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BEYOND GIG WORK: PUBLIC MARKETS FOR IRREGULAR EMPLOYMENT

Findings and recommendations from a Design Group of 25 workforce bodies.

Author: Wingham Rowan

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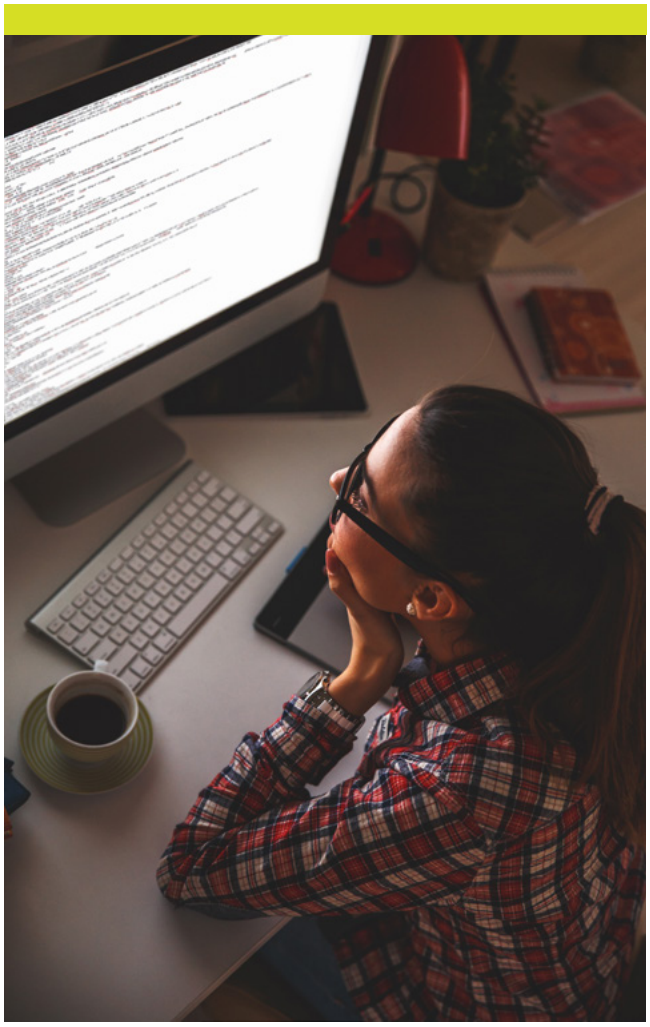
SUMMARY

"Gig work" is part of a trend: workers deployed, and paid, as required rather than having steady hours and earnings. Irregular employment is also rising for low-skilled corporate workforces and in the shadow economy. Workforce bodies could uniquely boost prospects, stability, alignment and quality in this workforce. But there are challenges.

A rising tide of irregularity

Across retail, construction, household services, hospitality, healthcare and other sectors there is a shift to workers summoned, and managed, very precisely by computer systems. This has fragmented the demand for labor. A retail employee used to predictable 35-hour weeks may now wake each morning not knowing if she will



be summoned to work today, or what the hours will be if she is. Her store's requirement to flex headcount hour-by-hour in line with unpredictable daily shopping patterns is paramount.

Seventeen percent of corporate employees have fluctuating schedules. They share the challenges of "gig workers" (people selling odd hours to multiple employers). Some gig work is arranged through high profile platforms like Uber, TaskRabbit, or DoorDash. But the majority is arranged offline, usually for payment under the table. America's untaxed, unregulated, illegal shadow economy is now estimated at 10 percent of the nation's GDP. The bulk of this activity is irregular hourly work.

The accelerating trend to irregularity is barely captured in official labor market statistics. But the nonpartisan Government Accountability Office (GAO) highlights estimates that 33 percent of America's workforce may already be in non-standard employment. Only 47 percent of respondents to a Pew household finances survey reported predictable expenses and income month to month. The problem is skewed toward women, minorities and low-wage workers.

We identify three types of irregular employee (a) those who can't work any other way — for instance, because of unforeseeable daily medical issues or caregiving commitments; (b) people who choose this lifestyle over the jobs available; and (c) the millions who are forced into it. Typically these workers have scant benefits with little chance of progression or skill-building. High churn and low quality hurt employers in need of responsive staffing, which stalls economic growth.

Possibilities for workforce bodies

The Public Workforce System is tasked with boosting economic growth and fostering opportunity. Currently it is exclusively focused, by federal targets, on traditional jobs. Existing services include public markets run by each state to match job-seekers and openings in any sector.

If workforce bodies were able to embrace irregular employment they could also be catalysts for hour-by-hour work through public markets. Government bodies in Britain have pioneered markets that give workers control and provide constant opportunities to progress to better pay, regular hours or new skills across multiple types of work. These markets also make a spectrum of personal support and interventions for irregular workers uniquely cost effective to target, administer and audit.

This project builds on lessons learned in the UK with a Design Group of Workforce Development Boards (WDBs). Through stakeholder roundtables, regular conference calls and repeated iterations this report represents the input of WDBs across the US willing to commit resources to what is still a fringe issue within the workforce system. The Annie E. Casey Foundation and Living Cities enabled this project.

Findings

- Irregularity is set to increase. The workforce system will have to respond to remain relevant. Any intervention would have to be (a) true to the ethos of WDBs; (b) distinctive; and (c) cheap.

- A public market putting workers in control, sharing all data, driving quality and targeted at shadow activity is a logical approach. It must support multiple other interventions.

- Workforce bodies could play a role in initiating local markets but may not run them. Challenges include current targets and sensitivities around non-standard employment.

Recommendations

- There is a danger of requiring definitive formal data before the system responds to an obvious trend causing enormous hardship. WDBs and other workforce bodies (labor market intermediaries, charities and philanthropies) could focus on understanding the leverage they could exert to raise prospects in the irregular workforce.

- Many stakeholders would have to coalesce around a new model for this type of work. Creating awareness of issues/possibilities/challenges in irregular work is now key.

- Well-executed pilots would create a replicable template for potentially wide impact.

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1) Context: The new world of irregular employment

Services like Uber[1] and "gig work" are the publicized tip of an iceberg. Across swathes of the economy, low skilled workers are increasingly called-in and paid only for unpredictable hours when an employer has a need. Official data collection is not calibrated to capture this trend.

a) Uncertain hourly work: a gray zone in labor markets

When Maria Fernandes, 32, was found dead in her car wearing a Dunkin' Donuts uniform, headlines began to show a grim reality in America's labor markets[2]. Fernandes was piecing together a living from a patchwork of odd hours of work in "jobs" for four employers. Exhausted, she was napping in a parking lot between night-time shifts when overcome by fumes from an engine running to keep her warm.

Prior to this shocking story, coverage of fragmenting demand for low-skilled labor tended to showcase workers thriving in a new world of piecemeal work. Often put forward by companies running websites for gig work, individuals were portrayed as forging their own path in a new world of flexibility, free of bosses[3]. Fernandes' 2014 tragedy in New Jersey bought home a realization: odd hours of employment are becoming a new norm. A price is being paid by workers who are anything but empowered.

Traditionally labor markets have been seen as binary: a majority in a solid job, a handful unemployed. There has always been a gray zone in-between: the teen who cuts lawns, a friend paid to babysit, an employee's relative helping out at peak times in a bar. But these odd hours of work were typically seen as a negligible sliver. Depending how that gray zone of uncertain work is defined, estimates highlighted by the GAO say it could now include more than 33 percent of the US workforce[4].

LABELLING THE GRAY ZONE

Independents, Partially employed, Contingents, On-demand workforce, the Precariat, Freelancers, 1099s, Informals: there are many terms that embrace fluid employment.

None of these worked as a concise description of our target workers.

Some tags were too vague: a "contingent" may be working odd hours but could equally be a 9-5 with no guarantee of a continued job. "1099s" covers regular-hours contractors while excluding untaxed shadow irregulars.

Other names only covered a sub-set of irregular workers. Someone who seeks 40 hours a week but only gets 20 is clearly "under-employed." But a person with fluctuating back problems who can only work when her pain is manageable and averages 20 hours is an irregular, but not under-employed.

There have been consistent attempts to brand on-demand work through websites "the sharing economy." This has been widely criticized.

Lack of a precise term has been a challenge throughout this project. Noting widespread confusion, in December 2016 the New York Times branded this "The Whatchamacallit Economy."

We have settled on "Irregular Employment."

Uncertain hour-by-hour employment has become a mainstay of service industries utilizing headcount with ruthless responsiveness and cost-effectiveness. But it spans all sorts of work. Our Design Group heard about people piecing together income from diverse combinations of tasks including home hairdressing, data entry of advertising responses, picking and packing at a warehouse, providing ad-hoc elder care and covering gaps in a cleaning timetable. Work-as-needed spans the economy. Individuals may not know day-to-day when, where, for whom, or for how much they will be working. Juggling multiple roles and contractual arrangements is widespread.

> *I use on-demand workers for installations (window graphics, vehicle wraps, sign installs, etc.) and ad-hoc production (making banners, hemming, etc.). Personally, I use them for housekeeping, pet-sitting and gardening.*
>
> **Print business owner/WDB board member, Bay Area**

High profile gig economy companies are a minor part of this trend. Uber has some 600,000 US drivers[5]. (They admit 60 percent of drivers leave every year[6] so there are plenty of former Uber-ites.) TaskRabbit, champion of miscellaneous errands, had only some 30,000 active workers around the globe by the end of 2015[7].

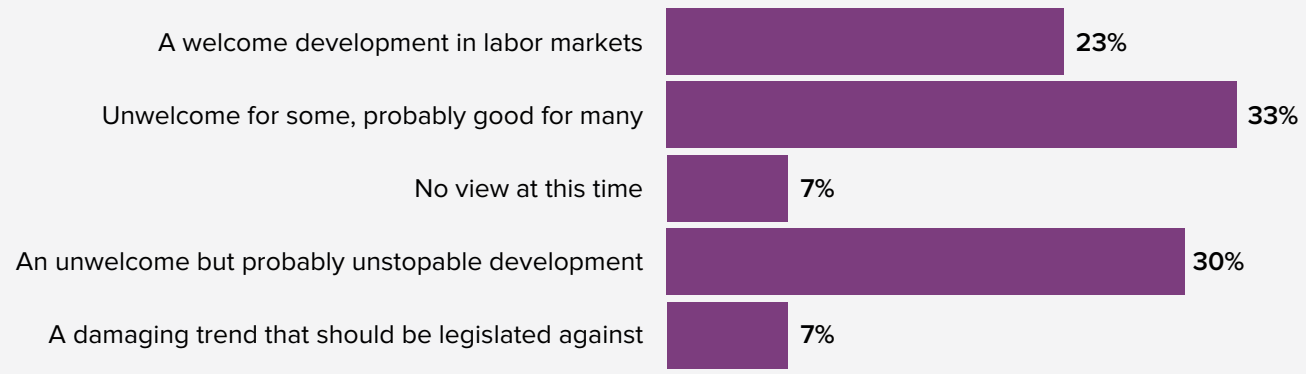
Official datapoints on irregular work are few. Attempts to size the gig economy often underplay three factors that can mask fragmentation of demand within even buoyant labor market data:

- **A "job" may just be gig work for a single employer.** Scheduling software such as Kronos Workforce Central 8 (launched in 2015)[8] can calculate exactly how many staff are needed for a store, hotel, hospital, vehicle fleet or distribution hub hour-by-hour. These tools are most effective with big – but on-demand – employee pools[9].

- **New models of day labor.** As cities such as Seattle respond to aggressive deployment of employees with "secure scheduling" legislation[10], the business case for apps such as Forge[11] develops. These sites maintain pools of temporary workers hoping for a shift each day. Again these uncertainly scheduled individuals can show as "employed".

- **Labor market leavers appear to be working in the shadows.** Participation in the US formal labor market has fallen to lows last seen in the 1970s[12]. Estimates now put the shadow economy at 9 - 10 percent of GDP[13]. Breakdowns of off-the-books activity in an OECD country show the bulk is in sectors driven by on-demand workers[14].

CHART 1: Initial views of irregularity at Design Group roundtables



Source: Design Group introductory sessions. Multiple-choice questionnaire, multiple entries allowed.

b) Categorizing the workers

Why do people work irregularly? British research suggests it can be helpful to divide irregulars into four groupings:

c) Drivers of irregularity

Acceleration of irregular employment seems to have followed the financial crisis that began in 2008. Structural issues now appear to include:

TABLE 1: Broad categories of irregular work-seekers

Cohort	Motivations	Outcomes being sought	Estimated % of US labor market (including shadow workers)
Core irregulars	These people can only work around other unpredictable commitments: medical problems, caregiving, complex parenting needs, studying, starting a home business, etc.	Plenty of work but at fluctuating times of availability. Progression in pay and skills and possibly a ramp toward steady employment if life circumstances change.	15% (Based on UK research[15]. Factors in the US seem consistent.)
Voluntary irregulars	Individuals in this group could do a traditional job but prefer the diversity of experience, networks and prospects of a personal portfolio of employers.	Often, variety and depth of learning while deciding on a career path. More generally, an escalator to higher paid, higher status bookings.	10% (Based on UK research[16]. This puts the figure higher but we have reduced it to account for the weaker US safety net.)
Forced irregulars	Many individuals want a stable job but can only get unsteady partial employment.	Immediate route into a job or – as second best – enough hours from a patchwork of employers to deliver target income.	10% (Irregular scheduling impacts 17%[17] of jobs but 7% can then regularize shifts.)
Occasional irregulars	Even people with steady income will engage in odd hours of extra work, often for "treat money" to cover vacations, costs of presents or to fund a family event such as a wedding.	Maximized income, probably from an undemanding role which fits around hours of conventional employment.	There appears to be no credible data on this group. Anecdotal evidence points to perhaps 2% of the workforce at any time.

Workforce Directors in our Design Group saw potential alignment with their targets in assisting Core irregulars. Only 17.5 percent of Americans with disabilities were employed in 2015[18]. Boosting that is a universal target. It may be that improved access to personalized hours of work could help individuals restricted by a medical condition to progressively build hours, networks and experience that lead to a job.

> *I recently went through a slew of resumes; some had only gig work with no experience in a regular job.*
>
> **WDB Manager, Florida**

- **Financialization.** Workers seem to be increasingly seen as a cost to be minimized rather than a strategic asset. Diminished collective bargaining may have a part in this.

- **New technologies.** These are seen in apps such as Uber or TaskRabbit, but probably more powerfully in corporate scheduling tools such as Kronos[19] which very efficiently allow a workforce to be called in, and sent home, exactly in line with hour-by-hour needs.

- **Rise of services.** Manufacturing typically requires recurring work as dictated by predictable hours in which machinery is operating. Services which are typically delivered more responsively account for 70 percent of private sector jobs[20].

- **Automation.** If a need for work is predictable and in one location it creates a job, but also a business case for automation. Nursing is an example: nursing homes create jobs but robots are already undertaking routine lifting, assisting and feeding to replace those employees[21]. Ad-hoc care at home is less contained, requiring human communication, ingenuity and limb flexibility (for example, to drive between appointments, ask neighbors for directions and climb non-standard staircases). It is more likely to be irregular work than predictable.

- **Personal preference.** As wages fail to improve or jobs appear threatened, there is a move toward extra work on the side in many communities. Other individuals want to take a break from, or completely get off of, the career ladder.

> *95% of our nurses moonlight.*
>
> **Healthcare Executive, Los Angeles**

Aside from these global drivers, local factors can incentivize a shift from traditional jobs to as-required workers. Mentioned several times in Design Group sessions were health insurance costs. These can encourage employers to cap weekly hours to restrict eligibility for coverage. As with other "efficiently scheduled" workers, individuals are often left seeking extra hours when a primary employer does not require them. A cultural shift among employers from traditional workforces to small core staff and rotating crews of ad-hoc workers was widely noted.

d) Scope of irregular employment

As demand for low-skilled workers splinters into blocks of hours, labor market boundaries become blurred. For this project, we wanted to recognize that a young mother summoned erratically by her hotel employer has similar issues to a 50-year-old male former factory worker who disengaged from the formal labor market to do off-the-books home renovations.

> *We do see our clients using irregular workers, particularly in logistics which is a growth sector.*
>
> **WIOA Services Manager, Georgia.**

Although in disparate official workforce categories, both these individuals are active in a labor market imposing enormous overheads on them. Each needs to avoid too few, or too many, hours of work in a given week. She may have to scramble for informal childcare whenever a shift comes up. He must prospect for clients and ensure their intention to pay. Safety nets taken for granted by previous generations are likely to be slim at best. It is reasonable to suppose both aspire to universal goals: dignity, control and progression in their work. Both lack meaningful data, tools and bargaining clout to enable this.

To frame the issues, and any solution, we defined irregular employment as:

> **Work outside the home with no contractual expectation of regular hours or income.**

This excludes ad-hoc work in front of a personal computer. Sites, now dominated by Upwork[22], allow web designers, translators, copywriters and others to view lists of potential projects, negotiate with the client then complete an assignment in their own time. Sometimes referred to as "*work in your pajamas,*" this kind of at-home freelancing has been separated out to provide clear focus. Our justification for removal is some key differences compared to work outside the home:

- **There is less of a problem.** Scheduling is rarely an issue in at-home work, as it is subject only to final deadlines set by the buyer. Misclassification is minor, these people are genuinely freelancers with little case for employee rights, and many could transfer to a solid job with ease. At-home freelancing is not a huge component of labor markets.

- **At-home work is rarely in the local economy.** Someone designing a brochure or preparing architectural drawings is more likely to be

serving a client on the other side of the world than the other side of town. Demand and payrates rest on global factors.

- **The skills mix is higher.** Top categories on Upwork are "Web/Mobile/Software development" followed by "Design & Creative."[23] People with these skills are generally doing well in today's labor market[24].

Our definition also excludes asset-based trading such as renting a room through Airbnb. Again, this activity is generally only available to an upper tier of citizens; you have to own an apartment where people will pay to stay. Aside from regulation, the market is little influenced by local factors and has nothing to do with workforce development.

Within "irregular employment" we see worker motivations ranging from financial survival to extra spending money. Other ways to categorize this workforce include:

- **Contractual status.** From corporate employee to independent contractor to illegal worker.

- **Regularity.** From semi-regular *("I need someone to staff my ice cream shop every Saturday morning this summer when its sunny"*) to one-time *("I need 10 people to pass out leaflets promoting today's event in this town"*). Some irregulars end up being called in ad-hoc for decades.

- **Number of employees or intermediaries.** From a gig enthusiast working for ever-changing buyers through 20 sites to an ex-employee willing to step in as sickness cover on viewings for one local realtor but otherwise uninterested in irregular employment.

- **Buyer motivations.** From a business with genuine need for unpredictable headcount to one perceiving that irregulars make better business sense than conventional employees

e) Growth of irregular employment

"We're doing a terrible job of measuring the modern workforce, and the feds know it," noted the *Washington Post* in October 2015[25]. Formal labor market data continue to count jobs, often assumed to be traditional, and labor market disengagement, with little recognition of a gray zone spanning both.

> *Our LMI [Labor Market Information] team doesn't see this as a problem. But our regional analysts see it.*
>
> **WDB Chief Exec., Minnesota**

The Design Group had increasing anecdotal evidence of candidates arriving at local Career Centers seeking ad-hoc or top-up work. But sizing irregular employment currently relies on unofficial indicators:

- Only 47 percent of respondents to a household finances survey reported predictable expenses and income month to month: Pew[26].

- Thirty-four percent of America's workers were in non-standard employment in 2014: Edelman Berland[27].

- Twenty to 30 percent of America's workforce engages in independent work (2016): McKinsey[28].

- Between 2003 and 2013 "non-employer businesses" (individuals doing pet sitting, appliance repair, etc.) grew in all employment sectors: Census Bureau/IRS[29].

- All jobs growth since 2005 has been in contracting gigs: Katz/Kreuger[30].

- Forty percent of Americans will be freelancers by 2020: Intuit[31].

> *Our labor force participation rate is expected to decline from 61% to 55.5% by 2030.*
>
> **WDB Executive, Tennessee**

Official datasets should emerge:

- The GAO is compiling a report on gig work and possible governmental responses at the request of Senator Mark Warner (D-VA).
- A census question last asked in 2005 about contingent work in households is being revived[32].

Both findings are believed to be due in summer 2017. It is unclear if either will build estimates of shadow activity into their reporting.

A rising tide

Rather than picturing irregular workers as a distinct part of the workforce, it can help to see irregularity as a force eating into all parts of the labor market. Workers can be active across traditional divisions. For example, a short-haul truck driver scheduled as-needed by his legitimate employer, then working at other times as a handyman paid in cash.

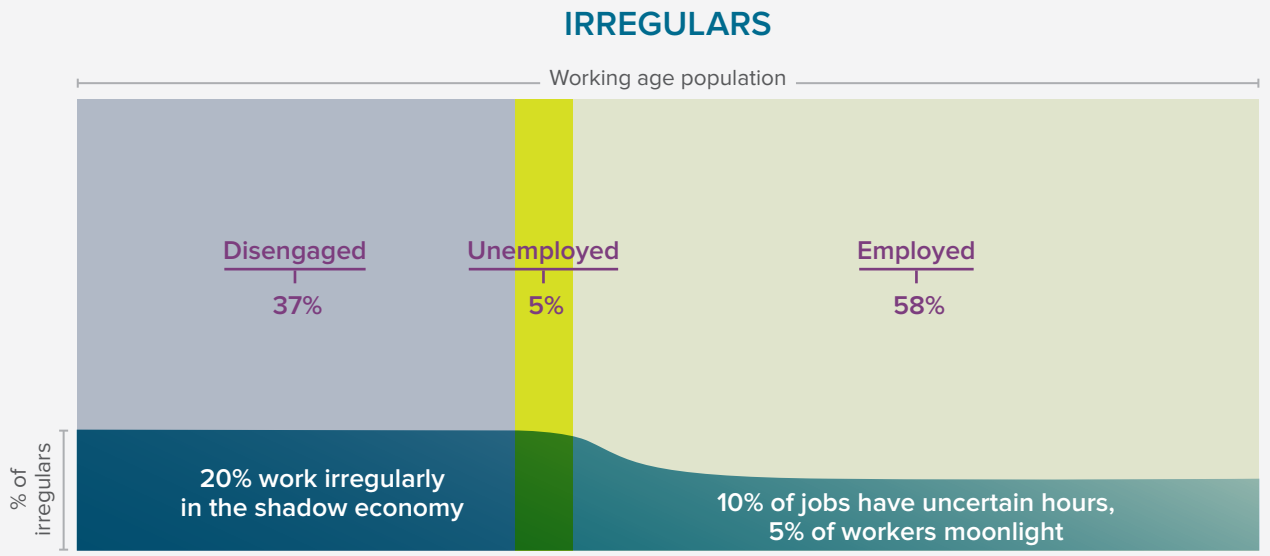
The intention of this chart is not to posit definitive figures. Rather, to use some defensible indicators to show irregular employment is rising and should not be regarded as a factor in only one part of labor markets.

