SAMPLE

Building the Wearable Technology of Tomorrow

The Tenant on the Body

Aiman JoeHanz

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Introduction: The Tenant on the Body

The collection has already introduced its readers to machines that talk to the household, machines that run the plant, and machines that watch the street. This volume moves to the closest machine of all: the one worn on the body, an inch from the pulse, counting what the wearer only half notices about themselves. A device on a shelf is a tool; a device on a street is an instrument; but a device on the skin is something the earlier volumes did not have to name, because it is not merely observing its owner - it is living with them, on their terms or on somebody else's. This book treats the wearable as a tenant: a small machine that occupies the body, pays no rent, watches everything the body does, and answers, in the end, to whoever holds its lease, and the volume's whole subject is the question of who that is.

The choice is deliberate, because the wrist is where the connected era's confusions turn intimate. Buyers are sold wellness when what ships is a step counter. Vendors sell health when what runs is an algorithm nobody has read. Employers hand out trackers as gifts and collect the data as assets. And beneath the marketing, four old problems do almost all the work: signal, whether the device measures what it claims to measure; record, whether the wearer owns what the device writes down; lease, whether the device keeps working when the vendor's attention moves on; and consent, whether the body's data goes anywhere the wearer did not send it. Everything else in this volume - the batteries, the algorithms, the platforms, the insurance discounts - is scaffolding erected around those four problems.

The book follows the collection's structure. It opens with the worn machine's present state, then the tenant's anatomy, then the failure catalog, the buyer's mistake file, the disciplines of the honest wearable, the choosing sequence, the politics of the body's data, a casebook of composites, a one-hour audit the reader can run on their own wrist or their own fleet by wearing it through a day, and a forecast the reader can grade. No real company, product, or platform is named; the patterns belong to the grammar of worn machines, and grammar is what the collection teaches.

A note on scope: the medical clinic has its own volumes, and so does the smart city; this volume is about the worn machine itself - the strap, the sensor, the algorithm, the record, and the lease - and the reader who wants the sixty-second version can have it: the honest wearable is a set of promises, that what it measures is what it claims, that the record belongs to the body it measured, that the device outlives its vendor's enthusiasm, and that nothing

on the wrist travels without its wearer's leave, and the reader's whole leverage is learning to test those four promises before the strap is tightened, because the body, unlike the street, cannot be moved away from its tenant.

Three Readers, One Wrist

This volume serves the three readers the collection always serves, and names them here because the wrist treats them differently. The professional - the wellness program's manager, the study's coordinator, the clinic's digital-health lead - is strapping other people's wrists and will find the build sequence, the charter, and the register in the sixth and seventh chapters. The student - the reader learning how this industry actually works - will find the anatomy and the failure catalog the honestest syllabus in print, because the catalog is the industry's own behavior, sorted. And the curious reader - the wearer of one strap who suspects the score on their wrist of exaggeration - will find the wear test in the ninth chapter and the disciplines in the fifth, and can leave the rest of the book unvisited with this volume's blessing, because the four cards were written for them first.

A Note on Deliberate Repetition

The collection repeats itself on purpose, and the worn machine's volume repeats more than most, because its four problems - signal, record, lease, consent - are the same four problems wearing four costumes, and the reader is expected to meet them in the anatomy, again in the failure catalog, again in the disciplines, and once more in the cards of the wear test, each time from a different angle and a different altitude. This is not padding; it is the collection's pedagogy, the same one every primer in this library uses: a pattern is not learned when it is understood once but when it is recognized everywhere, and the reader who finishes this volume finding the same four questions in a launch deck, a consent screen, and a school's strap program has become the auditor this library exists to produce, and the repetition was the whole mechanism.

The Volume's Instruments, Listed

Because the collection's readers plan their reading, the volume's portable instruments are listed here, and every one of them can be worn without the rest of the book: the claim check, which sorts every marketing promise into the measured, the inferred, and the decorative; the estate dossier's four paragraphs - retention, sharing, deletion, export - read from the platform's own documents; the known-event method, which grades a machine against

events the body can verify alone; the nine-gate sequence, which converts the choosing of a wearable from a purchase into a practice; the discipline lattice, eight habits on a calendar that cost an hour a month; the wear test, four cards and sixteen questions, one hour, twice a season; and the refusal right, the volume's own addition to the collection's politics - the strap comes off without a cost. Seven instruments, all of them older than any vendor reading this, none of them for sale anywhere, and the reader who already carries the collection's earlier volumes will recognize the family resemblance, because this library has always taught the same seven motions and merely changed the machine they are performed on, and the wrist, this time, is the reader's own.

