Engineering the Commons

A Design for Rebinding American Cities

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Abstract. For most of the last century the local newspaper was a community's binding agent. It gave residents a common set of things to know and talk about, and in doing so it held otherwise unrelated parts of a city in contact with one another. That function has largely disappeared, and what replaced it is national by design. The attention a city once spent on itself is now spent elsewhere. This paper describes a way to rebind a city.

A newspaper's advertising was never priced on the quality of its journalism. It was priced on the gravity it produced, which was a town's attention gathered in one place. Journalism was the input. Gravity was the product.

That trade is still available, and the tools for it are better than a printing press ever was: cheaper, more numerous, and adjustable. Gravity can now be built deliberately, out of many small pieces rather than one daily edition, and building it produces civic goods along the way: local coverage, a market for local work, tools that institutions could not afford alone, and a place where residents meet as neighbors.

The design is being implemented as Cityverse, beginning in St. Petersburg, Florida.

Part One

1. What a city lost

For most of the last century, a city of two hundred thousand people shared one object every morning. The newspaper told a mechanic and a bank president the same forty facts before either of them got to work. It printed the school board agenda and the high school box scores and the obituaries and the zoning notices, and in doing so it gave a quarter million strangers a common set of building blocks for constructing their days.

That was its real function. The information mattered, and the information was never the whole of it. A newspaper was a binding agent. It was the substance that held otherwise unrelated parts of a city in contact with one another, and its disappearance is felt as a loss of cohesion rather than a loss of facts.

Ask someone what they lost and they will not say oversight. They will say they no longer know what is happening this weekend. They do not hear about the new restaurant until it has been open four months. They do not know that the road will be closed, that the high school swim team went undefeated, that a neighbor two streets over died. The obituaries went first in most towns, and an obituary page is how a place grieves in common. The box scores went with them, and a box score is how a town notices a seventeen-year-old.

None of that is oversight. All of it is the texture of living somewhere specific rather than living in America generally. Johanna Dunaway of Syracuse University puts the function plainly: “Local news is something that reminds people of what they have in common, both their challenges and their shared identities, their shared culture, their shared community.” A resident who no longer knows those things has not become less informed about government. That resident has become a stranger in their own city.

In an age of information abundance, roughly fifty million Americans now live in a local news desert. Northwestern’s Medill School counted 213 American counties with no local news source at all in 2025, and 1,524 counties down to a single source. The country lost 136 newspapers in 2025, more than two a week, and has lost about 3,500 since 2005, some forty percent of all local papers. Newspaper employment is down more than 270,000 jobs over the same period, a decline of roughly seventy-five percent, leaving about 42,000 working journalists in a country of 340 million people.

The counts understate it. Duke’s News Measures Research Project examined more than sixteen thousand stories across a hundred communities of between twenty thousand and three hundred thousand people and found that only seventeen percent were genuinely local, and that one community in five produced no original local journalism at all. A county with a newspaper nameplate is not necessarily a county with journalism. Hayes and Lawless, studying 121 papers over eighteen years, found local politics coverage down fifty-six percent, with the smallest papers cutting local government coverage three hundred percent more aggressively than the largest.

The effects that are easiest to measure are the ones with a price attached, and they corroborate the rest. When a local paper closes, the municipality’s borrowing costs rise by five to eleven basis points, an effect Gao, Lee and Murphy identified in the *Journal of Financial Economics* and traced to the loss of monitoring rather than to local economic conditions. Corporate violations in the area rise 1.1 percent and the penalties attached to them rise 15.2 percent. Federal corruption cases filed in districts that lost a major daily rose 7.3 percent. Split-ticket voting falls by about two points, and the mechanism Darr, Hitt and Dunaway identify is substitution: national partisan coverage moves into the space local coverage used to occupy.

That last finding is the one that matters most here, because it is not about oversight at all. It describes a city whose residents began sorting themselves by national categories once local categories stopped being available. Bond markets and prosecutors noticed the change because they keep records. The larger loss went unrecorded, because nobody prices the fact that two neighbors no longer have anything to talk about.

A healthy local press does two distinct jobs. It holds power to account, and it binds a community to itself. Those are different goods, they are produced by different work, and only the second one is what this design rebuilds. Accountability journalism is expensive, adversarial, and slow, and a system that manufactures binding does not manufacture it. The claim here is narrower and, we think, more tractable: the binding function can be rebuilt at a cost a city can afford, and *rebuilding it creates the conditions under which accountability journalism can be funded again*.

Why the usual explanation is too small

The standard account of this is a story about villains. Platforms took the advertising, so the papers died.

The advertising did leave, and that account is too small to be useful. It misses the reason the audience left first, which is that the platforms built something more magnetic. Facebook and YouTube and TikTok gave people a more engaging experience for the time they spent. They personalized. They let readers respond, argue, and publish. Newspapers offered a fixed bundle chosen by an editor, delivered once a day, with a letters column at the back. When the two competed for the same evening hour, the outcome was not a mystery and it was not a crime.

This matters for the design, because a diagnosis of theft implies a remedy of restitution, and there is no restitution available. A diagnosis of product loss implies that the answer is a better product. That is a harder problem, yet a solvable one.

The second thing the standard account misses is the direction of travel. The attention did not evaporate. It moved to platforms that are national by construction, and there it stopped doing local work. A resident of St. Petersburg who spends ninety minutes a day inside a national feed is not disengaged. That resident is engaged with a set of subjects that no neighbor, employer, school board or city council can act on. The binding agent was not destroyed. It was relocated to a place where it cannot bind anything.