The tide of irregularity would be much higher if the diagram below was limited to women[38], minority[39] or low-income households[40]. All are disproportionately involved in irregular employment rather than a traditional job.

> *There's an appetite for something new here. The governor really wants to help Detroit and Flint.*
>
> **WDB Executive, Michigan**

There is also latent irregularity for many workers who consider themselves in a solid job. In an economic downturn they may find their employer activating a dormant contractual ability to deploy staff only for the exact hours required.

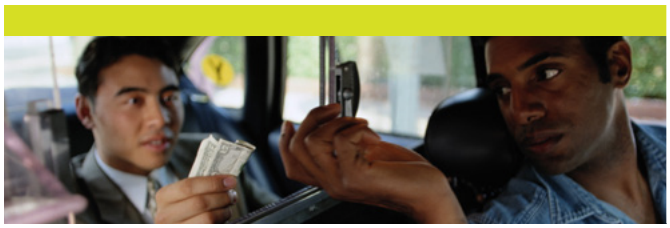
CHART 2: The rising tide of irregular employment



Data: 20% work irregularly in the shadow economy. Unreported income is notoriously difficult to size. A 2011 survey estimated up to 40% of the US labor force were earning under the table[33]. Measures such as cash-in-circulation[34] and estimating worker activity[35] reinforce such a figure. We have taken a conservative approach after excluding regular patterns, work-at-home and asset trading.

10% of jobs have uncertain hours. Economic Policy Institute 2015 research[36]. Authors note the figure is "likely low." (Rotating and split shifts have been excluded from this figure because they may have overall certainty of hours.)

5% of workers moonlight. Bureau of Labor Statistics data from end of 2013[37].



2) The current state of irregular employment

Commoditized workers, controlled by algorithms, have been hugely profitable for investors and employers. But workers typically lack benefits, progression or security. Stresses result.

a) Shadow activity

On-demand work is often mistaken for a largely online phenomenon. In fact, at least twice as many workers report arranging transactions without a computer[41]. Touting for bookings can include asking around neighbors for tasks, advertising in a shop window or dropping in on local businesses.

The majority of this work is likely to be paid under-the-table with no regulation, protections or tax. The shadow economy is defined as activity that would be legal if regulated and taxed. It is distinct from the criminal economy. Recent estimates of the US shadow economy suggest growth since 2008 to around 9-10 percent in 2015[42]. This is smaller than other developed nations but researchers note a strong correlation between growth of shadow activity and falling labor market participation[43] as well as both inequalities in income[44] and chances of personal poverty[45].

Breakdowns of shadow activity in developed countries show it is heavily skewed toward sectors reliant on irregular workers.

There is a gamut of shadow work arrangements. Some could be considered benign for the worker. Examples include "envelope wage" covering extra hours by an otherwise legitimate employee, family members paid to support relatives, or the friend of an employee covering peak hours in a small business knowing they will be first in line for the next job opening.

REPORTING GIGS

Diverse media outlets have covered the realities of a new world of work:

There are just too many bad gigs in the gig economy.
Guardian: 12/18/2015

These platforms show their workforce no allegiance or loyalty, and they engender none in return.
Medium: 4/1/2016

The growing power of online platforms is worrisome.
Economist: 5/28/2016

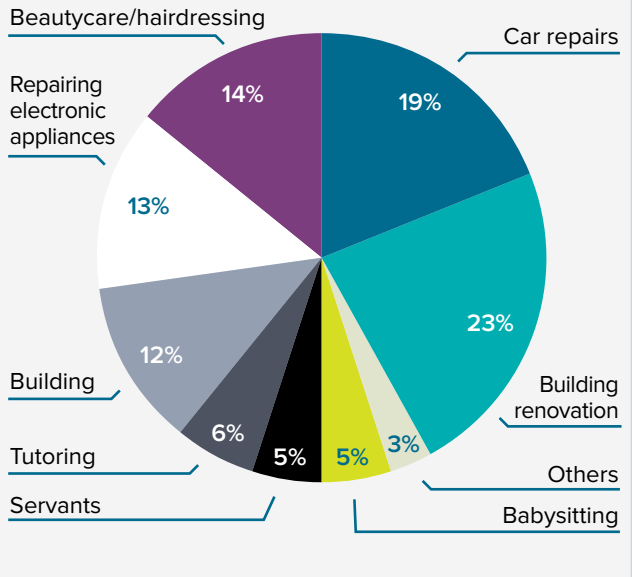
Forget about a secure future: Today's jobs don't even offer a secure present.
Bloomberg.com: 6/2/2016

Silicon Valley tends to venerate mildly deceptive tactics when they're used in service of a scrappy upstart.
Bloomberg Businessweek: 8/22/2016

By controlling the platforms that link buyers and sellers, producers and consumers, these companies are able to use their leverage to extract disproportionate fees from either end.
American Prospect: Fall 2016

These companies have discovered they can harness advances in software and behavioral sciences to old-fashioned worker exploitation[.]
New York Times: 4/10/2017

CHART 3: Structure of undocumented work in an OECD country[46]



The worst aspects are embodied in day labor: men clustered in parking lots at 6:00AM hoping a minibus will materialize to transport some of them to a shift on a construction site are a recurring image. As with much of the shadow economy, details are skimpy. But withholding of wages, absence of health & safety basics, even lack of a return journey have been evidenced in this world[47].

Any shadow work creates a slope toward criminality. It can leave participants wary of engagement with the workforce system or other perceived officialdom for fear of detection[48]. More generally, shadow economies create unfair competition for businesses playing fair. Our Design Group noted a new emphasis on economic development mandated for workforce institutions. Enticing activity from the shadows would fit this remit.

Shadow activity is not exclusive of online work-seeking. Gig platforms typically leave sellers to resolve their own tax affairs resulting from any earnings. It is defensible to suggest much of this goes undeclared.

b) Evolution of scheduling

Millions of corporate employees woke up this morning not knowing if they would be called into work or not. If called in but unavailable, because of work elsewhere or family commitments for example, unforgiving algorithms stand ready to penalize them when future shifts are assigned.

This is the logical conclusion of industrial efficiencies from ERP (Enterprise Resource Planning) software. Corporations have computerized supply chain management, purging costs and introducing just-in-time responsiveness. For a Financial Director under competitive pressure, that leaves staffing as a huge, imprecise, relatively unmonitored cost.

The dominant player solving that problem is Massachusetts-based Kronos Inc. Their Workforce Central 8 product set a record for takeup[49]. Without a customer relationship it can be hard to see exactly how such a tool can be configured to deliver people so cost-effectively hour-by-hour. It is reasonable to assume, for example, that a retailer can use it to digest point-of-sale data, weather forecasts and historical footfall to schedule this afternoon's shift. It may also crunch store profitability in real time, even the stock price, to achieve perfect alignment with its target metric: staffing costs as a constant share of fluctuating shop revenue.

Software like Kronos will typically accommodate shift swap requests and other facilities for workers that don't impede optimal scheduling. But reports suggest these tools incentivize managers to hire large workforces and then deploy them on-demand, rather than create traditional jobs[50].

Income may fluctuate. Expenses often don't. Uncertain scheduling can leave workers searching for additional work to fit around a primary employer's fitful needs. Personal issues associated with this kind of employment include household conflict, stress and withdrawal[51].

Some companies, led by Starbucks and Walmart, have agreed to balance this kind of scheduling with the needs of workers, for example by allowing longer-serving staff to opt into regular hours[52]. But

there is competitive pressure on large employers to exploit the one-sided efficiencies offered by a new generation of scheduling tools.

> *I see the movement to fluid employment as unstoppable.*
>
> **Community college principal, Bay Area**

c) Evolution of marketplaces

For centuries, odd hours of work have been found by word-of-mouth, paper flyers and classified ads. A catalyst for the move online was Craigslist, a crude but free classified ad site founded in 1995[53]. It has been largely superseded by niche forums with better design, significant marketing budgets and a range of business models.

Attracting large numbers of buyers and sellers to one of these online labor exchanges – typically using advertising and initial price subsidy – is enormously costly. But markets that then dominate a specific vertical niche can be exponentially profitable: mini-cabbing colossus Uber was the world's highest valued private company just six years after founding[54]. Investors pour billions into many thousands of competing attempts to be *"The Uber of…"*. For example the Rover website, set up by a Seattle venture capitalist, has attracted $90 million to become a global platform for dog-walking[55].

These markets are more convenient than canvassing, pinning posters to lampposts or local hustling. They can be useful. But if they are to be as profitable as possible, they cannot be genuinely built around the interests of workers. Business models are often controversial, relying on workers without protections or benefits seeing up to 30 percent of each payment retained by the site.

A work-seeker can register on as many of these markets as they wish. There is no guarantee of bookings. Most sites allow an individual to stipulate times they are available –either with a weekly pattern or by clicking a button when they seek bookings and re-clicking it when they are no longer on hand for buyers – and a city or area in which they will work.

A buyer seeking, say, shopping collection, is either (a) shown a list of possible workers and invited to approach them to negotiate a transaction, or (b)

TABLE 2: Sample 24 online marketplaces for irregular employment

Niche	Marketplaces
Home beauty treatments	Stylebee
	Glamsquad
	Styleseat
Home services	Bidwilly
	Agentanything
	Thumbtack
	mila.com
	Lawnlove
Babysitting/ caregiving	SitterCity
	Sensiblesitters
	Care.com
	Urbansitters
	Homehero
	Honor
Tutoring	Takelessons
	Skillshare
Gigs for formal employers	Wonolo
	Shiftgig
	Gigwalk
Deliveries	Saucey
	Orderup
	Amazonflex
	Caviar
	Sprig

Marketplaces listed appeared to be operating as of Feb. 2016. Some had only regional coverage.

told which worker will do their booking, often for a fixed price. Work-seekers are informed by an alert on their phone of a booking with completion monitored through the buyer's acceptance. Workers can expect to be rated by the buyer after each assignment.

> *There's a lack of knowledge [in the workforce system] about how the economy has changed.*
>
> **WDB Executive, Los Angeles**

d) Issues for irregulars

Some people blossom in today's world of irregular working. Many use combinations of channels to piece together enough hours to live. But how is this broad population faring? Risks for shadow economy workers are well known: it seems likely these factors grow in proportion to their undocumented activity. Boundaries for variably scheduled employees will largely be determined by (a) their contract with the employer; and (b) the capabilities of whatever system is running that particular human supply chain.

It is the current structure of web marketplaces that offers immediate insight into how irregular employment can work against the worker in new ways. Some key issues:

- **Classification.** This is the best known problem around gig work. Marketplaces typically want to enforce quality of their brand, which means directing workers how to behave, the hallmark of an employer/employee relationship. But employee benefits such as healthcare are a brake on profits, so laborers must agree to work as independent contractors. This issue is before courts in several jurisdictions[56].

- **Arbitrary pay cuts.** In January 2016, when Uber slashed its workers' payrates[57], its stock price continued to climb. Delivery app DoorDash dropped pay from $6 to $5 per delivery[58]. In March shopping delivery site Instacart hacked its payments to workers[59]. At the end of 2016, TaskRabbit quietly doubled its cut of buyers' payments for many transactions[60].

- **Market closures.** Investors are fickle and can cut the lifeline of an exchange. Housecleaning marketplace Homejoy shuttered in July 2015[61] taking each cleaner's flow of work, track record of reliability and buyer relationships with it. A long list of gig economy failures includes: Washio[62] and Prim[63] (on-demand laundry), Cherry[64] (car washing), Kitchit[65] (cooking in the buyer's home) and Rewinery[66] (alcohol deliveries).

The ever-present peril of closure or pay cuts, plus a need to be exposed to as many buyers as possible, incentivizes workers to be available across multiple gig labor exchanges. This hedges risk. But it creates additional problems:

- **Overhead.** It can take time to get even an hour's booking. Postings may have to be scanned. Text messages probably need an instant response even though the one block of work has been offered to several other time-sellers simultaneously to ensure a buyer gets her needs met. There may be instructions to absorb or query. Working this way through a spectrum of incompatible screens and business models can be exponentially demanding.

- **Lock-in.** Each platform is usually working to keep its buyers and sellers from interacting

> *Ratings can be punishing. They can be really hard on first timers who do badly but don't get the chance to learn and improve because they get kicked out.*
>
> **Roundtable participant, Florida**

any other way. Workers using the Handy app for home-services for example are contractually forbidden to solicit work from Handy buyers outside the platform[67]. The individual can't cluster buyers with whom they have a good relationship in one place. Nor can they readily transport a good track record in one market to another. To exploit a record of reliability they have to stay active in all the platforms where they have a record.

- **Monitoring.** Data from this oversight of workers is crunched automatically, typically with pre-determined triggers for action. Good ratings from buyers can lead to enhanced display to future purchasers. Poor rankings may lead to suspension. Uber originally banished drivers with average reviews lower than 4.6 out of 5 stars[68]. Public pressure forced a more humane policy. But few sites offer appeal to a manager, consideration of mitigating circumstances or transparent processes. This unrelenting monitoring makes it hard to trade across multiple markets. If you are off doing a booking from Market A when Market B needs you, A's algorithms will downgrade you mercilessly.

- **Inconsistency.** If cleaning a house for 2 hours, are you allowed to use the bathroom? Some platforms permit it, while others consider it cause for removal[69]. Trying to hedge risks by being active in multiple marketplaces can require a lawyer's appetite for conflicting small print.

Selecting markets in which to expend effort building a valuable track record is haphazard. Data about transaction volumes, precise geographic spread, utilization of sellers or upcoming deals that would inform a choice are all but non-existent. Subtle ways in which online markets can be manipulated to benefit the operator are still emerging. Irregular work forums are particularly sensitive to this because of the complexity often made opaque behind simplified displays[70]. Again, it's hard to know what's going on.

Assume, for example, an interest in fueling cars on demand. Does a worker bet on the eventual dominance of Filld, Purple, FuelMe, Neighborhood Fuel, WeFuel, GasNinjas, Yoshi or Fueldrop as the motorists' marketplace of choice? Or wait to see if a heavyweight player launches in this niche (as Uber and Amazon did in food delivery)? Sophisticated Silicon Valley investors with research teams are uncertain and placing conflicting wagers. Someone just seeking work this afternoon will probably end up on whichever labor exchange happens to be spending most heavily on particular keywords in Google search advertising today. On-demand gas is one of hundreds of sectors that could provide a flow of bookings.

e) Attempts at mitigation

Job-seekers have the public workforce system and decades of case law on their side. For irregulars, Uber, TaskRabbit, Instacart and their ilk are *de facto* labor market institutions. This is reflected in the way they have been consulted on the future of work by officials. Comparable intermediaries in the jobs market (Manpower, Adecco, Kelly Services and others) tend to attract less respect from policymakers.

This situation has fostered a spectrum of attempts to solve problems for irregulars (see Table 3 below).

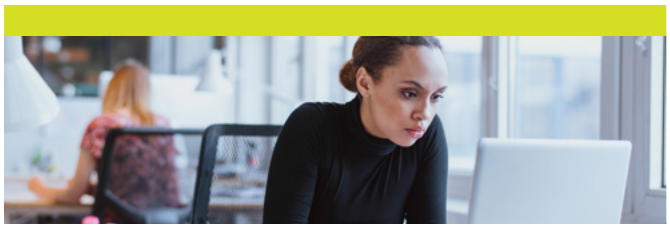
Attempts to tackle irregulars' problems face headwinds. Business lobbies can oppose increased protections or enhanced conditions, a stance predicted to find favor in the Trump administration[80]. Gig markets ringfence their data and users aggressively, and many have proactively breached existing regulations. They are unlikely to be willing partners in additional layers of costly worker protection. Many individuals want or need very fluid work and can be hurt by measures aimed at protecting forced irregulars.

> *I play by the rules. It sucks.*
>
> **Staffing agency boss, Florida**

More so than in jobs markets, shadow economies are often a buoyant, easily accessible bypass to inconvenient paperwork or restrictions. Their growth correlates to increasing regulation[81], creating unfair competition for legitimate, job-creating businesses.

TABLE 3: 10 solutions for irregular work problems

Category	Solution	Notes
Policy solutions	New worker rules	Groups like Tech:NYC propose a hybrid category between "W2" (employee) and "1099" (freelance contractor)[71]. This could follow Canada in a "Dependent Contractor" status. Independent contractors are being allowed to unionize in some US cities[72].
	Portable benefits	Writers like Nick Hanauer and David Rolf propose benefits accounts for sickness, unemployment insurance, etc. independent of formal employment[73].
	Fair scheduling acts	Diverse groups are campaigning for ordinances restricting employers' right to schedule at short notice[74].
Legal solutions	Court challenges around misclassification of workers	A prime mover is Shannon Liss-Riordan, a Boston attorney pursuing multiple cases against gig economy companies[75].
Commercial solutions	Shift swopping communities	Crew, Shift Messenger, Shyft and their competitors allow workers to exchange shifts that have been dictated by a scheduling system.
	Worker reputation aggregators	Karma, Traity or competitors aim to extract a worker's reputational data from multiple sites to create unified verification.
	Administration tools	Hurdlr, Sherpashare, Zen 99 (defunct), Benny and others bundle the kind of services employees get from an HR department for irregulars.
	Empowering intermediaries	Software such as workgenius[76] supports human recruiters in quickly filling hourly positions.
	Increasing income stability	Dispatcher aims to gather pricing data from competing platforms to identify where an individual can best sell his or her time[77]. Hybrid financial products for irregulars are touted[78].
Alternative models	Platforms aiming to empower workers	Managed by Q, Zirtual, Shyp and others hire conventional staff and deploy them on short-term assignments. Juno claimed to empower minicab drivers[79]. UP&GO will sell housecleaning in New York City retaining only 5% of charges.



3) Another choice: Public markets

Services to support job creators and seekers cost taxpayers billions. With bipartisan support, they have evolved to include online markets offering an alternative to purely commercial job-banks. Including irregular employment in those services could have a profound impact.

a) Workforce agencies: a sleeping giant?

American exceptionalism runs through workforce development. Walk into one of America's nearly 2,500 Job Centers (also known as "One Stop Centers" or "Career Centers")[82] in search of a better career and you are able to view a menu of free support, training, employer relationships and locally gathered data predicting opportunities sector-by-sector. Costing taxpayers some $3 billion a year[83], the Public Workforce System is widely credited with helping American employment bounce back from the 2008 crisis significantly faster than other developed countries.

This system is devolved. Dollars flow from the US Dept. of Labor (US DOL) to State Workforce Agencies with target outcomes agreed upon annually. Funds then cascade to state, city and regional WDBs who negotiate performance metrics based on local conditions.

As part of a commitment to lubricate employment, every state commissions an online public market for jobs. This is available free to any employer and any job-seeker in any sector. Examples include Alabama Joblink, Employ Florida, Caljobs, Jobcenter of Wisconsin and Ohio Means Jobs. These services typically provide listing/matching/tracking functionality found on most commercial job sites plus tools specific to government such as Labor Market Information compilation and services uniquely for veterans, disabled workers, youth or other target populations.

PUBLIC JOB-BANKS: A BOLD STEP

A 1996 US DOL memo highlights an extraordinarily innovative chapter in employment services. Addressed to state employment security agencies, it announced state-of-the-art tools for a national Internet market in jobs initiated by the public sector.

The service had launched a year earlier when only 13% of US households were connected to the fledgling internet.

"America's Job Bank" preceded most commercial job boards. Built efficiently by the private sector with US DOL funding, it allowed candidates to build resumes and be matched against openings posted by any employer.

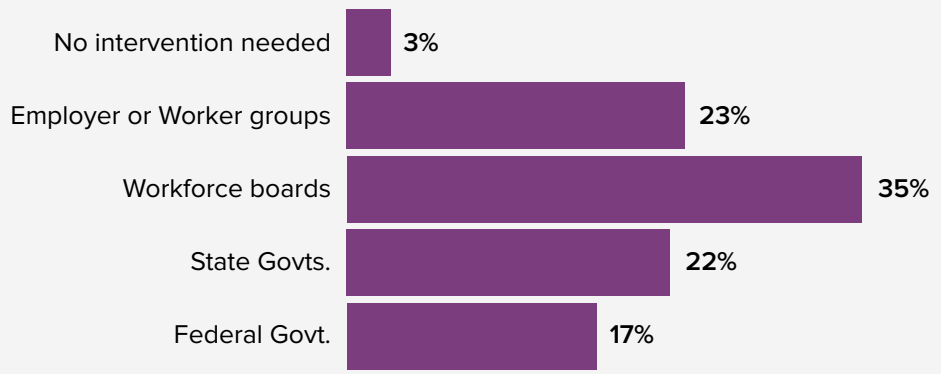
By 2004 America's Job Bank had reached 2.7 million job postings and 2 million resumes. It had become one of the nation's leading career sites, specializing in recruitment of low-income and disadvantaged groups.

Citing a funding shortage, US DOL announced plans to retire the national job bank in 2006. In mid-2007 it transitioned to a commercial service.

In parallel with the national job bank, states launched Labor Market Information technology and systems that aggregated local openings from as many job boards as possible.

The end of America's Job Bank led to today's situation where every state has its own public online market covering any job at any legitimate employer.

CHART 4: Stakeholders' views on sources of support



Source: Design Group roundtables, Sept.-Dec. 2016. Paper questionnaire. Multiple choices permitted.

