complexity that it could. Why can a change in the flow ((hasn't been explained)) of value change more than just that flow - why and how are their knock-on effects? How come things have economic value and then they don't? Or they don't have economic value and then they do? What can we or should we be measuring anyway?

We will end this chapter with our plan for using music as a lens for understanding disruption in the world.

### **3.2 Music Industry, Napster and Spotify.**

Around the turn of the century, the revenue of the music industry was being eaten by services like Napster and Pirate Bay.

The industry didn't really win though - the incomes of lots of musicians have been destroyed. Spotify, the dominant global player in music does not necessarily act in the best interests of the musicians and music industry, but it did win. This pattern plays out again and again; a shift from one industry and one set of interests, to another industry and another set of interests.

### 3.2.1 The innovator's dilemma

A lot of the ideas in this book are either derived or inspired from the Innovator's Dilemma. This is a book which I am constantly surprised hasn't been read more. Almost nobody I work with has read this. Almost no consultants I come across have read more than a summary of it. Many business leaders use the phrase, probably because it is so meaningful as it stands, but they don't know the background case studies or more than one or two of the key concepts from the book.

This seems utterly baffling to me for two main reasons. Firstly, it's not an overly academic or dense book. It's quite a comfortable read with understandable and jargon-free examples. While it has been criticised for cherry-picking these examples [get ref], so long as we are cognisant of limits of those examples, there's plenty to learn.

Second, and much more importantly, the lessons from the book describe what industries are going through again and again. This confounds me. This book isn't alone in describing the ludicrous pain organisations go through but it is high up on the list [what??].

I don't remember how or why I discovered this book - probably via a podcast or blog as that's how anything good was found 15 or so years ago. After I did, though, it seems utterly relevant.

// Now explain some of the key concepts.

The chart which sums up the innovator's dilemma is the *increasing value* chart. There is the literal interpretation of this, which seems very engineering-focused and is about the increasing performance of a particular product. Fast cars. Bigger disk drives. Higher resolution TVs. We're used to the idea that we always want to buy something bigger and better. It's a cheap and easy tech commentator's line of "how far can we take it?". The answer, of course, is not interesting because it depends how far the market (jointly the buyers and sellers) can take it while being economic. I would happily have an infinitely large TV with infinite resolution if it cost me \$100, but the suppliers probably wouldn't want to supply that.

No, the increasing performance of a product category is only partly interesting and the innovator's dilemma has a second line on this chart which shows a much more interesting behaviour: The less performance line. While Hifis get ever higher quality, suddenly a file format called mp3 is introduced which is lower quality and, surely, shouldn't be attractive to consumers. Yet it is.

When this lower quality, scrappy new entrant comes in all of the suppliers in the high performance category ignore it. It's cheap, pathetic and their customers don't want it. In that moment a wonderful thing happens; the world changes. Suddenly, the certainty over what the future was changes from obvious to contentious. The market is divided.

Except that this moment is not always quick. It can last years or decades. Kodak knew about digital cameras before the world did, but stubbornly decided the future was higher quality film with chemicals to print the photographs.

This moment of denial is, where an incumbents digs their heels in and says “no, we know how this works”, is one of the key points which sparked my interest in disruption. And it’s the moment which I still find coming up again and again.

For me, that graph of increasingly high end quality and challenger, up-start low quality encapsulates so many wrong decisions in so many companies in so many industries. A complete failure to think that your view of the world might be limited and possibly not useful. A failure to see that your idea of value might not apply. A dismissal of other world-views of people who are younger, less experienced or just different. It happens again and again - the old guard, highly experienced pass judgement on something new using the values and frameworks they have created.

And at the same time they are digging their heels in, telling everyone around them how right they are *are you need to listen because I’ve seen this before* something else magical happens: the up-starts aren’t taking part in the conversation. They are just building something. In fact, they don’t even think the conversation is a conversation because it sounds suspiciously like they are just being told off or told they are wrong. If they, the up-starts, have the tools, wherewithall and the access to customers to build, ship and test something new then the entire conversation - no matter how based in historical fact and real, empirical experience - is utterly irrelevant.

Bitching and moaning that the future is not like the past is cathartic but pointless. After a certain point it’s also damaging. It’s going to keep people in jobs they shouldn’t be in. It’s going to prevent industries from changing when they should change. It’s also going to

That’s what I read into that chart.

However. What I didn’t read was that everything should always be immediately thrown out. As we’ll get into, there’s an interesting thing in disruption of industries where you have to ask: what, exactly, is being disrupted? Is it the core value of the product (i.e. the old product is irrelevant)? Or is it some aspect, such as the channel to customers. If the thing being disrupted is the channel to customers something interesting happens; the disruptors end up rebuilding themselves in the image of their disrruptees.

The big music disruptors have ended up with huge teams of lawyers. The education disruptors have ended up employing large teams of teachers and educators. [CHECK these] Even the transport disruptors end up employing people from the old work [CHECK].

This is confusing. The chart told us that the new, up-start thing won over the long run but how come the winners end up employing the loser’s employees?

Isn't a company just a bunch of employees? Why didn't the old company just do something different?

And now we get to the nub of the point:

Why didn't they just do something different?

*TASK: MORE NEEDED HERE*

This is talked about a lot, but most writing about this is either academic or quite theoretical. In fact, being practical about the innovator's dilemma is extremely hard.

Most of the business leaders I've met haven't read this.

### 3.2.2 The key question

Here's a question: Why was the music industry disrupted?

What alternatives could have played out and who would have been responsible for those?

This is either a very simple question or very complex. It's usually answered by saying that a disruptive technology came along (except tapes disrupted CDs, which disrupted records - so that doesn't quite cut it). Or that the industry had an entrenched model (except it was used to making music free on radio in return for royalties, so that doesn't quite add up either). **Get a few more examples.**

As you dig into why an industry is disrupted you go through layers and layers of market and human behaviour. Entrenched business models, lack of awareness of new ways of doing things, people identifying with the craft instead of the outcome, lack of access to new kinds of customers. So on, down and down.

### 3.3 Non-music examples of disruption

// TASK: 1-2 pages which list a bunch of obvious disruptions and some less so. Get across the idea that this happens all the time we just don't notice it. Perhaps start with some kind of hook / story which makes the reader realise how this happens lots. Or take the opposite tack: suggest that there have only been a few disruptions and then this section disproves that. Not sure...

### 3.3.1 Boats & Roads

All the stories of tech startups, new scientific inventions and feature wars don't compare with the simplicity of disruption which took place in Kinsale. The canonical disruption stories are predicated on new technologies and complex business models which, I find, confuse us from the simplicity of the situation.

Disruption is not a new phenomenon. It is not overly complex. It's probably just complicated by the fact that when it happens, the result is in the future and anything which happens in the future is usually hard to know about.

In 1665 someone wanted to challenge the existing business models, investments, careers of the Kinsale families with something entirely simple. Like a bridge.

Innishannon Bridge, 9 miles upriver, was the closest crossing to Kinsale until the nineteenth century. On 5 May 1665 Kinsale Corporation "resolved to oppose the payment of money towards Innishannon Bridge" as it gave access to territory south of the Bandon, having a detrimental effect on traffic and commerce through Kinsale. Shipping interests in Kinsale and Bandon argued that bridges interfered with movement on the river. Added to this, it was argued that the necessary infrastructure, roads and access would be a levy on the rates.

From *Kinsale Harbour, A History*. John Thuillier.

When your interests are in shipping, disruption can be as simple as a bridge. The beautiful image this conjured for me was of the Kinsale Corporation wracking their brains with these damned bridges. Why should people need more of them? What's the point? Surely we are a boating people and we have boating interests to consider. We are people who sail. This is who we are and we have built up generations of knowledge, skills, equipment and culture around being in boats. Why bother with these bridges? There is no benefit and in fact there is a considerable potential loss.

You can imagine the discussions in the pubs and on the boats. Families anxiety of their future. Will their sons and daughters have the life that their parents had? Will their friends and society carry on?

I'm overplaying this somewhat, and I'm sure that the Kinsale Corporation's discussions weren't the drama I'm making them but the lesson we need to start with - and the question we need to take into our exploration of music - is that this disruption seems entirely normal and mundane, so how is it that we aren't used to talking about it being normal.

When someone proposes building a bridge which we take the flow of goods away from us, the social and emotional part of disruption seems to be what makes disruption so hard to deal with. If organisations were totally dispassionate and made up of people who were ready to retrain at a moment's notice while dropping all sense of professional (and perhaps cultural) identity, this would surely not be



a problem. The organisation would recognise the need to change the business and everybody would teach themselves the new thing. Within days or perhaps a few weeks or months, the business, the society and families would be reinvented.

But that isn't what happens\*.

What usually happens in response to a disruptive threat is that people first see it in terms of what they are *not*. Building on years of professional and social identity, they create an idea of what they are and the many things that they are not. They will also look at suppliers, partners and customers as what they are and what they are not. And what they want and what doesn't matter.

They turn an implicit, unspoken idea of their market into a cultural reality. This did exist before but, like all situations when we are presented with a foe, our sense of identity is heightened.

Already the idea of "we are" kicks in.

We are not an electricity company. Or a shipping company. Or an internet company. That is not our culture, our background, our skills.

We are a fishing company. We are not a bridge company.

This is perhaps where the death of the firm, industries and careers start: by too strongly associating with the activity and output rather than the underlying value. There is fundamentally no difference in the outcome value of moving things by river than by road, but there are many skill, professional and cultural values which build up in the activity of each. That one activity is more or less economical than the other is not a judgement on its value, even when disruption takes place. But as soon as you identify yourself as "a boating people", the argument is much less pragmatic.

Disruption pits methods and cultures against each other based on economics. Disruption makes it feel like everybody is being judged. The winners are right, the losers are wrong. But the winners and losers also build cultures around their activity. And so disruption feels like its judging your sense of self.