A commons that disperses

There is a body of work on how communities manage shared resources, and it is the closest ancestor this design has. Elinor Ostrom spent decades documenting communities that governed common property successfully for centuries: Swiss alpine pasture at Törbel, Japanese village forest, Spanish irrigation systems, groundwater basins in southern California. She won a Nobel for showing that people manage a commons well when certain conditions hold, and she named eight design principles that predict when they will.

Every commons she studied was physical and rivalrous. Grass eaten by one herd is not available to another. Water drawn from a basin is gone. Because the resource depletes, the entire design problem is restraint, and every one of her principles is ultimately a mechanism for keeping members from taking too much.

A city’s civic commons does not deplete. Local attention, local knowledge and local trust are not used up when they are used. Nobody has ever overgrazed the question of where a new shelter should go. What happens instead is that the commons disperses. It leaves for somewhere it is better served, and the pasture stands empty rather than bare.

That is a different failure and it needs a different design. When a commons depletes, you build rules that restrain. When a commons disperses, you build links that hold it in place. This paper is about the second problem, which Ostrom did not face, and which arrived with the commercial internet a year after *Governing the Commons* went to press.

2. What a newspaper actually sold

An advertiser buying a half page in a city paper in 1985 was buying one thing: the fact that most of the city would read the same object on the same morning. Had the reporting that week been mediocre, the half page would have been worth about the same. What he needed was the assembly. The quality of the thing that did the assembling was somebody else’s concern.

That is the trade the local newspaper ran on for a century. It spent money producing something a town would gather around, and then sold access to the gathering. Journalism was the input. Gravity was the product.

Gravity here means a city's attention, assembled in one place, in a form that local parties can act on. All three conditions matter. Attention that is scattered across a hundred destinations cannot be sold or organized. Attention that is assembled around national subjects can be sold and cannot be acted on by anyone in the city, which is why a resident who spends ninety minutes a day inside a national feed is engaged and unreachable at the same time. Gravity is the specific, local, gathered kind.

Everything a city's institutions want runs on it. An advertiser wants it. A theater announcing a season wants it. A school board wants it before a bond referendum. A restaurant opening on Tuesday wants it. A candidate wants it, an arts council wants it, a nonprofit running a beach cleanup wants it. None of them can manufacture it alone, and for most of the last century none of them had to, because a newspaper manufactured it as a side effect of doing something else.

What print media got wrong

When the business moved online, publishers behaved as though the journalism had been the product. They put it behind paywalls, priced it by the article, chased pageviews for it, and cut the parts of the paper that produced no journalism at all: the calendar, the classifieds, the club notices, the box scores, the obituaries. Those sections were low-status inside newsrooms and they were among the strongest gravity the paper had. A person who opens a paper to check whether a neighbor died is a person the paper has assembled.

Meanwhile the platforms built enormous gravity while producing no journalism whatsoever, which should have settled the question of what the product had been.

This is not a story that requires anyone to have behaved badly. The platforms built a better gathering place and people went to it. The publishers optimized the wrong variable and ran out of time. But the trade itself was never invalidated. Somebody spends money producing things a city will gather around, and the gathering is worth more than the things cost.

What follows for what gets built

Once gravity is the product, the question of what to build changes shape. The conventional test for a piece of software is whether enough customers will pay enough to cover what it costs to make. That test is correct for a software company and it is the wrong test here, because it prices only the thing being sold and ignores the mass it would add.

Consider a high school athletic director in a city of two hundred thousand. She runs eleven varsity programs on a budget with no line for software. Her coaches keep statistics in notebooks and spreadsheets and memory. Handed a tool that collected them properly, she would use it, and her programs would be better run for it.

By the conventional test she is a poor customer. Eleven programs at one school, or sixty across a district, will not pay enough to fund the engineering and the support and the sales required to reach them, and this is why no such tool arrives. A vendor selling to thousands of athletic departments nationally can make that arithmetic work, and several do. A vendor scoped to one city cannot.

By the gravity test she is not a customer at all. She is an instrument. Giving her that software brings a school into the mass, and with the school come its coaches, its athletes, several hundred parents, a few thousand alumni, and a supply of structured facts about things happening in the city this week. The tool is worth building because of what it attaches, and none of what it attaches would appear on an invoice.

This is also the reason it is not sold. Charging the school would recover a few hundred dollars a year and lose most of the adoption, and the adoption is the entire point. Once you understand that the mass is the product, a price on the instrument that assembles the mass is a strange thing to want.

Chains

Gravity does not arrive in one piece. It accumulates through sequences: a tool produces data, the data produces coverage, the coverage produces attention, the attention supports the thing that pays for the tool. We call one of those sequences a chain, and the rest of this paper is largely about how to find them, how to build the parts that are missing, and how to tell before you start whether a given one will run.

A city can hold many chains at once, and they cross. The parent who arrived through the swim team is available to the arts marketplace. The artist who arrived through a free gallery ends up reading the city council coverage. Chains built separately reinforce each other, and the structure they make together is closer to a lattice than to a line.

A chain assembled this way requires no persuasion at any point along it, and that governs how any of it can be built. The athletic director accepts free software that makes her job easier. The parent reads about her daughter's meet. The advertiser buys attention that now exists. Nobody in the sequence is being talked into anything, because each participant is better off at their own step, on their own terms, without needing to understand or endorse the rest. Nobody needs to be sold. They only need to be told the thing exists.

3. One chain, end to end

Abstractions about value chains are easy to nod at and hard to use. Here is the sports chain in full, with every link named.

Link one. The tool. We build coaching software and give it to the school at no cost. It records game and practice statistics, produces the reports a coach actually wants, and requires nothing from the athletic director beyond permission. This link runs at a loss forever. It is a purchase, and what we are buying is described in link two.