Commercial recruiters often chose to exploit a public job market, posting vacancies and sourcing candidates while adding their own fees. The public system is just a freely available utility with no agenda beyond labor market growth and alignment

From 2014 to 2016 the workforce system moved to a new focus defined by the Workforce Innovation & Opportunity Act (WIOA)[84]. This mandated a dual focus on labor markets and local economic growth. WDB board members, appointed by governors, mayors or supervisors, were to include at least 51 percent local employers. WIOA doubled down on the traditional view of employment running through the workforce system. Key targets measure job retention, formal credentials, career development and attraction of jobs.

For anyone concerned about irregular workers, this was unfortunate. State agencies, workforce boards, community colleges and other components of the workforce system (collectively labeled "WDBs" in this report for simplicity) have unique facilities they could bring to the fragmenting lower end of labor markets:

- **Relationships.** WDBs have staff regularly visiting employers to discuss skills and hiring. They commission local training providers. Employment charities, labor market intermediaries and worker networks interface. Connections to decision makers running local public sector employers run deep. If a WDB wants to convene diverse stakeholders who could each play a part in sparking a new model for irregular employment, it may only take one message to the Chief Executive's email list.

- **Credibility.** WDBs aren't necessarily the most dynamic entities in a state or city economy. But their ethos is hardwired. It is the opposite of a mindset that locks in workers, slashes payrates, imposes new charges without consultation, secretes data, aims to obliterate alternative services and spends heavily to resist improvement to workers' conditions. Where online services are beholden to investors, often demanding Uber-like returns, WDBs are accountable to local officials who can be voted out. Any facility from the workforce system may be viewed as lacking fire, but WDBs' even-handedness and openness could make them a refreshing choice, expanding everyone's options.

- **Solidity.** Online markets can evaporate overnight. WDBs are statutory entities.

Our Design Group for this project involved a collection of WDBs willing to commit resources to an issue many sensed coming in from the periphery. We looked at what the workforce machine might do if it tilted toward "*full-spectrum employment support*", focusing on jobs of course, but also bringing its distinctive aims to non-standard employment.

> *We're just not there for these people. You come to us when you're ready for a career. If you're struggling economically you are more likely to be interfacing with Dept. of Families & Children, Vocational services or Welfare services.*
>
> **WDB Chief Exec., Bay Area**

b) Why public markets?

Thinking about how to improve irregular employment did not start from the premise of technology or a public marketplace. We pondered potential interventions that could improve prospects or standards. Originating in thinking within UK pilots, but covering schemes active in the US and elsewhere, the list covered 7 categories:

TABLE 4: 40 possible interventions to support irregular workers
"IW" = Irregular Work(ers)

Category	Intervention	Explanation
Legislative controls	Fair scheduling	Prohibitions on just-in-time sourcing of employees. May involve opt-outs, e.g., for voluntary IWs.
	Challenge misclassification	Measures to ensure IWs controlled as employees receive employee rights/benefits.
	Temps-to-jobs	As in the European Temporary Agency Worker Directive: after a specified number of weeks of contingent work the person gains employee rights.
	Mini-jobs	As in the German model, structures to regularize small – but usually regular – weekly hours.
	Integration with welfare	Public assistance interfaces with IWs to incentivize activity and simplify reporting.
	Shadow amnesty	IWs often have a track record in illegal shadow economy working. They can then fear official schemes. Tax write offs have been suggested.
	Day labor regulation	Day labor companies are often borderline in their worker protections. Inspections can help.
	Procurement controls	Any company hoping to contract with the public sector must adhere to code of good practice for contingent labor.
Employer-led schemes	Guaranteed blocks	Recurring weekly blocks of work are committed to each worker with possibility for selling additional hours to the employer.
	Guaranteed Hours	Given number of hours are committed for each worker but no guarantee of their timing.
	Anchor Employers	Employers agree to proactively share their reliable IWs with other relevant employers, possibly acting as employer of record.
	Training	Employers agree to fund induction or training for IWs meeting specified criteria (e.g. number of engagements).
	No-penalty	Commitment to not penalize IWs for non-availability for on-demand shifts.
	Track record release	IW gains authenticated documentation of shifts/performance for release to other employers. Employers undertake to provide references.
	Mentoring	IWs earn reviews or mentoring from a line manager, perhaps after meeting bookings criteria.
	Progression ladder	Performance of each IW for the company monitored with commitment to internal training/job openings for reliable individuals.
Demand side support	Demand stimulation	Promotion of schemes increasing need for IWs, e.g., on-demand breaks for family caregivers.
	Sector development	Economic development support for sectors likely to create quality IW opportunities (e.g., small hotels).

	Good employer award	Code for hire of IWs established and badge awarded to compliant employers.
	Mediation	Forum for IWs to report bad practices by employers with investigations and publicity.
	Meet the Employer sessions	Employers who might use IWs at peak times given a forum to interact with local IWs and shown business case for deploying IWs.
Supply side support	Micro-entrepreneur support	Training, business planning support or loans for essential tools to start a micro-business selling hour-by-hour services in a given sector.
	Training for IW	Soft skills for gig workers, possibly aligned with standards like the National Work Readiness Credential. Samaschool runs courses with WDBs.
	Micro-apprenticeships	Subsidized bookings for IWs along a pathway e.g. to store management in retail. Bookings must progress through departments or skills.
	Cashflow amortization	Loans to cover troughs in cashflow for IWs week to week.
	Union flexibility	Work with unions to create new models/services for IWs.
	Grading of workers	IWs with proven track record of reliability/sector expertise gain certification.
	Childcare	Assistance with childcare to cover IW assignments.
	Earn as Learn	Scheme within community colleges supporting students with work opportunities around studies.
	Peer networks	Groups of related IWs offered paid organizer and meeting space for mutual support.
Ladders into irregular work (from no work)	Guaranteed first bookings	Workers meeting criteria (e.g., long term unemployed) are guaranteed initial bookings from a ring-fenced budget for low-skilled work[85].
	Navigator support	Experienced IWs trained to support new IWs and monitor progress through pro forma reporting.
	Failed bookings alerts	Any IW genuinely available and not booked after specified period qualifies for support package.
Ladders out of irregular work (to a job)	Job ready database	Provably reliable IWs are displayed on a website specifically geared around employers seeking job candidates.
	Career lattice	Guidance and employer introductions for IWs seeking ramp to stable employment.
	Start up help	Support and links to finance for IWs wanting to start a business outside their IW activity.
	Referencing authority	IWs given verifiable online booking history and independent reference after interview (for job hunting, housing applications, credit scoring, etc.)
Infrastructure for irregular work	Data collection	Project to estimate size and demographics of local IW. Possibly drawing on range of interviewees.
	Portable benefits	Personal accounts, independent of an employer, covering sickness, unemployment insurance, etc.
	Admin. tools	Unified system to manage tax reporting, learning accounts, time management, etc.

The group's consensus about this list:

- There are so many interventions that could work for different people/situations at different times. The aim should be to keep options open rather than commit to any specific scheme.

- Keeping costs minimal is critical. Any facility from the workforce system should make self-service the default mode. Beyond that, any specific support has to be targeted and administered with enormous efficiency.

- The core issue for irregular workers is quality of marketplace. Someone used to steady jobs will come into the labor market every few years when it's time to move on. An irregular can be in and out several times a day in search of their next booking. The way their market is constructed, whose interests it serves, its breadth and depth, the data it shares, overheads it extracts and facilities it offers all determine the person's opportunity.

- For any foundational intervention to be sustainable it has to be technology based. Irregular work bookings are among the most complex transactions in any market. Traditional temp agency models of staff making arrangements by phone or email are unviable.

> *Customers coming through the One Stop now are typically looking for regular work.*
>
> **Career Center manager, Oregon**

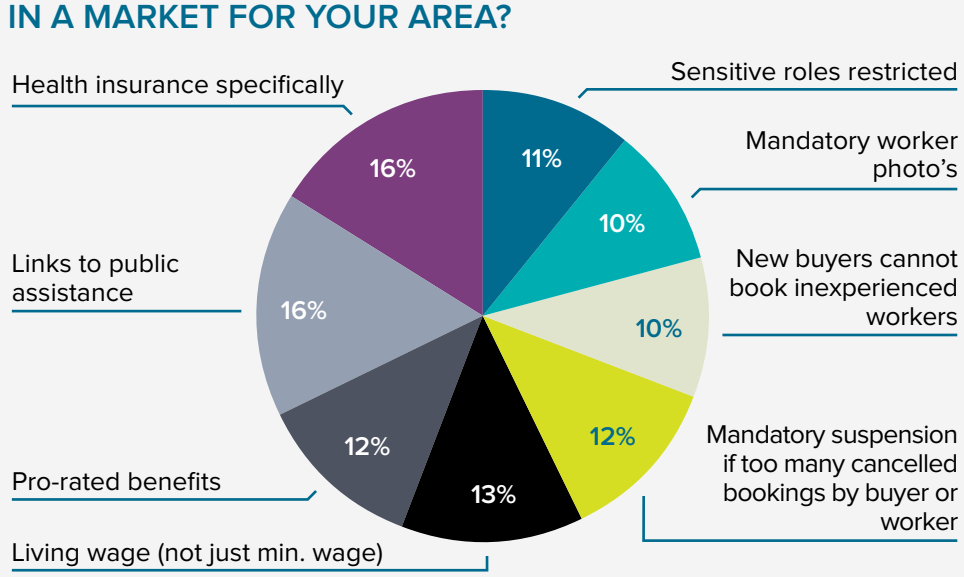
Distinctiveness of public markets

As in British thinking, this leads to public job markets as a template. These services are cheap, relative to costs for support otherwise required for many candidates. Their data and tools can enable an array of targeted support initiatives.

There are occasional suggestions that states not run public job banks because there are so many commercial alternatives[86]. But the cost-cutting potential of these services attracts bipartisan support. Public markets take overhead out of the employment search and ensure self-service is always a first option for job-seekers, even for commercially unattractive candidates.

If taxpayers in search of regular employment or traditional employees are to have a public market, is it justifiable to deny the same choice to citizens and businesses seeking irregular arrangements? That cohort may be less visible through the current workforce development lens so there has to be clear justification for providing any service. The group's view was that a public option for irregular employment would have to:

CHART 5: Stakeholders' view of functions within a public market



Source: Design Group roundtables, Sept.-Dec. 2016. Paper questionnaire. List of options ranked by participants with option to write-in additions.

- Embed the ethos of workforce development: skill-building, alignment, local economic competitiveness and accessibility of work.
- Be distinctive from commercial services.

This led to a broadly agreed specification for the best possible facility:

TABLE 5: 20 criteria for a public market for irregular work

Functionality for:	Should enable:	Notes
Workers	Control over hours	Individuals decide exactly the times they can be available for work; today, tomorrow or in future. There is no expectation of confirming to a weekly pattern (but that remains an option).
	Control over bookings	Each person decides how far they will travel and how much notice they need for a period of work. Minimum session lengths and other parameters can be set.
	Control over rates	Workers can set their own hourly rates including pricing higher for disliked buyers.
	Ability to progress across types of work	Workers can make informed choices between different types of work, raise their rates for in-demand roles and progress to higher paid options.
	Portable benefits	People selling their time are able to do so with a labor market intermediary acting as employer-of-record, delivering insurance and benefits.
	Routes out of market	Track record in the market is easily verified and portable to any other market. Transitions to employer/employee relationships fostered.
Buyers	Speed of booking	Buyers instantly see genuinely available, willing, vetted, legally compliant, priced workers for each requirement. Risk of transaction failure minimized.
	Fostering a pool of approved workers	Buyers can create direct contractual relationships with selected workers, possibly with fixed pay rate offered. (This incentivizes training.)
Intermediaries	Control over terms	Employment charities or commercial recruiters can vet workers into the market, adding a mark-up.
Compliance	Minimum wage	Localized legislation is universally enforced.
	Interface to tax	Tax is factored into bookings, possibly deducted.
	Restricted hours	Controls on young workers or working time enforced.
	Health & Safety etc.	Full regulatory compliance. Protections enshrined in market contracts with responsibilities clear.
Governance	Transparency	All rules governing the market published openly.
	Accountability	Market rules set by accessible panel or body.
	Local control	Market is run to reflect local economic situation.
General	Support interventions	Market must be able to effectively target, administer and monitor a full spectrum of schemes.
	Data openness	Aggregated data on activity/pricing/trends available.
	Low overhead	As the market prices with tax and needs to incentivize intermediaries its own charges must reflect cost of operation, not maximized possible profitability.
	Work with external markets	External irregular work platforms can interface into the market, adding value and charges for their users.

Significantly, the private sector has not commissioned a service like this despite billions of investment in irregular labor forums. Requirements above describe a public utility; transparently creating equal opportunity, with no lock-in, giving away its data and extracting only running costs. This will not excite for-profit backers.

Operation across multiple sectors is vital if workers are to seamlessly progress to higher paid or more stable types of work. But marketing costs across so many niches would be astronomical for a company or charity. Irregular work is a localized market; few people will travel a significant distance for a booking. WDBs are unique in the ease with which they can pull together their employers, workers and labor market organizations – without need for a commercial return – in any one area.

> *As a state board, we are absolutely not involved in this workforce. We are focused on major industries and sector strategies mandated by WIOA plus a state initiative to identify high-growth industries.*
>
> **Director of WIOA Services, Georgia**

To further boost the case for public markets: Aside from additional tools there is little to distinguish the structure of public job banks from private sector equivalents. But in irregular work, public markets, if launched successfully, could be radically different in their structure.

c) A distinctive option: "Stored Availability"

An "online marketplace" is often assumed to be generic. In fact, a variety of mechanisms for transacting over the Internet have emerged, each with its own strengths. Forums to trade collectible soft toys, for example, are usually built around an auction; nobody is in a hurry to purchase and uncovering the optimal price for each sale is paramount. But an auction would be pointlessly time-consuming for groceries, products are standardized and swift buying is key. A fixed-price catalogue is the best mechanism for a market.

In labor markets classified advertisements are a dominant mechanism. Ideal for job boards, this kind of site will allow a user to search, for example, "Accountancy, Dallas". It then displays every current job offered by an employer so candidates can email applications. The advertisement in each case is just the starting point for a transaction. Filling a job is high-touch; the parties invariably expect to meet and conduct final negotiations and contracting offline.

Although widely used by contingent labor sites, this time-consuming negotiating process is not ideal for a booking lasting only a few hours. Other sites have developed a fixed-price mechanism that algorithmically allocates a worker to a task then ensures the person chosen does as instructed. But there is an empowering mechanism for trading timeslots of widely varying resources that remains hard to commercialize in labor markets. Sometimes called Stored Availability, most of us have experienced it outside work when booking a vacation.

As the travel industry moved online, airlines, hotel chains, rental car companies and other providers progressively collaborated to enable a "Global Distribution System" (GDS). This underlying database stores (a) details of each seat on a future journey, each hotel room and each vehicle; (b) current availability of that asset; and (c) how it is to be priced to maximize the seller's income.

When we book through Expedia, TripAdvisor, Booking.com or other consumer sites, they are drawing data from the GDS and then amending its availability records as we purchase. Consumer sites add their own mark-up. But the GDS is so ubiquitous, low-overhead and dependable that it makes sense to build services on top of it rather than try building a market from scratch[87].

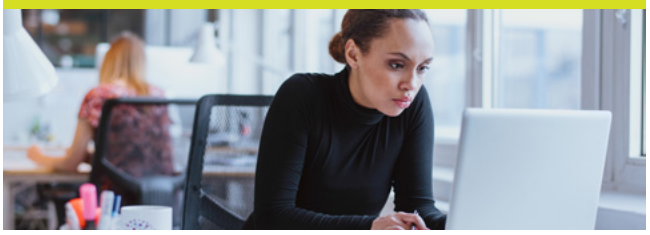
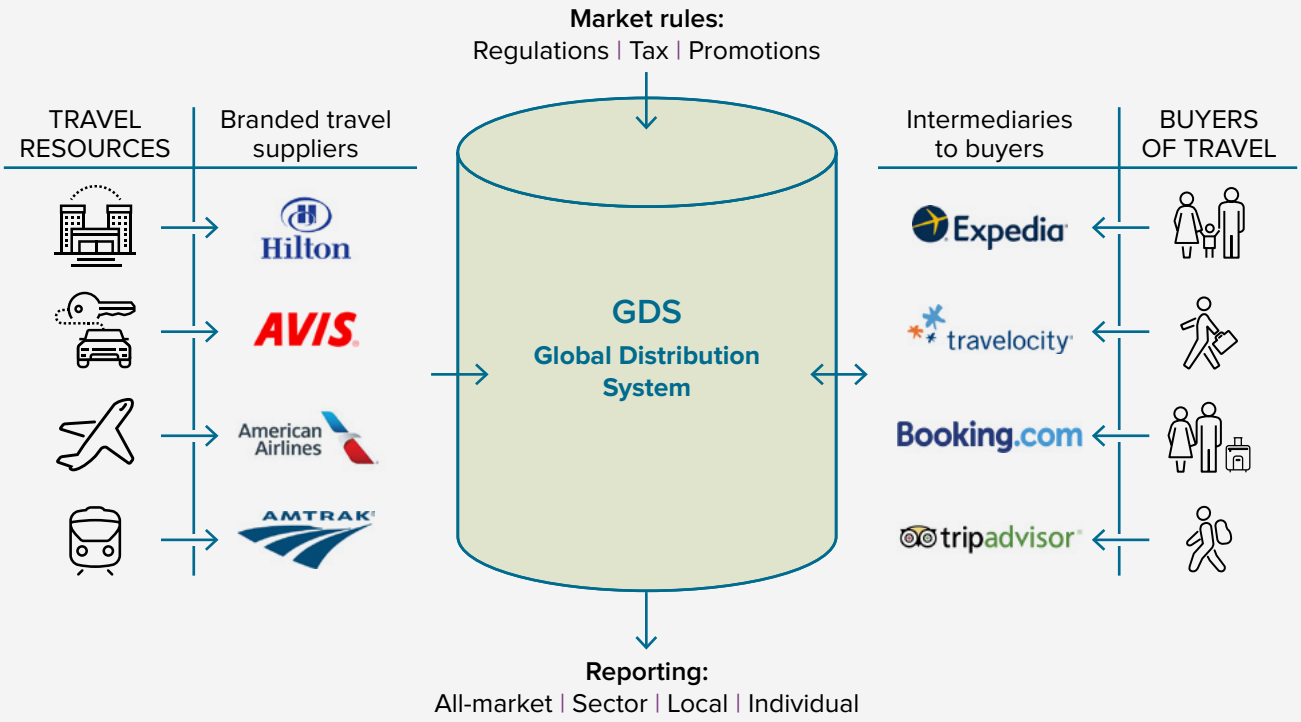


CHART 6: How travel is sold online: Stored Availability



Brands shown are among hundreds sold through the travel industry's Global Distribution System.

Source: Travel industry training manuals.

The GDS is a high-tech seller co-operative in which individual providers set their terms. Because it handles the entire process of searching, matching, pricing and contracting online it captures granular details of each transaction and each unfulfilled need. Actionable data on utilization, pricing opportunities, buyers to target and trends flows constantly to the supply side.

A Booking.com user seeking a weekend in Hawaii is not offered vague adverts for hotels that *could* have availability. Nor does the site just tell her where they have decided she will stay and how much it will cost. Drawing on GDS data, Booking.com lays the market bare; showing every genuinely available option, fully priced and ready to book. A regular user can click instantly on a branded option knowing she will get what she's paid for. A price-sensitive traveler wanting to understand the market can make a more leisurely and informed selection.

Consumer travel sites have nothing like the power of gig work platforms. They can't individually dictate prices because sellers are exposed to such a wide market, nor do they own sellers' data or trading records. If one of them collapses it may barely ripple for sellers.

But the GDS has also been good for buyers. It instantly exposes a deep, fully priced market for any travel destination and dates. Booking is immediate and assured, since a hotel's record of reliably honoring bookings in such a deep database is crucial to future earnings. The GDS has driven up convenience, quality, range and responsiveness as informed suppliers constantly align with buyers' needs.

The GDS does not necessarily offer the lowest prices. They are typically found by calling individual hotels where a manager can have discretionary pricing power, or even by booking a first night legitimately then suggesting a longer stay off-the-books at reception[88]. Nor has it created a race-to-the-floor by improving market visibility. Tell Expedia you seek an overnight in Orlando, then order returns by price. There will be numerous youth hostels vying for

business. But they have not killed off mid-market or top-end hotels. The GDS retains its hold on users by being so convenient and risk-free. It then fosters precision pricing; we pay premium for a Marriott or even a Travelodge because we trust the system when it says the facilities will be better.

Stored Availability markets are only viable at scale. Imagine ten GDSs, each resisting any possibility of interaction with the others. Every time a hotel received a booking through one, they would need to laboriously remove availability for that room on those nights from all the others. Pricing data would be splintered, lacking like-for-like insights, with any change to pricing rules forcing updates across a range of interfaces and marketplace business models. If there were thousands of GDSs, each with only a sliver of travel buyers and sellers, their value would be negligible.

No start-up could impose all-sectors Stored Availability at scale. Customer attraction and ongoing loyalty across the entire travel industry would be unthinkably costly. Recouping that expenditure would require high rates, attracting a flood of undercutting competitors and a hopelessly diluted marketplace. The GDS was only possible because bodies representing sellers took the lead.

Markets for labor are bigger than those for travel, with many more variables. Workforce bodies may not want to directly run a market. But they could be uniquely placed to catalyze an option like Stored Availability and find enough local scale for it to impact where it can do most good.

d) Stored Availability in labor markets

A Stored Availability system for hourly work could deliver all the requirements outlined in Table 5 and enable any of the interventions in Table 4. Such a system is called a CEDAH: Central Database of Available Hours. Broadly, rules of operation might be:

- The market operator in any area (which could be a workforce body) approves a list of intermediaries. Intermediaries in a CEDAH may be commercial recruiters, employment charities, public bodies or a mix. Some will provide workers, payrolling, insuring and vetting them in return for a mark-up built into each hour sold. Their brand acts as quality assurance, as does a known hotel chain. Other intermediaries can sell hours from the database to buyers, adding their own tools, value proposition and charges. Some organizations may want to be intermediaries on both sides of the market.