The misplaced sense of identity creates premature rigour mortis. Before the firm is actually dead, a paralysis of decision making, skills and capabilities causes it to narrow the scope of what it's comfortable doing. It outsources anything new because this is not its "core competency" while the emerging competition build the competencies which become critical. It looks at its past for guidance, while the emerging competition have no past and look only to the future, and - crucially - tend to look only at the customers rather than "what we know".

It's almost poetic to think of the decimation of industries and the confusion caused as something as simple as moving from a boat to a bridge. But, I believe that's exactly what the Kinsail story tells us. In 400 years time, the confusion, disruption and decimation of industries and jobs will appear as simple as a shift from a boat to a bridge.

Migrating an organisation (or an industry or a country) from doing one thing to another is simply retraining some humans and doing a different thing. There may also be some equipment involved, perhaps some legal things and some new suppliers. Nothing in that process is insurmountable.

The boaters of Kinsail could have been comfortable with the change if they had just thought: fine... we will either add carts to our business or move entirely to carts. That's not a big thing.

But before the rational thought comes the emotional and highly identity-based thought. "We are a boating family. We have been for generations. We have all these boats." And we are back to reaction to the event, not reaction to the trend.

Beyond the effect of the thread of disruption, this charmingly simple story also teaches us to think about the flow of value and perhaps this is a way of thinking about disruption and layers of innovation. Before the bridges were even thought of, the value flowed through the routes of the boats. The roads and the boating routes defined where any ancillary value could be captured: inns and pubs, boat yards, light houses etc. All of these are on the route of value.

Grasping the idea of "routes of value" is easy because we can see it. It's still true of physical shops: the higher the foot fall (the route of value) the higher the rents but also the higher the return. The further away from the route of value, the lower prices and the harder it is to earn.

When the idea of the bridge is presented (before they are built) the route of value is suddenly questioned in a way that it wasn't before. Are the boating routes that valuable? Clearly they are for the livelihoods of the boating families, but are they worth defending?

Similarly, as we've seen this year (2020) more than ever, the route of value is not necessarily the high street. It is through little rectangles. That's a physical reality - we have to accept this before we look at the economic of cultural shifts which might happen and how to react to them.

The same thing happened when the internet made everyone realise that the value in bookshops, record stores, CD sales and more were perhaps not as axiomatic as it seemed. The internet built bridges between creators and consumers in ways which bypassed the old institutions. The internet didn't do anything bad as such, it just reframed where the value lies.

Unfortunately, almost no leaders I have seen have this insight. They describe their own routes of value. They describe their boats.

One last point before we get into more modern frames of reference:

The brige was built.

### 3.3.2 Money

*Banking, Money, Trade and Crypto*

*TASK: More research into history of money*

(Money - book). Money should be affordable, durable, fungible, portable, reliable. This is why we adopted metals like gold, silver and bronze.

But even at the outset of looking at what money is, we start to notice that the way in which a money might be durable can change. And if money should be reliable, who exactly does this apply to? Reliable to everyone or just a few people?

Do timeline of this.

Highlight that at each stage, each type of money (clay tablets, stone tablets, paper, banks, deposits etc) has a different purpose. It's solving a different problem.

Then there are e.g. religious restrictions on what money/banking could be such as: not charging interest (check this) not lending to certain types of people - check. I think this was the case in some Arab countries.

The evolution of money follows a similar evolution of other ideas/concepts/artefacts/technologies.

Early forms are direct and very literal. The value is for the user directly.

As the technology evolves, and as the number of parties involved increases so do specialisation in both the technology and the services around it.

In money/banking this leads to

2nd order / nth order impacts. Money is an exchange of something. But then credit/loans, shares etc can be built on this. Of course these can go wrong - tulips, housing booms, dot com nonsense.

"The History of Banking Timeline | Sutori" - starts very late. Completely ignores a lot of history. Windowing. This is classic windowing - bringing in the window so it starts within the country and culture we are part of, which makes it feel like there is something exceptional about it.

"financialisation" is creating new technology on top of old.

We also see layers of technology adoption in money. As soon as I have money, the concept of owing and borrowing in terms of that money can exist - this exists millennia (Ascent of Money, 2nd Mill BC, Mesopotamia. There's an ancient IOU!)

We are familiar with the idea that money creates money and this IOU is just that - the IOU creates money in the future. If two people owe each other goods or money, they are dealing not just in the money which exists today but that which exists in the future. We don't really need specific historical examples to

suspect that people must have realised they can owe things on behalf of other people - this is what trade would be built on. I travel across the sahara to buy food knowing that you will buy it from me when I return.

Do a graphic of this - this is like the S-curves. Or like layers of technologies. In this example, the money enabled trade / barter etc.

...

What we see in IOUs gets formalised in the Amsterdam Exchange Bank in 1609. (Ascent of Money, p48). To enable easy flow of trade, regardless of currency or goods the Amsterdam Exchange Bank held accounts in standardised currencies. This enabled cheques, direct debits and transfers.

[CHECK THIS] Merchants could make and receive payments via the bank. (What happened before this?)

However, the deposits and reserves remained closely linked - deposits were around c19 million [currency] and metallic reserves were c16 million. Credit creation requires decoupling deposits from reserves so that the bank can create money in the form of loans.

p51. The core function of banking became “information gathering and risk management”.

p52. “...idea that money was about credit, not metal, never caught on in Madrid”

Money, banking, finance... evolved through people realising at each stage that the solution to one problem was a platform for a new solution. Deposits is the platform for loans. Common currencies of account is the platform for direct transfers between accounts. Loans are the platform for creation of money.

Each new innovation does multiple things at once:

It creates new value, seemingly out of nothing. Loans, shares, risk management all created secondary impacts and secondary industries where before there was none.

This value can shift the flow of power. The fact that Madrid didn't really get the idea that money was about credit rather than metal did two things: Madrid didn't get to participate in the banking and trade revolution to the same extent; by extension, Amsterdam got to exploit the new value created. These are two sides of the same coin, but it does tell us that a disruption or a change of the flow of value requires one party to be able to exploit the new value while another doesn't exploit it, either because they can't or because they don't see the point.

All of this opens up the next wave of value creation. This is especially true of money, which is a very generic type of value, but may be true of other types of new value creation. When the new value framework/paradigm is created, it's not always clear what the new, emergent types of value will appear atop it.

..

(p188, Ascent of Money) Life insurance was invented [...give a bit of history...].

What is life insurance in terms of our ideas of layers of innovation and disruption? It didn't really "disrupt" any industry, but it did create one whereby people could be protected from the uncertainty of when they would die even if there was certainty that they would eventually die. [Get some more on this - presumably this allowed people to be more certain with their outlays of money.]

The prerequisites of life insurance are probability, life expectancy data, certainty, normal disruption, utility [DU] and inference [DU]. [Add para explaining these.]

Other prerequisites are, of course, money, banks, contracts and other norms of a financial and contract-based society.

What is remarkable from our 21st century point of view is how absolutely normal these are - much of the maths involved in these is now taught in schools. Yet the entire life insurance industry dependend on these. And, in common with our observation of Madrid vs Amsterdam [CHECK THIS], it's what this enables which is as intersetting as what it is itself.

[CHECK THIS] Once a family have life insurance for the main bread winner, presumably they are more comfortable making commitments which depend on that income. Without it, that money would be locked up as risk mitigation. We can see a similar pattern to the creation of credit by decoupling bank deposits from the money the bank can issue in loans. Whatever your view on the morality and sustainability of this, th decoupling of one form of money from another does allow a flod of new activity. The same thing, it seems is true of life insurance. [MUST GET STATS ON THIS]

p358. *Use this quote* ~Money is a mirror of mankind.

Money is well associated with corrupt behaviour. Money may be one of a handful for things in life that humans seem willing to bend and corrupt their moral compass, seemingly willing to do almost anything for a bit more. When we have a society where people don't just have the option of making money but have to make money (for example, to pay for rent, increasing price of food, safety etc) we ask fewer and fewer questions over the ethics of the work and the 2nd, 3rd, and nth order impacts of the work we are doing.

That's a big discussion which is beyond the scope of this book, but there's something worth noticing with the ways in which money can corrupt and they types of money involved in allowing the corruption to take place. Global trade of commodities such as sugar, cotton and slaves was made possibly in part by financialisation at a scale not previously possible. If we take the idea of that money is a mirror of mankind but we also add in the fact that all this trade was also made possible by a confluence of inventions (such as sailing, steam, etc) then perhaps it's not money which is the mirror but all layers of innovation.

The question this raises is: perhaps all new inventions, disruptions/innovations are a different mirror of mankind. Each time there is a new idea or new invention and new flow of value, humans have another chance to reflect on who they really are. *This question has to carry over into the main body of the book*

..

Bitcoin.

One of the most interesting and, more recently, contentious innovations in money has been cryptocurrency.

It's instructive to take a much more considered view of cryptocurrency based on what we're learning about how innovations and disruptions embed themselves into society. We've only had about a decade of this idea in common use, and it's based on a relatively new network (the internet). Before we judge cryptocurrency as an idea and perhaps bitcoin specifically, let's see what questions the evolution of bitcoin raises for us in our mission to understand disruption.

p10. "Where money comes from". The bitcoin community, and the cypherpunks before them saw was that they questioned what it was money had become. As we've seen in a short history of money, it's not obvious what money is and there are more types of money than the simple thing you use to buy stuff with. And on top of each of those types of money, there are secondary networks of value which aren't open to all of us. There's an insight here that the bitcoin/crypto community had that is a parallel to the Amsterdam [??] Bank, perhaps: if we create a new common way of trade we can create new forms of value on top of this. For Amsterdam the common way of trade was common currency accounts. For bitcoin and crypto, it requires building a new form of digital money.

