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Building the Workforce Infrastructure of Tomorrow

Anatomy of the Machine That Runs on People

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Introduction

Nearly everything a person relies upon when they wake, the warm room, the running water, the food in the refrigerator, the bus that arrives on schedule, the medicine in the cabinet, was placed there by someone who was hired, trained, scheduled, paid, recorded, protected, developed, moved, and eventually released by machinery the person never sees. Workforce infrastructure is that machinery, the vast and mostly invisible apparatus that converts human capability into reliable labor and reliable labor into daily life, and this book takes the machinery apart function by function, attaching the cost of each and the breakdown each is known for, and leaving the slogans to the posters on the office wall, where they belong. Anyone who reads to the end will never again speak of the job market as a single place, because no such place exists; what exists is a chain of roughly ten distinct functions, and a failure in any one of them travels quietly into all the rest.

The distinction matters because the organs are chronically confused with one another, and the confusion is expensive. A shortage of trained people is not the same problem as a shortage of posted openings, and neither is the same as a pay system that arrives late, a scheduling system that cancels rest, or a records system that cannot prove what a worker has done. Every era has its favored diagnosis, and the favored diagnosis is almost always a complaint about the wrong organ, addressed with medicine for a different one, which is why the same arguments recur for decades without resolution. An anatomy cannot settle the arguments, but it can at least ensure they are about the same body.

The organs described here are drawn from the ordinary operation of any labor system, whatever its politics, its prosperity, or its stage of industrial history, because the functions are forced by the nature of work itself. Work must be found and offered, which requires a meeting place. The person offering it must be able to sort claims from abilities, which requires a filter. The ability must exist before it can be offered, which requires formation. The work must be placed in time, which requires the clock, and honored with payment, which requires the ledger. The person must be verifiable afterward, which requires the file, and kept whole while the work is done, which requires the shield. The years must lead somewhere, which requires the ladder, and the person must be able to move between employers, sectors, and places, which requires the current. Finally the working life must end without breaking the machine or the person, which requires the exit.

This book is the forty-eighth volume in a series that takes a single system everyday life rests upon and describes it the way a maintainer would, with the

function first, the cost attached, and the failure history honored. No brand names appear in these pages, no years, and no statistics that could go stale before the ink dried, because the series is about structure, and structure is the only thing about work that does not change every fiscal quarter. The chapters ahead read in sequence as one continuous tour of the line, and they also open individually as references for a single function, since each stands on its own feet. What the reader should carry throughout is a simple habit: whenever a labor problem appears, ask first which organ is failing, because the wrong diagnosis is the most common failure of all.

The account begins where every working life begins, at the market, the meeting place where the demand for work and the supply of it find each other, and where nearly every later organ is either built or broken.

Chapter 1: The Market — Where the Demand for Work Meets the Supply of It

Every market for work, whatever its scale or its setting, exists to solve one problem that will not solve itself: the person who needs work done does not know who can do it, and the person who can do it does not know who needs it. The workforce market is the organ built to close that gap, the meeting place where a demand for labor and a supply of it are brought into the same field of view and paired, and like every meeting place, its health is measured less by how many people stand inside it than by how quickly the right strangers find each other and how cheaply they can agree. Everything else in this book, the filter, the formation, the clock, the ledger, assumes the market has already done its work, and when the market fails, the downstream organs fail with a delay that hides the cause.

The market works by trading information, which is the reason its history is a history of communication channels rather than of laws. The oldest form is the shout: a farmer at the edge of the field calling for hands at harvest, a foreman at the gate of a worksite calling for the next crew. The shout survives in every hiring hall and every walk-in interview, and it survives because it has one virtue nothing else matches, immediacy, and one defect nothing else cures, reach. The second form is the notice, the board at the market square, the window card at the bakery, the page in the trade weekly, which trades immediacy for reach and adds the first durable record of demand, a notice that can be read by someone not standing there.