- Intermediaries should be encouraged to partner: Agency A allowing their workers to be booked by Agency B's buyers with an agreed margin split. This grows the market. Operators may choose to allow workers into their market without an intermediary (as a 1099 taxpayer). This is legitimate because of the control given to workers.

- Workers enter the market through the website of an intermediary. Staff then confirm to the system what certification the worker has. This determines the roles they can perform.

- Each worker manages a list of roles (types of work) for which they qualify. They can turn individual roles on and off, charge higher rates for in-demand or high skilled work and accept or reject employer-specific roles and any attached payrate. They also set availability.

- The market stores potentially millions of specific hours of availability. It knows the roles against which each hour can be offered, rules of the person offering, how to price it and the relevant legal controls. Reporting is in real time.

An example transaction in a CEDAH

A manager in a market research company needs 100 interviews with office workers. She determines a particular metro station as a likely source and, noting today's fine weather, determines this afternoon's rush hour as optimal timing. She turns to a recruitment agency app on her phone.

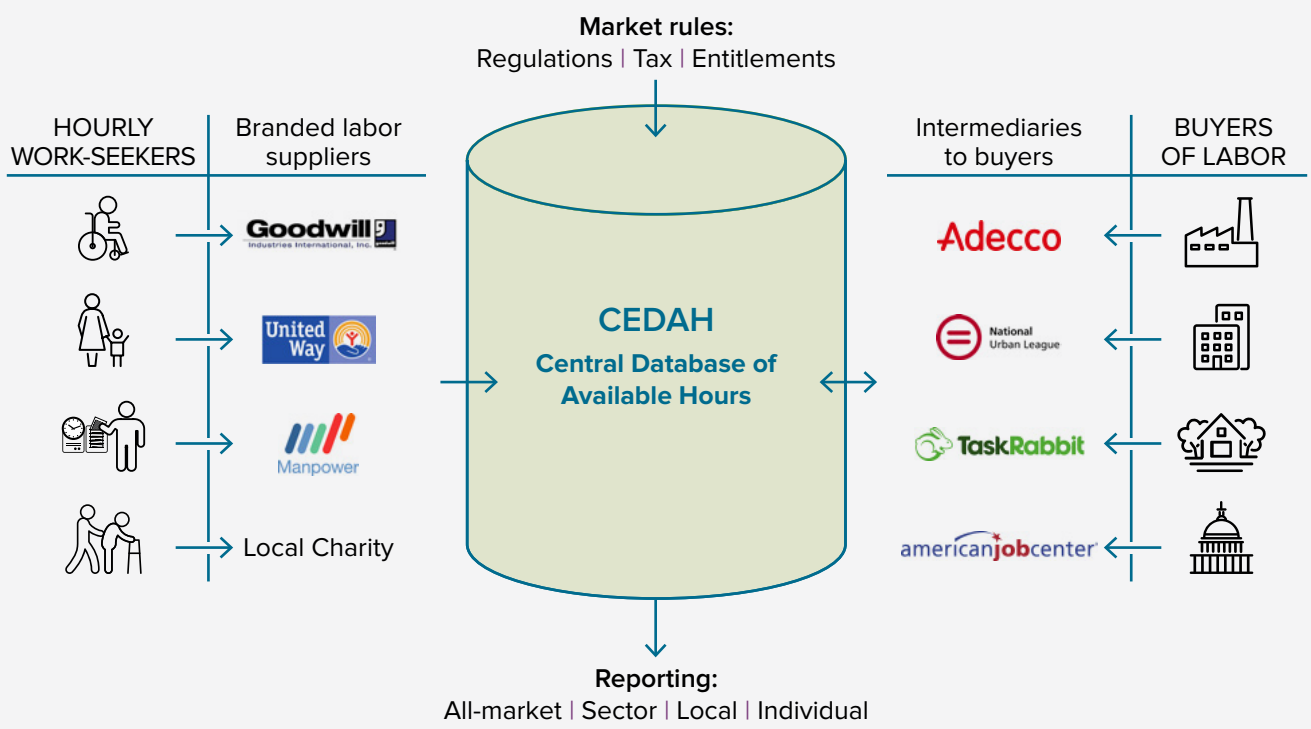
The app backends to a regional CEDAH. As soon as she specifies "*Consumer interviewers*" and the location, her phone shows a grid of how many of those approved workers are available and willing to work at that metro station each hour for the next 10 weeks. She selects today: 5:00-7:00PM when nine are available. She immediately sees details on those nine workers.

Each of these people has been inducted and approved by her company and agreed to its hourly fixed rate. To keep widening the market, the system also shows further available workers vetted and willing to do market research interviews but who have not yet been offered, or not yet accepted, a specific role with her organization. They are priced dynamically based on their rules around travel distance from home to this station, period of notice, length of booking and so on. She selects eight workers from her pool and four who will be new to her company.

> *When I need extra workers I just put the word out round my office.*
>
> **Employer, Oregon**

It takes a few swipes to select and book the 12 for rendezvous outside the station. Confirmation, post-transaction changes, timesheeting and payroll/invoicing data is managed in the CEDAH. It ensures

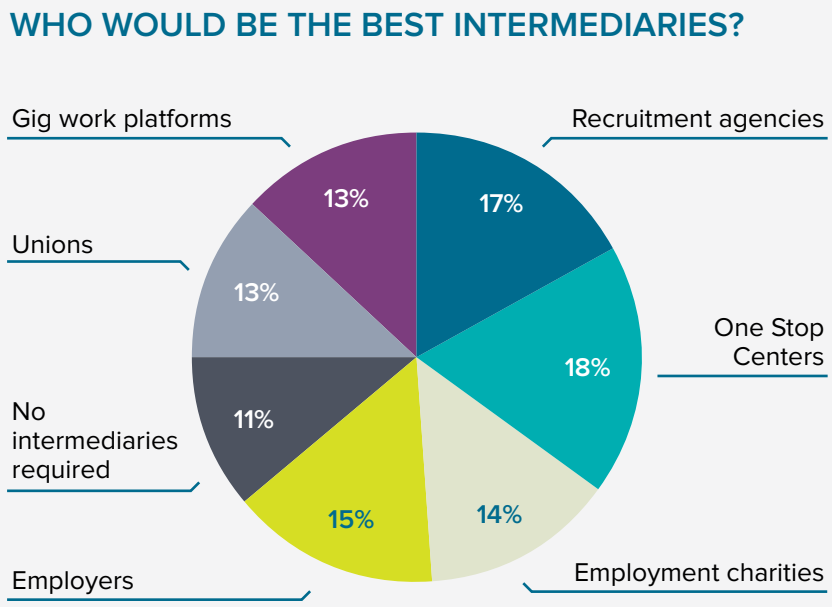
CHART 7: Stored Availability for hourly labor



Organizations represented in this diagram are not involved in this project. They are shown only as examples of bodies who may chose to incorporate a local CEDAH into their services.

Source: BeyondJobs.com.

CHART 8: Stakeholders' opinion of possible intermediaries



Source: Design Group roundtables, Sept.-Dec. 2016. Paper questionnaire. List of options ranked by participants with option to write-in additions.

confirmation with plenty of time to rearrange workers if needed.

This takes perhaps 30 seconds. She is aware workers from this app seem motivated and reliable, just as Travelocity users take for granted their bookings get honored, probably without understanding the way a deep underlying market drives hotelier responsiveness and reliability.

She does not need to know that each interviewer is working hours of their choosing, on their own terms, across possibly dozens of roles in many sectors, or that this afternoon's assignment is helping each toward diverse personal goals with reliably completed bookings earning inductions, higher pay and tracks to a job, if that is the person's aim.

Nor need she grasp the way philanthropies and public bodies might be very efficiently intervening in the market: training disadvantaged people for high utilization roles in their travel area, funding subsidized childcare workers to enable pivotal work activity, creating pools of inducted Peer Navigators who support unconfident individuals into their first few bookings.

She may, however, notice the number of workers in her company's approved interviewers pool depleting. That tells her the fixed payrate is too low. Every worker has a personal portfolio of roles, each of which can be switched to inactive at any time. As workers build a track record they may opt out of display for her needs, or at this company's fixed rate. Bosses will have to either push out a higher payrate or induct new workers. If induction is their route, the CEDAH will help replenish their pool; identifying upcoming individuals with the right experience and proximity then booking them for a group training session to learn how this company conducts its clipboard encounters.

The British technology

This approach to irregular hours working has been piloted in a series of projects funded by UK government bodies. Much has been learned about how such services need to be launched, their possibilities and how they might be used to tackle specific labor market challenges.

The British taxpayer-funded CEDAH technology is freely available to US workforce bodies. Or US organizations could choose to build from scratch.

TABLE 6: Sample screens from a British CEDAH

User/function	Screen
INTERMEDIARY: Confirms vettings applicable to a worker (e.g. CES nursing certificate, Class A CDL truck driving license)	**Vettings** Wingham Rowan Use this screen to confirm your vetting of Wingham Rowan. Current Vettings Requested Vettings
WORKER: Manages choice of roles for which eligible	**My Roles**
Sets terms on which they will fulfill bookings	**My Terms**

Vettings

Wingham Rowan

Use this screen to confirm your vetting of Wingham Rowan.

Current Vettings

Title	Description	Status	Start Date	End Date	Additional Information	Action
DBS Enhanced checked	Disclosure and Barring Service (DBS) check - formerly CRB check?	Approved	14 Feb 2012		ENH5463547282	– Withdraw
Longer term availability	Looking for either assignments of more than 4 weeks or long term positions (full time or part time)?	Approved	25 Jun 2009			– Withdraw
Proof of Address	Utility,government or bank documents checked?	Approved	02 Dec 2013	02 Dec 2014		
Proof of Nationality	Proof of nationality checked?	Approved	02 Dec 2013			– Withdraw
Right to work checked	Entitlement to work in UK checked?	Approved	02 Dec 2013			– Withdraw
Validated	Validated by Agency	Approved	31 Jan 2013			– Withdraw

6 current vettings found

Requested Vettings

Title	Description	Created On	Status	Rejected Reason	Approve/Reject Application	Action
Own Car	Registration and insurance inspected?	18 Feb 2015	In Progress		☐	✔ Approve
Pet Aware	Is this worker comfortable about working with pets?	08 Nov 2016	In Progress		☐	✔ Approve

My Roles

Use this screen to decide which Roles you can be booked for.

You have **23** Roles available. **3** are active.

Category/Buyer	Role	My rate	Active	Action
Standard	Companionship	£9.50 (your fixed rate for Companionship)	✔	View Change/remove fixed rate
Standard	Mental Healthcare Assistant	My Terms	✔	View Set a fixed rate
Care Lewisham Ltd.	Street Warden	£9.12	✔	View

My Terms

You can set a fixed payrate for specific Roles or selected Buyers. Some roles have a fixed rate agreed with the buyer.
If you do not have a fixed rate in place for any potential booking, we use your inputs on this screen to work out your rate.

These are the minimum terms on which I will sell my time in this system

* Minimum hourly rate £ 8.15 Pricing guide

We can make sure you get extra pay if a booking requires you to travel. There can also be an increase in your rate for shorter sessions or bookings with not much notice. You can change these settings as you become more experienced in the market.

Hide advanced settings

Travel and Distance

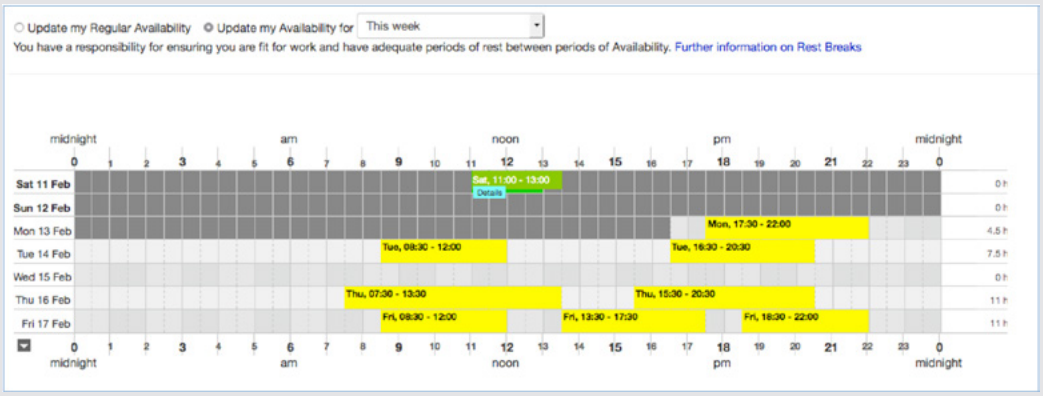
How far are you willing to travel?

I can travel 8 miles

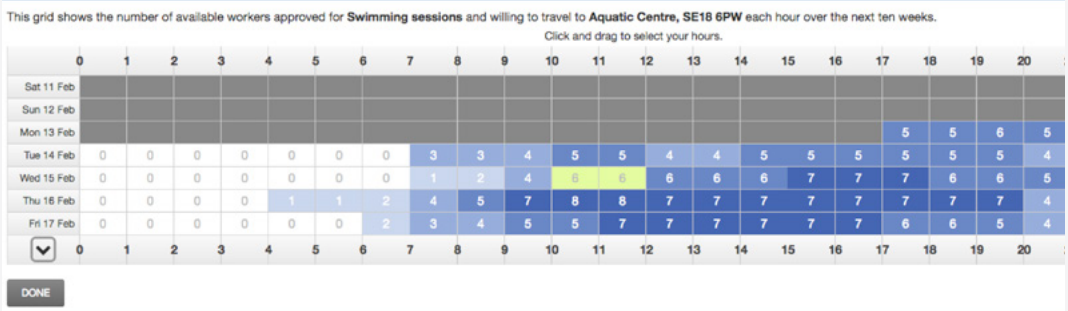
from postcode SE1 2BD

Show advanced options

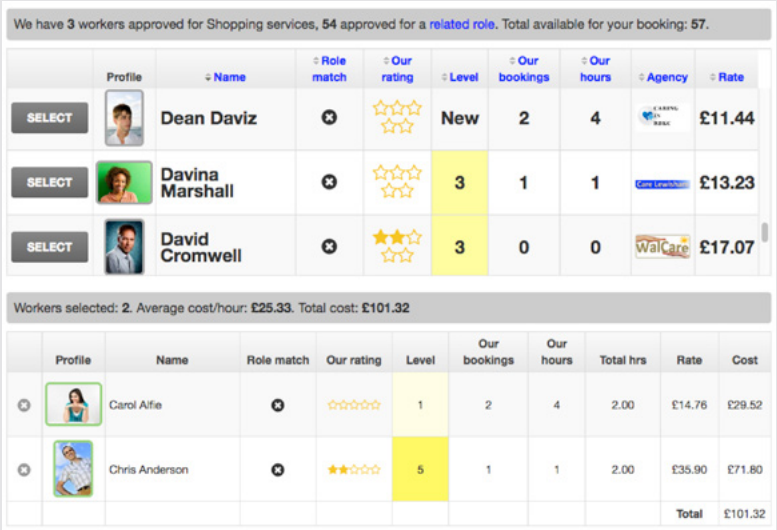
Inputs hours they are available to work this week

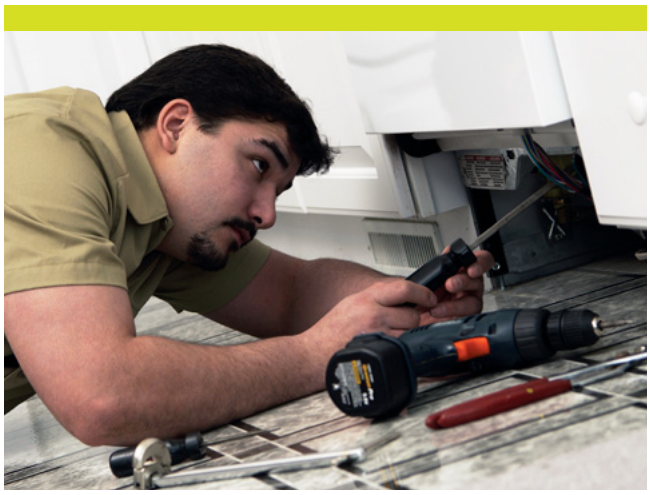


BUYER: Sees available/ eligible workers' availability before selecting



Selects workers for chosen times





e) Shaping a regional market

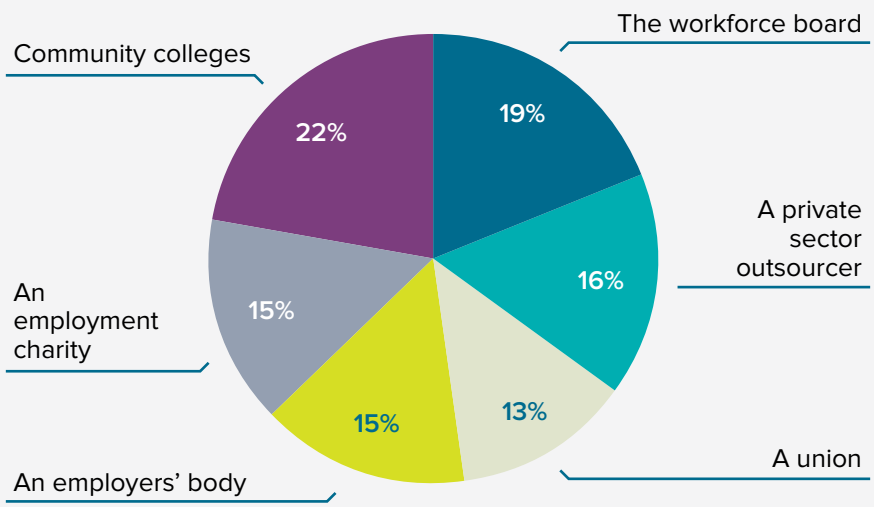
A CEDAH (Central Database of Available Hours) should not be seen as one-size-fits-all. Gig work companies typically seek to impose their brand, business model and rules on any city in which they operate. A CEDAH might be branded as an extension of a state job bank and constructed as a patchwork of sub-markets for cities throughout the state.

In each city or area, local rules need to be determined. Who qualifies to be an intermediary? Can existing gig work platforms draw on the CEDAH as Expedia accesses the GDS? Are particular worker groups to be favored? Should the minimum wage or living wage serve as the pricing floor? There are then minor rules to be set.

With the right technology, issues like this are simply system settings for any local market. Boards may choose to outsource market operations and operating decisions as is usually the case with state job banks.

> *Our region has seven One-Stops but 30 Connection sites, run by bodies wanting to be part of the workforce system.*
>
> **WDB Manager, Washington**

CHART 9: Stakeholders' opinion of possible market operators



Source: Design Group roundtables, Sept.-Dec. 2016. Paper questionnaire. List of options ranked by participants with option to write-in additions.

Either way, operators in an unfamiliar market may start cautiously; mandating all workers must be W2s on the payroll of an intermediary, for example. Then after a year of operation the decision could be reviewed. Might everyone involved now be comfortable if 1099 workers were also permitted?

4) The potential of public markets

If a public market reaches a critical mass of users it could support improvements, insights, interventions and innovations not currently viable in irregular labor markets. Lifelong learning could be uniquely cost effective and responsive. Impact could spread across local economies.

a) New facilities

A public market is not a single-bullet solution to any one problem. It is one more piece of connective tissue between employers and the workforce. The right model, successfully launched, could make some key features widely available. Groups discussed the potential of:

- **Two-sided competitive markets.** A "competitive" labor market is often synonymous with falling wages. But as *The Economist* has noted, "*Workers benefit when firms must compete aggressively for them.*"[89] So many individuals seeking irregular work are currently only exposed to small numbers of potential buyers determined by their shadow economy contacts or customers of a handful of platforms on which they trade. Corporate employees increasingly sell their hours in a monopsony – a market with only one buyer but thousands of sellers.

  A CEDAH (Central Database of Available Hours) could open a wide spectrum of demand across as many sectors as a person could work. Like any healthy market, there is still competition. An unskilled youth assuming he could command $50 an hour on market entry would likely go unbooked, as do overpriced hostels on travel sites. But priced more realistically, he should be able to build skills, demonstrable reliability and earn real-world experience. He will then be attractive to

COMPETING WITH SHADOWS

A public market would not be taking on recruiters or gig work platforms. Like state job banks it could be available free of charge to for-profit intermediaries.

A local shadow economy would be in its cross-hairs. If half that activity could be enticed into a CEDAH it could grow local GDP by 4-5 percent. But why would an employer seeking, say, laborers use an official system paying better wages?

Key to this is the overarching desire for convenience in so many buyers.

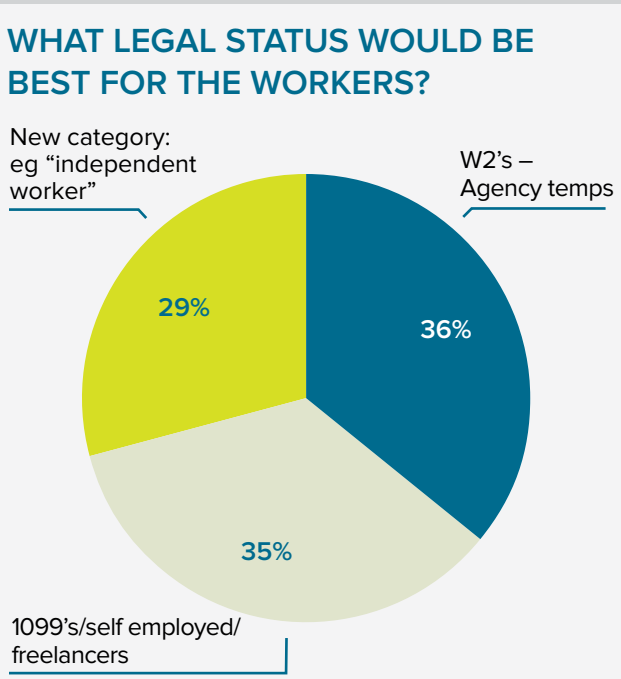
An Uber is often not the cheapest ride. A better deal can often be found by calling taxi firms, particularly if willing to share on a popular route. But that takes time and involves risk of transaction failure: your cab may not show.