But in order to get to the conclusion that a new form of money is required, they first needed to see through what was already there. They couldn't just build on what everyone else was using. This is an interesting twist - perhaps not all innovation builds on top of the latest and most common innovation. If there was, bitcoin and crypto would have built on top of the existing fiat currencies and the existing banking systems. Our S-curves of adoption might not be so simple.

p14. [My notes: "Yap. Big rocks." WTF...?!] We also see that the crypto community saw that the concept of money was not static. This is backed up by our short history of money. While we have nice, neat definitions of what money is, these are only good for the examples the world has seen and taken seriously so far. The phenomenon I believe we're seeing here is a definition problem: we define things based on what we are aware of and then we categorise the world based on that. When something comes along which challenges that, often by first digging deeper into where that definition came from then that something can play havoc with our definitions and categories. *Carry this question over into the main body of the book. This is all about definition of style.*

p19. Previous versions of digital money. [haven't got notes on this]. Bitcoin is the version of digital money which broken through and achieved global reach and

recognition, but it's not the first idea of digital money and is not the first time people have thought of such a thing.

Failed attempts are important. We spend a lot of time discussing why one thing won over another and what it means about life, society, humans, etc etc. But perhaps the question we need to ask is: *what do the previous/failed attempts at something mean?*

p32. Cyperpunks. The cyperpunks lived on messaging boards in the [which years???]. At the time, the number of people on these boards was [GET THIS] X% of the population. The number of people who knew about these ideas was vanishingly small. Around this time, the ideas of innovation in money were [GET THIS].

Here's another interesting question: why is it that this innovation came out of the shaddows? Wouldn't it make sense that the place where the information sits - the banking sector - is where the innovation should come from. Of course, if you've worked in anything like this you'll have quick answers as to why this isn't the case but from the outside it's not obvious why the innovations and disruptions don't come from the incumbents.

—

#### Bank 2.0

Internet trading. When trading of stocks on the internet started being opened up to consumers, it was often done under the idea of “democratising investment”. (“Democratising” is short hand for making something available to more people - I haven't researched this, but I assume the use of a word related to “democratic” is partly because the underlying idea is taken to be inherently good.) Years later, we have apps like Rohinhood which saw [get a short history of this], effectively encouraging people to invest in numbers which were going up rather than the underlying value of anything. Perhaps this is tullip mania all over again, just like the first Dot Com book. Bubbles, after all, will happen again and again.

What questions / ideas does this leave us with? As layers of innovations and disruptions emerge, how do we know which ones are good and which ones are bad? Or, perhaps we need a less judgemental view of this.

Maybe we need to look, not at the goodness or badness of each potential innovation or disruption but at the nth order impacts - what these impacts might be, who they might impact and the extent. *Carry this question into main body of the book. I don't know the answer though.*

p225. “Banks have cost-cut...”, “status quo” What we learn from the behaviour of the banks during the first phase of digital disruption on finance was that, [quote] they cut costs and focus on the status quo. This gives us the question of: why do the incumbents behave like this and why, despite so many historical examples of this behaviour resulting in long term harm is this behaviour repeated?

But these behaviours are not about complex decisions - they are simple things like what should be displayed on the bank's website. [Get examples from the book - ideally interview Brett ??, author of Bank 2.0/3.0/4.0]. Anyone who's worked in anything customer-facing will be familiar with the experience that decisions are made from the business's point of view rather than what the customer actually wants. Simple things like what is useful to a customer on a website don't factor into the priorities and decisions of the bank because, for one, the bank defines itself as dealing with customers through branches and not through websites. Websites are a necessary evil but not a point of value, from the incumbents point of view. Once the idea that this new thing has low value, all resourcing and prioritisation decisions make this an inconvenience.

—

If we think about the history and disruption of banking and money, it's easy to see the shift from barter to money to banks to online banking and then crypto. Basically, to look just at money as a way of buying things in the moment. Money is more complex than this though - it's a store of value, it has a future value, its value depends on what's going on in the economy, and there are different types of money - central banks, commercial banks, consumer, cash etc.

Money is a particularly interesting one when it comes to the flow of value.

If we compare one form of money to another, we can see different available flows of value to different people. In the beginning there was no money and there wasn't even barter. You forage or hunt for food and you have the value you need. There is no storage, no future value. If we barter then value from my activity has found its way into your life - there are overlapping flows of value in our activity. (This is like a cross-roads or X shape.)

When I learn to preserve food, I prolong the value of my activity into the future.

If we introduce a coin or token of some kind, we enable flows of value which are not only geographical but through time. We have created a network of possible trade.

If you make a bank, and I deposit my cash in your bank to withdraw in the future we have done multiple things: my accumulated money becomes more useful to me because I don't have to look after it; I don't need to have a safe or other storage. But you can now lend that. Yet more flows of value.

However, you have become a gatekeeper to whoever can borrow from you. While we have created flows of value we have not made these flows available to everyone.

This is illustrated in the case of the East India company when they created a system to take deposits in [find out where] and allow withdrawals [find out where]. This does two things: it solves a problem that the East India company had in getting money from X to Y but it also, by design, it excludes a lot of people from (legitimate and illegitimate) access to that money. Their system wasn't designed



or built to allow just anyone to move money from X to Y, it was designed as a very specific flow of very specific value for very specific people.

A lot of money systems are exactly this way. They allow a very specific form of value to be stored/exchanged between very specific entities. It's not true that each progression from one technology to another is an improvement of everything, nor is it a (dis?!)improvement. So what happens?

These 1-dimensional timelines can be unsatisfactory. Perhaps each new method / innovation is sequential but not a straight improvement - it's more about trade offs. And not just in the technology itself but in where the technology can be applied.

This tells us that the progression from one technology to another is not

Get ideas from books - from the history of money book\*\*

Get some of the ideas from Bank 2.0.

[Get Bank 4.0. Interview the author.]

Crypto. Start with the promise of disruption. It requires imagining new flows of value - new ways of doing things. It also requires building those ways and all the machinery and culture around it.

*But*, the banking system still controls the flow of value. the value isn't purely money - it's also trust.

*Sending money*

Progression of sending money Barter Gold Tablets / tokens East India company - way of doing transactions on paper (which 'disrupts' the need for movement of hard cash) PayPal Crypto

*Add list of the questions about disruption which banking/money/finance leaves us with*

### 3.3.3 Broadcasting

#### *Information platforms & broadcast media*

One of the 2nd order effects of computing has been increased communication platforms. When we think of communication, we probably think of things like the telephone, email and social media.

However, like computing itself it's better to see the trend of these platforms as a continuation of the human need to communicate and to broadcast information. This allows us to ignore the specific technologies and look more at the implications of the technologies and, more importantly, the 2nd/3rd/nth order effects.

We will look at broadcasting first. Broadcasting is the human need to get a message across to many people.

Theatre Email lists Blogs Social - sub-groups YouTube TikTok

As we see progression of the information platforms, we see that new nuances are important. TikTok is, in effect the same as YouTube but the arrangement of the information within the medium (video on mobile device) brings new nuances. These nuances are easy to ignore if you're being disrupted - it all looks like same: video on you own website, on Vimeo, on YouTube, or TikTok is all video. Except that the progression introduces nuance.

If we go back

### 3.3.4 Communication

#### *Networks of communication*

(This is not broadcast communication - this is 2-way / discussion etc) Writing (as a technology) Travelling Letters / postal service Telegraph Landline phone Mobile phone Computer - fixed internet Smartphone ... then where? VR/AR? <https://www.linkedin.com/pulse/auracast-evolution-earbud-case-nick-hunn/?trackingId=w1C4oIq7i5slvSpG%2FuWC2A%3D%3D>

How do we measure the “improvements”? Cost, speed, density of information / bandwidth, network size.

Measuring improvements quickly leads to the intuition that each wave of disruption is not necessarily an improvement. We know this because we have in person meetings when we need to convey more but email when the information is (perhaps) more routine.

### 3.3.5 Machines for thinking (AI)

(See sources: Chapter Zero; AI) (Take some examples from Illustrated history)

AI means voice recognition, unmanned drones and a machine in the cloud choosing your next book or film. When we ask about the disruptive impacts of AI are, we end up answering questions which relate to today - the AI replaces the call centre, the drone pilot and the librarian. However, if we take a broader view of AI, starting much, much earlier than today's AI we end up learning more.

AI for our purposes is about tools or machines which help humans think or immitate a human's thinking. Humans have a centuries- or millenia-old project to offload mental effort onto external devices or, our of pure interest to see if external devices can perform the same tasks as humans.

We see AI as much about the abacus and the weighing scale as about deep neural networks and vast quantities of data. This means, as we explore what AI means for understanding disruption in general, we won't actually learn a lot about how AI will or won't disrupt industries by starting to speculating over what its impacts will be over the next 10, 20 or 100 years. If we do this we will just end up parotting the same old speculations.

Our main interest here is not necessarily the inner workings of the AI but the impact of AI. We are as interested by the naive ELIZA chatbot built in the 19XXs as we are in a cutting edge, neural network powered virtual therapist. The underlying technology less less interesting than the impact.

This means we are also less focused on a pure idea of "intelligence" which may mean something sentient or approaching selfawareness, but we are more focused on AI as artificial thinking machines. Any machine which in some way does what a brain could do. Why? Because we are interested here in the impact of these artificial thinking machines on what it means to be human.

And this leads to a third interest. Artificial Intelligence sounds, to our modern ear, almost synonmous with Artificial Humans. It plays into, and threatens our ideas of identity. The threat of identity, it seems, becomes a core feature of disruption. With AI, the closer it gets to doing what we define as essentially human the more we have to defend why being human isn't what the AI does, it's what a human does. But this argument either doesn't hold or it's the wrong argument to have. If an AI called AlphaGo can play the game Go not just as well as a human but so much better that it invents new moves which humans would not have thought of[get ref] has AlphaGo become more human than a human?

...

*history starts here*

NEXT: Tell a series of stories.

The history of artificial intelligence is series of stories either of offloading human cognitive effort onto a machine or exploring how a machine might be like a human.

We have built tools to help us think and to help us make decisions for a long time.

The abacus and [get other] counting machines augment the human's ability to make a decision about how much of something there is or how that thing could be shared between multiple parties. This is not at all a trivial example and the fact that the only place you can find an abacus these days is in a child's nursery / playroom doesn't reflect how useful a device this is.

