Think Tank IDEA · Public Lecture · May 12, 2026

AI Supported Digital School Choice

Equity, efficiency, and a chance for the best of both worlds

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Hosted by IDEA at CERGE-EI & the RSJ Foundation

CERGE-EI · Prague · Czech Republic

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Overview of This Talk

A public lecture for IDEA at CERGE-EI · Prague

The argument in one sentence. The worldwide trend toward **digitalisation and coordination** of school admissions delivers real efficiency benefits — but in practice these systems become *complex* and *hard to navigate*, which risks creating a new **digital / informational inequality**. The way out is two things *at once*: **less strategic mechanism design** and **AI-assisted choice support**.

Plan for the next 50 minutes:

1. The trend: coordinated digital admissions are spreading worldwide (CCAS).
2. The benefits: why this is happening and what it delivers.
3. The variety: many ways to implement, no single "best" design.
4. The catch: in the wild these systems become complex, families don't understand them, and a **digital divide** turns efficiency gains into new inequality.
5. The response, Part A: **minimise how strategic the mechanism is**.
6. The response, Part B: **AI-assisted smart platforms** that help every family navigate in real time.
7. Evidence and a tradeoff story from Chile, ten years in.
8. What this means for the Czech Republic on the road to 2028.

Where the Czech Republic Already Is on This Journey

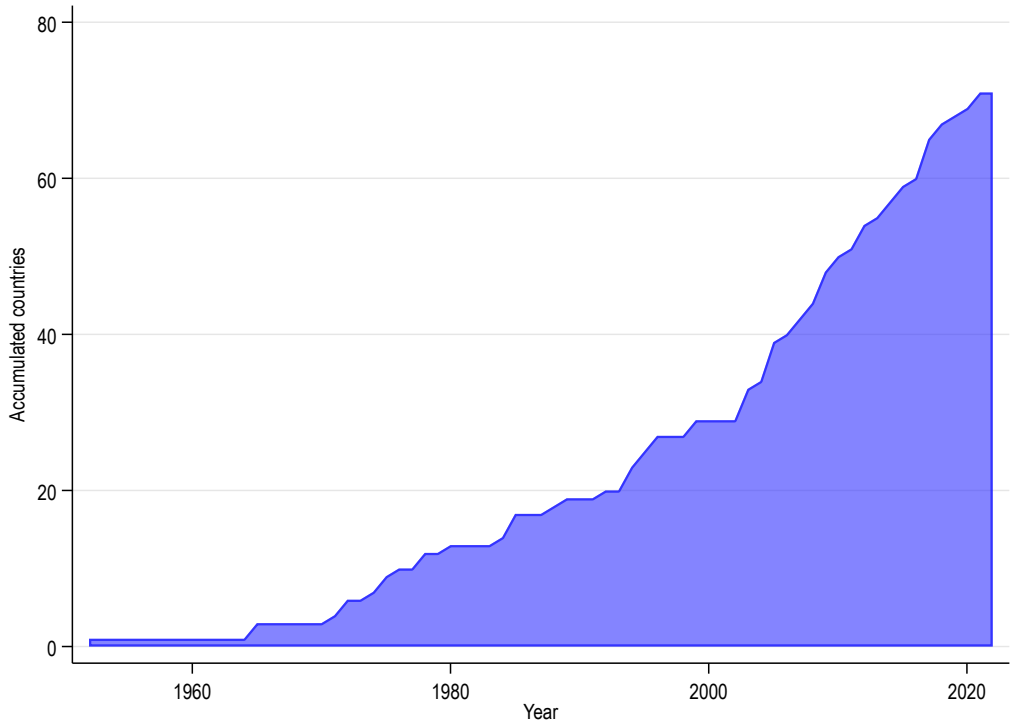
- **2024:** the high-school admission system is digitalised and centralised; deferred acceptance replaces the previous, more strategic mechanism (Münich, Protivinský, IDEA).
- **Spring 2028:** the current government has committed to further reforms — the design choices made now will shape outcomes for a generation of students.
- **Active public debate** on how the mechanism interacts with socio-economic background, residential segregation, and the identification and support of **gifted and talented students**.