Uber went from nothing to one million rides a day in 6 years. Subsidizing rates helped, but peace-of-mind for a user is vital. A transaction starts by showing depth of market (animated cars circling your location), takes seconds to book, then eliminates uncertainty (your car comes toward you on a map).

For millions of time-pressed travelers, this was better than calling around locally. A successful CEDAH would bring the same market depth, immediacy and fulfillment assurances to a need for laborers.

Would the possibility of activity-tracking deter use? Uber does it. Convenience-addicted customers don't seem to care.

CHART 10: Stakeholders' ranking of classification options.



Source: Design Group roundtables, Sept.-Dec. 2016. Paper questionnaire. Three options to be ranked.

increasing numbers of employers. If local tourism facilities, restaurants, service companies and promotions providers all want to book workers with *"at least 50 approved timesheets across at least five buyers requiring customer service skills,"* they would find upward pressure on pay for those desirable individuals.

- **Worker classification options.** Current models of irregular employment create a downdraft on worker rights. Shadow transactions neuter rights for the seller of labor. Gig economy platforms must recoup vast marketing costs and satiate investors; many would be unviable if compelled to treat their labor force as employees[90]. But a publicly run CEDAH would be structured to drive up standards and quality. Classification issues can be decided on their merits.

- **Portable benefits.** Snap up a trip to New York on TripAdvisor, and without knowing it you could be paying finely calibrated tourist taxes, airport levies, operator insurance, inter-carrier payments and other transfers that keep the travel market healthy. It's all invisibly absorbed in pricing rules, then split out at the back end of the GDS when you pay.

  Likewise, a CEDAH's charge for an hour of work could incorporate pro-rated healthcare, retirement savings, insurance, even holiday pay. It could be administering public schemes or offering competing providers' products. There are powerful arguments for benefits attuned to the new era of work and multiple models on offer, particularly if health coverage under the Affordable Care Act is weakened. But in the current world of quicksand marketplaces, overheads on such small transactions could be prohibitive. Whatever model was chosen locally, a Stored Availability system is uniquely equipped to calculate, collect, allocate and audit.

- **Granular data.** *"Which skills were in shortest supply in the city center last week?" "What was the average asking payrate of workers who haven't had any bookings this month?" "Which employers are hiring temp workers but for work patterns that suggest a job-opening is being displaced?"* A CEDAH with depth in its market can answer these questions routinely.

  Metrics to watch in this kind of market might include:

  - Utilization Rate. If a worker wants to sell 40 hours this week and only 10 are bought, she has a Utilization Rate of 25 percent. Utilization can be measured for individuals or across any combination of sectors, geographies, intermediaries, classes of workers tagged in the system (e.g., veterans, youth, SNAP recipients), skillsets or date ranges.

  - Pay over time. What are the weekly (or even daily) trends in payrates for any subset of workers?

  - Travel distance. Where are workers traveling to/from for bookings? What public transport will they be using? Where are the bottlenecks?

- Misalignment. If people seeking enumerator assignments are clustered south of the city with demand located far away in the north, there is a geographic misalignment. When qualified security guards have a wage floor of $20 an hour while buyers have a ceiling of $15 there is price misalignment. If consumers of at-home care demand dementia capability while workers are overwhelmingly trained to deal with physical conditions, skills are misaligned. And so on.

- **Interventions.** Data enable targeted interventions. System tools can then offer, administer and monitor any scheme to solve a problem. For example: a nonprofit might commit $20,000 to subsidize weatherization for older residents' homes but insist the non-skilled work is carried out by eligible irregular workers, under 25, from a deprived ZIP code, who have a current Utilization Rate of less than 50 percent. The CEDAH would build a list of qualifying individuals, check which will accept the charity's payrate, possibly schedule inductions, then control spending to the last cent. If trustees wanted construction sector outcomes for that pool tracked for a following year, sharing of each person's earnings and Utilization Rate before and after the project could be a condition of the work.

- **Reliability as a pathway.** Dependability should be the bedrock of progress for irregular workers. Does this person do what they say they will? If so, targeted upskilling is likely to be a good investment. A CEDAH tracks confirmation and completion of each booking. It will never force a worker to do anything, only monitor their acceptance and fulfillment of bookings within all their parameters where the payrate fits their personal rules. The resulting track record can be diverse, across multiple types of work and employers. But it is also verifiable, built on data from each timesheet confirmed by a buyer. And it is designed to be attached to a resume or taken to another market.

  A work-seeker may be burger-flipping now, but he is at least building an audited, portable trail of dependable work. That can be a boon for the disadvantaged, disconnected or shy who may not get job interviews, or underperform if they do.

  Even the best workers will have traumas and unforeseen incidents that dent performance. The intermediary is crucial here. Where typical gig sites will algorithmically downgrade after failed bookings, a CEDAH intermediary is in charge. It is their brand attached to the worker, and they are entitled to apply their judgement and maintain that person's status, perhaps after a cautionary phone call.

- **Fostering of relationships.** If a worker and buyer gravitate to an off-platform employee/employer relationship, that can be a contractual offense on gig work sites. It is a target outcome for the public workforce system. (Intermediaries may be entitled to charge a placement fee for job transitions, of course.) Public markets can offer a range of tools to deepen relationships between workers and purchasers. They include:

  - Recurring work. The system makes it particularly easy to turn a booking into a rolling event. Semi-regularity saves the buyer's time making bookings. It reduces cash flow uncertainty for individuals and can be the first step to a job offer.

  - Inducted pools. A supermarket with periodic need for supplemental staff might use the CEDAH to identify provenly reliable irregulars living up to a mile from the store with some experience in retail. Three inductions sessions of four hours could then be timetabled and the CEDAH instructed to offer the shop's checkout operator's contract and hourly payrate progressively to local eligible workers until 30 people had accepted and been booked for one of the induction sessions. Once those sessions

> *Right now we're seeing dislocated workers doing multiple jobs. So it's hard for youth to break in.*
>
> **WDB Executive, Tennessee**

were concluded, the store manager would have a pool of top-up cashiers, at least some of whom would be available at any time. They could be booked instantly. But each individual could have been inducted by multiple employers. The store may need to keep its payrate inching upwards to retain depth in the pool.

- Anchor Employers. McDonald's and its franchisees have hundreds of thousands of staff across America, many of whom they need to deploy responsively inline with unpredictable customer traffic. Absent public markets for irregular work, McDonald's best option is a one-sided scheduling tool, tweaked to accommodate worker preferences. In a public market the McDonald's system could opt to be an Anchor Employer for flexible workers.

> *I think it is up to us to educate employers and workers as well as policy makers on the need for an environment that is more conducive to irregular work.*
>
> **WDB staff member, Florida**

This might entail, for example, a contract specifying that as long as the employee is available for a minimum 30 hours a week, McDonald's agree to buy 15 of them. But it will help the person sell to other buyers (or other McDonald's outlets) by enabling public verification of their work record. The upside for McDonald's: flexibility and likely retention. The downside: if a worker starts earning more in a wider market he might inactivate his McDonald's roles.

Anchor employment could bypass a labor market intermediary. The market might be configured so that the individual is a direct employee of their chosen organization(s) even while having a booking system across a wide market.

- **Use of unsold time.** A person may be available for work from 2PM to 6:30PM this afternoon. They could set a rule that stipulated if they had not been booked by 3PM the remaining hours were available to charities of their choice or perhaps for job interviews, peer networking or other unremunerated activity instigated by the WDB or others. Thus, they are constantly prioritizing paid engagements, ensuring other opportunities happen around them but at times to suit the individual.

b) New protections

A public market for irregular work can enforce protections for buyers and sellers in new ways. Legally mandated protections, vetting checks before each booking, guaranteed payment of wages and practices from reputable temporary work agencies are a given. But added sophistication would be possible. The group believed it is worth developing these enhancements now so they can be factored into system specifications.

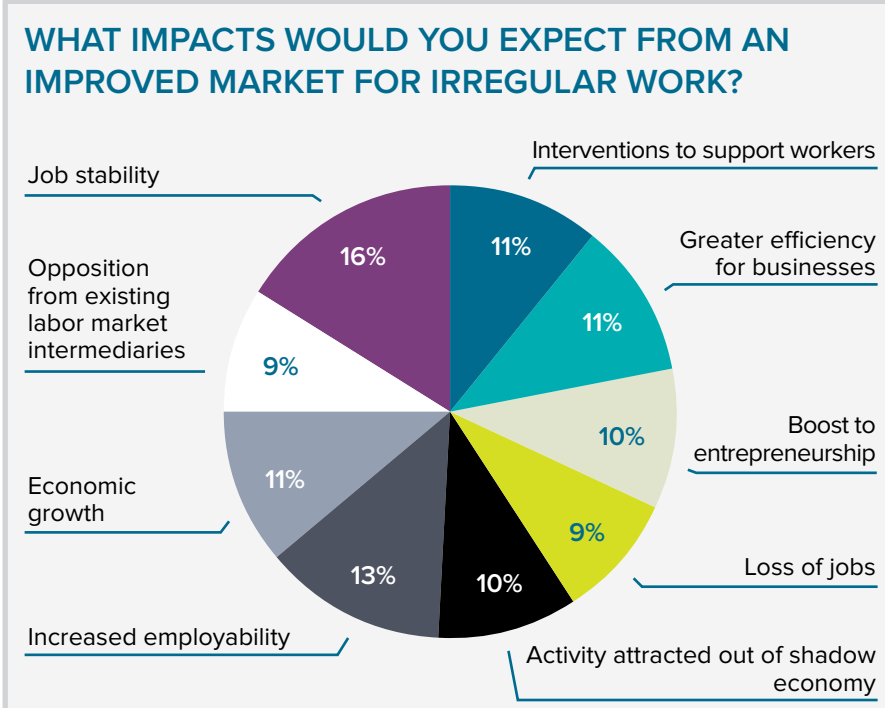
Immediate examples include:

- **Worker checks**
  - Progressive vetting. Rules that stop a worker doing "sensitive" types of work until they have attained a track record in a lower-level role. (For example: *"To enter the babysitting market a worker must have at least 25 bookings, covering at least 50 hours for at least five households as a 'parents help' who looks after children while a parent remains at home.")*

> *We have a lot of people who settle here for quality of life, particularly near the Great Lakes. They want to work irregularly to support their lifestyle rather than pursue a structured career."*
>
> **WDB staff member, Minnesota**

- Population specific markets. Markets exclusively for tagged employers or workers. For example: a charity could operate a sub-market just for people with transitory mental health issues selling approved hours to supportive local businesses and families with constant oversight. This allows a track record to be built in an understanding forum before transition to the wider market for irregular work.

CHART 11: Participants' expectations for overall impacts of a successful CEDAH launch



Source: Paper questionnaire for roundtable participants. Participants asked to rank options with possibility of writing-in others.

- Mandatory photo. Insisting the worker has a photograph in the system guards against fraud and ensures the individual being booked is the person who turns up to do the work. (This is vital in sectors like homecare where a highly qualified carer will attract a higher rate but could illegally sub-contract to a lower skilled individual.) However, a photo can support discrimination, e.g., on racial grounds. Auditing of buying decisions within the platform enforcing a no-tolerance policy seems the best protection against this.

> *"I work with immigrants/refugees that come from economies where it's expected and required that citizens work day-to-day and do any work available to make ends meet. They are comfortable with labor-ready work and may even seek additional income on top of a job.*
>
> **WDB staff member, Oregon**

- **Protection of workers**

  - Experience controls. Rules to stop inexperienced workers being assigned to untested buyers. For example: when a new client goes to book an at-home caregiver, the system ensures only workers with a track record of relevant bookings are offered, and they have a requirement to provide feedback on suitability of the client in the system timesheet.

  - Rate hikes. A worker can raise her rate for an individual employer *("I don't like Acme Corporation who treated me badly, so my rate is for them is now $20 an hour.")* This may be the equivalent of collective bargaining for a fragmented workforce. If many workers raise their rates on Acme, the company has a problem.

c) Alignment with programs

Frontline workforce staff in the Design Group were particularly interested in how these features of an irregular work market could help deliver existing priorities.

TABLE 7: Sample interventions for targeted worker groups

Target group	Value of irregular work	Sample intervention
Workers with disabilities	Person can work around a condition that may fluctuate day to day.	Cultivation of flexi-employers. Some employers have work that does not have to happen at specific times, for example outbound sales calls. If the WDB could demonstrate a reliable pool of local disabled workers worth training, the contact center could then book them broadly in line with their availability to work with a degree of loyalty assured.
Dislocated workers	A worker in a declining industry can experiment with other sectors in odd-hours bookings around their job.	High-growth local sectors such as catering, care-at-home or manufacturing with a need for responsiveness in staffing might be sold on the value of a try-before-you-buy approach. By earmarking flexible bookings for job-leavers in unrelated sectors they could experience workers with a broad range of external skills. System filtering by managers would soon identify those most likely to be worth a job offer.
In-training	Candidates may have to decline a training offer because they can't support themselves during studies.	Irregular work can be a way to earn-while-you-learn. Research suggests students who pay some of their college costs perform better than those given free further education[91]. Bookings can also be tailored to the person's path. For example, someone training for construction might be given entry level skills early in their course then encouraged to list availability for building site work with employers prompted to prioritize these tagged workers who are committed to building a route into their sector.
Parents and caregivers	Availability for work can fluctuate around day-to-day wellness of the cared-for.	People with challenging parenting needs or long standing caregiving arrangements are often unusually resourceful and dependable, a potential asset to employers. But they may never know when they can work. A WDB could triangulate sectors that value both this experience and the need for short-notice work, healthcare for instance. Entry-level skills and stoking of demand can trigger a market in which those with their own family commitments can be available for related work as first step toward a career of choice.
In school youth	Undertaking commitments outside the classroom boosts entrepreneurship and employability.	A school might want to promote work experience for its 15-17 year olds. They could set up a sub-market in which only local households and businesses approved by teachers could book, set a rule that students could only be available on Friday evenings/Saturday mornings and enforce pairing of students in the market. A youngster who had completed perhaps, 100 bookings for 15 local families and shops could immediately switch that record to the wider market on leaving school.
Out of school youth	Immediate earnings can be the lure for schooling.	A pool of supervised paid bookings conditional on school attendance, could be offered. Unlike job interviews or traditional learning, irregular work bookings are shaped online, paid sharply and carry no ongoing commitment. This could make them more immediately gratifying for school drop-outs.

Formerly incarcerated	Market activity can start gently, possibly with guaranteed work, employers can be protected.	As with school students, a ring-fenced market for the newly released could ensure they only work for selected employers. Insurance could automatically be calculated and applied for each hour sold. Prisons may chose to offer market training, even an internal work market, to inmates. Bookings during furloughs would be a possibility.
Retirees	Income can be capped to preserve benefits while tackling the cost of living.	At least one of our Design Group members already promotes retirees seeking extra income as consultants. That could be expanded to mentors/coaches matched with irregular workers looking for a next step in their career or support toward a job.
Undocumented workers	It is easier to do small parcels of work with a degree of anonymity than get a job without revealing identity.	Undocumented individuals can typically use "universal services" within the workforce system (for example a job board or computer time) but they are not permitted into any WIOA funded program. A market for irregular work launched by government entities obviously has to enforce the law but it is possible it could be used to allow limited engagements (perhaps, work for a charity in return for stipend?). Where permitted, an intermediary might keep identity of workers secret; the employer sees a track record and credentials but no name or identifying details. Any guest worker initiative could be enabled simply by having a category of worker in the system that is only permitted to work within any specified restraints or subject to certain conditions.
Job-seekers	Irregular work can supplement and fund job-seeking while offering chances to build experience, networks and employability.	A job-seeker might be available for irregular bookings around interviews and other activity. By doing this they demonstrate determination, reliability and depth of work history. Roles in the target industry can be prioritized. WDBs could stoke demand for particular groups of work-seekers. For example, veterans are particularly appreciated in the security and logistics sectors. A WDB could educate these employers about the value of filling top-up staffing needs from these tagged workers.

d) Lifelong learning

Ability to earn-as-you-learn can determine academic retention. A successful CEDAH (Central Database of Available Hours) would broaden the range, progression and flexibility of work slotted around study commitments. It could also boost alignment with studies, becoming part of a career pathway. For example, an engineering student might prioritize bookings from repair shops and fabricators around her lectures.

But a public market's real value could be in fostering data-driven progression. A worker may have a reliable track record of carpet laying, furniture erecting, interior painting and roofing. Now his local CEDAH is showing high utilization of home electricians in his travel area at times he wants to work with pay climbing. The income boost from acquiring those skills can be projected. That business case could trigger personal, public, even commercial investment in training. A fund within the CEDAH might underwrite upskilling in return for a cut of enhanced earnings for a fixed period, all administered automatically. A sophisticated system would tally take-up to ensure the electricians market wasn't flooded.

> *Low-income adults will often turn down training because they can't support themselves or their families while studying. Better access to irregular employment could change that.*
>
> **WDB Chief Exec., Bay Area**

These markets could excel at soft skills inculcated through micro-training. A worker lacking basic IT knowledge might be offered ten one-hour bookings with a fellow irregular worker who had been taught to explain spreadsheets or word processing. Meetings, at mutual convenience, could be in a library or public place using the trainer's laptop. Reporting on the trainee's progress would be mandated through an attachment to the timesheet.

A CEDAH will serve someone seeking bookings that form stepping-stones to a career as easily as a worker seeking assignments wherever earnings can be maximized. The key is a personal portfolio of roles. An individual may have confirmed certification as a CTEC tax preparer, knowing there are times when such skills can command $20-$30 an hour. But that doesn't bring in enough work so she will also do data entry or ledger checking work with the rate calculated according to her rules applied to each booking. Perhaps she has accepted a fixed rate of $16 to be in the pool of workers trained in proprietary financial control software used by a local factory.

She may have 20 such roles. Each can be inactivated at any time. In tax season she exploits her skills by turning off the other roles, as a hotel will curtail its tourism rates when a convention attracts high paying business travelers to town. At other times she is available for a wider spectrum of work types. She can branch out with new skills to replace the old, but past capabilities are kept in reserve for lean times.

e) Public markets and public assistance

Irregular work has low barriers to entry. Unlike a job offer, there is little commitment from the buyer. Once a work-seeker is vetted, they can be booked at negligible risk. If they don't show, the timesheet doesn't get approved and there's no charge. If they turn up but are unsuitable, it is only a few hours to be paid and the system can accept a notation that they are not for that employer.

This could make legitimate irregular work a keystone for efforts to direct assistance claimants into work. If TANF (Temporary Assistance for Needy Families) recipients are required to perform 20 hours of work-related activity a week, for example, that may be fulfilled with a no-choice job. But claimants could potentially be offered an alternative: list an approved amount of hours at times you chose, then at least 20 will be bought within your (sensible) personal rules.

> *Our dislocated workers often lose touch with the WIB [workforce board].*
>
> **WDB Executive, Pennsylvania**

This won't work for everyone; some want regularity, others are uncomfortable with computers. But for someone needing to flex around childcare, wanting some control or seeking more diverse experience this could offer a faster, more empowering pathway to self-sufficiency. Coupling the potential immediacy of irregular work bookings with subsidized employment creates a possible new frontline role for WDBs where work is the starting point for the financially pressed rather than applying for assistance that then mandates work.

A filtering role for workforce boards?

Several board chief executives in the Design Group expressed frustration that people desperately needing immediate income typically ignore WDB services and go straight to public assistance. Career Centers can be invaluable when upskilling or pursuing a move, but they are rarely able to directly help someone saying *"I just need work to make this week's rent."*

> *If someone came to a Career Center just needing immediate work we would connect them to the Department of Transitional Assistance.*
>
> **WDB Chief Exec., Massachusetts**

A market for irregular employment within the workforce system must underpin long-term training and progression. But it could also make the WDB a first call for anyone in financial straits. The right platform could tailor support, and – if required – an escalating range of interventions, funded by the WDB, philanthropies or employers.

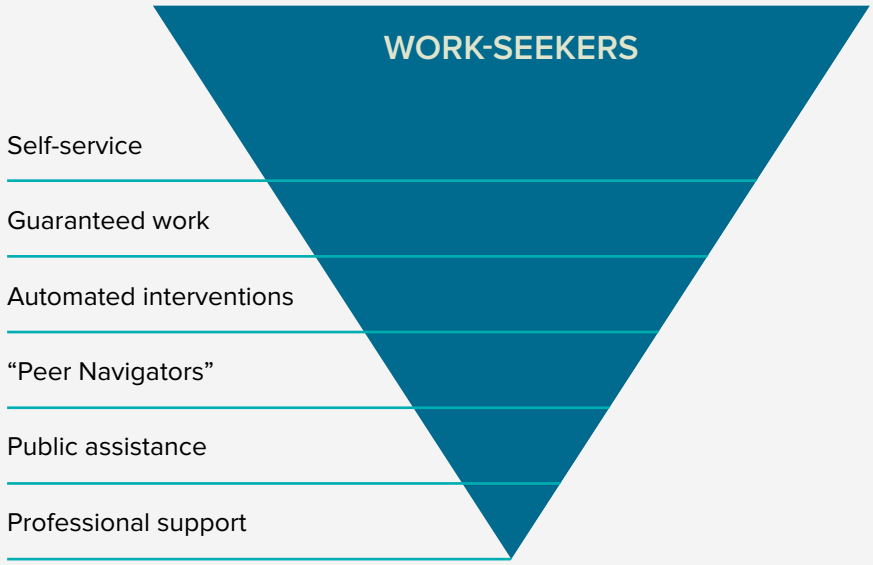
In considering this, cost-effectiveness was paramount. It is unlikely any WDB could justify significant expenditure on helping an individual into ad-hoc work. If sustained intervention is required to help someone into the labor market it has to be justified with a job outcome. And individuals struggling to remain in the workforce are probably more suited to a predictable on-going engagement. The potential value of a few hours of ad-hoc work is the way it could be used by a comprehensive system to quickly engineer first steps to self-sufficiency.