The third form is the intermediary, the guild that matched masters to journeymen, the crew boss who traveled with a list of names, the agency with a ledger of openings and a ledger of candidates, which trades reach for judgment, since the intermediary now does part of the pairing in private. The fourth and newest form is the networked index, in which the notices of a whole economy are gathered into one searchable field and the pairing work is done partly by machine, and the market becomes, for the first time, something a person can survey whole. None of these forms replaced the last; a modern economy runs all four at once, and knowing which form a given match will come through is itself a skill.

What the market actually trades is not labor but signals, because ability cannot be seen directly, only inferred. The employer reads a set of proxies for the ability to do the work: the school attended, the prior employer, the length of tenure, the certificate, the referral from a person already trusted, the smoothness of the interview, the fit of the prose in the application. The worker

reads proxies in return: the state of the premises, the tone of the interviewer, the speed of the reply, the ratio of promises to specifics, the number of people visibly at work and their faces while they work.

Both sides are guessing, both sides know it, and the whole architecture of the market, the formats of postings, the conventions of applications, the interview rituals, the probationary periods, exists to make the guesses cheaper and less often wrong. A market degrades exactly when its signals decay, when credentials inflate, when referrals are sold rather than given, when postings describe jobs that do not exist, and the decay is difficult to see from inside because every individual signal still looks like evidence.

The most consequential part of the market is its price tag, because the wage offered is not merely a payment, it is the market's information channel. A rising price tells distant people that the work is worth moving toward; a falling one tells the people already doing it to look elsewhere; a frozen one, held by rule or by custom, tells neither side anything, and the market must then find other channels, queues, shortages, waiting lists, favors, through which the missing information leaks. An economy that suppresses the price does not suppress the market; it merely drives the pairing underground, where the same matches are made by connection and patience instead of by cost, and the people best served by that arrangement are rarely the people the suppression was meant to protect. This is why every serious attempt to fix a labor market eventually becomes a conversation about what the numbers are permitted to say.

The market has a geography, and the geography is the organ's deepest weakness. Demand for work is not distributed like weather, evenly across a sky; it pools where the employers are, in the cities, the ports, the industrial belts, the administrative capitals, and the supply of workers pools where the people are, which is everywhere else. The distance between the pools is the market's basic cost, paid in commuting time, in relocation expense, in the price of housing near the work, and in the wages needed to cover all three. When the distance is small, the market clears easily and the economy feels fluid; when it grows, the same economy can simultaneously show unfilled openings in one region and idle willing workers in another, a condition that looks like a mystery to anyone who imagines one market and is perfectly ordinary to anyone who knows there are many, separated by the cost of crossing between them.

Every era's attempts to shorten the distance, the commuter rail, the highway, the relocation subsidy, and most recently the carried voice and screen that lets some kinds of work travel to the worker instead, are best understood not

as conveniences but as market repair.

The market also has a clock of its own, layered beneath the daily clock of the working day, and the two are often confused. Demand for labor breathes with the seasons of the underlying economy, the harvest, the holidays, the fiscal year, the school calendar, the weather, and a market tuned only to the average will find itself overstaffed in the troughs and short in the peaks, whatever the average says. The instruments for riding this rhythm are ancient and durable: the casual labor pool that swells and shrinks by the day, the seasonal contract that expires with the season, the on-call arrangement that trades certainty for availability, the training intake timed to the year's known shape.

What the rhythm punishes is the promise of constancy, because an employer who staffs the peak and promises the peak forever will be bankrupt by the trough, and an employer who staffs the trough will lose the peak to the neighbor who did not, and the honest market says so out loud rather than pretending the shape of the year can be renegotiated.

Matching is imperfect by nature, and the market's design determines who pays for the imperfection. In some arrangements the employer pays, carrying a bench of idle skill against the day it is needed, paying for certainty out of margin; in others the worker pays, sitting available and unpaid until the call comes, carrying the risk of thin weeks; in still others the cost is socialized, in the shape of public supports that keep the available worker fed and housed while the matching happens. Each choice is defensible and each has a failure mode, because a market that makes employers carry all the cost will match slowly and hoard, one that makes workers carry it will churn and underprice, and one that socializes it entirely can lose the urgency that makes people accept the first reasonable match rather than waiting indefinitely for a perfect one.