Link two. The data. Because coaches use the software, structured statistics exist for the first time. Scores, rosters, season records, individual performances, the shape of a season as it happens. This data has no market value on its own. Nobody buys high school volleyball statistics. Its value is entirely a function of what happens next.

Link three. The coverage. Those statistics become stories. A recap of every game in every sport at every school in the city, written the night it happens, at a cost per story that no newsroom staffing model can approach. This includes the sports that were never covered even when newspapers were healthy: swimming, tennis, golf, wrestling, the chess club. A city gets more coverage of its young people than it had in 1985.

Link four. The attention. People read about their own children, their neighbors' children, and the school they graduated from. This is the most durable form of local attention that exists, and it recurs on a schedule set by the athletic calendar. It also carries no partisan charge, which means it binds people who disagree about everything else.

Link five. The capture. Attention of that quality supports the things attention supports. Some of it converts to paid memberships. Some of it makes local advertising worth buying. Some of it draws in the parent who had no reason to open a civic platform and now has one.

And then the loop closes, because the revenue at link five is what pays the engineers who build and maintain link one.

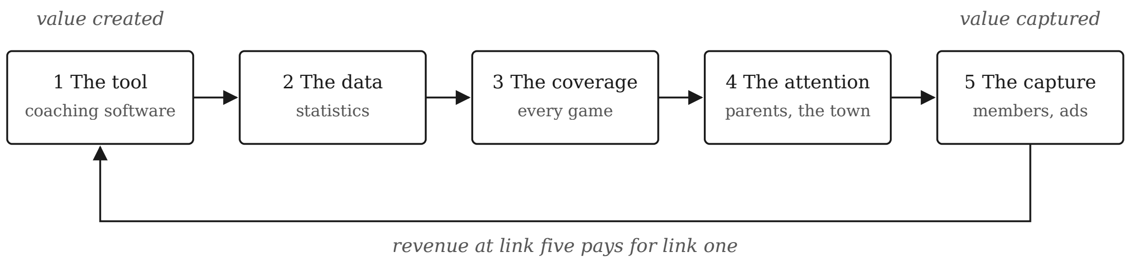

Figure 1. The sports chain. No participant along the chain transacts with the party who ultimately pays.

Three things about it matter.

The first is that value is created at link one and captured at link five, and no participant along the way is transacting with the party who ultimately pays. The athletic director has no relationship with the advertiser. The parent has no relationship with the software. The chain works precisely because it does not require them to.

The second is that the chain would not exist without the deliberate construction of link one. Links two through five are all conventional. Data becomes content, content earns attention, attention earns revenue: this is an ordinary description of a media business. The entire difficulty, and the entire novelty, is that somebody has to build and permanently subsidize the first link, and no ordinary media business has a reason to do it.

The third is that the chain manufactures attention rather than redistributing it. A story about a swim meet does not only reach the people who already follow swimming. It tells several hundred people who had no reason to think about the swim team that something is happening two miles away, and some fraction of them turn up. When a season produces a narrative, a senior chasing a school record or a team nobody expected to be good, the effect compounds quickly. A half-full gymnasium becomes standing room only, and the next story is written about a larger event than the last one. Each pass through the chain returns more than it consumed, which is why gravity accumulates instead of merely circulating.

There is a further difference from the newspaper version of this. A printed sports page was a fixed instrument. It ran on Friday, it was the size it was, and nothing about it could be adjusted to make it produce more of what it was for. The links in this chain are instrumented and can be tuned. A resident who attends 4 high school sports events in a month can be recognized for it, and the recognition brings her back for a fifth. A badge is a small thing on its own, and its purpose is to add a measurable amount of gravity to a link that was already running.

EXAMPLE: the same shape, different city, different subject. Every artist in town receives a free gallery where they can display work, connect with patrons, and build a following. Each may place one piece in the city's art marketplace, which becomes the single place a local buyer goes to see what is available. The galleries and the marketplace generate data about what this city's people actually respond to. That data becomes coverage: profiles, story lines, an ongoing account of what is happening in local art. The coverage builds awareness and appetite, which is placemaking by another name, and appetite sells art. The gallery is the unprofitable link. Nobody would build a free gallery platform for four hundred artists as a business.

4. When a chain closes

A chain that runs is worth building. A chain that does not run is a subsidy with extra steps. So the operative question for anyone attempting this is how to tell the difference before spending the money.

The minimum is three links.

A chain requires a producer who cannot capture, at least one transformer that changes the form of the value, and a captor who converts it and funds the producer. Remove any of the three and there is no circuit. Remove the producer and there is nothing to carry. Remove the transformer and the value stays in a form nobody pays for, which is the condition the city is already in. Remove the captor and the whole thing is philanthropy.

Two links is a different structure and it should not be confused with this one. A creator and a consumer transacting directly is a marketplace. Value is created and captured at the same point, by the same parties, in the same moment. Marketplaces are useful and the design has room for several, and they are not what this paper is about, because a marketplace does not require anybody to build an unprofitable link. If it did, it would not exist either.

The sports chain has five links. The art chain has four. Below three, what looks like a chain is usually one of two things: a marketplace that has been described in complicated language, or a genuine gap that cannot be closed because the value at the far end is too small to pay for the link at the near end.

EXAMPLE: a chain that does not close. Coffee shops are among the most important social spaces a city has. Ray Oldenburg named them third places, after home and work, and argued that a community's health depends on having them. A coffee shop's regulars see each other constantly and speak to each other rarely.