Counting with real things is not child like - an Excel file or database is effectively just a modern version of an abacus from this point of view. Rather than perform the calculations in my mind, they are performed externally. I gain two things from this: a machine which helps me calculate; a way of externalising the calculation which would otherwise be happening in my mind.

Rather than having to explain my working to you, I can show you it. And if I need to stop part way through the calculation I can do and the abacus remembers for me. In this way, the abacus is an artificial thinking machine in both the calculation and the communication. It also serves a purpose of communicating the working - I can put the beads in a particular position and then you could take over from me.

Weighing scales also take subjective weight decisions and make them objective. Clockwork divides time, but also makes possible other processes which can be mechanised and regularised.

Each of these are not typically thought of as AI but if we look at the impact, it is the same as autonomous drones and [...]. The impact is that they take work away from the human and transfer it into an object. At this scale, though, it probably has minimal impact on the lives of those around the person using the tool, certainly compared with the impact of AIs running at the scale they do today.

===

As we move into a more typical history of AI we pick up all kinds of ideas, questions, clues as well as uneasy feelings about the human condition. It's these feelings of identity which, I believe, sit at the heart of why disruption of industries by AI feels so undermining to what it means to be human.

We will now whizz through this and, at the end, regroup and see what this set of technologies has told us about the causes and impacts of disruption.

Add in other examples here -. from the history book.

=====

Remove??

As we progress to electronics, the value made possible a very specific piece of human behaviour which enabled a gigantic world of possibilities. By focusing on switches - turning electric current on and off, values were able to be turned into machines which could count.

Binary calculations persisted as computing power increased, but the underlying technology shifted from values to solid state electronics. We have lived through this revolution and we have felt the effects, but it's worth spending time reflecting on the impact. The tiny world of binary calculations has led to almost every industry's communication being rebuilt on top of something electronic. Like the telephone enabling completely new flows of value, electronics changes *where* the work was done which changes available flows of value.

We then follow this artificial intelligence / automation / mechanisation of the human capabilities through mainframes, increased computing power, larger networks through to AI.

..

I will have done several pages on AI history. Continue from here

What has a quick study of AI's historical disruptive impacts on humanity told us about disruption in general? And what questions will we take into our study of music?

Let's look at causes vs impacts. Remember that, for our purposes, we weren't directly interested in the underlying mechanics. We were interested in the impacts. What is obvious from this quick study is that the 1st order impact, that a human has a powerful machine doesn't really tell us the story of either the cause or the effect.

Instead we are interested in the 2nd, 3rd- or nth-order effect. How do we think about these?

Next, it's clear that AI either has or is about to do something to question what it means to be human. What question does this raise about disruption? I suggest this is about identity. While the impacts of the abacus and the weighing scale might have not really had the impact of questioning who we are as humans, the way humans have used tables of inventory and used counting technology in banking have changed what it means to be human.

Over the past 40 years we have seen what it means to be a designer change from pen and paper, to clunky computers through to cloud based realtime artboards. The AI may not be HAL, but it's drawing perfectly round circles and perfectly straight lines. Those used to be things people practiced.

What will it mean to create visual, audio, film or written content in 20 years? It's hard to imagine that it will look like what it does today. Even the simple

act of sending emails involves an AI helping to finish my sentences. We haven't really felt the impact of the latest large-scale generative AI models which can write and rewrite in various styles.

AI can generate code by reading the vast repository of code we've put on the internet over the past 20 years. What will it mean to be a programmer?

The creative community, which may be one of the last purely human endeavours left where logic is less important than intuition has yet to fully digest the impact of generative AI. I have created pages of text with AI. I've created album covers. I've created synthesier sounds and samples.

If it feels clunky and buggy now, just remember what the internet felt like in the 90s.

The question we take into our exploration of music, is how to think about identity. Why is it that AI is challenging what it means to be human? Why is the question of identity coming up at all?

### 3.3.6 Devices (Smartphones, laptops)

#### *Smartphone vs laptop/desktops*

In the previous example, we looked at a series of technologies under the heading of “communication” technology but this undersells the impact they had. Landline phones didn’t just allow communication between people, it allowed trading of stocks around the world - or maybe it was the telegraph which enabled that. Either way, the communication technology allowed the communication of very different types of messages which have very different types of value. Phoning your uncle in another country to talk about your visit has a very different impact to spending 4 hours on a transatlantic call to negotiate buying a company.

The shift from desktops/laptops to smartphone did exactly this. The smartphone didn’t just absorb the value that landline phones previously held, but myriad other things. Music, photography, socialising, film, banking and many other things.

The interesting thing is that this value was finally, after a few false starts put into the marketplace by Apple. The false starts [... General Magic...].

The important observation here is the shift in Apple’s own value from computers to smartphones, and the many layers of value which were built on top of that.

They were able to create their own value.

This is a story which has been picked apart a million times and I don’t think analysing this is going to bring new insight. What we need to ask was, what way of seeing the world did they have which allowed them to move so confidently into an area that they had tried and failed in before? (The smartphone was basically a PDA, which the Newton was but that failed.)

The easy thing to do here is to look at what people at Apple did to create the iPhone. This is what a lot of business books do - they give you case studies in how the people who did the thing did the thing. That’s perfectly useful and you should read those books, but that’s not what we’re going to do here. I don’t think that’s a particularly useful exercise because you end up cargo culting [introduce the idea here or earlier on - maybe in the intro with all the silly things that organisations do]. What we need to ask is: what were the deeper ideas or motivations which allowed Apple to detach itself from being in the business of building desktop computers and allowed it to build a new generation of computing?

In order to answer a question like this, case studies won’t entirely answer the question because each case study is a sample of what happened. It’s an example of one set of humans in one circumstance who reacted in one particular way. If you know any amount of statistics you know that one measurement is not data - anecdote is not the same as data.

My contention is that to learn about how Apple pivoted from one technology to



another we need to look at how other pivots have happened - in this book we will use music and explore how pivots from one instrument to another, from one musical system to another, from one form of music to another.

What underlies this is a belief that the creativity of the human brain is working in the same way across many domains.

//Get some stats on this.
---------------------------

//Apple created a new place for new value.
--

//Use the picture of all the things which ended upon on the smartphone.
---

### 3.3.7 Amazon vs publishers

Music could be disrupted by the internet because the raw material of music - sound - is easily captured and disrupted. Books should have followed the same pattern but something about the way we consume books in all its forms meant it didn't follow quite the same.

Slightly inferior copies of music using the new mp3 technology of the 90s [check] compared favourably with the CDs and tapes we'd become used to. Perhaps there was a little loss of quality, but overall the gist of the experience remained the same. But books seem different.

The battle, as its termed by the incumbents, was similar though.

Project Gutenberg, started by Michael Hart in [??] to [digitise public domain material] was the preserve of enthusiasts and nerds. Whether it was from this project or somewhere else, I certainly remember downloading reams and reams of public material and printing it out in 8-point to reduce the number of pages I had to pay for. The behaviour of early adopters doesn't always translate into the behaviour of masses though, and this kind of effort of searching, downloading, reformatting and printing was very unlikely to ever be adopted by the masses.

..

ebooks were first popularised when devices allowed the end-to-end experience to be seamless. To anyone who had been using the internet to find and read material, it made perfect sense that the internet would be the distribution platform for books. What seemed to be missing was the consumer experience. There are important lessons here.

Amazon, with their Kindle, Google with search and Apple with iPad all created ways of closing the gap between the consumer impulse and discovering (and possibly buying) a book.

- “We had high hopes that this would happen eventually, but we never imagined it would happen this quickly,” said Jeff Bezos, Amazon's chief executive, in a statement. “We've been selling print books for 15 years and Kindle books for less than four years.”

This quickly became controversial as each of Amazon, Google and Apple did things which the publishers and authors, who own of the intellectual property, found objectionable. These include allowing ebooks to undercut the price of physical books (which creates incentives to buy digital rather than physical), providing free search-inside via Google search and other price fixing practices.

//

Amazon had developed the ebook specifically for reducing the steps consumers needed to take to search, buy and read a book. In their case, the technology was developed around the user need of searching and reading. When they created the

Kindle marketplace and the user base, this was created in the private domain. These are Amazon users on Amazon devices.

This enabled them to play with the pricing and distribution / access rules however they liked. They can set prices - initially prices were set below market rate, undercutting the publishers and authors but, presumably providing utility to consumers.

Google created a similar environment for themselves; once users are coming to the Google search box every day and expecting good search results, Google could add a little more value here and there. When a user is doing a Google search, they are very unlikely to go to another site to do a book search. The entire experience is inherently owned by Google.

Google's mission, to organise the world's information and make it searchable, is clear to users and helpful. There is no user who wants to spend longer finding the thing they're looking for, so the value of Google is instantly understandable to users once they realise how much information is in the world. Adding books onto this isn't a huge leap.

Apple, lastly, had created first the iPod then iPhone and then iPad. With each of these, they realised either right away or soon after that the secondary value to the core product could be gigantic. The iPod led to interesting reasons for non-Apple users to have at least one Apple device because that's where all the great music was and, when iTunes was available for PCs, why not buy this as it's the only decent music player.

Apple did with the iPod what Amazon did with the Kindle, but each was approaching a different user problem and from the point of view of a different type of company. This is important because the type of company you are affects the kinds of things you see as valuable for customers, for the world and for yourself.

When tech commentators talk about Google being an information or AI company, Apple being a hardware company and Facebook being an ad company there is more to these comments than simply explaining how they tend to make their money. The kind of company you are affects where you see and exploit value.

And this is what we saw. Each of these new entrants into publishing - Amazon, Google and Apple - looked at books from a different angle. Amazon saw books initially as a good category of product to sell on the internet and then it saw ebooks as a way providing extra value to users within the Amazon ecosystem. They were able to analyse which pages on which books were actually read and even which sections were highlighted. This was a far, far closer relationship between provider and reader than publishers had ever had.

Google saw books as a way of adding value to the user of search. Users clearly want to be able to search through all of the world's information, so why not allow them to search through books and view the results? Especially if the books are public domain. This leads to more use of Google's search.