Why I am here

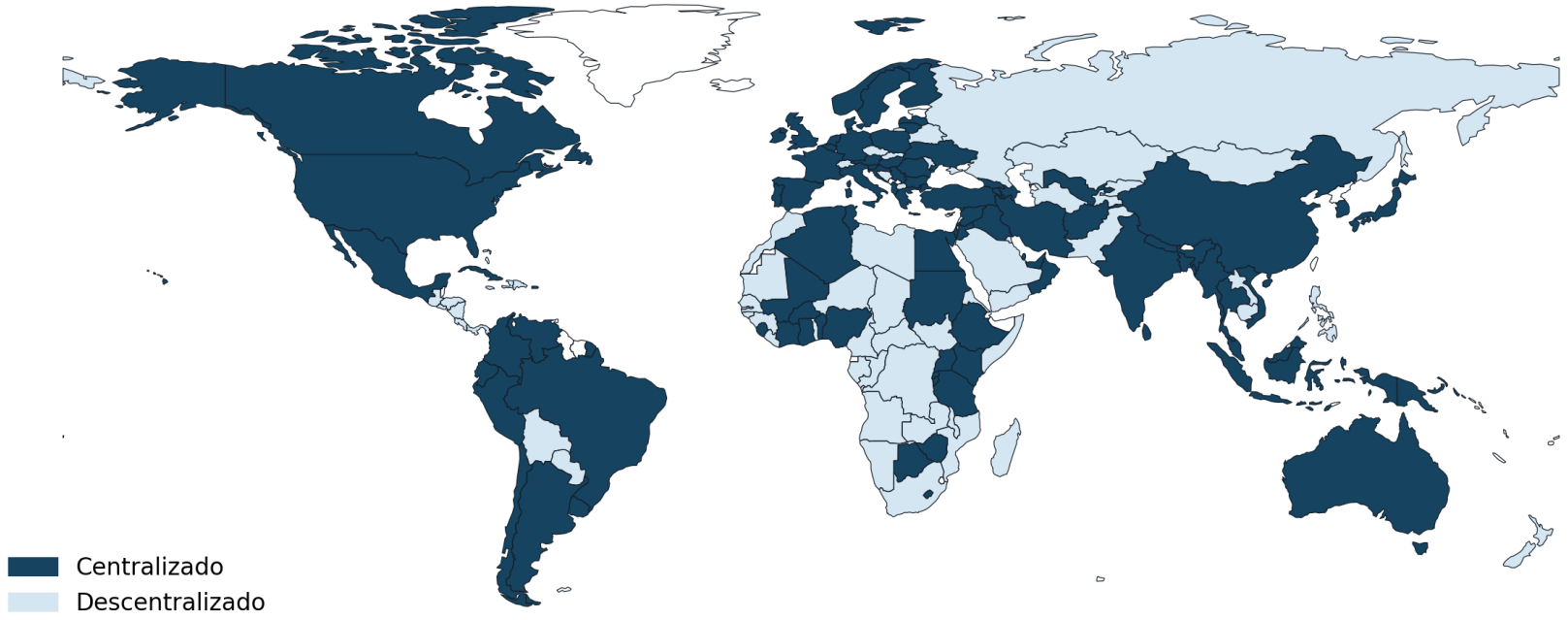
To share what we have learned from a decade of building and evaluating these systems elsewhere — and to listen.

The Trend Is Clear: Centralised Admissions Are Spreading

- Over **70 countries with centralised systems** in at least one educational level.
- Dramatic acceleration in the last **20 years**.
- Driven by transaction costs, fairness concerns, and digitalisation.



Centralised Systems Around the World



44 countries with centralised systems in higher education, 40 in secondary, 28 in primary.

Why Countries Adopt CCAS: The Benefits

Coordinated, digitalised admissions deliver a clear and measurable set of benefits relative to the fragmented, paper-based alternatives they replace:

- **Lower transaction costs** for families: one application instead of many; no in-person visits to each school; no duplicated paperwork.
- **Lower administrative costs** for schools: no admissions office per school; standardised compliance with national rules.
- **Coordination gains:** no duplicate offers, no held seats, no enrolment chaos at the start of the year.
- **Transparency and rule-based fairness:** priorities and procedures are published and applied uniformly — replacing discretion, favouritism, and informal screening.
- **Monitoring at scale:** national data lets regulators *see* the system, audit compliance, and detect problems.
- **Higher-quality matches:** when the mechanism is good, students end up at schools they actually prefer, with measurable welfare gains.
- **An evidence base for policy:** centralised data enables rigorous evaluation, replication, and iteration — the kind of feedback loop a paper-based system cannot provide.

So far so good — but the benefits do not arrive automatically

How the system is *designed* and *built* determines who captures them.