Why the Wrist Deserves a Whole Volume

The reader new to the collection may still ask why the wrist deserves a whole volume when the smart city and the connected home already claimed the sensor era's lessons, and the answer is the one this introduction has been circling: the worn machine is the first machine in this library that is worn, and wearing changes every rule. A sensor on a street can be walked away from; a device on a shelf can be switched off; a strap on a wrist is on a body - it travels with the body's sleep, sweats with the body's labor, sits in the body's most private rooms, and testifies about the body's most ordinary hours, which no street camera or household speaker has ever been positioned to do. The intimacy is not a footnote to the technology; it is the technology's central fact, and the volume's whole architecture - the tenant framing, the consent politics, the refusal right, the cards worn twice a season - follows from it, because a machine this close to a person must be held to a person's standard, and this collection's standard has always been the same one: read the lease, keep the record, test the claims, and wear the audit - and if the reader takes nothing else from this introduction, they should take its one sentence, worn plainly: the body is the smallest and most important estate this library has ever governed, and it is governed, in the end, only by whoever reads its leases while its straps are still in their boxes.

The Reader's Own Stake

One last introductory honesty, because the collection does not write for spectators: the reader of this volume is already wearing the argument, or is close to somebody who is. The strap on the reader's own wrist, the fleet at the reader's office, the location strap on the reader's child, the fall detector on the reader's parent - the worn machine has already been introduced to the

reader's family, usually without this book's permission or the estate's full disclosure, and the chapters that follow are therefore not a tour of somebody else's industry but an audit of the reader's own household, at the smallest and most personal scale this collection has ever worked. The reader should read accordingly: with a notebook, with a date in the calendar for the first wear test, and with the collection's standing offer, worn plainly on the first page of every volume in this library - the machines are already here; the honesty is the reader's to keep; and the hour it takes is the cheapest lease the body will ever sign, on the only estate it cannot move out of.

The Reading Order, for the Impatient

The collection respects impatience, because its readers have lives, and the impatient reader gets the volume's honest shortcut: read the anatomy's seven parts, the failure catalog's pocket order, and the wear test's four cards - three sections, one sitting - and the rest of the book becomes a reference the reader will reach for at exactly the moments this introduction has predicted: the purchase, the update, the enrollment, the exit. The chapters were built to be visited that way, and the reader who never reads the politics chapter until the school sends a consent form home, or the casebook until the program meeting goes quiet, has read this book correctly - because the collection's volumes are not arguments to be finished; they are instruments to be kept, and the shelf, not the page, is where this one earns its keep.

Chapter 1: The State of the Worn Machine

Three Generations on One Wrist

The worn machine's present state, read plainly, is a wrist shared by three tenants from three different decades, none of whom speak the same language, all of whom claim the same body. The first tenant was a timekeeper: a mechanical or digital instrument that measured one thing, the hour, kept it on a dial, and told nobody. It gathered no data, paired with nothing, and its only export was a glance. The second tenant was a tracker: a pedometer grown ambitious, which counted steps, then sleep, then stairs, and shipped its counts upward to a phone, an account, and eventually a cloud that the wearer visited but did not govern. The third tenant is the present one: a sensor suite that sits close enough to the blood to guess at its chemistry, close enough to the chest to guess at its rhythms, and confident enough to whisper medical-sounding verdicts into the wearer's morning. All three still live on wrists today, and the state's first honest finding is demographic: most of the straps are second generation, most of the claims are third generation, and most of the risk lives in the gap between what the second measures and what the third says it means.

The Census That Does Not Exist

Ask the industry how many wearables exist and it answers with shipments, not residents: units moved in a quarter, celebrated in a keynote, never reconciled against how many are still worn. The honest replacement for that number is a question the industry never prints: of the devices shipped, how many are worn daily a year later, and of those, how many are worn voluntarily. That second count - the census of the willingly worn - is kept by nobody, quoted by no launch deck, and is the only one that measures adoption rather than optimism, because a strap in a drawer is not a wearable; it is a former wearable. The worn machine's state compresses to the spread between those two counts: the shipped population grows every quarter, the worn population is a fraction of it that nobody measures, and the gap is where the industry's honest future is being decided, one abandoned charger at a time.