And Apple wanted more reasons to use iPad, the iPhone and other Apple devices. If users can find, buy and read on Apple devices then the utility of those devices increases.

Amazon wants you buying from Amazon. Google wants you searching on Google. Apple wants you using Apple devices. None of this is controversial. Statements like this are either implicit but not hidden or stated openly in their strategies and, because each of these companies had built up a large user base whenever they introduced something new into it the effect was outsized.

This didn't lead directly to the surge in ebooks, but it certainly enabled it. The publishing world should have been looking at the internet and the growth of reading devices (such as Kindle, iPad and smartphones) as the creation of potential sources of value for readers. No amount of saying that *people prefer to read on paper* matters when people discover they can take one kindle on holiday instead of a suitcase of books.

TODO: Add a new lesson to "value". New value is seen by new entrants.

TODO: Make sure (in "value") there is "potential value", which is something incumbents must pay attention to.

When researching for this book, I was surprised by how unresolved this matter seems. Even at the start of 2022, Amazon and publishers have been accused of price fixing ebooks.

Jan 2022 - "Amazon.com and the "Big Five" publishers – Penguin Random House, Hachette, HarperCollins, Macmillan and Simon & Schuster – have been accused of colluding to fix ebook prices, in a class action filed by the law firm that successfully sued Apple and the Big Five on the same charge 10 years ago."

In the cases, going back more than a decade [check] the publishers accuse Amazon and Google of not playing on a level playing field. They accuse the new entrants of using their overly strong market power to use predatory pricing and "systematic below-cost pricing of books to squash competition in the book selling industry as a whole".

What questions does this give us?

1. Why didn't the publishers build this for themselves? The technology was well known and the idea of ebooks has been thought of for years. In the 1990s, the publishers were stronger than they are now. So perhaps there's a lesson about incumbents or competitors acting together.
2. Why did publishers and other book lovers bother talking about how print is better than screens/e-ink? In the long run, being right didn't matter more than actually building the thing.

3. The internet un-levelled the playing field. Despite the publishers complaining about Amazon's practices, the fact that publishers deliberately release the more expensive hardback book following by cheaper paperback and ebooks is, itself, a form of price fixing. There's something about the status quo being fair and level until something comes along and makes it clear why things aren't fair and level.
4. Do things converge to fair over the long term? Or does the market stay skewed? This isn't at all clear and looking at the examples of music and ebooks, it's not clear that we have ended anywhere "fair" so perhaps we need to look at how markets (of various kinds) pan out over the medium and long term.
5. Is a fair, level market good for innovation and progress?
6. How you define unfair depends on how you define a market. This is somewhat intellectual slight of hand, but it's not wrong.
7. Many articles about Amazon vs publishers, talk about the "fight" the publishers are putting up. On what fronts do incumbents tend to fight and is this worth doing when the new entrant will have created new flows of value, effectively reframing the entire question?

### **3.3.8 Uber vs taxis**

Have a few of the canonical examples of digital disruption.

### 3.3.9 AirBnB vs hotels

**3.3.10 *Other forms of disruption - Covid***

These forms of disruption change the flow of value

Increased time online massive decrease in foot fall. This is very easy to visualise but it's a direct example of "flows of value" <- i need to introduce this idea without using that phrase too early.



### 3.4 Temper the argument

Things that can't be disrupted or don't create new, long

Tullips - no real long term value The frozen water trade - wasted effort Gamestop = no underlying value Education = the hardest part of education is the human brain

Disruption does not always mean reducing overall value. E.g. Uber - more cabs after it was introduced. Music - (get a stat on this). More music is listened to now.

Disruption doesn't always mean better things for everyone. We have grown expert at arbitrage with positive outcomes for one set of people but very negative outcomes for others. Cheap clothes, technology, energy all have impacts on other people.

Also, it's not true that everything is changing faster than ever. [Get some data for this]. Some things are changing rapidly when viewed from a certain light: the changes in how people consume content are changing almost by the week, with content/social platforms becoming every more expert in keeping our attention. However, the way I fix the pointing (that's the cement between the bricks) on the front of my house is pretty much what it would have been 100 years ago when the house was built, or 500 or 1000 years ago.

There are strata of change. The top layer changes rapidly, the lower layers change slowly.

Old vs new value. New value is not necessarily better or worse than old. A lot of time is spent by incumbents explaining why we need to protect our institutions or by disruptors explaining that we need to embrace the future. I am firmly in neither camp.

New / disruptive value doesn't mean that fundamental good business practice disappears. The Dot Com boom, which saw valuations detached from reality or the Tullip mania [of the XXXX century] show that we lose track of reality. We are in a closed system - finite resources, finite time and a biological need to eat, socialise and provide for ourselves. This means that, while you can borrow from the future you do have to pay it back.

### 3.5 Slave trade; Climate; Migration

*Move this to ~last*

Trading of slaves obviously disrupted, in an horrific way, the lives of millions of people. It happened because the enslavers realised they could capture value in one place and get new value for it elsewhere, a practice in trade called arbitrage; buy it cheap in one place in order to sell it for more elsewhere.

These kinds of change happen all the time.

Disruption can mean a bit of a shift in how we consume something or the theft of natural resources and lives. Putting a smartphone app and geopolitics on the same axis might be extreme - I'm not really sure how this will fair, but from the examples we've seen there are common questions around the flows of value and [ADD MORE]

### **3.6 Using Music as a lens**

Throughout this book, we will see examples from many industries but with each phenomenon, music will be our starting point.

### 3.7 Summary - what we want to answer / explore

// *TASK: Summarise the open questions / threads of thought from each sector/market/example.*
---

## Humans reasons we don't like or understand change

// *TASK: Do I need a section or chapter on this? Maybe this is part of the book's conclusion?*
---

\*

- *Blank page* \*\*

## 4 PART 1: WINDOWS & STRUCTURES

## 4.1 Windows hide the truth.

We narrow our field of view either by time, geography or some other factor to suit the judgement we want.

We put windows around things to make them easier to explain. We create categories, labels, subset. Anything to avoid the complexity of the overall picture.

It's natural to tidy things up - Framing is part of painting, film making. The act of editing seems to be innately human. We take out, add in and tweak until we can stand back and see the message we wanted to get across. Until the truth has been made neat. It's almost inescapable, because as soon as you point to something and say "that's art", you've created a frame or a window through which we view. The same is true whenever a category or label is used. We define terms and in the act of defining we narrow the window of what is relevant.

In doing all this we create a window around what we deem important, we exclude what is not important. And we hide distracting parts of the truth.

Sometimes this makes sense - if we want to talk about disadvantaged people and how we're going to help them, we need to define who they are; if we're going to create budgets to invest in the future, we need to define how much and where we'll invest. If we're want to understand how the poor are affected by a disease, we need to define poor, disease and what effects we're looking for.

But sometimes the windows we draw around something just serve to hide irritating details.

We create windows not just in time but also space and whatever other axis helps make our case or simplify the situation.

Read many music tuition books from the early 1900s and they talk about the canon of musical composers (the famous ones - you will know who they are) as though nothing happened outside Western Europe. Music is the canon of composers and outside of this, it was just some folk music or something - nothing worth recording. Except folk music and activity away from the canon is where the canon came from; you cannot leap straight into high art without the history of a million failed compositions and composers.

Before distinguished composers identified these folk tunes, they were ephemeral and of less value. Once captured, refined and put into a proper form they give us something to discuss. It is now "real". We have drawn a window around what matters and everything outside of that does not.

*A window around the industry*

Windows tell us why the music industry is a shadow of its former self. Gone are the days of raking in money from CD, DVD and licensing. Gone is the control of the IP and the money. Earning money in music is harder than it has ever

been, what with the rise of the internet, streaming and various platforms which facilitate direct artist and audience interaction.

Everything has got worse.

Except that the window we are drawing starts around Statute\_of\_Anne,. 1710. Before this, there was no legal way of protecting rights of copying a creation. Like all laws, they are a function of their time and of the technological innovations which (usually recently) precede them, but they are not axiomatic. Copyright is not a physical law, it is a human law which was invented to create an industry.

Before copyright existed, the value in music was less. There was no technological way of capturing something (be it a score or recording) and distributing it, but there was also no legal way. When the printing press implied a new market of publishing, this was protected in law but that law relied on the physics of printing making it hard for anyone to setup as a printer. They wanted to incentivise innovation and commerce.

But when the physics of publishing was broken by the internet, all of the assumptions around what needed to be protected had to change. It wasn't that the internet broke or disrupted the music industry, it's that the underlying assumptions were no longer sound.

Open up the window of the music industry's history and you realise that the industry has not suffered a huge blow to its fundamental rights, it's just that a new wave of technology has challenged the idea that copyright might be the way to encourage a particular activity.

Copyright law is an example of how we layer up human activity based on assumptions which are neither universal nor eternal. You can create copyright law, but that doesn't mean the assumptions will hold forever and in all places. There is also no point in writing down your assumptions because you're only aware of what you're aware of, and something which is axiomatic may change overnight.

*TASK: Create this chart*

What does thinking about this Window effect tell us?

If we created a chart of the cost of capturing and distributing music value (e.g. by sheet music) over time, we would see that the IP law and the rise of print enabled this.

But if you open the window wider, there was no way of capturing economic value at that scale. No way in law or in technology. The music industry before these inventions and laws was simply not possible before this.

The value was entirely human made and so it can be human un-made.

Yes, the technology and the law were all about providing some industrial printing houses with the incentive to operate at scale since this creates a business. If you protect their interests, you create an industry.



The internet took almost every part of the creation and distribution of music and made the physical distribution costs almost zero. The IP law reflects nothing about the technological or physical world anymore. For how long can the IP laws be divorced from the physics of the situation? [Add an example to show how law & physics can't be totally divorced forever.]

By opening the window slightly further into the past, we see that what is normal did not always exist. We now need to think about what might appear as we open the window to the right, into the future.