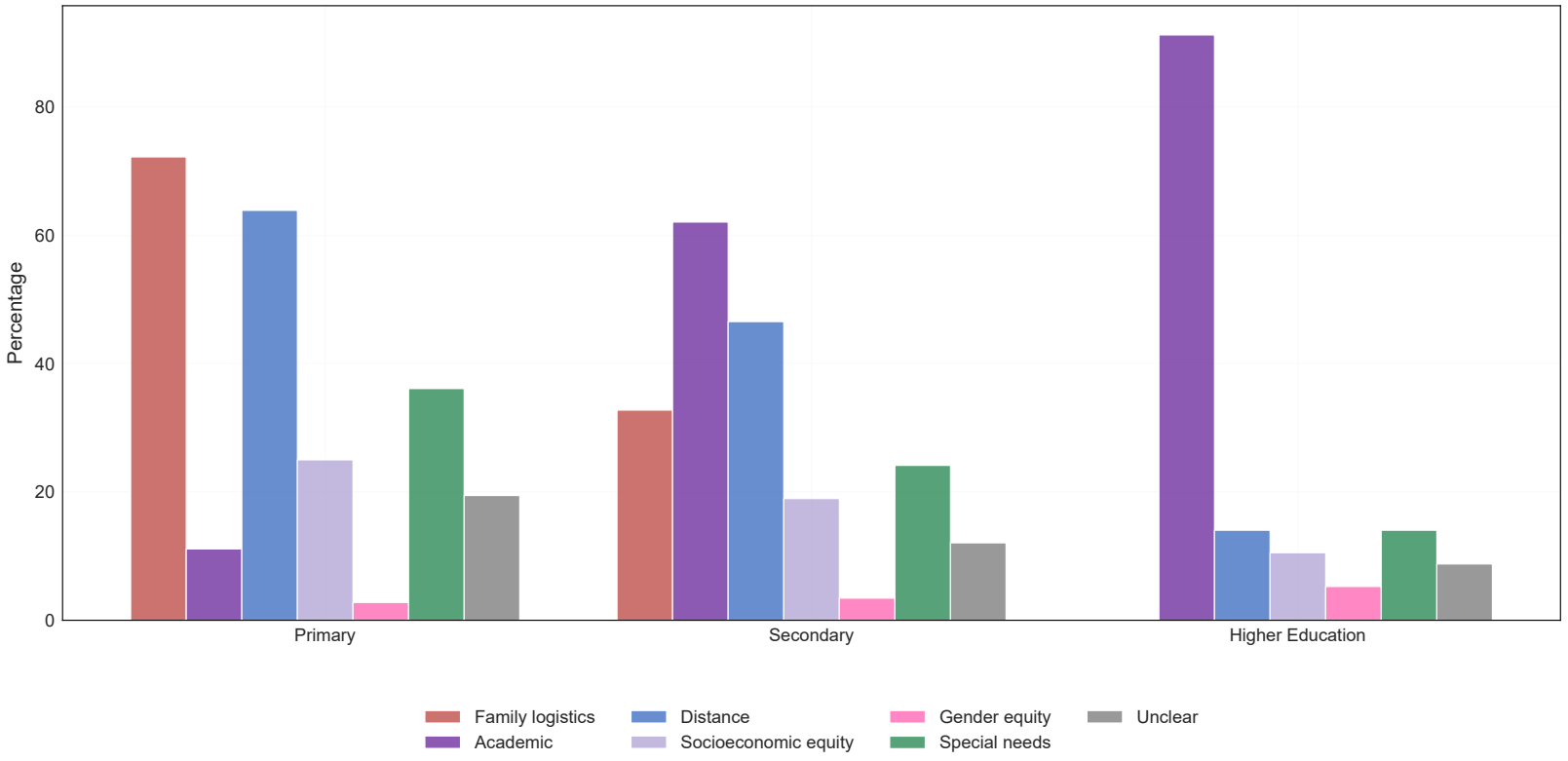
But "Centralised" Means Many Different Things in Practice

Country / System	What it actually does
Chile (SAE)	National DA. Selection *banned*. Vulnerable-student priority. All publicly funded schools.
NYC, New Haven (US)	DA at the district level. Priorities for siblings, distance, lottery.
Brazil (SISU, higher ed)	**Rank by ENEM score *within* group quotas** — 50% public-school graduates, sub-quotas by race/income/disability.
Korea, Japan	High-stakes *entrance exams*; hierarchical sorting by score.
England	Choice + catchment areas + LA discretion + faith schools; mostly DA-equivalent.
Colombia, Peru, Ecuador	DA + smart platform layer with personalised information (*recent*).
Czech Republic	**DA since 2024** for high-school admissions; further reforms in 2028.