The Two States: The Demo's and the Daily's

Two states of the wearable coexist, and each party keeps its own copy, with its own incentives. The demo state is the one shown at launches: a fresh device on a rested wrist, a smooth app, a resting heart rate rendered as a perfect curve, a sleep score that flatters the sleeper, and a battery indicator nowhere in frame. The daily state is the one the wearer actually inhabits: a strap

loosened by two holes since purchase, a sensor window clouded by skin oil, a graph with gaps where the charger was forgotten, a score the wearer has quietly stopped believing, and a companion app whose latest update moved the export button to a menu three layers down. The industry's arithmetic depends on the first state, and the wearer's decade depends on the second, and the reader learning to tell the two apart - in any demo, in any review, in their own drawer of retired straps - has learned the state chapter's most portable skill.

What the Marketing Measures, and What It Ought

The instruments this era straps to bodies measure what a wrist can reach: motion, light, galvanic dampness, and an optical guess at blood rhythm. The marketing, however, sells what the wearer actually wants: health, sleep, stress, readiness, and the feeling of being monitored toward a longer life. The gap between the two is where the whole industry's honesty question lives, because the wrist is a poor vantage on most of what the marketing promises - the wrist cannot see glucose, cannot read hydration, cannot diagnose anything, and mostly infers the body's interior from the body's surface, the way a neighbor infers a household's mood from its windows. The state's second honest observation is therefore not that the devices lie, but that they translate: they take a narrow, physical, surface measurement and render it as a broad, psychological, interior claim, and the translation is performed by an algorithm the wearer cannot read, calibrated on a population the wearer has never met, and updated without the wearer's signature on any change.

The State in Battery Arithmetic

The budget table is the page where the state quits being a story and turns into sums, and the wearable's version of that page is written in charge cycles. The worn machine lives and dies by a battery with a few hundred full cycles in it, chemistry that ages even in a drawer, and a replacement that is, in most cases, not offered at any price, because the device was designed as a lease of two or three years regardless of what the receipt called it. Multiply the fleet: a school district strapping a thousand wrists has bought a thousand batteries, a thousand straps, a thousand screens, and a thousand eventual deaths, and the replacement cadence is not in the brochure's arithmetic but is in the hardware's. The state's third honest observation is that the wearable is the first machine in this collection whose total cost is dominated not by purchase or maintenance but by replacement, on a clock that starts at the ribbon and does not negotiate, and the buyer who reads only the launch page will meet

that clock as a surprise.

The Retailer's Shelf, Read Honestly

The shelf where these machines are sold rewards a plain reading. Every box on it advertises, in order of prominence: a claim about health, a sensor count, a battery life expressed in days, and, in small type, an ecosystem - the account, the app, the platform, the subscription tier. The honest shopper reads the list backward. The ecosystem is the actual product: it decides where the data lives, whether the record exports, what happens when the company pivots, and whether the device keeps any function the day the servers decline. The battery life is the honest number, because it is the only one with a falsification built in: the wearer will count the days themselves. The sensor count is the honest middle, because sensors are real, and each one adds a measurement the wearer can ask about. And the health claim, printed largest, is the least verifiable thing on the box, and the reader who buys it has purchased a translation rather than an instrument - which can still be a good purchase, if the translation is tested, and the shelf's lesson is that its four printed layers are the whole book, read from the bottom up.

Two Questions for Any Launch Deck

For the reader who has to sit through a launch presentation, the state compresses into two questions that the deck will answer, one way or another, whether or not it wants to. First: what does the device measure at the skin, and what does it claim about the body, and where in the deck do those two lists diverge - because every wearable deck shows the second list much larger than the first, and the distance between them is the honesty gap priced in pixels. Second: what still works when the vendor's servers are down, or sold, or sunset - because the answer, read in an ordinary deck, is a smaller device than the one being demoed: an ordinary watch face, a step count, a timer, everything medical-sounding gone dark. A device that keeps ninety percent of its promise offline is a tenant the wearer can live with; a device that keeps ten percent is a terminal for somebody else's cloud, and the deck's silence on the second question is itself an answer, and the reader who asks both questions out loud has already changed the room.