What the mature system does is choose the allocation deliberately and tell the truth about it, rather than letting the cost settle on whoever is too weak to decline it, which is where the cost goes whenever nobody chooses.

The market keeps a memory, though it is rarely consulted, and the memory is the queue of past matches and their outcomes. An employer that has learned which channel produced workers who stayed is doing the most valuable analysis in the whole organ, and mostly does it informally, in the private judgment of whoever has been doing the hiring longest. The formal versions exist, in the intermediate and networked forms, and their power and their danger are the same thing: a market that remembers a worker's history will pair the worker more accurately next time, and a market that remembers it

wrongly, or remembers what should have been forgotten, will pair the worker less accurately forever. Because matching is repeated, the memory compounds, which is why the rules around what the market is allowed to remember, and for how long, are not privacy decorations but load-bearing parts of the machinery.

Breakdowns of the market organ announce themselves in a small set of recognizable shapes. The vacancy that never fills is the signal that the offered conditions, pay, hours, place, or treatment, are out of line with what the work demands, and no amount of louder advertising cures a price the market has already declined. The queue that never moves is the signal that the filter upstream has clogged, that openings exist and people want them but the sorting machinery between them has stalled on procedure. The instant churn, in which matches dissolve in weeks, is the signal that the signal quality has collapsed, that the proxies on both sides have stopped predicting anything and each party is discovering the truth only after the match is made.

And the market that clears only through personal connection, in which the postings are theater and the real matches are made at dinners, is not a failing market but a replaced one, and it must be diagnosed as such, because repairing the theater will repair nothing.

Not all of the market is posted, and the part that is not may be the larger part. Every economy carries a shadow market of matches made before any notice is written: the foreman who calls the person who left last year, the shop that hires the cousin of the trusted machinist, the partner who hires the client's son, the crew that reassembles around a known hand whenever the season opens. This hidden market runs on the file organ's memory and the referral's trust, and it is faster and warmer than the posted one, which is exactly its danger, because a market that fills its good positions through the shadow channel will find, within a generation, that only the positions nobody wants are visible, and the stranger, the newcomer, and the person without a cousin in the trade can see only the leavings.

The posted market is not a bureaucratic habit; it is the visible surface of the meeting place, and the instrument's honesty shows in whether a stranger can actually enter through it.

The public employment service is the market's civic organ, the counter where any person may register an ability and any employer may register a demand without paying a toll, and its history is the history of every public good: indispensable to the person with nothing, invisible to the person with options, chronically underfunded in the years when it is needed most, and judged, always, by the outcomes of the hardest cases rather than the ordinary

matches that pass through it quietly. The service earns its keep in the moments the private channels cannot serve: the mass layoff that dumps a thousand workers into one town at once, the downturn that closes every door at the same time, the young worker with no network, the older one whose network has retired.

Its failure shape is the empty counter, the registry kept but not worked, the listings stale on the board, and its success is quiet in the way all infrastructure is quiet: nobody notices the town that never became a rust belt because the retooling started the week the plant announced.

Within any single employer lives a smaller market of its own, the internal one, where openings are offered first to the people already inside the walls, and its existence is one of the most consequential design choices in the whole organ. An employer that promotes and redeploys from within is running its own market, with its own postings, its own filter, and its own prices, and it gains something the external match cannot buy: the known quantity, the observed worker, the ability priced by years of direct evidence rather than by interview. The cost is the corresponding blindness: a firm that fills only from inside eventually circulates the same water, breeding its ideas with its own, and the fresh capability the external market carries, the methods of other shops, the habits of other trades, stops entering at the rate it leaves.

The healthy machine runs both markets deliberately, opening the internal one first for the known and the external one always for the unknown, and the sick one has no rule at all, so the choice between inside and outside is made case by case, by whoever happens to be standing near the vacancy.