The point

Many different implementations are in use across countries and educational levels. Each one reflects different starting conditions, priorities, and politics. The right question is not "what is the best system?" but "what is the best system *for here*?"

Which Priorities Do Countries Actually Use?



% of CCAS countries using each priority criterion, by educational level.

Primary: *family logistics + distance dominate.* ***Secondary:*** *academic criteria rise.* ***Higher ed:*** *academic criteria dominate.*

Source: Neilson & Middleton, CCAS Review.

A Closer Look: Brazil's Higher-Education System (SISU)

Mechanism. Centralised national platform. The system ranks applicants by their **ENEM exam score**.

Equity layer (Lei de Cotas, 2012 / revised 2023). **Within** each programme, seats are split into groups; the score-based ranking runs **within group**:

- 50% reserved for graduates of **public high schools**.
- Within that, sub-quotas for **race**, **income** ($\leq$1.5 min. wages), **disability**.
- Remaining 50% open competition by score.

Design philosophy. Quotas + ranking, not priorities-inside-DA. Equity is done by the *perimeter* of the quotas.

Why it matters here

Chile bans selection and prioritises within DA; Brazil keeps test-based selection but constrains *who* competes. Two routes to the same goal.

In the Wild, These Systems Become *Complex*

When countries actually build CCAS, the systems tend to accumulate:

- Layers of **priorities** (siblings, distance, vulnerability, language, faith, ability, residency. . .).
- Multiple **tracks** (academic, vocational, gymnasium, magnet. . .) with separate rules.
- Tight **deadlines** and dense, jargon-heavy interfaces.
- Caps on the **length of preference lists**.
- Subtle differences between rounds (entry, waitlist, aftermarket).
- Documents to upload; signatures to obtain; consent forms; appeals.

Reality check

What was supposed to be “a single online application” becomes a *complex digital bureaucracy* that rewards families with the most time, education, and digital literacy.

Evidence: Families Don't Understand How to Apply

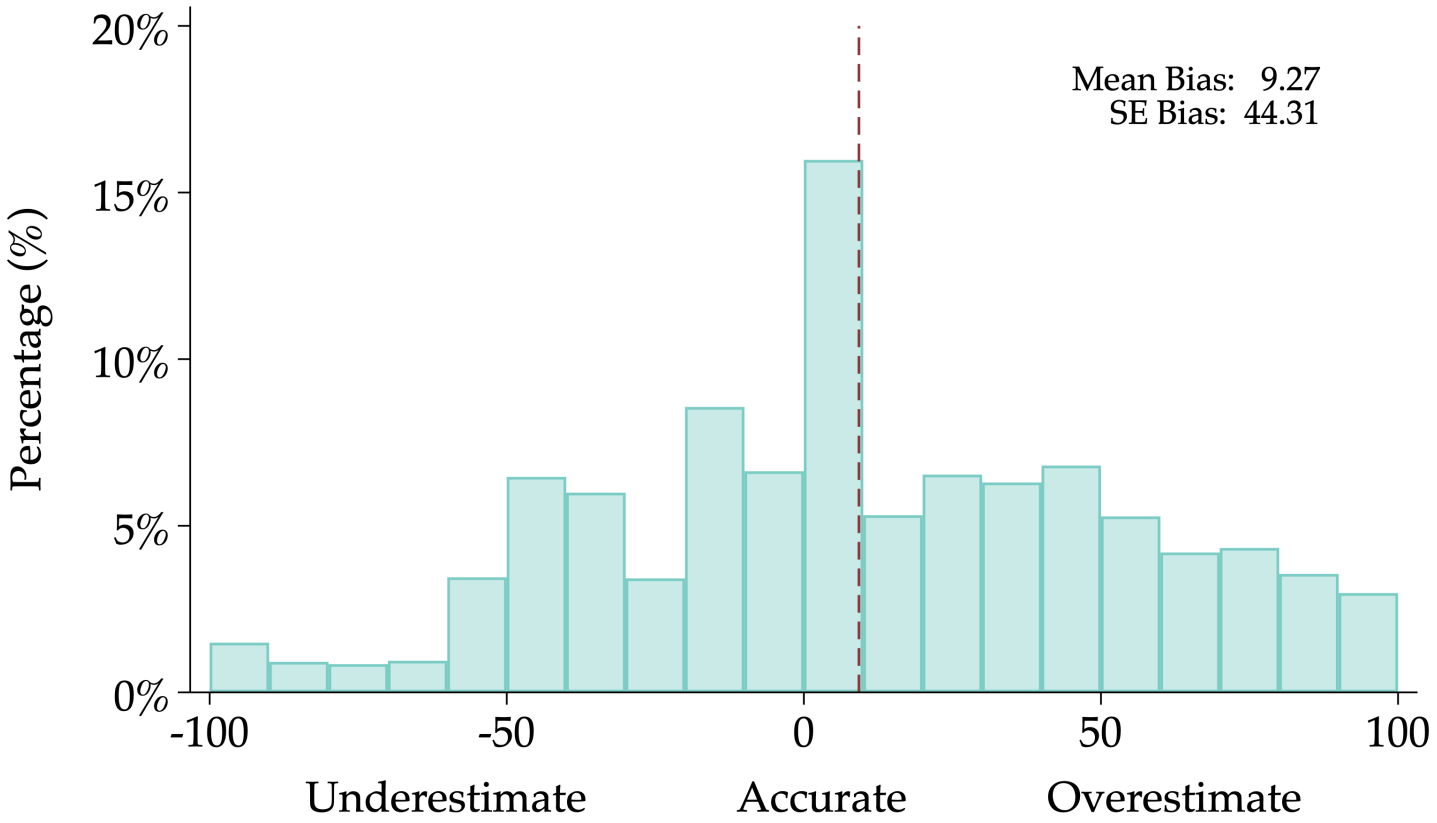
In every country we have surveyed, a **majority** of families report they do *not* understand the system well enough to apply correctly:

- **Copenhagen, Denmark.** Most families cannot accurately describe how the multiple priorities interact.
- **Los Angeles, USA.** Most families misperceive their admission chances and the role of priority points.
- **Bogotá, Colombia.** Most families do not know which schools they could realistically attend.
- **Chile.** 35% stopped adding schools mistakenly, 17% knew a nearby school well, beliefs were off by **32 pp**.

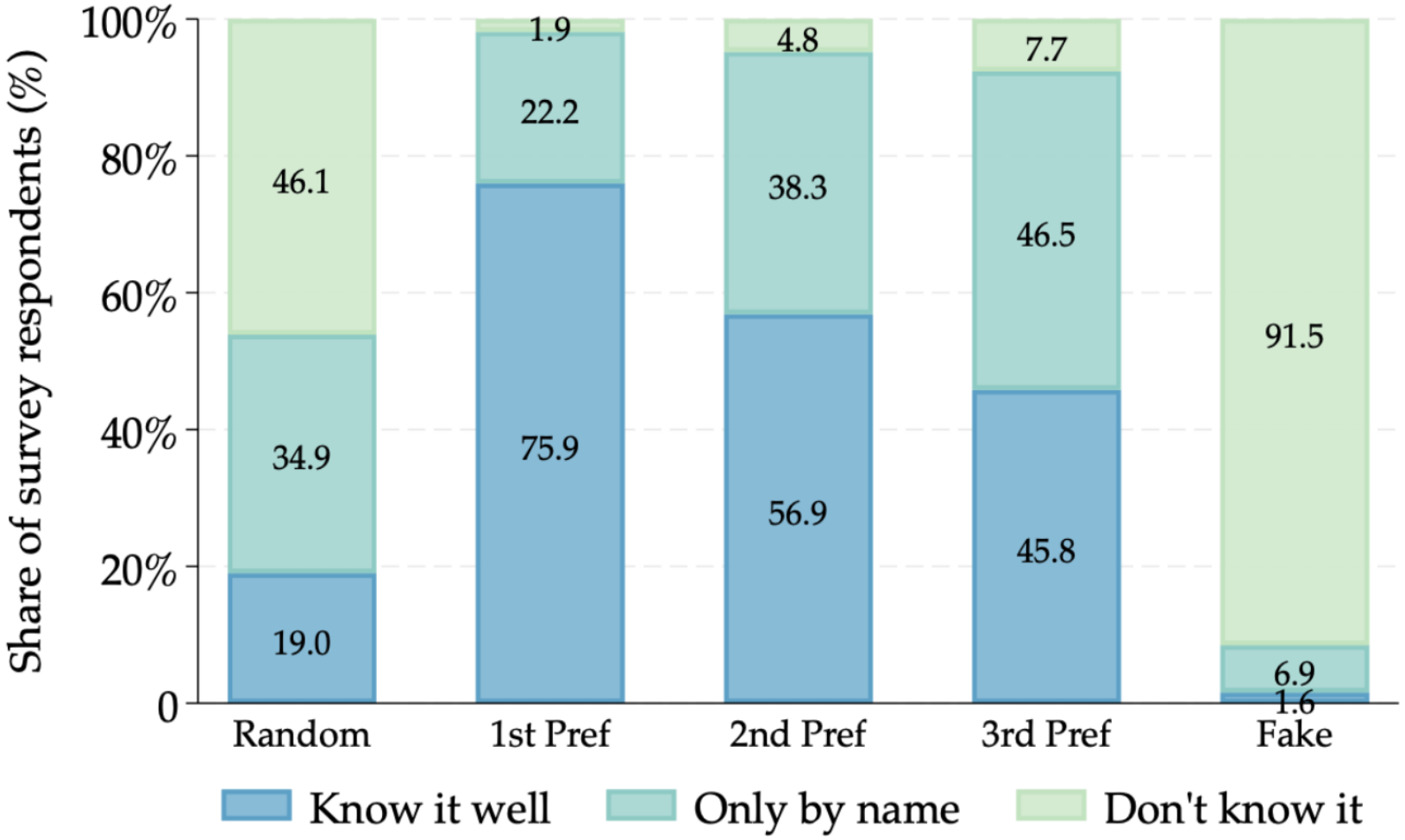
Implication

This is a *design* problem, not a country problem. Strategy-proof on paper is not strategy-proof in practice if families cannot understand the rules.

Fact 1: Beliefs About Admission Chances Are Compressed



Fact 2: Limited Knowledge of Nearby Schools



And These Frictions Hit Talented Students Hardest

- The same frictions are *sharpest* for advanced-track and selective-school applications: high stakes per application, narrow option set, unequal social information networks.
- The SES gradient in who applies to gymnasia or selective programmes is partly mechanical *and* partly informational — and the informational part is exactly what these tools can move.
- "Gifted and talented" is not only about what happens *inside* the school — it is also about **who gets through the door**.

Implication for the Czech debate

The application stage is itself a policy lever for talent equity.

The Central Tension

Digitalisation and coordination give us efficiency.

- One application replaces many. Rules replace discretion. Data replaces guesswork.

But the complexity of real systems gives us a new inequality.

- Families with more education, time, money, digital skills, and social information capture a disproportionate share of those efficiency gains.
- Families without those resources are at risk of *worse* outcomes than under the old system — they used to walk to a school; now they must navigate a portal.