In this scenario: A worker registering for the market would be initially steered toward self-service, available for bookings but unsupported and unsubsidized. If they had not been booked, despite plenty of availability, within perhaps two days they might qualify for guaranteed work. That might involve the city allocating an annual $1 million of work to give anyone in need a minimum five bookings, each three hours long, to prove willingness and reliability. It might be that a supervisor is at a public area requiring enhancements every morning knowing his workforce will be purchased by the system in this way.

> *The biggest threat to job retention is often poverty. A crisis like a broken car means someone can't get to work so they lose their job. Top-up hours elsewhere give them a vital cash reserve.*
>
> **WDB Chief Exec., Bay Area**

If that doesn't kick-start bookings for this individual, the system might be primed to immediately schedule a convenient training/assessment session, perhaps in entry-level skills for a local target sector. Or there might be some subsidized at-home childcare to match times of initial bookings if that represents the barrier to working.

CHART 12: Tiers of intervention for assistance claimants.



Source: Design Group discussions.

If the person clearly needs further support they might qualify for a "Peer Navigator". This is a local irregular worker who has been group-trained by the WDB in how to help someone into his or her first bookings. The work-seeker might be given 10 one-hour blocks of their Navigator's time, scheduled around mutual availability by the system. Meetings, perhaps in a public building or local café, could progress through how to use a computer, market registration, and attendance at a vetting interview, followed by co-attendance for bookings. The Navigator fills in a WDB form tracking progress after each session.

If that reporting indicates the person has little chance of being booked, they may have to gravitate to public assistance (which may be conditional on exposure to possible bookings in the market as a road to self-sufficiency). Below that, of course, is high cost medical and professional support for people whose problems go deeper than labor market disengagement.

At every stage, the system could be analyzing a person's address, experience, preferences and responsiveness against local market trends. A first booking gives the system a starting point for creating a personalized pathway to whatever outcome that person seeks. For example it might identify someone who completed their guaranteed "city clean-up" bookings and seeks a career in security as an immediate fit for Event Steward bookings which can start a track record relevant to their aspirations. Those bookings might require training which local companies will only provide with evidence of 20 reliably completed assignments. It now works with the person to identify accessible bookings that will quickly get them to that benchmark.

These levels of support could be applied simultaneously, and they could be worked through very quickly in an attempt to divert a claimant from assistance. An individual walking into their local One Stop at 9:00AM could have been registered and gone through a guaranteed work booking, found tailored support automatically offered and had a first session with a Peer Navigator by lunchtime.

After that filtering it may be clear they still have no immediate prospects and must draw on welfare but every effort has – cheaply – been made to put them on an immediate path to self-reliance. (It should be stressed that boundaries around qualification for any intervention or support are local decisions. The system is simply neutral infrastructure for this uniquely complex part of labor markets and can administer any scheme a WDB chooses.)

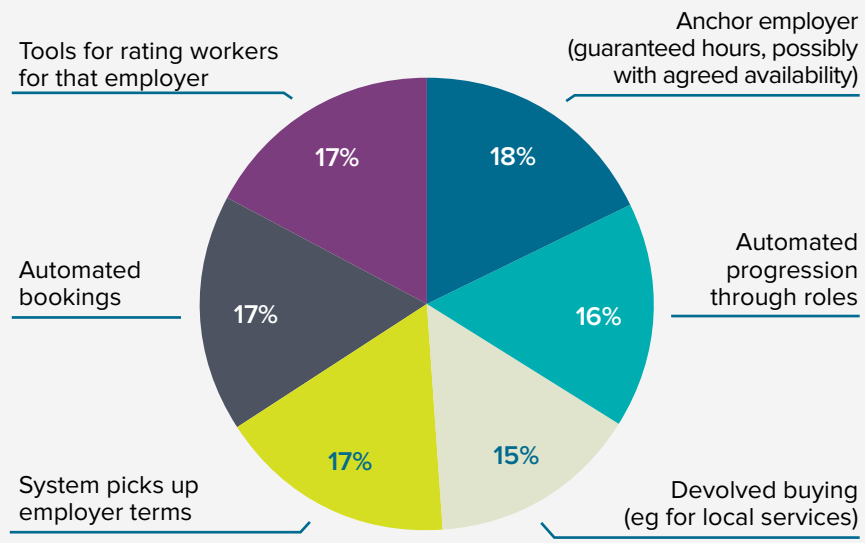
f) General impact on local economies

Unionizing one employer tends to raise conditions in others nearby[92]. Likewise, if irregular work becomes more accessible and empowering, it may boost prospects and quality in the wider workforce. The Design Group speculated on a range of possible consequences:

- **Safety net effect.** If the WDB is willing, anyone could consult CEDAH data to model their potential earnings, work patterns and upskilling routes as an irregular worker. That might help when broaching a raise with an employer. If determined to leave, bridge employment could be instantly on tap. Employers too could use a CEDAH as a shock absorber. Small companies – the growth engine of jobs – could staff up incrementally, pulling in extra hands for rush orders until they have stability enough for employees to become a better value.

- **Labor Market Intelligence.** A CEDAH's granular data could create ballast for business

CHART 13: Participants' views of employer facilities



Source: Paper questionnaire for roundtable participants. Participants asked to rank options with possibility of writing-in others.

plans. An entrepreneur considering opening an equipment-hire business for example could see charge rates, geographic distribution and time-of-week patterns for gardening/ handyman/ renovation bookings locally.

> *Many tourism businesses have been reliant on HB2 [temporary immigrant] workers. With changes to those federal rules, we need to maximize our local workforce to meet demand, especially in the summer.*
>
> **WDB Director, Maine**

- **Auxiliary functions.** To fulfill its core functions, a CEDAH includes peripheral tools: identity verification, user accounts, payment handling, working time records, skills validation and so on. This suite of non-core functions could be open to any citizen whether selling through the market or not. This could allow a freelance designer working at home to manage benefits independent of an employer, a teacher applying for jobs to validate her qualifications via a CEDAH intermediary or someone helping on a friend's farm to submit timesheets attached to a system-wide contract for such work.

- **Employer attraction.** Increasingly organizations structure as (a) a nucleus of permanent staff with (b) supplementary pools of as-required workers. Being immediately poised to deliver (b) might be a decisive factor in persuading a business to settle locally, bringing their need for (a) into the job market. It's even possible that a constantly responsive workforce that can be booked with precision could dent some of the economics of automation, making humans more attractive labor options.

- **Fine-tuned public services.** Many roles in government have predictable need. But street wardens, graffiti removal, park attendants, public polling, maintenance of public areas, spot inspections and other roles and tasks – often outsourced currently – might be better bought through a CEDAH. This would require a city to maintain pools of local people vetted and trained as, for example, youth workers. A district might then be allotted $3,500 a year to purchase time from these people in line with local needs.

> *Unemployment can disqualify you for an interview; if this [irregular employment] could allow you to stay in the workforce that would certainly help eligibility.*
>
> **WDB Executive, Pennsylvania**

- **Extending the labor market.** Every area has its Core Irregulars, people who need to work hours of their choosing if they are to work at all. Caregivers, the medically incapacitated or parents with complex arrangements can easily be economically marginalized. Never knowing when they can work, they have only chores on gig platforms or shadow activity as a way into labor markets. If they can be given the control they need, along with a gamut of roles and possibilities to progress, those assets can start to be exploited by the local economy.

- **Tackling the shadows.** Massachusetts boasts one of the few workforce systems with a unit dedicated to suppressing the underground economy[93]. Untaxed unregulated work creates destabilizing competition for businesses following the rules and possibly creating jobs. If at least some of that activity can be enticed into the legitimate economy, everyone increasingly plays on the same field. Strong state institutions, like a successful CEDAH, are known to diminish the appeal of shadow transactions[94].

- **Futureproofing.** Aging populations, potential rollback of the Affordable Care Act, robotics in manufacturing, artificial intelligence, shifts in migration; constant developments in policy and technology are making it harder to predict economic patterns. A solid market for hourly work may be an essential part of the foundations for whatever lies ahead.

g) Further possibilities

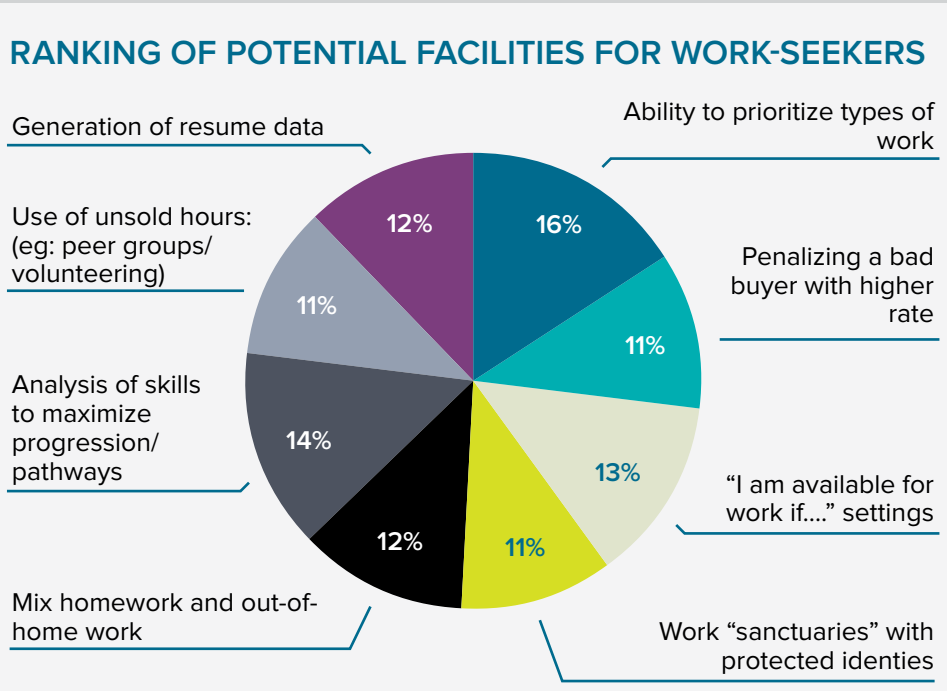
Successful launch of a CEDAH should never be assumed. But if such a service did get to undoubted critical mass, it could be opened to anyone wishing to launch services for its employers or workers. Some immediate possibilities:

TABLE 8: Further possibilities for CEDAH functionality

Facility	Notes
PERSONAL TOOLS	
Documentation	CEDAH registration starts with verification – probably in a meeting – by intermediary staff. A validated photo can be part of every booking. Someone who has worked for several buyers has had their identity repeatedly verified. Technology could turn this, along with the audited transaction history, into references – for example, to enable property rental.
Financial services	Being poor is costly because of charges to use so many services. Irregular workers in a CEDAH could have tools such as income amortization, peer loans, narrow-banking or insurance offered on the platform by competing providers. Data on reliability, adaptability and projected earnings could be released by a worker to enable construction of offers. A continued reliability record could be dependent on loan repayment to create a bond.
WIDER SCHEMES	
Union membership	Workers choosing to join a union might have a percentage of earnings paid over by the system. The union's logo would then be displayed by their name, indicating they had protection. Apart from legal and other services, unions could fulfill new functions in a public market: • Rate setting. A CEDAH allows a worker to increase their base rate for a buyer they believe treated them badly. A union could be given remote control of that function: once a bad employer is confirmed, rates for all members go up until the problem is resolved. • Intelligence gathering. Advising catering workers of a coming uptick in employers' demand for ad-hoc silver service waiters, for example.
Emergency readiness	In case of hurricane or flooding, a CEDAH's contracts could allow it to pre-empt existing bookings for construction, first aid, childcare or security workers. It could then marshal them as required by controllers.

Tax breaks	System data could model the case for micro-targeted tax relief. A break for people needing to buy supplies to enter the heavily utilized home hairdressing market? Reduced rates for those with a skills mismatch? Impact of multiple localized possibilities could be assessed with auto-enforcement after launch.
Aggregated travel	San Jose sees increasing need for contingent operatives in manufacturing facilities in one part of the city with many temporary work-seekers in another. A CEDAH could make the case for chartering buses, possibly scheduling drivers from its own markets, in line with day-to-day need.
Stimulus	Any injection of public – or philanthropic – cash into a local economy could be targeted to the most needy, particularly those who clearly were doing bookings reliably but were just misaligned with local need.
Parallel economies	Ithaca, N.Y., has its own currency[95]. Not spendable anywhere else, it generates activity among those who may not have enough dollars. A CEDAH could run an off-the-shelf version of schemes like this. Parallel tokens could be constrained in their functions to avoid disruption to the main economy. For example, each worker could be given 25 time-limited POETs (Parallel Official Economy Tokens) a week. They could only be used for designated services; childcare, cooking, shopping, elder care, gardening, ironing and so on.
Universal Basic Income	Oakland, Calif., is among cities where the idea of giving every citizen regular cash is being trialed[96]. Proponents believe this will create a safety net and stimulate local spending. A Universal Basic Income could be administered by a CEDAH of course. But it could refine the concept to Universal Basic Work. This model guarantees perhaps 20 hours of paid work a week to any able citizen without dependents. The offer is only likely to be taken up by those who need the cash, ensuring it is properly targeted. Administering and auditing such a scheme without a CEDAH would be taxing.

CHART 14: Participants' view of a facilities for workers in a CEDAH



Source: Paper questionnaire for roundtable participants. Participants asked to rank options with possibility of writing-in others.

h) Negative impacts

Could easy access to promiscuous work kill traditional monogamous employment relationships? This concern was raised repeatedly in Design Group sessions. No proposal is perfect and possible unintended consequences of public markets were explored in depth. Without significant piloting we don't have direct data to evaluate these concerns. But it is worth recording the points and counterpoints.

> *I see the gig economy taking over everything.*
>
> **Employer, Bay Area**

Impact on jobs

Fears of job erosion can be summed as *"If labor is constantly on-tap, why should businesses have employees?"* Some balancing factors:

- Cost effectiveness. If the need for work is steady, an employee is a better value; they don't carry the intermediary agency's charges inherent in booking any kind of temp. They also develop organizational knowledge, relationships and credibility, making them more effective. They are vested in the organization's success.

- Precedent. There are other parts of the economy where fluid resources have been introduced without impacting traditional relationships. Cyclists did not stop owning bikes as bikeshare programs took root[97]. Car clubs have not killed car ownership. Introducing fluid options increased cycling and motoring on the fringes. The practicalities, economics and desirability of having permanent resources for regular need were little changed.

- Inevitability. The gig work attack on jobs is already underway with online models for day labor that offer slim protection, progression or transparency for workers. Public markets offer a more empowering option within an inevitable trend.

- Local control. If public markets were running to rules set by a WDB, operators could respond to any signs of job erosion. For example, they could set alerts that flag if an employer is hiring staff in patterns that would be better served by an employment relationship. The technology could even offer to construct an immediate employment contract drawing on the transaction data. *("You have booked Mary Smith as a kitchen assistant every weekend for the last 6 weeks. You could save $13.80 per day by accepting her as an employee. Click for a free draft contract.")*

Impact on pay

Another recurring theme was the fear that a wide market would drive payrates down. Again, this is not justified by precedent. Travel websites now bring youth hostels into their returns for any destination. They can be a tenth of the cost of a business hotel. If travel provider rating systems were not to be trusted, many business travelers would probably take the

> *Most people would prefer legitimate work for the protections it brings.*
>
> **Community college principal, Bay Area**

$20 a night hostel bed rather than risk overpaying for a dodgy alternative. But the underlying database enforces quality; the $200 hotel room will assuredly be better. CEDAH processes, structures and intermediaries have to foster this separation. Someone with proven reliability and better skills can prove that value in the system, so they are worth more. It is current business models for irregular work forums that commoditize workers[98]. Commoditization is not an inevitable impact of online markets.

Other issues

Concerns about centralized data and the possibilities of skewing such a sensitive market to favor bigger users were raised. Again, these are hallmarks of current gig work platforms and should not necessarily be conflated into public markets, which would be run by accountable local bodies. The right legal and technological structures should quell concerns about manipulation.

There were amorphous worries about the lubricating value of underground transactions: *"The shadow economy is not all bad".* This is widely accepted[99]. Undocumented workers may only be able to work in the shadows, for example. Informal hiring allows young businesses to experiment cheaply and underpaid employees to top-up wages.

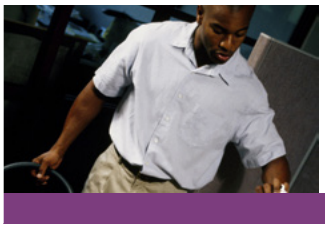
It is unimaginable that public markets would eliminate off-the-books transactions. They aim not to eliminate informal engagements but to make them faster, more informed and less risky than in a shadow economy. As a byproduct of taking out so many transaction overheads they bring the requirement into legitimacy. But many will want to trade off-the-books for reasons beyond convenience and immediacy.

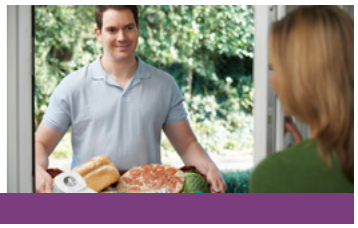
Concern for undocumented workers is harder to tackle. Public bodies cannot provide workforce services to those who have no legal right to work in the US. Technologically there is no problem; intermediaries that mask the identity of vetted, tracked workers can be set up. But – because of current policy – we have to accept such a system would increase the divide in opportunity between documented and undocumented workers. That would particularly be the case if such a system interfaced with E-Verify, a tool for combating fraudulent work papers mandatory in some states[100].

The other divide that couldn't be ignored is digital. Public markets for irregular employment could discriminate against those who are not computer literate or who speak languages not covered by the system. Only resources can overcome this. Some 90 percent of Americans now use the Internet[101]. The other 10 percent will need support before bookings flow. A CEDAH could very efficiently run pools of trained support workers but they will need paying. However, the value of basic digital literacy for any work-seeker is beyond dispute[102]. A CEDAH simply adds urgency to an existing priority. It can also make low-cost solutions such as Peer Navigators (local workers inducted to teach someone how to use a computer) uniquely cost effective.

> *We have a deficiency in tech. skills particularly in the older population*
>
> **WDB Chief Exec., Maine**

There is no technical restraint on the languages in which a CEDAH could display. But machine translation has its limits, and core text will probably require human interpretation, another cost. The system would also need to be fully compliant with tools enabling disabled users to access web-based technologies.





5) Implementing public markets

State agencies could initiate public markets as they do for job banks. But launch in any city requires "market making," a project to ensure immediate demand from employers and a business case for intermediaries. Local WDBs are uniquely placed to do this, but face challenges

a) Britain's experiments with public markets

The UK's Office of Deputy Prime Minister funded a first iteration of public markets technology out of concern for Core Irregulars, people who could only work around fluctuating commitments in their life. The scheme was a world first. Britain's Department of Health and The Cabinet Office bankrolled further development.

But these markets were opposed[103] by DWP (Department of Work & Pensions), Britain's equivalent of US DOL. Despite political attacks[104], DWP ministers remained determined that government support only traditional employment. Additionally, DWP's systems could not interface with the sophisticated technologies required.

Britain is unusually centralized. But despite DWP's discouragement, 20 local governments eventually funded their own pilot markets. Tesco – a supermarket and the UK's biggest private sector employer – also launched its own pilot, but as a "closed market" for staff only. All these experiments were small-scale, typically enabled by peripheral funds.

It eventually became clear; an uncommitted launch results in a market being swamped by supply. Data from one London borough show the problem. Having put CEDAH technology in their website and encouraged local intermediaries to vet people into the market, they had 18,000 hours of availability for work in the first week. There were only 70 hours of bookings.

"MARKET MAKING" EXAMPLES

The easiest way to catalyze a public market for irregular work is to find a project requiring flexible contingent work.

If such a budget can be routed through the new labor exchange it guarantees a first wave of workers will get booked and be able to start building a track record of reliability. That makes the market valuable to further employers and a growth cycle can start.

Anecdotal examples of these potentially catalytic projects from around the Design Group include:

- **Florida:** The governor allocated $25 million to clean its beaches.
- **Tennessee:** After brushfires swept through the Gatlinburg area in Nov. 2016, the federal labor department granted $5.8 million to pay displaced employees to repair damage as temporary workers.
- **Los Angeles:** A possible scheme uniting agencies to improve street cleaning and public space tidiness would benefit from pools of on-demand labor.
- **Minnesota:** Care agencies in the Twin Cities are among leaders in developing at-home care that supports client health and independence at home rather than in institutions.

The second week saw 150 hours of bookings but only 12,000 hours of availability. Citizens, not getting booked, judged the scheme irrelevant and stopped listing. The two lines converged until some 500 hours a week were keeping around 40 workers engaged. The market then lacked capacity to serve additional employers and had created bad word-of-mouth around the area.

Some $8 million worth of hours were transacted across these pilots but with no one market having the conditions for critical mass. A new regime at DWP eventually recognized irregular workers needed support and there would have to be initiation from the center for better markets. Ministers gave CEDAH (Central Database of Available Hours) technology a pivotal place in their wide-ranging plans to sweep out the UK's complex welfare state, replacing it with a single Universal Credit[105]. Piloting for this top-down implementation was underway as the umbrella Universal Credit project hit increasing overspends and overruns. As the Universal Credit was pared to a core focus on benefits payments, a range of labor market innovations were shelved[106]. They included technology for CEDAHs.

Pending better conditions at home, a copy of the technology was put into a non-profit entity. Philanthropic funding allowed the leaders of Britain's projects to explore where they might best deliver social impact. With help from UK consulates, Aspen Institute, US Conference of Mayors, National Governors' Association, Council on Foundations, International Institute of Workforce Professionals, National Association of State Workforce Agencies and other bodies, the possibility that America's decentralized workforce system might be poised to tackle issues around irregular work was explored. Through those networks the current Design Group came together.

> *We need micro-work to maintain economic growth.*
>
> **WDB Chief Exec., Maine**

b) The "market making" process

Key to successful launch of a market in any territory is advance buyer commitment. UK learning and subsequent modeling suggests it takes a minimum of $2.3 million of bookings for irregular workers over the first 12 months in any city. With that flow of bookings assured, several hundred individuals will receive enough work to stay engaged and begin proving reliability. That ensures immediate usefulness for additional employers, starting a cycle of growth that spreads across sectors and the area. As the market reaches critical mass in multiple sectors across the city its full benefits emerge.