Movement through the market happens in chains, and the chains explain more of its behavior than any single match does. The senior quits, the mid-grade is promoted into the place, the junior into the mid-grade's chair, and the vacancy the market actually sees is the last, smallest link in the chain, posted at the bottom while the real event happened at the top. The chain's length is a real property of the economy: in a fluid market a single retirement moves four or five people, and the entry door opens somewhere it was not aimed; in a frozen market the chain does not form, the retirement is simply not replaced, and the entry door never opens at all. The planner who watches only the posted openings is watching the tail of the animal, and anyone tracking where a workforce is really moving should watch the links above the posted one.

The market has a microstructure, in the trading-room sense of who may see what and when, and the design of that visibility decides who wins. The posting that is published has rules hidden inside it: whether the range is shown or hidden, whether the applications flood in on a single opening day or trickle as

the posting ages, whether the employer sees every applicant or only the ones a machine shortlisted, whether the worker can see how many others are competing, whether the failure of a match is recorded anywhere the next employer can read. Every one of these choices shifts advantage between the sides, and the modern market, because it is an indexed one, has made the choices largely by accident, in the defaults of whoever built the software, which is why the market's architecture is now a matter of public argument that its users did not used to have the vocabulary to conduct.

The market for the scarce and the senior is a different organ from the market for the many, and confusing the two produces bad policy on both. The ordinary market is thick: many seekers, many openings, and the pairing is a matter of sorting and speed. The scarce market is thin: a handful of people can do the work at all, each is probably already employed, and the matching runs through search, secrecy, and seduction rather than through postings and applications. The instrument of the thin market is the search itself, the discreet approach, the court conducted through intermediaries who know the names, and the price of the whole exercise is paid by whoever blinks first. The thin market's characteristic abuse is the no-poaching arrangement, the quiet pact among employers not to bid on each other's scarce people, which sounds like civility and is a fence around the workforce, keeping the most valuable people from ever learning what they are worth.

Transparency of price is the market's oldest argument and its newest battlefield. Against posting the range stands the employer's fear of losing negotiating room and the awkward arithmetic it exposes when the newcomer is hired above the tenured; for posting it stands the finding that every hidden price in a market is paid for by the side with less information, and that side is usually the worker. The middle path that most systems are converging on is the range: not the number the employer will actually pay, but the corridor inside which the number must fall, published with the posting, and the corridor is honest exactly to the degree that offers actually land inside it. A range that every offer escapes above is a promise of precision; a range that every offer escapes below is a statement of contempt; and the market reads both, and prices the employer accordingly, in the quality of the people who bother to apply.

The intermediaries of the market take their fees in three shapes, and the shapes matter more than the amounts. The success fee, paid by the employer only when the match holds, aligns the intermediary's interest with the match's durability, though it also tempts the intermediary toward the fast, safe, unremarkable candidate, the one who will surely be accepted and will surely not alarm anyone. The retainer, paid for the search itself, buys attention

regardless of outcome and suits the thin, senior market, where the search is the work. The margin, the difference between what the client pays for the worker and what the worker receives, is the shape to watch, because it is the only fee the worker pays, invisibly, and it rewards the intermediary for keeping the difference wide, which is a standing incentive pointing exactly against the worker's interest. A market can bear all three shapes; it only needs to know which one it is paying and to whom.

The market's parasites deserve their final mention here because they feed on the desperation the market exists to relieve. The posting that is not a job but a funnel into a paid course, the application that requires a fee, the interview that is actually an unpaid day of work, the representation that is a pyramid in costume, the listing that exists only to harvest identities: all of these are recognizable by one test, which is which way the money moves before the work exists. In an honest market, money moves after the work, from the employer to the worker, with the intermediary paid out of the employer's side; the moment money moves toward the opening, from the seeker, for training, for access, for processing, the market has been entered by a predator, and the test works in any country in any century, without another piece of information.