The risk

If we are not careful, digitalisation and coordination produce efficiency *and* a new digital / informational divide. The benefits of CCAS would accrue to those who could already navigate.

The rest of this talk is about how to avoid that outcome.

Two Things at Once

The way out of the tension is to do *both* of these, together:

A. Smart design: minimise how strategic the mechanism is.

Outcomes should depend on what families *want*, not on how well they can *game*. The less strategic the system, the less the digital / informational divide matters.

B. AI-assisted choice: build smart platforms on top.

Even with a good mechanism, families need help learning options and making decisions. AI now makes **personalised, real-time decision support** possible at population scale.

The synthesis

Smart design reduces the *return* to being a sophisticated applicant. Smart platforms reduce the *cost* of not being one. Together, the efficiency of digital coordination *and* the equity of universal support — the best of both worlds.

Part A — Smart Design Examples

Design choices that reduce strategic burden:

- **Use deferred acceptance (DA) over Boston-style mechanisms.**
  Under DA, truth-telling is a near-best response. Families can rank by preference, not strategy.
- **Don't cap the preference list short.**
  A short cap (e.g. rank only 5) creates a strategic puzzle and punishes families who don't game.
- **Use multi-round and waitlist mechanisms.**
  A second round or coordinated waitlist undoes the cost of a first-round mistake.
- **Publish priorities, capacities, and historical cutoffs.**
  If success requires knowing last year's cutoffs, then publish last year's cutoffs.
- **Keep priorities stable across schools where possible.**
  Bespoke per-school tie-breaking rules disproportionately confuse less-resourced families.

Part B — Smart Platforms (Preview)