Will we build a new "physics", in which copying is hard again? Or is this it? Are we 20 years into a century where the sale of recorded music makes no physical sense?

The specific answer doesn't matter as much as knowing that there will be an answer but it won't be based on the narrow window which makes us feel safe.

### *Practical lessons*

1. Be aware of the "window" you using to understand a problem. This may be you focusing on the problem but equally it might be you ignoring complexity.
2. What happens if you slide the window left or right? - e.g. if you open up times before or after? When the x-axis of the window is time, this usually means you are creeping into times before an industry existed in the form it exists now. Understanding humans solved the same problem before an industry can give a better idea of whether this industry is here forever or if it is simply evolving.
3. Be aware of the window everyone else is using. Most people aren't aware of what they are ignoring - they can't see their industry beyond set of inputs and outputs it is right now. If you can see beyond that, you can find new ways of imagining the industry.

## 4.2 Structures create value.

Without structures, there is infinite possibility but no language and no way of creating any scale.

—

In our minds now, the music industry is the IP industry. We may go to concerts, buy merchandise or watch their youtube videos but for us (or at least for a certain generation) music equals IP, and does so because we assume that musicians get paid for the tracks they released even if the journey to that music is circuitous.

This structure - of IP, and of everything which hangs off it - has created a valuable industry. This reinforces the idea in our mind that music is IP.

IP is a structure because it takes something invisible, ephemeral and public and assigns a creator, an owner and a customer. It has allowed publishers to be created out of thin air to capture the music of composers through the efforts of performers into the technology of engineers and exchange these artefacts of recorded music for cash from an audience. (Who, we learn elsewhere, had to be taught to but the music.)

Many commentators have and still do criticise this commodification of music. This may be true, but in a sense it doesn't matter. If it has been commodified this has also allowed the creation of an industry around (if not of) creativity which otherwise didn't and couldn't exist at all.

The structure that IP created - creator, owner, customer - has enabled huge amounts of value.

Structure like this matters. We see this in the creator economy we are living through. The platforms have made a structure where a creator creates value (content) which is distributed by the platform to an audience. Without this structure, there is simply no audience or economic value.

Structures matter because they give people roles. While many people did try to be creators before such platforms existed, without the idea of roles people have to sell the idea of something else. Imagine a world without physical theatres where an actor wants to attract an audience. You cannot invite people to the theatre because there is no such thing. If nobody understands what a theatre is, they will resort to creating something else - a tavern, a church, a party. Eventually the world learns what a theatre is, but that's not how it starts.

When the idea (e.g. of theatre) exists, roles start to emerge. The audience know their role. The actor knows theirs.

And once these roles exist, the roles create a space for people and companies to carve out a niche and excel. Quickly, we have the best actor, the most romantic actor. We know about the classical theatre, the up-and-coming theatre.

In music IP, it allowed labels to create genres, record shops, festivals and a plethora of ideas which all stemmed from the structure that IP gave.

These structures, like IP, exist everywhere there is value. Every part of human life (certainly every part of economic life) depends on some kind of structure, otherwise we cannot operate the scale which economic success depends.

..

When these structures exist for a while, they become nearly invisible and taken for granted. You probably only thought of the link between IP and music because I mentioned it. And perhaps the same is true of the role of content platforms.

..

Without realising that the structures are there, we miss out on two opportunities. The first is to exploit the structure - to know what the game is. When people complain about not being able to make it in music or any other industry, but the structure is fundamentally one of superstars and celebrity, they are complaining about something which is not going to change. (What I term a “gravity problem”; you can complain about gravity but see where that gets you.)

The second opportunity is to be ready for when the structure changes. The industry of music hasn’t always been IP based on the mechanical copying of music works, so there is no reason to believe that this is how the future for music will pan out.

As far as I can tell, almost nobody is aware of the underlying structures which enable their own industry. In anything from financial through education to music, arts or sport. People seem to go into industries and believe that this is how it has always been and this is how it will always be. Even the rebels believe some fundamental right to the economics of the industry they went into [get an example of a rock group objecting to the internet and streaming]. if they are aware of the structures, they think that the structures were formed at the time of the big bang and will outlast all of humanity.

Naively believing that the structures have been and will be there forever is fine, most people do it. But in recognising that this is not the case you open yourself up to exploring what your industry might evolve into.

The composer writing with pencil on manuscript paper is not taking part in music, they are just creating an artefact of music which emerged in the 2nd millennium AD (CE??) in order to transmit instructions. This is no more creating music than is clicking a mouse around a computer screen; it is just the current structure we work with. It will all change.

When the structure changes, people will cling to their roles in the old structure. They will object saying that all of the value is being taken away - we are ruining our culture.

And it also teaches us to identify when the structures might change. This,

really, is all there is to understanding potential disruption. If you can identify the structures on which an industry runs and you can identify if those are cultural/conventional, legal/political or physical then you will understand the real risks to the industry. Most people in most industries don't do this because the structures are invisible. Every content industry assumed the value was in the content, until content becomes cheap to distribute.

IP and content platforms have created roles The structure IP creates has created value. Structures matter. They give people roles, they make spaces for people and companies to carve out a niche. But these structures become invisible and taken for granted. This tells us to understand the structures we have, how strong they are and how they might change. And it also teaches us to identify when the structures might change. This, really, is all there is to understanding potential disruption. If you can identify the structures on which an industry runs and you can identify if those are cultural/conventional, legal/political or physical then you will understand the real risks to the industry. Most people in most industries don't do this because the structures are invisible. Every content industry assumed the value was in the content, until content becomes cheap to distribute.

### 4.3 A tiny universe with huge possibilities.

You don't need to be or do everything. First, narrow down the possibilities to create a tiny universe with huge possibilities.

—

There seem to be endless possibilities for music, made out of a mere 12 notes. Out of just this, we have created many genres utilising huge numbers of timbres. ...

But what is surprising is just how small a universe of possibilities we really give ourselves. In most musical contexts, the allowable/acceptable musical notes (pitches / frequencies) and timbres (the particular mix of frequencies) are narrowed right down. I am not dismissing the work of classical composers but the fact is they worked with a relatively narrow set.

This feels surprising and almost nobody is aware that most of us are living in a subset of the music possibilities. A subset of notes, timbres, timing, dynamics, and many other aspects. Of course, this restriction is exactly what defines a musical style, but even allowing for this the universe of possibilities is narrow.

Most western music uses 12 tones (or even fewer), 4 beats per bar, a relatively simple construction of the verse and chorus. It treats octaves as consonant. It treats the down beat as the emphasis. It keeps the tempo relatively fixed.

Confusingly, when asked what makes some sound “music”, I have repeatedly been given answers like “it has to be musical” which is just a circular. If music has to be musical, but our music utilises a subset of the possibilities of sound, does that mean the sounds outside of our defined little universe of what is musical are absolutely not musical?

No. Sometimes it's by design, sometimes it's cultural. [CHECK this - find reference] The timbres of some instruments are altered to fit with the 12 tones we have, which are in turn based on the vibrations of stringed instruments. That is, we reduce the sounds so they fit. This isn't so bad - this is exactly what music producers do when they mix a band. They will deliberately cut out frequencies from one instrument which overlap with another so they all fit together. But, both practices are reducing the possible sounds.

The sound and feel of this gets embedded in culture which becomes the sound of a generation, which defines a culture which becomes a fact. Which all starts for practical reasons but extends into human myths and culture.

Why don't we just open up the possibilities and try new things?

In a sense, it doesn't matter. We humans have narrowed down the universe of possibilities to something we can work with at global scale. I can listen to music from cultures around the world (who have been infected with the strict tuning of European music) and play along. That's a powerful glue.

It also doesn't matter because this is where we are.

But there are other reasons - the last of which is the most important.

Firstly, if you were to create new tuning systems and timbres then you have to get the instruments and the players. This is not trivial, although there are a number of people who do this. [More on this - ]

Second, a lot of music is cultural and has cultural cues. Without those there isn't enough to latch on to. The audience has no frame of reference.

Most importantly, limitation is freeing. If everybody had to work out a tuning system, time signature convention and timbre preference for themselves then sharing music around the world would be harder.

There are still a huge number of possibilities, but because the tiny universe of possibilities is enough to wrap our heads around it becomes easier to talk about it.

If you want to create a large market, you need to limit what that market is for. It cannot be open, complex, multifarious. It will have to be frustratingly simple.

This is why when a product, company or political party does well it seems to be for a very simple reason. There will be a million details in getting there, but so often they will be focused on doing almost nothing for almost everybody.

For many creatives (technical, artistic, other), this is annoying. The successes are based on doing less, but this is simply the physics of economics of the situation. If you reduce down the world of possibly things you are going to deal with, it allows you to focus and that allows you to move more rapidly within your little universe.

When asked who their product is for, many people will say "everybody" but this is the same as having an open, complex universe. There are just too many possibilities.

Start by defining a tiny universe - a universe where there is enough scope for difference and exploration that you are not locked into just one thing; but tiny enough so that you are not distracted.

Music, as most people understand it, is a tiny subset of both all possible sounds and all possible "musical" sounds. The problem with defining music is that it becomes a circular reference: music is musical. Most western music uses 12 tones, 4 beats per bar and a relatively conservative number of the possibilities those 2 dimensions offer. In our tuning system and with the timbres we tend to use, the octave is consonant. This isn't universally true - it's possible to create dissonant octaves by using different types of timbre. Why don't we? It doesn't matter. We just don't. Limitation is freeing. There are still a huge number of possibilities, but because the tiny universe of possibilities is enough to wrap our heads around it becomes easier to talk about it. If you want to create a large market, you need to limit what that market is for. It cannot be open, complex,

multifarious. It will be frustratingly simple. When asked who their product is for, many people will say “everybody” but this is the same as having an open, complex universe. There are just too many possibilities. Start by defining a tiny universe - a universe where there is enough scope for difference and exploration that you are not locked into just one thing; but tiny enough so that you are not distracted.

#### 4.4 What is normal changes.

We use windows to hide variation in what is normal. Every “norm” is temporary, or might be.