The job fair is the market returned to its oldest form, the square where everybody stands at once, and its economics explain both its persistence and its disappointments. For the seeker it is a cheap survey of a whole corner of the market in one hall, and for the employer it is a presence the competitors can see, which is half of why the booths are rented. What the fair almost never does is pair, because pairing needs the filter's time and the fair has none, so the honest fair is a market's shop window, a place where the shape of demand is displayed, contacts are exchanged, and the real work begins the next morning at the addresses collected.

The fairs that promise more than this, the interview on the floor, the offer before the crowd disperses, are selling the square's theater, and the seeker who prices the day by the pairings rather than the map will be disappointed by a good fair, which was never a pairing instrument at all.

The application document is the market's ritual dress, and its fashions are worth noticing, because they are the market's own signal about what it can read. The fashion of the era in most trades favors the one or two page account, the tight career chronology with the achievements compressed into lines, a format whose brevity is not for the reader's convenience but for the machine's: the sorter reads hundreds a day and the document is built for the skim. The countervailing fashion, the portfolio-come-late, lets the work speak first and the chronology second, and it is gaining wherever the work can be

shown. The dress code matters most at the bottom of the market, where the young are taught the ritual forms by the schools that formed them, and the older workers, whose documents were fashionable in a previous market, are quietly untaught, and the market's gatekeepers rarely mention that the rejection was about the costume.

The start date is the market's last negotiation and its most underestimated one, because the pairing is not finished until the person has actually arrived, and the weeks between the handshake and the first day are the match's most fragile stretch. The notice the current employer requires, the garden leave that forbids the departing person from working for the rival during it, the break the worker wants between machines, the training intake the new employer runs only quarterly, and the project that must be finished first: all of these stretch the gap, and the gap is where the counteroffer lands, the rival offer arrives, the life event intervenes, and the pairing quietly dies.

The machines that lose matches in the gap treat it as bad luck, and the machines that keep them treat the gap as part of the pairing, writing to the person during it, holding the date firm, and asking, once, at the halfway point, whether anything has changed, which is the question that catches the counteroffer in time.

Employer reputation is the market's summary judgment, the file the seekers keep on the employers, assembled from the tales of the departed, the treatment visible at the interview, the arithmetic of the posted range, and the machine's behavior in its own bad year. The judgment is unfair, aggregated from anecdotes and slow to change, and it is also the most accurate instrument in the whole market, because it is compiled by the only people who ever saw the machine from inside, and the employer that cannot hire at the posted price is usually holding a reputation it priced at zero long before. The reputation's maintenance is the work of years and the machine's own behavior in its endings, because the seekers' file on any machine is written mostly by the people the machine let go, and it is read by the people the machine most wants to keep.

The counteroffer is the market's most expensive negotiation and its least honest, and the anatomy should say why both sides know it. The worker who resigns and accepts the machine's sudden raise has taught the machine that the way to pay retention is the exit interview, and the lesson will be applied to the worker's own raises from now on; the machine that pays only at the door has taught the floor the mirror lesson from the other side, and the resignations will multiply as the secret spreads, because the secret never keeps. The honest machines pay before the door, on the schedule and the record, and the

machines that pay at the door are purchasing, at full price, the reputation of a machine that pays only when threatened, which is the one asset no employer should want and every candidate can price.

The market, for all its importance, is only the first organ, and the habit this book will keep is to ask of every complaint about work where in the line the failure actually sits. A country can have a perfect meeting place and still have a workforce that cannot do the work, because the meeting place only pairs ability that already exists; the making of ability belongs to the next organ, the formation system, and it is to that slower machinery, the one that takes years where the market takes weeks, that the walk now turns.

End of free sample. The full book is available at putrabooks.github.io

ABOUT THE AUTHOR

Aiman JoeHanz takes systems apart with a maintainer's sympathies, naming the part that does the work, the price of running it, and the history of what it does when it breaks. This volume completes a long walk through the systems of the modern world by turning to the one the reader has been inside all along, the workforce machine, and the author's hope for it is the hope of every honest anatomy: that the reader finishes better armed than the folklore left them, with ten questions where previously there was one vague complaint.