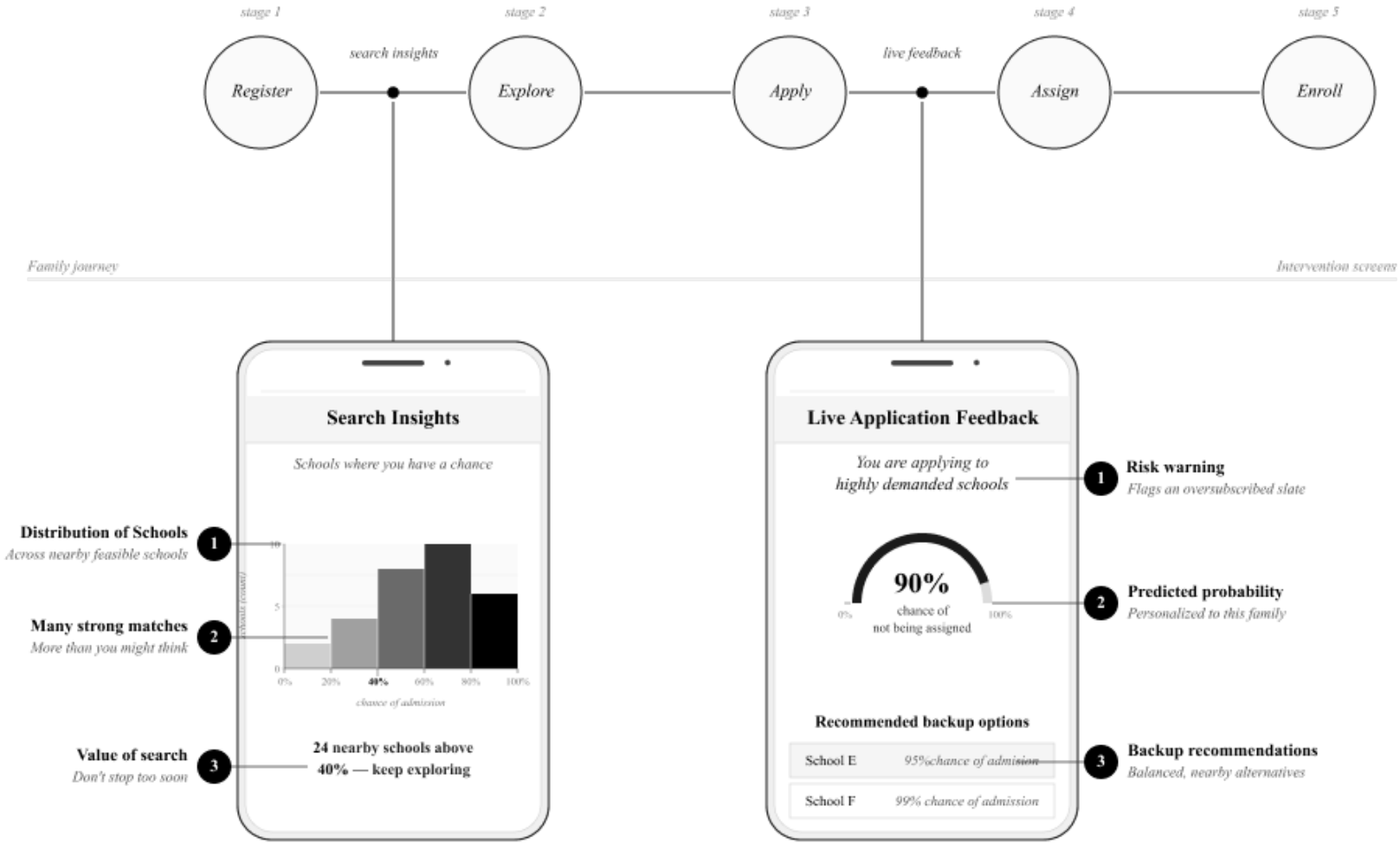
Even a perfectly designed mechanism leaves work for the platform to do:

- Make **learning options easy** — rich school profiles, search, comparison, distance, quality.
- Deliver **personalised admission probabilities** in real time, while filling out the application.
- Suggest **feasible alternatives** when a family's list looks risky — and *explain why*.
- Reach families through channels they already use (SMS, e-mail, WhatsApp), *before* the deadline.
- Use **AI to translate** between the family's situation and the rules of a complex system.

Why this is finally possible

Population-scale personalised guidance used to require a navigator per family. **AI now makes that possible at the cost of running a website.**

What a “Smart Matching Platform” Actually Does



Family journey (Register → Explore → Apply → Assign → Enroll), with Search Insights and Live Application Feedback layered on top.

Before Digital: Paper Report Cards (Chile, 2010s)

Cartilla de Apoyo a la Elección de Establecimientos Escolares
Ingreso a EnseñanzaBásica

Jardín Cardenal Caro **2010**

Todos los padres en Chile tienen el derecho de elegir el establecimiento escolaren que estudian sus hijos.
Esta cartilla, dirigida a padres y apoderados, ha sido diseñada para apoyar esta elección.
En esta cartilla encontrará información de los colegios más cercanos al jardín infantil donde asiste su hijo(a).

Para elegir un establecimiento escolar, es bueno fijarse en los resultados **SIMCE** de ese colegio, pues hablan de la calidad de la educación.
También encontrará en esta cartilla información sobre los costos de los colegios, la ubicación del colegio, y otras características.