The Wearer's Own Numbers, and the Deck's

The state's last observation belongs to the individual wearer, and it is the one the industry counts on the wearer never making. The device's app shows the wearer their own data as a landscape of scores: a readiness here, a stress

there, a sleep grade, a step total, a streak. The state's question is who benefits from the landscape's design, and the honest answer is that scores are chosen for retention of the wearer, not truth about the body: a streak discourages rest days, a score invites another night of wearing, a readiness number creates anxiety the next app can sell relief from. The wearer's own numbers - resting heart rate over months, weight of honest trend, the count of days actually worn - are sitting in the same app, usually one screen away, unhighlighted, because they are the numbers that would let the wearer conclude something the platform would rather they not conclude: that the device has told them everything it knows, and everything else is a costume of confidence. The reader who learns to prefer their own numbers to the platform's scores has taken the state's whole lesson home, and the chapters that follow are the extended version of how.

The State, Summed for the Reader's Notebook

The chapter's verdict can be carried in four lines, and the reader should write them in the notebook this book keeps asking for. The wrist is occupied by a tenant that measures surfaces and sells interiors. The industry counts shipments, not wearings, and the difference is its quiet shame. The device is a lease in disguise, with the battery as its lease term. And the platform's scores are designed for the platform's retention, not the body's truth. Four lines, and the reader who carries them into a store, a launch deck, or an employer's wellness enrollment will hear every claim that follows translated correctly, and the next chapter opens the tenant's own anatomy, because the reader cannot evict, renegotiate with, or properly welcome a machine whose parts they cannot name.

The Three Currencies of the Worn Market

The state's economics are best read in three currencies, because the worn machine is the first consumer machine in this collection that is paid for in all three at once. The first currency is money: the purchase, the subscription, the replacement cycle the battery schedules, and the strap the wearer will eventually buy because the original one tore. The second currency is attention: the notifications, the streaks, the rings, the morning score read before the morning coffee, and the reader who totals their own daily minutes on the app has measured the second currency honestly. The third currency is data: the body's rhythms, sleeps, and locations, contributed continuously and exchanged for the first two currencies' discounts and features. The industry's design genius is that the first currency looks like the whole price, the second is

presented as a benefit, and the third is called free, and the state read in three currencies is simply this: the tenant pays rent in all three, and the honest question, which every later chapter operationalizes, is what the tenant pays back, and in which currency, and whether the exchange rate was ever shown to the body that was paying it.

The Reviewer's Blind Season

The state is also shaped by how it is judged, and the worn machine is judged almost exclusively in its first season: reviews are written in the unboxing week, benchmarks are run on fresh units with full batteries and compliant straps, and the year-two experience - the loosened strap, the degraded cell, the migrated features, the changed algorithms - is reviewed by nobody, because the reviewer has moved on to the successor device that shipped that autumn. The consequence is a market whose feedback loop is broken at exactly the duration where the machine's real character appears, and the collection's correction is the same for buyers that it is for readers: prefer testimony from the second year, distrust enthusiasm from the second week, and weight the owner of a two-year strap over the owner of a two-week one, because the worn machine, like every tenant, shows its character in the second lease, and the industry's whole presentation is engineered to be judged in the first.

The State's Sixty-Second Verdict

The chapter closes with the compressed version the collection always files, for the reader who will not carry the whole state chapter into the store but will carry a verdict. The worn machine is a good instrument badly leased: its sensors are honest, its inferences are confident, its record is rented, its battery is its lease term, its attention costs are hidden, and its industry counts the shipped and not the worn. Six clauses, and every one of them is testable with the cards in the ninth chapter, and a reader this far into the state chapter has already noticed that the state's verdict contains the whole book in miniature - the anatomy explains the sensors and the battery, the catalog explains the lease, the disciplines explain the testing, and the politics explains the counting - and the next chapter simply opens the machine, part by part, because the reader cannot renegotiate a lease with a tenant whose organs they cannot name.

The Two Decades on One Wrist

The state reads more clearly with its history attached, because the worn

machine has already lived one full cycle and is mid-way through its second. The first decade strapped pedometers to a hopeful public, sold them on steps, and watched them die in drawers within a season - the wearables' first lesson in the difference between the demo state and the daily one, taught by an entire market segment simultaneously, and it looked, for a while, like the conclusion of the whole category. The second decade revived the wrist not with better sensors alone but with a better business model: scores instead of steps, subscriptions instead of one-time sales, and a deliberate conversion of the wearer's attention into the product's retention engine. The state's honest observation about the two decades is that the industry learned more from the first one than the wearers did: the drawer was diagnosed, and the remedy was engineered - streaks, badges, leagues, notifications, the entire retention apparatus the flood failure describes - and the second decade's straps stay worn more often than the first's, at the price of the wearer's quiet, which the state chapter counts in its three currencies and the decade's buyer should weigh in the same ledger as the battery: the wrist stays worn because it has learned to nag, and the reader who understands this has understood why the state's two counts diverge and why the industry prefers the one it can print.