The obvious chain is to give those regulars somewhere to continue after closing time. It does not close, and the reason is instructive. The stated purpose of the gathering is coffee, and coffee does not exist virtually. The actual purpose is the possibility of interaction, and a virtual room removes the ambient condition that makes the possibility pleasant. There is no link valuable enough to justify building, because the value at the far end is small.

The chain that does close runs in the opposite direction. Two regulars who have sat ten feet apart for a year with headphones on already know each other's names on the platform, because both are verified locals and both appear in the same civic conversations. The first sentence in the physical room then costs nothing to say. The platform's contribution is the reduction of a social activation cost, and the return is a room that functions as a third place again, which produces more local activity to write about. That chain has three links and it runs.

The test is available to anyone before they write a line of code. Name the producer who cannot capture. Name the transformation. Name the party who pays at the end and confirm that the payment can fund the beginning. If any of the three is missing, the chain does not close, and the correct decision is to leave it alone.

Part Two

5. The bought link

Every instrument in the chapters above is free to the people who use it, which raises the obvious question of where the sequence starts. Something has to assemble the first mass, and nothing assembles itself.

Exactly one link has to be bought. Every link after it can be given away.

The bought link is a newsroom. Not a large one and not a general-interest one. Three people covering local government, development and culture in a city of two hundred thousand, publishing on a daily cadence, costs roughly two hundred and fifty thousand dollars a year and takes about a year to reach the point where a meaningful share of the city reads it. That is the entry price of this design, stated plainly so that anyone considering it can decide whether they can afford it.

Why journalism and not something cheaper? Gravity requires a recurring reason for a large number of unrelated people to arrive at the same place. Very little produces that. A marketplace assembles buyers, and buyers arrive only when they want to buy. An events calendar assembles people who are already planning to go out. A neighborhood forum assembles the small subset of residents who enjoy neighborhood forums. News assembles everyone, on a daily cadence, without requiring the reader to want anything in particular that day. It is the only instrument we know of that reliably gathers a general population, which is why the newspaper occupied this position for a century and why nothing has replaced it.

There is a second path into the same position, and in many cities it is the better one. An existing local news operation already holds the gravity. Where one is present and willing, the work is integration rather than construction: the newsroom keeps doing what it does, and the platform is built around it. This is faster and cheaper than starting a newsroom, and it comes with a coordination cost, because the newsroom is then a link in a chain it does not own. The bond required for that arrangement is described in chapter seven.

Either way, news alone produces a narrower gravity than the design needs. A newsroom assembles people around civic subjects, and a city’s attention is not primarily civic. The next addition is roughly ten local creators, chosen for reach rather than for subject: the person who photographs the city, the one who reviews restaurants, the one who knows the music calendar, the one whose commentary people quote. Ten is not a precise number. It is our estimate of the size at which a platform changes from a place people check into a place people visit.

After that, nothing else has to be bought. Each subsequent instrument attaches a new population to a mass that already exists, and the mass is what makes each of them worth building.

6. How gravity pays

A city's assembled attention is not a metaphor. It is the thing being sold, and it converts to money three ways, which behave differently enough to take one at a time.

Advertising sells the gravity directly. A local business buys access to the assembly, exactly as it did from a newspaper. Two things are different now. The buying is self-serve, so a restaurant owner can run a campaign at eleven at night without calling anyone, which is the mechanism that opened local advertising to the smallest businesses in the first place. And every participant on both sides is a verified local, which removes the specific abuses that have made platform advertising miserable for small operators: fraudulent clicks from bot farms, competition from out-of-region knockoffs, and opaque suspensions handed down by a distant and unreachable staff. An advertiser here is buying attention from people who live within a few miles of the business and can walk in the door.

Larger organizations that maintain their own advertising staff get access to that inventory to sell themselves. A newsroom, a team, a venue with a sales department already has relationships the platform does not. Giving them the instrument costs less than competing with them and serves them better.

The membership sells what gravity enables. Residents can pay seven dollars a month for an expanding set of features that make local life better. The bundle is not a paywall on the content, which stays open, because putting a fence around the content would reduce the assembly and the assembly is the product. It is closer in shape to a membership in the city itself: earlier access to tickets, discounts with local businesses, the ability to publish and to be seen, the tools and the standing that come with being a full participant rather than a visitor.

Transaction fees sell the marketplaces that gravity makes viable. An art marketplace, a classifieds exchange, a ticketing surface: each of these works only because a large number of local people are already present, and each takes a small percentage of what moves through it.

No chain has a funder

The instinct of anyone reading a chain description for the first time is to ask which revenue line pays for the coaching software. The question has no answer, and the absence of an answer is the design working correctly.

Everything the platform earns goes into one pool, and everything the platform builds draws from it. The coaching software is funded by the platform's revenue in general, which includes advertising sold against attention that the coaching software helped create. Costs are incurred at the level of the individual feature. Revenue is captured at the level of the network. That asymmetry is permanent and it is the reason a portfolio of individually unprofitable instruments can be run at a profit in aggregate.

This is also what makes the structure a commons rather than a collection of business units. Every part draws from a shared pool of local attention, and every part that works returns more attention to the pool than it consumed. A business unit that cannot cover its own costs is a failure. An instrument that adds more gravity than it costs is a success, whatever its own ledger says.

The practical consequence for anyone operating this is that a feature-level profit and loss statement is an actively misleading instrument. It will tell you to shut down the things that are working.

7. Chains that cross buildings

Nothing in this design requires that every link sit inside the same company. The sports chain already does not. Its first link lives in a school district, which is a public institution with its own leadership, its own budget cycle, and no obligation to anyone.