What are the most likely sources of this demand? Corporations are unlikely to be tempted away from their brute scheduling tools to an unproven public market. Households and small businesses have a huge need for ad-hoc workers but can't cost effectively be aggregated for a launch. Diverse public sector budgets should be checked first for contingent labor need in any area. The search for funds that could be easily channeled to local people through a new market should focus, in order, on:

- New projects. Dollars earmarked for a new project requiring flexible labor are the lowest of low-hanging fruit; there are no status quo arrangements to be displaced. Agencies coming together for a new focus on keeping streets clean[107] or foreseeable spending on tasks like snow removal[108] can create seed bookings that kick-start activity. Projects around data entry, archiving, public outreach, enumeration, enhanced security, weatherization or building renovation are all worth probing.

- Areas for transformation. If a governor announces her state is going to make care for seniors more responsive and localized, she is asking for a localized market for fluid workers. If funds are earmarked to deliver her vision, vetting, training and deploying a first wave of workers would deliver maximum return on investment. Not only would care be slickly organized and fully auditable with each senior – or their advocates – able to develop favored individuals and book as needed, the workers would be easily available for other buyers and may wish to work flexibly in other sectors. That

starts a spiral of market growth. Commitments to overhaul housing stock, administrative processes, medical facilities, contact centers or childcare carry the same potential.

- Underused workers. If a municipal corporation running an exhibition center spends $3 million a year on flexible staff to set up events, sell tickets, manage crowds, man concessions, secure premises and clean up it will be calling in a lot of workers as required. That is probably achieved by outsourcing to temp agencies. If the money could flow through a public market for irregular work, the same people could be booked but – crucially – they could choose to sell time not required at the exhibition center to other employers, leveraging a track record of events work into new opportunities. Contingent staffing for parks, street security, renovations, environmental work or construction contracts could equally be transferred into a fledgling CEDAH (Central Database of Available Hours).

A manual for the market making process has been prepared. For a medium sized city it would probably take two people 9-12 months to complete in a pessimistic scenario in which no easy-win pockets of demand are immediately identified. Key steps are:

TABLE 9: "Market Making" project - overview of recommended stages

Stage	Task	Notes
Stakeholder engagement	Build list of stakeholders	The project will engage with a range of stakeholders including: unions, citizen groups, anti-poverty campaigns, disability groups, carer support networks, chambers of commerce, small business alliances, sector bodies, One Stop Center managers and employment support organizations. These stakeholders will be interviewed during the project and kept apprised of its progress.
	Available data summary	A project team will need to collate what is currently known about irregular work in the city and what, if any, interventions or studies are in force.
	Create integration list	A list of touchpoints between a city market for non-standard work and the schemes, departments, data gathering channels and existing IT systems with which it should interface. There will need to be a priced integration plan for each.
Identify demand	Seek "Easy Wins"	There is a checklist of easy ways to find demand to be worked through. For example, around the city there could be new projects requiring a way of assigning work to communities. Absent this, analyze which sector would be most receptive.
	Identify autonomous budgets	The next tier of "low-hanging fruit" for accessible demand is users of contingent labor with no barriers to switching their demand (and exposing workers) to a new channel. Typically, it is worth looking at municipal corporations and other quasi-public bodies.
	Research further list of users of contingent labor	A list of bodies booking, or potentially booking, top-up workers should be assembled for each sector. Lists can then be prioritized based on scale of need and the ease with which bookings could go into a new local market.
	Interviews	There is a stage of pro-forma interviews (face to face or by phone) with managers who use contingent labor and other stakeholders in a new market.
Ensure supply of workers	Approach sources of workers	Community colleges, groups for the disabled, youth bodies and other organizations with a channel to irregular workers need to be interviewed to understand supply of workers.

	Engage intermediaries	Employment bodies (commercial or charitable) already vet and support workers in return for a margin on bookings. Understanding their needs if they were to support a CEDAH is crucial.
Analysis	Build model	Data from interviews is fed into a database which will then model the first year market. How many bookings are guaranteed each week? How many workers will it support? Which parts of the city should launch first?
	Test alignment	Workers must be willing and able to provide what employers need. A list of possible misalignments needs to be checked to ensure the market can run smoothly.
	Shape business cases	Out of the data comes a business case for (a) the city; (b) each agency; and (c) other stakeholders.

A range of local stakeholders can help enable a market launch, or ensure its capabilities are exploited. Parties that could be involved in "market making" in a typical city include:

1) Employers of flexi-labor: Public sector (direct and indirect)
   - Housing Bodies
   - Healthcare providers
   - Municipal corporations
   - Within City Hall:
     - Health commissioners
     - School staffing commissioners
     - City services manager
     - Events manager
     - Public outreach manager
     - Anyone else who would know about initiatives/projects in the city
2) Employers of flexi-labor: Private sector
   - Chambers of Commerce
   - Small business bodies
   - Home care providers
   - Employers' associations:
     - Construction/facilities management
     - Hoteliers
     - Retail
     - Business/public services
     - Distribution

> *Look at what WIOA [Workforce Innovation & Opportunity Act] is trying to achieve: quality self-sufficiency. This kind of work could be vital to that aim if it was recognized.*
>
> **WDB Executive, Bay Area**

3) Other stakeholders
   - Vocational services agency
   - Children and families agency
   - Health department
   - Unions
   - Anti-poverty nonprofits
   - Community groups
   - Disability advocates
   - Caregivers' groups
   - City wellbeing charities

4) Potential intermediaries

- Recruitment agencies
- Employment charities
- Community colleges
- One Stop operators

The project described has value beyond possible launch of a Stored Availability marketplace. It scopes the leverage that could be exerted by any city that wants a better future for local workers and businesses in need of a responsive labor market. That might inform a range of interventions. As an intermediate step, cities may choose to engage a local project manager to conduct a 2-3 month feasibility study: is there easily accessible immediate demand that could kick-start a public initiative? What is the probable level of commitment among local stakeholders?

c) Costs of a market

Budgeting for a public market will focus on two factors:

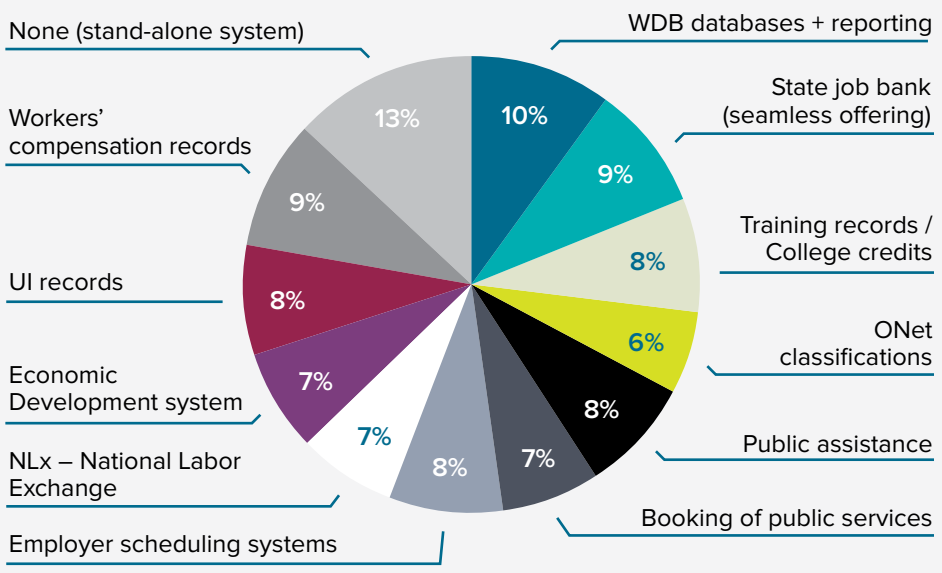
- **Technology.** The platform has to run in a secure, robust environment with multiple interfaces to other systems and communication gateways. This could be run locally or hosted by an outsourcer.
- **Market support.** Intermediaries need to be trained, employers supported and rules set. This will be particularly intense in a first year when the fledgling market lacks depth and all users are still figuring out how to make use of it.

Costs of launch are front-loaded. Each software installation for a particular state will likely require unique facilities before launch. As a market matures, users come to understand the system and the business case for wider involvement becomes clear. It is the fragile first steps of a new service where support is most needed.

Long-term, a market that has achieved sufficient volume could support itself through a system mark-up of perhaps 2.5 percent inconspicuously built into each purchase. A model of direct public funding for launch, transitioning to sustainable transaction charges, may be a possibility. It is too early to estimate precise costs for any given region, but an assumption that costs would broadly track those for early launch of state job banks seems reasonable.

Financing a first wave of market launches will require imagination. Voluminous regulations covering WIOA (Workforce Innovation & Opportunity Act) offer openings. For example: up to 10 percent of dislocated

CHART 15: Stakeholders' views on system integration for a public market



Source: Design Group roundtables, Sept.-Dec. 2016. Paper questionnaire. Options ranked by participants in order of preference.

worker funds may be allocated to transitional jobs. Irregular work might be included under that heading. The Design Group also noted new freedoms for boards to raise funds from external sources within WIOA. It is possible that local consortia of employers or philanthropies might share risk.

Selecting software

Some workforce boards are confident with technology: Tennessee's state WDB has worked with Geographic Solutions, providers of state job bank systems, to build Working Opportunity Tax Credit claims into Jobs4TN, the state job bank[109]. Others proclaim their wariness about new software.

At this stage, the priority for technology to enable a CEDAH should probably be interchangeability: can software used for launch be replaced easily if a better product emerges? WDBs are unlikely to want to build a platform in-house, but they can avoid being locked into a single provider

d) Post launch: market management

Most state job banks are subject to a mix of federal requirements and local specifications and run by an outsourcer commissioned by the state. It is assumed that irregular work markets could extend this model which may be mandated by rules that WDBs reduce services provided directly. This would leave the state with only a supervisory function.

A new market could start cautiously with safe options while retaining the possibility of review. For example, only established businesses might be allowed to act as intermediaries for the first year while the possibility of small community agencies springing up is kept on the table for year two. Or a state may rule that only W2 workers (employed through an intermediary) are permitted at first while reserving the right to allow entry to 1099 contractors at any point. Likewise, systems interfaced with the CEDAH may be limited at first.

TABLE 10: Minimal functions for a state after market is launched

Function	Notes
Contract with market operator	Payment could be a blend of set up or license fees and the right to charge a margin on each hour booked (paid by the employer). The arrangement may be that the state provides funding only for a fixed period, after which the market must sustain itself through transaction fees.
Set rules for market	This would be a local market, following the state's rules. Legal compliance would be automatically enforced. But the state may wish to introduce other rules; for example, that an employer with more than a certain number of court rulings against them may not use the system.
Determine eligible agencies	The state may wish to allow any legal employment agency to use the market. Or it may want to favor charity or public sector bodies. There may be a desire to cap margins. All can be imposed by the system.
Set rules for apps	The state may wish to allow anyone to use the fringe work market as a platform on which innovative services are offered. Such services might include new models of financial services, peer support, training or union membership for irregulars. Apps could draw on system data.
Exploit data	It is anticipated that the state would want to use its access to data generated by the market to plan labor market interventions, launch initiatives or attract employers to the state.

e) Why workforce bodies?

The Design Group understandably needed convincing that workforce bodies were the best catalysts for a local market. Other options for a local prime mover were reviewed:

workers could progressively undermine traditional employment[111]. Creating a more equitable model of fluid employment could change the economics by balancing buyer and worker power. If quality irregular workers move over to public markets where they are more expensive, creating jobs may make more sense.

TABLE 11: Potential catalysts for launch of a public irregular employment market

Potential catalyst	Examples	Commentary
Unions	SEIU, AFL-CIO, Domestic Workers Alliance	A Stored Availability market updates the hiring hall concept. However, unions are typically single sector focused and may not be perceived as independent in any tension between employers' and workers' interests.
Labor market intermediaries	Goodwill, Urban League, United Way	Often contracted to deliver services to workforce boards, they could proactively start a new market at scale but may lack depth of relationships with a broad base of employers.
Philanthropies	Ford Foundation, MacArthur Foundation, Joyce Foundation	Many funders are moving toward a "future of work" focus. But they rarely have the local operational experience required in-house.
Commercial providers	Geographic Solutions, Manpower, Adecco, Monster	Recruitment is typically a short-term, responsive industry. It provides what clients want. For-profit providers could deliver the service as they do with state job-banks, but they show few signs of readiness to initiate it from scratch.
Large employers	Walmart, Kaiser Permanente, McDonald's	These companies could catalyze a market from their own needs at least in their sector, but within their current business focus they have little incentive to open it equally to competitors or expose their staff to potentially higher paid bookings elsewhere. A monopsony (market with just one buyer) is not the best option for workers.

Other entities *could* be the keystone of ambitious worker-centric markets for irregular labor, but workforce organizations generally have the immediate relationships, credibility and operational focus to do so. If they were to take the lead, the parties listed above could be invaluable stakeholders.

America's community colleges offer a tangential option for catalyzing markets within the workforce system. Workforce development is key to their role. Substantial portions of their budgets often come directly from the state or through the federal Department of Education, free of WIOA demands for conventional employment outcomes[110].

One possibly compelling reason for the workforce system taking a lead: commentators believe the current model of commoditized, uniformly cheap, disempowered irregular

f) Are workforce bodies ready?

This was felt to be a question of the workforce system's desire to adapt to precarious employment. Significantly, WDBs may already be linchpins of irregular work without that being acknowledged.

Data sources used by the Bureau of Labor Statistics that recognize outcomes for local boards measure monthly filled jobs using payroll data. But key sources – Quarterly Census of Employment and Wages and Current Employment Estimates – specify no minimum for hours worked and do not de-duplicate worker records. So five "jobs" in BLS data could be one person doing a few hours a week for five employers. (The Local Area Unemployment Statistics program does measure people rather than filled openings.)

> *Nearly a third of our job placements are with temp agencies.*
>
> **WDB Executive, Oregon**

The danger is that clients are being placed in volatile work, with that appearing to be a successful outcome under WIOA. But those people are not getting the infrastructure they might need to thrive in an era of fractured engagements.

As in Britain, irregular work remains peripheral in US workforce operations even as diverse indicators show it moving mainstream in labor markets. WDBs who declined to get involved in this project cited a mix of (a) dislike of irregular work; (b) the pressures of adapting to WIOA requirements; and (c) a view that private sector gig economy websites would resolve any problems for these workers. However, credible thought leadership among WDBs can be seen – to take some examples – in:

- San Francisco. Hiring events for gig work platforms and training for success in gig work reflects the impact these platforms have in their epicenter area.
- Gainesville, Fla. The company running CareerSource North Central Florida created the OwnForce platform to assist gig workers[112].
- San Diego. The WDB compiled a report on the local impact of gig work[113].
- Seattle/King County. The WDB pioneered a Self Sufficiency calculator that allows citizens piecing together a living from fragmented work to see the benefits for which they might qualify and what extra income they would need to be self sufficient.[114]
- Los Angeles. The city provides safe physical spaces for day labor hiring[115].

The view from Design Group members was that the issue was not *"Are all WDBs now ready to act on irregular work issues?"* but rather *"Are there a handful of potential pioneers who could pilot interventions aiming to create replicable business cases for other areas?"* We suggest resources continuing to be committed by the Design Group that enabled this report points to a firm Yes.

The group wanted to help pinpoint WDBs that might be particularly suited to piloting public

TABLE 12: Assessing a WDBs readiness to launch a market

Factor	Notes	Example board
Obvious need for irregulars	Any WDB with above average seasonal hiring or reliance on sectors like tourism, hospitality, retail or care could quickly boost its metrics for employer engagement if able to decisively raise standards and ease of booking in this part of labor markets.	Maine
Externally funded improvement projects	A region attracting significant funds for work on local infrastructure or community development will have a new need for workers. Part of that need could be met by putting requirements through a fledgling public market for irregular work.	Detroit
Percentage of funding that is local	Many city/region WDBs are funded entirely by federal money tied to traditional employment outcomes. Others have funding at the discretion of a mayor or commissioners. This funding could be aligned with targets to help irregulars.	San Francisco, (of $14.5 million a year on job/training programs, only $4.5 million is federal).
Target flexibility?	Some states have negotiated wider definitions in their targets agreed with US DOL. This can allow room to recognize progress in supporting irregulars. (Any WDB can pursue a US DOL waiver from targets[117], but the process can be time consuming.)	Florida (work-seekers can declare themselves employed and off support without needing to incorporate or pass payroll tax thresholds).

Universal Enrollment?	The Public Workforce System is mandated to provide a level of universal access to services. But states have varying levels of enrollment in support programs. Those that will enroll any citizen have the most to gain from a comprehensive self-service tool that diverts capable work-seekers away from more costly interventions.	Oregon
Full service city?	A city that delivers its own services, rather than procuring them from contractors, will be a significant employer in the local economy. If contingent requirements can be channeled through a public market, that is a way to easily boost launch demand.	Long Beach, Calif.
Agency functions?	Some WDBs carry out functions normally reserved for recruitment agencies: for example vetting or payrolling workers. By extending these facilities to irregulars the WDB could take out much of the cost for intermediaries in a public market. This increases the market's attractiveness to participants.	Portland's Worksystems TalentLink project vets candidates free of charge to employers[118].

markets for irregular work. Fifteen percent of federal dollars are retained by governors for initiatives to boost WDB performance. This discretionary spending could possibly be directed to projects to support irregulars[116]. At the city or county level, factors in Table 12 can be used to assess a WDB's readiness to extend services into a public market for irregular work.

> *We need to get ahead of this [irregular work]. If not, our system is not as relevant as it can and must be.*
>
> **WDB Executive, California**

> *A lot of my staff like working here but wages are better elsewhere. They do second jobs or piecemeal work outside their main employment.*
>
> **WDB Executive, Tennessee**

Challenges for boards

Workforce boards are operational entities with little formal encouragement to think outside prescribed activities. But they are attuned to local economic changes and many leaders wish to experiment. Extending services to irregular employment faces some specific obstacles. Broadly, we found the following:

TABLE 13: Perceived barriers to launch of a public market

Challenge	Explanation	Notes/mitigation
STRATEGIC ISSUES		
Target alignment	Under the Workforce Innovation & Opportunity Act (WIOA), federal funds for workforce boards are tied closely to development of traditional jobs and careers. Support for irregular workers could consume resources without recognition.	There are three possible ways of handling this: • Align the market with existing WIOA targets. • Seek a waiver from targets. • Establish targets specific to the irregular employment force using other sources of funding. These are explored below.
Distaste for irregular work	Boards sometimes fear opposition from stakeholders who believe irregular employment needs to be rolled back, not supported in any way. There can	It seems beyond dispute that irregular employment will grow and is irreversible. Also: • Attempts at curtailment would likely boost shadow economy bookings.

	be a perception that making irregular labor more reliable and accessible will harm job creation[119]. Unions have been mentioned in this context.	• Helping the afflicted workers with a public market could support attempts to stabilize demand for labor.
Objections from gig work companies	Uber and its imitators are fearsome opponents of regulation and worker protections with substantial lobbying budgets[120]. Workforce boards are felt to be unprepared for attacks if they were to start raising standards with an alternative model for workers.	Public markets for job-seekers are accepted. Commercial recruiters may not welcome the competition but often work with such services. To extend that principle to irregular employment: • The main competition should be under-the-table bookings. The shadow economy lacks lobbyists. • Commercial gig platforms could – if allowed by a WDB – draw workers from public markets, adding value and charges as consumer travel websites do.
Desirability of a more cautious approach	It is sometimes felt that the lack of official data on gig work is a disincentive for strategic action. More cautious alternatives to a comprehensive market include: • Commissioning local research. • Launching a simple website for irregular employment listings rather than a fully featured market. • Training work-seekers on how to use gig work websites.	Federal sources are tackling the data deficit with two reports in 2017[121]. But so much activity is in shadow economies and can't be mapped; it is difficult to see how local research can then create a clear case for or against action. A simple site seems unlikely to boost workers or offer a meaningful supplement to commercial services. Training is valuable but learning to navigate volatile markets with little protection or progression for workers may not offer sustainable long-term workforce improvement.
OPERATIONAL CONCERNS		
Finding demand	Successful launch of a public market is predicated on identifying enough demand for labor. This remains an uncertain process.	The process is best broken down to a series of incremental steps, starting with an initial, low commitment feasibility study. These steps are documented and can be priced.
Liabilities	Some boards fear they might be liable for failures or wrongdoing by buyers or sellers in a public market. This could include claims of facilitating discrimination against workers.	Boards may not operate their public market; it could be outsourced as state job boards are. Even if run in-house, contracts for usage could ensure vetting of users was the responsibility of intermediaries who build a mark-up into each hour sold. Contracts can permit inspection of purchasing decisions if discrimination is alleged. If a manager is persistently booking young women, for example, his record of skipped options and favoritism can quickly be displayed, resulting in barring or legal action.
Lack of provision for the digitally excluded	Any internet service will be biased toward the computer-literate. Those lacking smartphones or web-access or unconfident in their use will be marginalized.	Sustainably improving irregular employment seems hard without some sort of technology platform. Transaction costs are otherwise prohibitive. But the right platform can make "Peer Navigators," workers trained to support the unconfident into working through public internet access, uniquely cost effective.
Impact on undocumented workers	If public markets attract significant activity out of the shadow economy, those who need to work off-the-books will be left exposed.	It is unlikely a public market would eradicate local shadow economies, since it would only impact some of the activity. If permitted, intermediaries could allow anonymous workers to register, build track records and accrue skills. Those people could then link a work record to their identity if ever they wished.