—

IP created a new normal. Composers weren’t always important. People had to be taught to buy records. People had to be taught to stream. New forms, formats and products don’t always solve a “user problem” immediately - sometimes we have to teach the person to think differently. We have to change what “normal” looks like. This teaches us that normal will change. It happens with generational change, economic change. It happens in reaction to events or trends. But it happens. Whatever is normal now will end.



## 4.5 Noise becomes music.

#4 means that what is noise today becomes music tomorrow.

This is a section in itself because it's important to point out that what is absolutely not acceptable becomes acceptable.

We have all experienced how the music of our youth is scorned by our grandparent or, if not them then somebody. Many of us know of at least one piece of music or one artist who we or others consider just noise. We hear phrases like "noise", "requires no skill".

The 20th century is full of examples. From the Rite of Spring to Rock on Roll to Hip Hop. It's almost not worth the effort of taking a specific example because the general pattern is so reliable:

A new style emerges in some point of the world. It utilises either a different technology, format, timbre or some other aspect which makes it jar with the mainstream styles of part of the population. Often it is associated with a subculture, either one which is actively suppressed (as in the case of Blues and Jazz) or where it's simply not understood (in the case of experimental classical).

The mainstream then applies its idea of quality to this style and finds the new style wanting. The criticism which follows is also hardly worth bothering with because it will be things like: it's not musical; it takes no skill; there is no melody; it's too simple. This isn't music, it's just noise.

Except what always happens is that eventually this "noise" is absorbed into a new mainstream. Free improve is too complicated for mainstream audiences until it appears on a Radiohead album. Or the clicks and pops of early experimental music re-enter the world via Kraftwerk. Or the prepared piano, which sounds like the piano is broken, reenters the world via Aphex Twin.

What was noise became music. And will again.

This is how styles evolve. The noise has to be incubated away from the mainstream because the judgement of the mainstream ears is, by definition, concerned with what the mainstream should sound like.

The same thing happens in all areas of human creativity.

What is a breakthrough product or technology, starts as a toy. Everything from planes to cars to recorded music to the internet to the web to smartphones to whatever you are using now started as a toy. It started out as noise - something which is just playful nonsense .

This implies two important things:

Your judgement is probably wrong, you just don't yet know how. Whatever your view of the world is, something in the world will be both wrong in your eyes and right in the eyes of an important minority. At some point in the future, their view may influence part of the mainstream and you will then be wrong.

This is so normal that I often wonder why people pass judgement on anything. By definition, whatever you think is wrong/bad/slow/pointless may turn out to be the future.

It also implies that if people are telling you that you are making noise, maybe they are just listening for the wrong kind of music.

## 4.6 What is normal doesn't come from the crowd.

We interpret much of history in terms of the winners, the majority and the successes - i.e. what's liked by the crowd, what's normal. But this "normal" never starts with the whole crowd.

—

There is a weird irony that what the crowd loves rarely (if ever) came from a crowd. This is true not just of the stars whose music we celebrate but also how we think about our relationship with things.

Buying music is such a normal thing that when we started the transitioned to downloads and streaming, there was endless uproar and and discussion of whether people would appreciate music's real value if they didn't have to go to a shop, browse, feel the record in their hands and take it home to put on their shelf. The new generation were missing out on the real value of music. Indeed the oversupply of music - the fact that they could access so much - was surely reducing the value in each piece of music?

Except that it wasn't always normal to buy music in the first place.

In his book on Music and Capitalism, Timothy Taylor cites the adverts from the early days of the player-piano which explained why people should buy music at all. And why they shouldn't play the music themselves.

It only took a couple of generations for the idea of "my music collection" to become normal, but that idea did not originate spontaneously from the crowd. It first had to be stoked and encouraged from outside.

We know that this idea appears in music itself - an artist will experiment endlessly and eventually hit on an idea. This experimentation might involve the crowd, but it may not necessarily involve using the crowd's idea of "good". The artist has to keep themselves and their judgement separate from the crowd.

This is at odds with the way that many think about what "good" looks like. They aim only for something that will get favourable responses in an audience survey. They will try to achieve a "net promoter score" which shows that people would recommend this to their friends. This is the science of creativity, but it too easily forgoes the art of creativity. Measuring responses from the crowd may easily create a creative deadend.

The creator's job is to stand away from the crowd and imagine something completely new. This may be in the material itself, as in the case of composers and performers, or in anyone in the chain of activity, as in the case of advertisers trying to teach us that buying recorded music is a thing we might enjoy.

Teaching people to buy music History is a history of a few people distilling a lot of ideas (This is something else) The art (vs science) of creating new things. We are being taught to create everything with science - testing etc. But sometimes

you need to start with art; a big leap sometimes need the art of ignoring a lot of things.

*\*\* Blank page \*\**

## 5 PART 2: FLOWS AND NETWORKS

[https://scholar.google.co.uk/scholar?q=flows+of+value&hl=en&as\\_sdt=0&as\\_vis=1&oi=scholar](https://scholar.google.co.uk/scholar?q=flows+of+value&hl=en&as_sdt=0&as_vis=1&oi=scholar)

[https://lib.asprova.com/images/stories/lean/lean-manufacturing/pdf/Value\\_Network\\_Mapping\\_VNM\\_.pdf](https://lib.asprova.com/images/stories/lean/lean-manufacturing/pdf/Value_Network_Mapping_VNM_.pdf)

### 5.1 Flows of value (not necessarily money).

Everything should be understood in terms of flows of value before it's understood in terms of money. Disruption is simply changes in flow. Most people don't look for the flows in value they look for flows in money.

Everything is flows of value Some flows of value are huge - e.g. banks being able to take deposits and turn them into loans; fractional reserve banking. Create a flow-map of this (like the Google Analytics conversion map). Many flows of value will be small or dwindling. If you see a river or stream, you can see the physical flow of value - of water. But economic and value flows are harder to see. It's also hard to see early stage flows of value. The discussion of cryptocurrencies on forums in the 90s and early 2000s was a torrent of high value, but it had not yet turned into high economic value.

## 5.2 Networks have to start somewhere.

Networks create value but we only are only aware of the end result - the networks we use every day. Starting a network is extremely hard, but shouldn't be ignored. Networks will trump almost all other flows of value.

—

Notation Churches Records ... the network compounds

E.g. village churches (plague)

MySpace

Creating a network is extremely difficult. AirBnB PayPal Etc. Many networks fail but we don't know about those. Many people have the idea of a network but what they describe is the end state - an ecosystem of players who all get value from this wonderful network. Many people will say this in response to the news - why don't we just do "x". However, creating a network of high value requires a series of lower value networks. You need to bootstrap - this doesn't mean be cheapskate.

## The funding model will change.

The person who pays will change and the priorities will change. The value will need to change with it. The artefact might look the same, but because the funding model changes, the nature of the value changes with it.

—

Beethoven was the first freelance composer. (Actually, he's the first we have records for but this is good enough for now.)

Before this, in western classical music it was normal for music to be funded through the church or patrons. As the political and financial situation evolved, the money shifted from these places to new places.

It doesn't really matter where it moved from and to because the lesson is clear: the funding model will change.

In the past 20 years the way in which musical careers are funded has changed. People pay for digital copies or short term loans of a recording (i.e. a stream) rather than physical copies.

The streaming model has put the control in the hands of streaming platforms. So the money has shifted and so has the power.

Platforms like YouTube and TikTok provide a completely different way to monetise music. The classic disruption here is that can you imagine a world in which your local record store would build a website to share music videos for free rather than sell records? The skills are completely different, but this shift has happened.

Just as flows of value change, networks change so does the funding model. The change of funding model matters more because it's noticed (musicians complain that they can't sell CDs at gigs) and has a more direct impact on where you go to sell your skills. If the people which used to pay for your skills don't have the money they had, they might not buy anymore.

We have seen many shifts in funding power: churches, royal patrons, print publishers, music publishers.

It's also not a given that the people with all the resources will win. Companies existed before the iPod which had music catalogue, hardware capabilities and distribution [Sony - check]. You don't need much more to win, but they didn't. So the network and flows of value shifted, making the funding model shift. These kinds of shifts, where a new entrant creates a new flow of value, new networks and new funding models are all the more impactful because the new entrant has no reason to respect any old constraints.

Our model now is based on attention, streaming, audience. In part it's still based on IP but in truth there are no holy cows - any cow may be slaughtered. In the future, there is no reason why the funding model won't completely change. Again.



### 5.3 Rates of change matter.

Things don't change as often or as rarely as you think. As the flows, networks and funding change it's easy to focus on the short term rates of change but there are always many strata of change.

—

Everything happens over night after it's taken decades to happen at all.

The rate at which things change matter because they constrain what can change and, in the end, what will change. These rates of change are based on the flows of value, incumbent networks and interests.

It takes much longer to create a new network of concert halls, which might take years than it takes to create a new trend/style of music, which may happen every year. Some rates of change are based on hardware networks like concert halls, travel routes or the training of humans to perform musical works. Other rates of change are based on individual or group taste.

Still other rates of change become so deeply baked into our culture and education that we don't realise they might change. We have 12 notes in a scale for no good reason other than we do, but changing this will probably take decades (although it's already started in some circles so perhaps it's going to happen).

Distribution channels, the very unglamorous side of the music business which deals with shipping physical goods or arranging royalty contracts are setup by business people who want to plan months or years into the future. Some IP contracts imply a steady state for decades to come.

Then there are musical trends themselves, the part which probably makes all that business planning certainty far more risky. Musical trends are manifest in the behaviour of the audience; if people learn to like something they will buy it. But people can quickly learn to like something else and, depending on their age they may switch to a new trend on a new platform using a new format seemly overnight.

These rates of change, where the fickle consumer simply changes their mind but at the same time as millions of other is what makes rates of change so important.

We need to be aware of both the slow rates of change and the fast. It's easy to look at just a fast rate of change and assume that everything will suddenly change, but it's also easy to look at slower rates and say it'll never change.

In reality, all the rates of change are important.