That is the normal case rather than the exception. A chain can run through a school district, a nonprofit, a city government and a private business, and the useful ones usually do. What it requires is a bond at each boundary.

Aligned incentives are the starting condition and they are not sufficient. Two organizations whose interests coincide today will drift, because one of them will change its superintendent, its board, its funding or its priorities. A bond is whatever makes the alignment survive that.

Look at what actually holds the school link in place. The tool is free, so there is no budget line for a new administrator to question. It is better than the alternatives at the specific job the coaches have, which means replacing it costs them something. The school's own history accumulates inside it, so a season of records, rosters and results is lost or has to be migrated if they leave. And the coverage the arrangement produces is visible to the parents and the community the athletic director answers to, which makes leaving a thing she would have to explain. None of those is a contract. Together they are a bond, and it is strong enough that a new athletic director inherits it rather than reconsidering it.

The same question applies at every boundary and the answer differs at each. A newsroom integrated into the platform rather than built inside it is a link in a chain it does not own, and the bond there has to be built deliberately, because a newsroom is the one link with enough gravity to leave and survive. The bond is usually some combination of audience the newsroom cannot reach alone, tooling it cannot afford alone, and revenue it cannot sell alone.

The most demanding case is the model layer, which sits in a separate nonprofit entity for reasons that are worth a chapter of their own. What matters here is the general rule it illustrates. When the same people are close to both sides of a boundary, the bond has to be visible to strangers: independent valuation of what is exchanged, decisions made by parties without an interest in the outcome, and terms someone outside could read and assess. A bond that works because the people involved trust each other is not a bond. It is an intention with paperwork, and it fails on the first change of personnel.

8. Where the price sits

Free, in this design, means free at a particular place. The placement is the design.

The rule is that nothing is priced at the door. Any instrument whose job is to attach a new population to the mass is given away, because a price on it trades a small amount of revenue for a large amount of assembly, and the assembly is the product. The coaching software is at the door. So is the news, the artist's gallery, the calendar, and the ability to read anything on the platform at all. Charging a school a few hundred dollars a year would recover a few hundred dollars a year and cost a school.

Inside the membership, ordinary pricing applies. A seller can pay to feature a listing in the exchange. An organizer can pay to promote an event. Posting requires a paid membership in the first place. Each of those could technically be free, and each is priced, because none of them is what assembles anyone.

The reason this works is a perceptual effect that the bundle produces and that a collection of separate products cannot. A resident paying seven dollars a month for a large and expanding set of things does not experience a four dollar featured listing as a fourth purchase. It reads as an option inside something already paid for. The same four dollars charged by a standalone classifieds site is a transaction, evaluated on its own, and half the people evaluating it decline. Amazon Prime runs on exactly this: the shipping is not free, and it feels free, because the decision to pay was made once and elsewhere.

So the bundle does two jobs at once. It is a revenue line, and it is the thing that makes every other revenue line feel weightless.

Protecting the door

The instruments at the door are individually unprofitable, they are visible on any cost report, and cutting them improves margin immediately while the damage arrives quarters later in a different line item. A new owner or an ordinary cost exercise will find them, and each cut will look correct in the moment it is made. This is the standard life cycle of platforms.

The most useful defense is a reclassification. The coaching software is not a gift to the school. It is a purchase, and what is bought is the school's data and the school's relationship, paid for with an engineering budget rather than with cash. Charity is discretionary. Procurement stops the supply when you cut it. Recorded that way, with the input named, the item survives contact with a reasonable person who has never heard this argument.

Two structural supports matter beyond that. The first is custody: the compounding asset sits outside the operating company under terms that depend on continued contribution, so stripping the door-side instruments costs the operator access to the thing that made the rest valuable. The second is coupling: the attribution between a free instrument and the revenue it produced should be a standing measurement rather than an argument reconstructed by whoever is in the room, because an argument that requires a particular person present will lose on the day that person is not.

None of this makes defection impossible, and a design that claimed otherwise would be lying. It raises the cost of defection above the gain and makes the loss visible at the moment of the decision rather than a year later. That is the most any structure can offer. It beats good intentions, which is what most institutions run on.

9. Who gets in

Each city runs its own Cityverse, and anyone in the world can read it. Participating requires proving you live there.

Reading is open because gravity is built by assembly and a wall reduces assembly. A person in Ohio reading about a St. Petersburg zoning fight costs nothing and occasionally matters. Participation is bounded because the value of a local conversation comes from the fact that the people in it share consequences. A resident arguing about where a shelter goes will live near the shelter. That is what makes the argument worth having and worth reading.

Verification is done through a commercial identity service, the same class of tool a bank uses. It establishes that a person is real and that they live in the city. Membership then runs in tiers. A Tourist is unverified and anonymous, reads everything, and contributes nothing. A Resident has verified identity and locality and can participate in a limited way. A Cityzen is a paying member with the full set of tools. A Visitor is a Cityzen from another city, recognized as such while they are here.

Requiring real names on a large national platform has been tried repeatedly and the research on it is mixed at best, with several studies finding no reduction in hostile behavior and some finding an increase. Identity alone does not produce good conduct, and a design that expected it to would be relying on a finding that does not exist.

What is doing the work here is not the name. It is the combination of a bounded membership, a shared stake, repeated interaction with the same people, and consequences that land on someone who has to keep living where the consequences are. That combination is the first of Elinor Ostrom’s design principles for a durable commons, and it is the one every successful case she documented had. A national platform cannot have it at any size. A city can have it by construction.