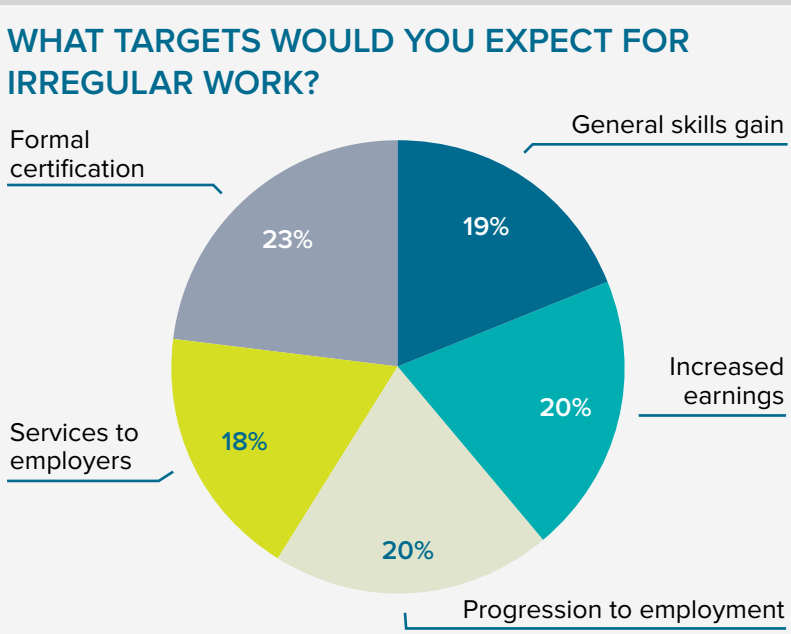
g) Target outcomes for irregular work

Workforce boards are bound to outcomes defined by WIOA common measures[122]. These measures are signed off by Congress and determine release of federal funds. WIOA targets cannot be changed in the short term. Targets are set between US DOL and Congress, then between US DOL and states, then between state bodies and local WDBs annually.

Demonstrating return on investment for WDBs supporting irregular work will require that either (a) existing common measures recognize these achievements; (b) states set "interim targets" that reflect the way in which irregular opportunities create a ladder to WIOA approved outcomes; or (c) targets are created that uniquely capture non-standard employment outcomes.

All these options were considered:

CHART 16: Stakeholders' expectations for targets used to incentivize irregular work improvements



Source: Design Group roundtables, Sept.-Dec. 2016. Paper questionnaire. Multiple choices permitted.

Current targets

Within common measures as they stand, consensus in the Design Group has been to explore alignment with the four most promising targets, which could have issues in the way outcomes are currently measured. Alignment was found with

- **Skills gain.** Workers in one industry might use a public market to dabble in other sectors, or build skills. For example, a school-meals supervisor might take evening bookings cooking in restaurants.

  - Issue: WIOA typically measures formal credentials. But employers more often seek "soft skills" such as reliability or flexibility. They also increasingly favor "Show me" examples, for example, *"Show me websites you designed rather than give me your certificate from web design classes."*

    An irregular employment market can document "Show me" examples of accomplished bookings, but this would need to be accepted within WIOA. Some states accept "badges" awarded by schools as evidence of soft skills. This is acknowledged as beneficial[123]. It is possible that an irregular work system could likewise award badges based on attainment: *"You have completed 25 event steward bookings for three different employers and qualify for a silver badge in event work."* But formal credentials can be unsuited to multi-sector irregular work.

- **Increased earnings.** This could come from, for example, moonlighting (e.g., teachers and nurses providing home childcare outside their contracted hours).

  - Issue: Irregular workers are likely to drag down the average for local wage gain. Workers typically do fewer weekly hours and may earn less because of their fragmented exposure to employers.

- **Progression to employment.** Irregular employment can be a ramp to increasing hours that become equivalent to full time, or an employer/employee relationship among market users.

> *We don't have time to experiment under WIOA.*
>
> **WDB Executive, Tennessee**

- Issue: The definition of "employment" is critical. It is determined in state negotiations with US DOL. (Florida, for example, allows an individual to declare themselves employed and off assistance, while others require employer benefits to be paid or incorporation for the self-employed.) A market could easily apply a metric such as *"average 30 hours a week worked over 12 weeks equals full employment."* It could also make a work-seeker's acceptance of this as "entered employment" a condition of use. But that may not satisfy current targets.

- **Employer services.** This part of WIOA targets is new to the workforce system and still being negotiated. One insight might be the rebooking rate, or the percentage of employers who tried the market then continued using it. A qualitative measure might be employer satisfaction with the system measured through surveys triggered after a certain number of bookings.

> *Ninety percent of our businesses have 20 employees or less. It's hard to serve them meaningfully.*
>
> **WDB Director, Maine**

This could be where irregular work offers an easy win to WDBs. A 2008 study found only 35 percent of employers of low-skilled labor had contact with their state or local workforce board[124]. As competitive pressure to source on-tap labor builds, setting new standards and readiness in that tier of the workforce could grow penetration. An automated platform would be essential to doing this if small businesses are to be serviced cost effectively. They remain unattractive to commercial agencies without significant mark-ups.

Interim target

Someone who *was* unemployed but is now averaging 10 hours a week is clearly closer to a job outcome. A student able to gain in-demand skills only because he can earn while studying will boost next year's formal metrics. An entrepreneur on their way to formal self-employment because they can earn ad-hoc while growing a home business is in the running to boost WIOA measurements. A governor could formalize recognition of these rungs to incentivize an irregular work market as a tool for workforce and economic development.

> *BLS data don't tell us the local under-employment rate. We hired an analyst. It's 16 percent. Our unemployment rate is 4 percent.*
>
> **Mayor's advisor, Bay Area**

New targets specific to Irregular employment

Specific targets for irregular employment outcomes could be set, possibly by a governor or mayor allocating resources to this part of labor markets. They may come out of goals shared between WDBs and welfare agencies or vocational rehabilitation agencies. These targets might be based on:

TABLE 14: Possible targets to monitor irregular employment outcomes

Metric	Explanation	Activity likely to boost performance
Utilization Rate	This is the ratio of hours offered to hours sold. If a person wants to work 40 hours this week and is only booked for 30 they have a Utilization Rate of 75%. Rates can be aggregated across skills, industries, a specific geography or tagged workers (for example: former community college students or non-English speakers).	Re-skilling from low utilization industries to high. Outreach to unregistered workers likely to have immediately high utilization. Employer attraction focused on low utilization sectors.
Fulfilment	This is the ratio of employers' needs successfully filled through the system, versus transactions where the market did not have the right workers at times/locations required.	Building worker skills, identification of travel bottlenecks (helping workers get to where the work is), priming transactions by providing a manager to intervene and line up known workers where a booking has failed.
Personalized progression	Irregulars have widely varying needs from the labor market. The system could ask each to set up a personal pathway. That might rank enhanced earnings, more hours at times of availability, movement into a chosen type of work, extra skills, stability or variety. Monthly progress against this pathway could be measured and aggregated for reporting.	Coaching workers on attainable pathways, targeted skill-building offers and potential introduction of specific workers to target employers.
Market breadth	Covering the most types of work offers the best opportunity for workers and increased usefulness in the local economy. It may be that only sectors attaining a given volume of transactions are counted.	Outreach to additional industries and training bodies.
Travel distance	The platform can report on distance traveled to a place of work. The lower this figure the better for workers and the environment.	Analysis of journey data to create business case for transport initiatives, e.g., inducing employers to charter buses from a travel black spot when many bookings are in hand.
New activity	Attracting activity out of the shadows, enabling new businesses and widening the workforce would be key attainments for a market. These could be measured by asking users to declare how they would have met their needs without the market. The monetary value of transactions by those that wouldn't have otherwise transacted in the legitimate economy can be totaled.	Specific outreach to those likely to be in shadow activity, marketing through groups for single parents and others likely to feel excluded from the mainstream labor market, demonstrations of value of starting a business relying initially on very responsive staffing.
Qualitative surveys	Users could be asked, perhaps quarterly, if the market was good to use, helping their goals and well run. A summary of activity could be used to weight answers so heavy users were most important to satisfy.	Responsiveness to need in market functionality, skills alignment and worker support. On-going feedback and communications.

h) Joined-up markets?

It's a sensitive issue but there are undeniable benefits to markets that cross regional or state boundaries. Creating a seamless partly-national or national platform would immediately benefit those on workforce area boundaries. For example, most of Vancouver, Wash.'s opportunity lies across a bridge in Portland, Ore. If both states had a public CEDAH (Central Database of Available Hours), work-seekers on either side of the Columbia River would have widened opportunities, and simpler lives, if able to trade in one unified market.

> *Several of our young folks have started working through Uber. They may not understand how to capture their costs or compare earnings.*
>
> **WDB Executive, Los Angeles**

But patching together multiple markets creates increased power for centralized operators. Public jobs markets evolved from a centralized model to state-run operations. There may be resistance to linking of public markets for irregular employment.

The Design Group felt this wasn't an issue at present. Services could start regionally. But the *possibility* they could progressively jigsaw together as each WDB and its users felt comfortable is worth having on the roadmap. Benefits of linked markets include:

- Proposition for national employers. A McDonald's, Kroger, Walmart or FedEx could train, deploy and incentivize a supplementary workforce uniformly.

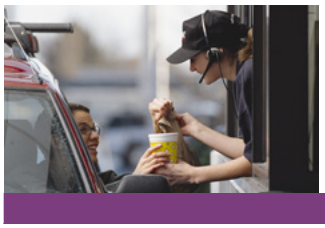
- Data gathering. Like-for-like comparisons of earnings, utilization, travel distances, length of bookings, period of notice for booking and so on could be validated and output effortlessly in real time.

- Work-seeker mobility. An individual finding opportunity scarce in Kansas could assess opportunity around his parent's home in California and – if encouraged – move back for a few weeks to test the waters, taking registration, track record and relationships with multi-site employers with him.

- Interventions. Schemes to align skills, upgrade specific worker groups or bring new players into labor markets would acquire economies of scale and ability to target more precisely. These projects could be philanthropic *("We want to create 20,000 flexible child care workers in deprived areas nationwide")* or commercial *("We will fund training in our telephony systems for any reliable top-up call center agent living within two miles of a customer").*

- Enhancements enabled. If the underlying technology can be tested, improved or built upon by any developer as in an open source model, a wide-area market would offer enticing prospects to technologists wanting to offer new tools to the irregular workforce. Ideas for these apps include (a) "work buddying," encouraging workers in a CEDAH to form friendships and then be prioritized for bookings together; (b) a return-on-investment calculator that uses market data to advise employer bodies when collective upskilling for their sector becomes cost effective locally; and (c) a "better out of Uber" extension that Uber contractors can run on their phone while driving, telling them when they would earn more by selling their time in the CEDAH.

Multi-state operations wouldn't require lock-in to a winner-takes-all technology supplier or uniform aims. States could launch at different times, with widely varying objectives, rules, targets and budgets using technology from multiple providers. But if they aligned on high level data structures and legal frameworks, those markets could couple at any time. A widely accepted set of common standards compiled before the first launches would take cost, complexity and compromise out of later linkages.



RECOMMENDATIONS

The 2016 election confirmed a cocktail of woes for American workers. Unlike flatlining wages, declining quality jobs or globalization, irregularity may be relatively easy to tackle locally.

Data on irregular employment are patchy. But we are past the point where its continuing increase can be denied. We suggest it is time for a holistic view. Uncertain hourly work can be a vicious destabilizer, an opportunity gateway, the only possible form of employment or a seasonal bonus.

As with traditional employment, this tier of labor markets would benefit from enduring, accountable institutions committed to inclusiveness, opportunity, quality and alignment. Creating genuinely enabling infrastructure is not a purely commercial opportunity. If it is to happen, philanthropies and public bodies have to shape the environment.

There are policy, process and perception hurdles. Our Design Group believed these were best worked through by bringing more stakeholders into the conversation and learning-by-doing. The pivotal next stage is proof-of-concept pilots: markets launched with all the requirements of success in place. If they then swiftly grow to critical mass, business cases and templates for launch can be replicated elsewhere.

This requires some commitment from a range of stakeholders. Our broad recommendations:

a) For philanthropies focusing on economic opportunity

i. Reframe from "jobs" to "work"

At its worst a job involves mono-skilled dependency on an organization with negligible training or promotion prospects that deploys workers with no regard to their personal stability. At its best, working across a personal portfolio of organizations delivers experience, training, networks and competition among employers and fosters life-long resilience and evolving opportunity.

> *We see non-standard work as 'Plan B.' If someone wants a career in nursing we also encourage them toward immediate work as a healthcare assistant; it sets them on the ladder.*
>
> **WDB Chief Exec., Bay Area**

Distaste for uncertain work is understandable. But a view that it is inevitably demeaning and inferior may be self-perpetuating. A better model of irregular employment could uplift life chances for millions. Developing that could be as important as creating new jobs.

ii. Seek foundational solutions

Many short-term projects could help a group of irregulars. But there is a pressing need for sustainable underpinning infrastructure capable of supporting a gamut of interventions while ensuring low-cost self-service is always the default option.

That will require sophisticated technologies, often outside the comfort zone of charities committed to low-income households. At this stage the priority could be building a detailed specification of what a genuinely worker-centric irregular work market must do and how it could be optimally structured. There should also be a framework for rule-setting by individual WDBs and consensus on contractual options, for example around the role of intermediaries.

If such a document was compiled with input and buy-in from the spectrum of labor market stakeholders it could form a credible "constitution" for public irregular work services. This would (a) create an off-the-shelf specification for any organization wanting to commission its own platform; (b) avoid debasement of the concept of "public markets" for irregulars with an agreed set of standards to which such services must adhere; and (c) create common architecture that would allow markets in different states with varying priorities and using different software providers to connect if ever they wished.

iii. Build strategic awareness and support

It will take time for an array of bodies to focus on irregulars and the part that organization could play in improving their prospects. Having multiple bodies clearly ready to support an initiative, after thinking through their strategy, would make local launches much easier.

Bodies to be cultivated in this work fall into three categories:

- Initiators. Networks of governors, mayors, workforce professionals, employment charities, etc. These offer routes to potential local catalysts for a market launch.

> *The unions would need to be engaged at some point.*
>
> **WDB Chief Exec., Los Angeles**

- Enablers. These institutions could be pivotal in getting any local market off the ground, typically by engaging their local stakeholders who would have demand for workers. They include (a) employers' networks; (b) agencies channeling projects with a contingent labor component to regions – for example, the federal Department of Transportation; and (c) national labor market intermediaries.

- Enhancers. Groups that could logically extend their operations into services offered within public markets for irregular work. Examples include (a) training providers; (b) unions; (c) advocacy groups for particular worker groups; (d) anti-poverty initiatives; and (e) social technologist networks.

Cultivating these discussions would further shape understanding of the scope, possibilities and challenges around uncertain work.

iv. Support pioneering public bodies

Organizations such as workforce boards have credibility, relationships and knowledge that could be leveraged into new services. There are other possible catalysts, but boards offer a widely accepted, established, replicable force for new services. If targets across the workforce system changed to accommodate irregular working, there could be swift, national change. That is unlikely to happen without robust regional pilots.

But the first boards to launch an irregular work market will bear disproportionate costs and uncertainty. Benefits of their work will flow largely to a second wave of launches. This creates disincentives for going first within publicly funded boards. Foundations could support WDBs committed to solidly executed pilots that can be easily replicated, while accepting that boards' funding structures may mean they can only provide in-kind support.

v. Promote openness and scrutiny

Everything being learned in projects like those above could be published on a Webhub.

Critiques and suggestions should be welcomed as a way of accelerating learning. An underlying intervention to support irregulars can only benefit from some public ownership and crowdsourced development. There are open source frameworks to keep a flood of requirements coherent and realistic.

b) For the public workforce system

i. Broaden Labor Market Information (LMI)

Irregularity is so often off the agenda because it is dispersed and not coherently tracked. LMI professionals could build consensus on a formal definition and a term for *all* individuals working uncertain hours in their local economy. These irregulars could be considered a population like contingents or discouraged workers. Precise data are not possible because of the outsized role of shadow transactions. But a standard methodology for best possible comparative estimates could be developed.

ii. Plot a move to "*full-spectrum employment support*"

The public workforce system could aim to extend its support for creators and seekers of traditional employment to those providing and pursuing irregular employment. Portable benefits and tackling misclassification will remain key issues. But the need for progression in income and skills, control over hours and pathways to stability is also vital.

> *We have three measures for employer services: penetration, repeated use and customer satisfaction.*
>
> **WDB Executive, Pennsylvania**

Supporting non-standard employment does not require approval of the trend. It is legitimate to drive up standards for those doing this work while aiming to curtail irregular hours for those who are forced into them. An obvious step toward serving irregulars is inserting a commitment to review the issues in a regional plan or annual report.

> *We should do this, and shape it, before a new Labor Secretary forces it on us with their agenda.*
>
> **Roundtable attendee, Oregon**

iii. Understand local leverage

Boards are well placed to convene stakeholders, anticipate needs and research possibilities for interventions to support irregular employment. Raising awareness locally and seeking feedback, or possible commitments of support, can give preliminary indications of likelihood of success in any area.

iv. Develop targets

Sustained involvement by boards will require targets. Negotiating recognition of achievements on behalf of irregulars within the WIOA Common Measures may be possible. Metrics around employer engagement with services seem most promising. Development of local targets to be funded by governors, mayors or non-public sources would create a proposition for philanthropies or public funding.

Ultimately, US DOL could work toward guidance to boards on possible inclusion of irregular workers within "entered employment" and "average earnings" targets in a way that ring-fences data so they do not drag down overall averages. A ruling on the value of quality of irregular workforces within employer satisfaction metrics would also be helpful.

APPENDIX: Project participants

This report was compiled between September 2016 and April 2017 after commissioning by the Annie E. Casey Foundation with support from Living Cities.

The US Department of Labor provided an opportunity to engage with Assistant Secretaries and staff as part of an examination of gig economy issues on September 23, 2016. WDBs in Florida, Los Angeles, the Bay Area, Oregon and Washington state each convened multiple roundtables of employers, worker groups, staff and local policymakers to deliberate on issues in this report. Some 200 people, typically board members, staff or associates of their local workforce board, each attended a session of at least 90 minutes duration about irregular work markets.

Other WDBs in the Design Group were part of a wider panel, feeding into iterations of the report in scheduled phone calls often involving multiple staff. Further bodies joined the project later to review the report before publication.

Any errors or omissions remain the sole responsibility of the author.

TABLE 15: Bodies participating in this project

State or city	Organization in the Design Group	Logo	Primary Contact
Boston	Boston Planning & Development Agency	boston planning & development agency	Trinh Nguyen, Director: Mayor's Office of Workforce Planning
Georgia	Georgia Department of Economic Development Workforce Division	WORK SOURCE GEORGIA Connecting Talent with Opportunity A proud partner of the AmericanJobCenter network	Menelik Alleyne, WIOA Services Director
Long Beach, CA	Pacific Gateway WDB	Pacific Gateway Connect to Opportunity	Nick Schultz, Executive Director
Maine	Department of Labor	MAINE DEPARTMENT OF LABOR	Garrett Oswald, Director State Workforce Board; Julie D. Rabinowitz, Director of Policy, Operations and Communication
Massachusetts	Workforce Development Board (MWDB)		Cheryl Scott, Executive Director
Minnesota	Governor's Workforce Development Board	Governor's Workforce Development Board Policy Solutions that Work for Minnesota	Connie Ireland, Executive Director
North Central Florida	CareerSource North Central Florida	CareerSource NORTH CENTRAL FLORIDA	Angela Pate, CEO Focused Management Solutions (WDB operators)

Oakland	City of Oakland Workforce Development Board		Stephen Baiter, Executive Director; Michael Katz, Regional Coordinator, Eastbay Works
Oregon	Oregon Workforce Investment Board		Ken Madden, Board Chair
City of Pittsburgh and Allegheny County	Partner4Work Workforce Development Board (previously the Three Rivers WIB)		Stefani Pashman, CEO
Portland, OR	Worksystems, Inc. (City of Portland WDB)		Andrew McGough, Executive Director
San Francisco	City & County of San Francisco Office of Economic & Workforce Development		Patrick D. Mitchell, TechSF Program Manager
San Jose	Office of Economic Development / Work2Future (city WDB)		Jeff Ruster, Mayor's Director of Strategic Partnerships
Seattle-King County	The Workforce Development Council of Seattle-King County		Marlena Sessions, CEO
Silicon Valley	Novaworks (area WDB)		Kris Stadelman, Director
Tennessee	Dept. of Labor and Workforce Development		Sterling Van Der Spuy, Administrator, Workforce Services
Washington State	Washington State Employment Security Department		Dale Peinecke, Commissioner
REVIEW GROUP			
State of Florida	Executive Office of the Governor Office of Policy and Budget Transportation & Economic Development Unit		Stu Pollins, Deputy Policy Coordinator

City of Los Angeles	Economic & Workforce Development Department	LOS ANGELES ECONOMIC & WORKFORCE DEVELOPMENT DEPARTMENT	Robert Sainz, Assistant General Manager, Operations
Los Angeles and Orange County	Community Colleges Regional Consortium (LAOCRC)	CALIFORNIA COMMUNITY COLLEGES LAOCRC los angeles | orange county regional consortia	Richard Verches, L.A. Director
Greater Louisville, KY	KentuckianaWorks WDB	KENTUCKIANAWORKS	Michael Gritton, Executive Director
Michigan	Governor's Talent Investment Board	Michigan WDA Michigan Workforce Development Agency Department of Talent and Economic Development	Frank Ferro, Manager
New York City	Mayor's Office of Workforce Development	NYC Office of Workforce Development	Barbara Chang, Executive Director
San Diego	Workforce Partnership (City and County WDB)	SAN DIEGO WORKFORCE PARTNERSHIP®	Peter Callstrom, President and CEO
TECHNICAL ASSISTANCE			
NATIONWIDE	National Association of State Workforce Agencies	NASWA NATIONAL ASSOCIATION OF STATE WORKFORCE AGENCIES	Julie Ellen Squire, Policy Director and General Counsel

About the author

Wingham Rowan was hosting Britain's longest running television series about the Internet when he became absorbed in the way new market technologies could drive economic opportunity for the least well off. He ran the UK government projects that created distinctive marketplace technologies to empower workers on the fringes of labor markets. He now runs Beyond Jobs, set up to share learning and technology from Britain's programs. www.Beyondjobs.com.

Endnotes

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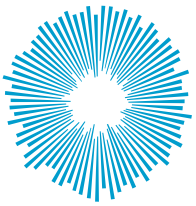

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