The State's Fields of Use

The state is also a map of where the straps go, because the worn machine serves four distinct markets that wear the same hardware under wildly different leases. The consumer wellness market: the largest, the loosest, the one this book's reader most likely wears, where the lease is read by nobody and the estate's terms govern by default. The medical-adjacent market: physician-adjacent devices, cleared by regulators, priced and trusted accordingly, where the costume problem has a border and the border is enforced. The workplace market: fleets on other people's bodies, governed by the politics chapter's gift problem. And the research market: cohorts, consents, datasets, governed by the waiver economy. The four markets share the anatomy - same strap, same window, same battery arithmetic - and differ only in the paperwork, and the state's last honest observation about them is that the paperwork is the entire difference: the same device is a wellness toy on Tuesday, a research instrument on Wednesday, and a workplace liability on Thursday, and the reader who can determine which market a given strap is serving - by reading its paperwork, not its packaging - can predict its failure patterns from the catalog before the strap is even fastened, which is the state chapter's whole curriculum, worn in a single question.

The State, at the Water Fountain

The state chapter's last scene is deliberately small, because the collection has learned that the wrist's politics is discussed at water fountains, in locker rooms, and over dinner tables, and the reader deserves the state's summary in that register. The strap on your wrist is mostly honest about motion and light, and mostly guessing about everything interior, and the guess is rendered with medical confidence. Your steps are real; your sleep grade is an opinion; your stress score is a dampness reading wearing a therapist's coat. The device was sold as a companion and is owned, in every way that matters, by an estate whose terms you have not read, on a lease whose battery is already counting down. None of this means the strap is a fraud; it means the strap is a tenant, and tenants are wonderful when the lease is read and terrible when it is not - and the reader who has heard the state in one minute, at the water fountain, has heard the whole chapter, and the whole book is the extended version, worn by the reader who decides that the fountain's version is not enough for their own wrist.

The Honest Count, Attempted

The chapter attempted the industry's missing census honestly, and the attempt itself is worth a paragraph, because the reader who tries it at home will learn more from the attempt than the number. Count the wearables you have owned; most readers reach three within a decade of adulthood, across jobs, gifts, and phases. Count the ones still worn: the ratio is the industry's whole secret, and it usually sits at a third or worse in an honest drawer audit. Count the accounts that outlived the straps: the ratio there is worse, because estates outlive their hardware by design. And count the records you hold locally, in any format, in any tool: most readers reach zero, and the zero is the state chapter's final exhibit - the missing census, reconstructed from a single reader's drawer, showing an industry that ships more than it wears, retains more than it ships, and holds more than anyone counts - and the reader who has reconstructed the census in one drawer has also reconstructed this book's entire purpose, which was never to count the industry's straps, but to count the reader's, and to hand the reader the only instrument that ever changed the count: an honest hour, twice a season, with the cards.

The State's Stakes, Stated

The chapter opened with demographics and closes with stakes, because the state is not an academic question: the worn machine's era decides, at population scale, who holds the record of a billion bodies' ordinary hours. If the

leases stay unread, the decade's answer is the estates - platforms, brokers, employers, insurers, whoever holds the defaults - and the bodies' interiors become the era's most valuable unregulated asset class, harvested at the wrist, monetized at the wholesale layer, and governed by terms nobody printed in a language a sleeper could read. If the leases are read, the answer is the wearers - and this book's whole method is the second outcome's machinery: the claim check, the export, the refusal right, the cards, one reader at a time, at the only scale where reading is still free. The state chapter's last sentence is therefore the volume's first wager, worn plainly: the wrist's decade belongs to whoever reads its leases, and the reading, unlike the sensors, costs nothing, which is the most exploitable arbitrage in the whole connected economy, and the reason this library exists at all.

ABOUT THE AUTHOR

Aiman JoeHanz writes the Building of Tomorrow collection: short, honest volumes that teach the grammar of connected machines - how they are built, how they fail, and how their owners keep them honest - one machine family at a time. The collection has covered smart homes, fabrics, cities, security systems, and now the machines worn on the body. Every volume shares the same method: no vendors named, no years printed, no moods forecast - just the anatomy, the failures, the disciplines, and the one-hour audit the reader can run without asking anyone's permission.