There is a second effect, which is that verification keeps the gravity local. Attention assembled around a city, contributed to by people who live in the city, cannot be captured by an audience that has no stake in the place. The boundary is what stops the mass from dispersing into a national field, which is what happened to it the first time.

10. Free food

Imagine a store announcing that on Wednesdays, food is free. Anyone may come and take what they need.

Consider who eats. The fastest arrive first. The largest carry the most. The most willing to push get to the front, and after a few weeks the people who dislike being shoved stop coming. Technically the store is still giving away food to anyone. In practice it is giving away food to a particular kind of person, and the fact that the policy is open to everyone has become irrelevant to who benefits from it.

That is what an unmoderated platform is. Access is formally equal and the distribution is not, because the resource being handed out is attention and the people best at taking it are the ones most comfortable with conflict. Look at who actually posts on the most speech-maximalist platforms. It is not a cross-section. It is the subset of people who can absorb being attacked. The professor with the most accurate information about the water table stays home, because she has read the replies other people get and has correctly concluded that the exchange is not worth it.

Unmoderated access is a subsidy to the most aggressive, paid for by the silence of everyone else. Moderating conduct is the mechanism that makes the commons actually reachable by the range of people whose views it is supposed to contain.

There is an economic version of the same point. Gravity is mass. A platform that drives out the careful, the quiet, the expert and the merely conflict-averse has less mass, and the mass it retains is the least useful kind. Moderation here is a supply mechanism. We moderate in order to keep the professor's contribution inside the system, because a conversation missing its most accurate participant produces worse output for everyone downstream.

So the standard is short. We moderate the civility of an exchange and leave the idea alone.

Everything is held against one question: does this inhibit the free flow of ideas? A threat inhibits it. So does a pile-on, a campaign of derogation, and the practice of making an argument about the person making it. A sharply worded, unpopular, badly reasoned or personally irritating idea inhibits nothing, and it stays. Sharp criticism of ideas, institutions, policies, businesses and the actions of public figures is protected. So is register. Vernacular, dialect, profanity as emphasis, heat and bluntness are how large parts of a city talk, and a system that treated tone as a violation would encode the speech norms of one class of people and quietly penalize everyone else.

Rules of this kind have to be precise enough to apply consistently and loose enough to require judgment, and the second half is deliberate. A policy specified to the last comma becomes a map for working around it, and a motivated person will produce something that satisfies every clause and violates the purpose. So the categories of conduct we act on are written down, and the question above governs the cases the categories did not anticipate, which is most of the interesting ones.

Two stages, kept separate. At intake a post is passed, killed, or held for a person to look at, and a held post is then passed or killed. Reach is a question that only arises once something has passed. There, content that bridges disagreement is promoted and everything else is left where it is. Nothing is demoted for being divisive, which means the mechanism cannot suppress the sharp minority view that turns out to be right.

Two commitments follow from that and they are the only ones this paper makes about mechanism. Every action carries a plain-language reason naming the conduct at issue, and every action can be appealed to a person. A civility standard that cannot explain itself is indistinguishable from a preference, and the appeal is what keeps the standard honest over time.

11. Consent

Two features in the design turn on a problem no moderation system can solve.

A resident's Homespace is their page in the city. Bloom is the mechanism for sending appreciation to another resident, and accepted ones are displayed in a public Garden on the recipient's page. Memorialization is the surface where a city remembers someone who has died, and where friends, colleagues and strangers write what they remember.

Both handle content that is warm, sincere and welcome, and both raise a question that has nothing to do with whether the content is acceptable.

A resident sends another resident a compliment. It is specific, it is true, and it is warm. Under the rules of the previous chapter there is nothing objectionable in it: no conduct violation, no target, no derogation. A moderation system would pass it without a second look.

It still may not be the recipient's to have published for her. A message can be kind, accurate and welcome in private, and unwelcome on a public profile where her colleagues, her mother and four hundred neighbors will read it. The most flattering version of this problem is the clearest one. A compliment about someone's performance in bed is complimentary. It does not belong on her wall, and no classifier will ever tell you that, because the problem is not in the content.

So the recipient decides. Praise arrives privately, and the person who received it chooses whether it becomes public. The sender has no private option; a private channel between residents carries too much risk for what it would add, so everything sent this way is a candidate for the recipient's public page or it is nothing. That decision is a link, and it has to be deliberately built, because the natural design is to publish and let people delete afterward, which is the same design with the harm already done.

The gate pays for itself. Without it, people learn to be wary of receiving praise, and a system where praise is risky produces very little of it. With it, the public record fills with warmth that every subject of it agreed to, which is a rare thing on the internet and a substantial amount of gravity. The consent gate is the reason the chain runs at all.

Memorialization poses the same problem with the stakes raised. A condolence can be sincere, accurate and deeply unwelcome as a public statement, because it names an illness the family kept private, or refers to a relationship they are not ready to see described, or is simply more intimate than a public page should hold in the first week. The family decides what appears, for the same reason and with more at stake.

The principle is general. Some value is produced by one person and belongs to another, and moving it without the recipient's decision destroys the willingness to produce more of it. Wherever the design finds that shape, it builds a consent gate, and the gate is a link like any other.

12. Two frogs

A frog in a patch of jungle in Madagascar and a frog in a patch of jungle in Peru are both frogs. One of them can kill you. One of them may hold a compound that cures something. Nothing in the general category of frog tells you which is which, because the answer is a property of the biome rather than of the animal.

Cities work the same way. Two American cities of two hundred thousand people, with similar demographics, similar median incomes and similar industries, will respond to the same zoning proposal in completely different ways, for reasons that live in local history, local personalities, and a hundred fights that happened before anyone currently in the room arrived. A model that knows about American cities in general knows the frog. It does not know the biome.