And lastly, some rates of change depend on people leaving the market either through retirement or death.

*\*\* Blank page \*\**

## 6 PART 3: THE MEDIUM

## 6.1 You are not your medium.

This has to be the most dangerous misunderstanding of all. It taps into everything which is wrong with people: our ego; overly focusing on what we already know instead of learning.

You - and your company and your industry - are not the medium you happen to work in. The value that people truly get from you may come from a piano keyboard, plucked strings. It might come from giving them records or CDs. It might come from performing gigs for them. But all of those are a medium which forces you to make a specific artefact.

The entire music industry assumed that the sale of physical media was its purpose. This infested not just the thinking of top executives but also the music consuming public. We took it as read that buying music was about browsing, feeling the records in our hand and seeing the sleeve notes and art. These are all artefacts of a specific medium which are important for that medium but they are not the purpose of music.

When streaming appeared, it was (as these things always are) worse than what it suggested it would replace. Lower quality, smaller catalogue, dodgy legality and confusing ownership rules. When a lower quality medium appears it is always judged with the value of the old medium. This is true of the technological medium as well as styles of music, social events which occur around the music. Humans will judge using the judgements they have to hand.

The medium is, so often, an experimental toy used by a few enthusiasts for purposes which confuse (or infuriate) the old medium's elite and the masses. But for these tinkerers, none of this judgement matters. But the new medium is beyond judgement.

Inside the new medium, the values are different. If the new medium is just one of choice, like the choice between performing in a tavern or a concert hall then the values don't matter. But if the medium becomes a de facto standard the values matter, like when music moves from concert halls to recordings. When this shift happens, the musicians (and companies) who succeed work with the medium, not against it.

But for many, this doesn't happen. They cling to the old values citing things like craftsmanship, years of experience, expertise, their qualifications and on and on. All of these matter, but only in the old medium.

This happens for the individual, the group, the company and the industry. Legal fights over ownership eat away attention and energy while new companies simply build a totally new form of value. You cannot sue your way into the future. The law only protects the medium and the value that we understand.

You are not your medium. Whatever skills, medium, format you work in today is a coincidence of history and nothing more. There is no universal truth which means this is how it will always be. But, for any industry it exists because of

some underlying value; some human motivation. Even if the specific medium fades, the underlying value will be provided by a new medium.

The question for you is whether you have tied your ego and your attention too closely to one medium rather than the underlying value.

\*\*\*ADD: Groupthink fits in here. the group over-identifies with the medium.

## 6.2 The new medium is never a copy of the old.

The nuances of a new medium are not a copy of the old. Thinking and acting as though this is the case means you miss out on new value, new ways of delighting people or just miss the point of the new medium altogether.

Films are not just recorded theatre. We didn't learn this right away - we had to great a "grammar" of film.

Photography is not just a quick form of painting or drawing. We didn't learn this, to the extent that paintings made from early photos copied them like for like instead of [editing?] reality for artistic purposes. [explain better]

CDs were not just higher quality records - the audio balance on them is fundamentally different, and they lent themselves to better use in cars and easier copying. Whatever you think of this, the new medium here has materially impacted how the underlying value (the sound and the emotion) can be used.

The shift from one medium to another is usually a bit rocky. Early films were like recorded theatre. Early recordings were recorded performances. It takes time to evolve a grammar of a new medium. The early web talked introduced "web pages" but a web page differs in almost every way from a physical "page", but the name has stuck.

So the new is different from the old. Why does this matter?

For anyone working in one medium when there is a shift, it's tempting and too easy to believe that everything you know works on the new medium. Some of this may be true, but sometimes it's embarrassingly not true. Watch certain social ads to see a total misunderstanding of newer social platforms where the fact that the platform uses video treats the platform as just about distributing video instead of a 2-way social interaction.

Online publishing is not the same as book publishing. Traditional publishers have made some inroads, but where has the real impact in the online world come from? The relationship between a musician and their audience in a streaming world is different from a CD-buying world. The musicians who succeed use the new medium for what it's good at.

But we know all this because we talk about how [insert band name] exploited [synths, recording studios, etc etc] so well. We know that the people who succeed really get into the detail of what can be done, they play with it and find out what works and then find themselves as the forefront.

There will be certain skills which may travel across - good copy editing might still be important, good production might matter, a sense of style (whatever that means). But there is often no fundamental reason why these things do matter.

We see shifts in medium every few years.

.... Online gig  $\neq$  gig  $\therefore$ . Don't copy from the old medium

### 6.3 The format of the new medium emerges.

In Vienna in [XX century] publishers weren't clear what size of book would be best for publishing music. They experimented with ....

What happened in Vienna is what happens with each new medium. The world will not simply copy things over from one medium to another. [...]

Score formats in Vienna (note the book « FIND THIS. GET EXAMPLE.)

“Format” is the specific way of using a medium. In computing, it is the type of file (mp3, wav) or the disc size (3.5 inch or Zip drive). In music, it is the length of the song, the use of the audio spectrum, how compressed the song is and any other nuances.

The 3 minute song is not neurologically or culturally hardcoded. A lot of music is longer or shorter. Our attention is not necessarily tied to this length. But through successive technological restrictions and cultural evolutions, this format has emerged. [This started with the XX wax disc...].

What then ensues is a network [LINK] of flows of value [LINK] with ever more expert knowledge in delivering this specific format of medium [LINK].

When a new medium emerges, the formats which follow it are not a given but are often dictated by the technological characteristics influenced by cultural.

#### **6.4 The value you can capture changes.**

Record sales -> youTube

*\*\* Blank page \*\**

## 7 PART 4: HEROS



## 7.1 Survivor bias.

## **7.2 There isn't necessarily a canon or grand narrative.**

We cannot unhear stories / grand narratives

## Superstar economics; normal disruption vs exponential distribution. “Unfairness” compounds because it is exponentially distributed but we tend to view everything a normally distributed. Normal distribution occurs in things like height, weight... but when dealing with trends or popular things, there are other effects when mean some will become exponential. An exponential distribution means that a small number of things will get all of the attention / money / fame. When one artist gets almost all the money and the fame, we think this is unfair. All that is happening is networks of people and companies gravitate to what is “going to success”, which is usually synonymous with what is popular. And so, what is popular pulls in more of what is popular creating the unfair, exponential distribution. And so it repeats; more content begets more content. What we learn from this is: Exponential distributions occur and are natural A “failure” may be simply a failure to push into the top 10% rather than a total failure of the idea / product / artist

## The big names will eventually shrink. E.g. content

## Short term and long term performance don't correlate. Resurgence of -  
Styles Composers

## It takes someone doing something stupid. Every big name is a big name for a reason. ???Not sure about this bit??

## 8 PART 5: WHAT IS THIS?

### 8.1 Being right matters much less than doing.

... because it all exists in a made up universe We (humans) can redefine it Same with most things - education, food, fashion, sports All the effort we put into defining what “it” is can be undone overnight

Being right matters much less than doing There can be diminishing returns to knowledge

See: [https://twitter.com/jasoncwarner/status/1583575035780173824?s=20&t=18un1RG\\_\\_mgTnL7YByQbosA](https://twitter.com/jasoncwarner/status/1583575035780173824?s=20&t=18un1RG__mgTnL7YByQbosA)

“Demos > Memos”

## **8.2 Discussion the industry is part of the industry.**

Discussion is an important part of the industry It creates and sustains interest  
Aka pundits are not objective



### **8.3 Newness and originality isn't as important as we say.**

Remember, we are operating in a tiny universe. Absolute newness, which uses all possible dimensions of change would be far too confusing. On top of this, many markets operating in fluctuating difference not compounding improvement

#### **8.4 You only live in the market you live in.**

Complaining that things used to be better doesn't mean anything. E.g. CDs/records/etc Saying that things could be better doesn't mean anything unless you're creating it

### **9 PART 6: CREATING**

### **9.1 All value is created from nothing.**

Unlike what the economic textbooks say, most initial “value” is not valuable. The first coal to be mined, the first draft of a book, the first experiment. . . This is true of most human activity - it has little economic value. But every now and again, the output of this activity becomes valuable. A lot of things have to be true for this to happen but this tells us two things: We over value our existing raw materials (e.g. the musician who is already selling well) and under value other raw materials (e.g. the up and coming musician). There may be value in both.

## 9.2 Creating value doesn't start with creating value.

Economics tends to start with the idea of creating value. The worker creates another widget. But the first widget is not the start of the widget. In the classic text, Adam Smith talks about creating pins. But the creation of the first pin didn't start with creating a pin. It would have started with experimenting with metal or wood, or trimming a stick. The creation of a successful music track or music career doesn't start with creating a good track or great musician. There is a huge amount of "low value" output which must come before that. This teaches us that: We must value what is not yet valued We must get on with creating it

### **9.3 Creation requires practice, sketching and creativity.**

This lesson hasn't been learnt by business at all

#### **9.4 Success is manufactured luck.**

Practice, publish, repeat

### **10 PART 7: VALUE**

### **10.1 Important details can become unimportant overnight.**

Audio quality Physical sleeve notes Etc... Applies to any specific technical detail, e.g. tuning system

## **10.2 Artistry will be sidelined.**

We talk more about everything that sounds the thing than the thing itself. I have almost never had a conversation about the actual music - the notes, rhythms, specific timbres, how the compression is use to emphasise the singer's voice. I.e. the artistry will be sidelined This is: catalogue; idolising; economics; trends



### 10.3 How do you measure value?

Baumol?

#### **10.4 Product can become identity.**

Social signalling This is important because how can identity possibly be reflected in something as simple as the number of lines in a history book?

### **11 PART 8: TRANSIENT**

### 11.1 Everything is waves

We often only see the tip of the wave. Clouds are just part of the wave of airflow in the atmosphere. The superstars we see, the successes and the heroes are just the clouds which reflect all the underlying activity.

The question - or the trick - is to understand where the airflows are.

## 11.2 Everything is transient

This is the last lesson. The `poetic` comparison

*\*\* Blank page \*\**