This is what a civic language model is for. A language model answers questions by drawing on a body of text. A civic language model is one whose body of text is a single city: its meetings and minutes, its coverage, its permits and plans, its arguments, its record of what was proposed and what actually happened. Not a general system with local facts attached to it. A system whose entire world is one place.

The questions it exists to answer are the ones a general model handles poorly. What has actually determined who becomes mayor here. How should a development ordinance be written so that it survives contact with this community. Where has a proposal like this one failed before, and what was the objection that killed it. These are questions about a biome, and the answers do not generalize even one county over.

The corpora cannot be pooled. Averaging the Madagascar frog with the Peruvian frog produces neither. Each city's record stays its own, addressable on its own, exportable and deletable on its own. That is a technical constraint imposed by the purpose.

Two things make this defensible against the obvious objection, which is that a frontier model already knows more about St. Petersburg than any local system will. That objection is true and it is not the relevant comparison. The first difference is that a large share of what matters here is not on the public web at all. It is the sentiment expressed by identified local people talking to each other about their own city, and it exists only where such a conversation is hosted. The second is that what is generated here can be withheld. A platform decides what leaves it, and the history of the last twenty years is a history of platforms adjusting that valve as their interests changed.

The system retrieves before it trains. Today that is a practical matter: a useful model requires a body of material that does not yet exist, so the work is collection. It remains true afterward for a different reason. Retrieval keeps the provenance of every answer, which means a city can audit where a claim came from, and it makes deletion real, which means a record removed is actually gone rather than absorbed into weights nobody can inspect. A public agency can use a powerful general model for reasoning while keeping the civic knowledge layer under rules it can defend in a hearing. That combination is not available anywhere else.

13. The faucet

A resident asks an AI assistant what the fight over the pier district is about. The assistant reads the local coverage, produces a competent summary, cites its sources in small text, and the resident closes the window satisfied. The local publisher produced the entire value of that exchange and received nothing from it.

This is now the dominant fact of the local information economy. Search referrals to small publishers have fallen roughly sixty percent in two years, against about twenty-two percent for large ones, and the damage is inversely proportional to size. Referrals from AI assistants have grown quickly and remain a rounding error against what search used to deliver. The traffic is not being redistributed. It is being absorbed.

The reflex is to block the crawlers, and it is wrong, at least at the start. Being the source that answer engines cite for questions about a city is a real position, and it compounds. Citation authority is durable in a way that search ranking never was, because an engine that has learned a city's record is here does not readily unlearn it. Early on, the correct setting is wide open. Let everything through, become the thing that gets cited, and let dependence form.

What matters is that the setting is a valve rather than a policy. The delivery a given consumer receives can be adjusted along a range: full text, structure removed, older material only, rate limited, or nothing. Nothing about that decision has to be permanent or uniform, and sentiment analysis of residents is never emitted at any setting. Holding a valve is how you have something to bargain with later.

The city's own record also feeds the platform's own assistant, called DASH. It answers questions about the city from that record, cites the source of every claim, and declines when the record has nothing rather than producing a confident guess. It always receives everything, because it is the same organization. External engines receive whatever the valve allows. A resident who wants the best answer about their own city has a reason to ask it here, and that reason strengthens every time the valve narrows.

The condition attached to this is the one that determines whether any of it works. The leverage exists only if narrowing the valve costs the engines something. If the assistants can route around a city's own record and produce answers of the same quality from elsewhere, the valve controls nothing and the position was never real. That is a testable claim, it will be tested within a few years, and anyone building this should watch for the answer rather than assuming it.

14. What this does not solve

The floor

What remains if the ambitious version does not work? If the memberships stay small, the marketplaces stay thin and the model layer never justifies its cost, what is left is a local news operation with a modern audience and an advertising business attached to it.

That is a real business. It is the business that funded American cities' information for a century, and it is profitable at a scale a mid-sized city can support. It is smaller than what this paper describes and it is not a failure. Few ventures of this ambition can say that.

The limits

Here is what the design does not do.

It rebuilds binding, not oversight. A healthy local press does two different jobs, and only one of them is described here. Accountability journalism is adversarial, expensive and slow, and a system that manufactures gravity does not manufacture it. The argument in this paper is that the binding function can be rebuilt at a cost a city can afford, and that a city with restored gravity is a city where the other work can be funded again. That second claim is a hope with a mechanism attached, and it should be read that way.

It is many hard things at once. A newsroom, a social network, identity verification, an advertising system, memberships, marketplaces, civic software, moderation and a city-specific model each fail on their own often enough. The chain thesis explains why they belong in one system. It does not make building them together any easier, and a reader should weigh the integration risk at its full size rather than letting the coherence of the argument shrink it. The mitigation is sequence. The newsroom exists first, the platform follows it, and each instrument is added only when the test in chapter four says its chain will close.

Some chains do not close. The coffee shop case in chapter four is one, and there are others. The discipline is to walk away from them rather than to subsidize them on the theory that value will appear. An instrument that adds no gravity is a cost with a story attached.

Verification costs adoption. Requiring a person to prove they are real and local is friction, and friction loses sign-ups. This is a deliberate trade of volume for the properties described in chapter nine, and it means a Cityverse will always grow more slowly than an open platform in the same city. Anyone attempting this should expect that and should not respond to it by loosening the boundary, since the boundary is what the rest of the design rests on. The response is the other direction. Friction is a fixed cost a person weighs against what they get, so the work is to keep raising what they get until the trade is obvious to more and more of the city. A boundary that is hard to cross and clearly worth crossing admits more people over time than one that was never worth crossing at all.

The bridging mechanism needs density. A system that identifies where a city agrees and disagrees requires enough participation to see the shape of the disagreement. Early on it cannot, and it should contribute nothing rather than guess, because a wrong signal launders noise as civic legitimacy, which is the one thing this design cannot afford to fake.

The valve may control nothing. As chapter thirteen says, the leverage over answer engines exists only if narrowing what they receive costs them something. That has not been tested at any scale and it will be within a few years.

The city may not be the right unit. The argument here assumes that a city of roughly a hundred thousand to four hundred thousand people is the natural size of a civic commons. It may turn out that the real unit is a county, a metropolitan area, or something smaller than a city and larger than a neighborhood. A neighborhood is too small to fund a newsroom and too small to contain the range of disagreement the bridging mechanism needs; a metropolitan area is too large for its residents to share consequences. The city is a guess, and it is a guess. The design does not depend on the specific boundary and it does depend on there being one.

What would prove this wrong

A design should say what evidence would count against it, and this one makes three predictions that can be checked.

The first is the reverse of the borrowing-cost finding. Gao, Lee and Murphy showed that a municipality’s cost of debt rises when its newspaper closes, because monitoring is lost. If gravity is what a newspaper actually produced, and if this design restores it, then a city where the design has run for several years should see that premium narrow relative to comparable cities that have not tried it. If the premium does not move, the binding this paper describes is not doing the work the paper claims for it.

The second is substitution running backward. Darr, Hitt and Dunaway found that residents sort themselves by national categories once local ones stop being available. A city with restored local gravity should show the opposite drift, measurable in split-ticket voting and in the share of civic conversation that is about local rather than national subjects. If residents keep sorting nationally while spending time on a local platform, the platform is hosting attention without binding it.

The third is the simplest. The gravity thesis says that instruments which are unprofitable on their own become worth building when they add mass, and that charging for them destroys the mass. So a free instrument that is later priced should lose most of its adoption, and the loss should show up downstream in coverage, attention and revenue. If a priced instrument keeps its adoption and the downstream numbers hold, the door was never where this paper says it is.

None of these can be tested before a city has run the design for long enough to matter, which is a real limitation. They are stated now so that the test cannot be redrawn later to fit whatever happens.

15. The chain factory

Everything described so far is a chain someone designed. A person looked at a city, saw a sequence that would run if a missing piece existed, built the piece, and gave it away.

That is the slow version, and it is bounded by the imagination of whoever is doing the designing. Somebody has to notice that high school statistics could become coverage. Somebody has to notice that a free gallery could become a market. Each one takes a person paying attention to a particular corner of a particular city, and there are more corners than there are people paying attention.

The last move is to stop being the one who designs them.

A city with restored gravity and a set of general tools is a place where residents build chains nobody planned. The birdwatching club that turns a species count into a public record and finds that people who have never held binoculars are following it. The teacher who starts a reading list and ends up with a citywide book club that a bookstore now sponsors. The neighborhood that discovers its own flood reports are more current than the county’s, and the county that starts reading them. None of these appears in a product plan. All of them are the same mechanism, run by people with better local knowledge than any operator will ever have.

This is the reason the tools are general, and the reason participation is bounded to people who live there. A general tool in the hands of someone with specific knowledge produces things a specific tool never would, and a person with a stake in the outcome builds differently than a person passing through.

Stated as plainly as we know how, this is what the company is. Cityverse provides tools and distribution. Cityzens use them to create value, and the incentives are arranged so that creating it is worth their while. Everything else in this paper is an account of how those three things fit together.

The mechanism itself is simple enough to restate in a sentence. Find where a city produces value it cannot capture, build the piece that is missing, give it away because charging would cost you the assembly, and let the mass that accumulates pay for the next one. Nothing about that requires this company, this city, or this decade. It requires someone willing to spend money on the part of the sequence that has no business case, in order to own the part that does.

A few hundred American cities have lost the thing that held them together. Rebuilding it is slow, it is expensive at the front, and the return arrives several steps away from the spending, which is most of the reason it has not been done. It is worth doing anyway, and the reason has little to do with the platform. A city that is bound together is a better place to live, and the people who live there will build most of what makes it so.

The design in ten sentences

Each sentence is defended in the chapter it names. A reader who remembers only these has the design.

1. Journalism was the input. Gravity was the product. *(Chapter two)*
2. Value is created where it cannot be captured, so the links that would carry it are never built. Build them anyway. *(Chapters two and three)*
3. A chain needs three links: a producer who cannot capture, a transformer, and a captor who funds the producer. Two links is a marketplace. *(Chapter four)*
4. Exactly one link is bought. Every link after it is free. *(Chapter five)*
5. Costs land on the feature and revenue lands on the network. Never judge an instrument by its own ledger. *(Chapter six)*
6. A link may live in someone else’s building if the bond at the boundary holds after the people change. *(Chapter seven)*
7. Nothing is priced at the door. Inside the membership, ordinary pricing applies. *(Chapter eight)*
8. Reading is open to the world. Participating requires living there. *(Chapter nine)*

9. Moderate the civility of an exchange and leave the idea alone. *(Chapter ten)*
10. Each city's record stays its own, and the valve on what leaves it stays in the city's hand. *(Chapters twelve and thirteen)*

Sources

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On identity and conduct

The literature on real-name policies and online hostility is mixed and this paper treats it that way. Several studies find no reduction in hostile behavior under identity requirements and some find an increase, which is why the mechanism in chapter nine rests on bounded membership and repeated interaction rather than on names.

Joe Hamilton joe@cityverse.life