Ref	Nombre Colegio	Puntaje SIMCE*	Cambio SIMCE**	Precio Mensual Del Colegio***
1	Colegio Rosa Elvira Matte De Prieto	293	7,50	Entre 5.000 y 10.000
2	Colegio Polivalente Don Orione	286	13,75	Entre 10.000 y 20.000
3	Escuela Básica Sol De Chile	261	5,75	Entre 10.000 y 20.000
4	Colegio Polivalente Saint Trinity	250	-8,00	Menos de 5.000
5	Escuela Básica Clara Estrella	250	-26,00	No Cobra Mensualidad
6	Colegio Kennedy	249	13,75	Entre 5.000 y 10.000
7	Escuela Básica Santa Adela	247	-10,25	No Cobra Mensualidad
8	Colegio Adventista Buenaventura	243	-7,50	Menos de 5.000
9	Centro Educacional Sagrado Corazón	243	-17,00	Menos de 5.000
10	Colegio Saint Orland 2	239	1,25	No Cobra Mensualidad
11	Escuela Básica Karol Cardenal De Cracovia	238	0,00	No Cobra Mensualidad
12	Escuela Alicia Ariztia De Silva	235	9,25	No Cobra Mensualidad
13	Escuela Básica Parque Las Américas	235	6,00	No Cobra Mensualidad
14	Colegio Básica Hernán Olguín Maibee	233	-2,75	No Cobra Mensualidad
15	Escuela Básica Las Espigas	232	31,75	No Cobra Mensualidad
16	Liceo Polivalente B 133	232	1,50	No Cobra Mensualidad
17	Escuela Básica Raúl Sáez S.	231	-1,25	No Cobra Mensualidad
18	Escuela Acapulco Dn 582	227	7,25	No Cobra Mensualidad
19	Escuela Básica Bernardo O'Higgins	224	-19,75	No Cobra Mensualidad
20	Escuela Conquistando Futuro	219	-15,00	No Cobra Mensualidad
21	Blue Star College	216	7,50	No Cobra Mensualidad
22	Liceo Tte. 2 Francisco Mery Aguirre	215	-1,00	No Cobra Mensualidad
23	Escuela Salomon Sack	215	8,00	No Cobra Mensualidad
24	Escuela Básica Lo Valledor	212	24,25	No Cobra Mensualidad
25	Escuela Republica De Las Filipinas	206	-18,25	No Cobra Mensualidad
26	Escuela Especial Particular Despertar De	204	s/i	No Cobra Mensualidad
27	Escuela Básica Saint Phillip Of Nery	202	-10,50	Menos de 5.000
28	Escuela Básica Republica De Indonesia	200	-16,75	No Cobra Mensualidad

*Valores promedio de 4° básico de los años 2006 a 2009.
**Cambio en el puntaje en 2006-2007 y 2008-2009.
***Valores aproximados para el año 2009.

Puntajes **SOBRE el Promedio Nacional.**

Puntajes **BAJO el Promedio Nacional.**

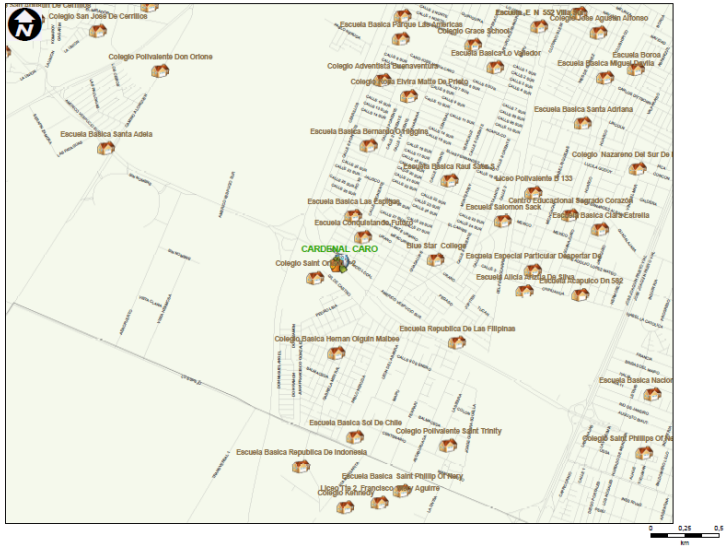
El Promedio Nacional es de **250 puntos**

Los colegios en los que aparece s/i son aquellos que no tienen la información disponible

INGRESO A ENSEÑANZA BÁSICA

Family-facing school directory.

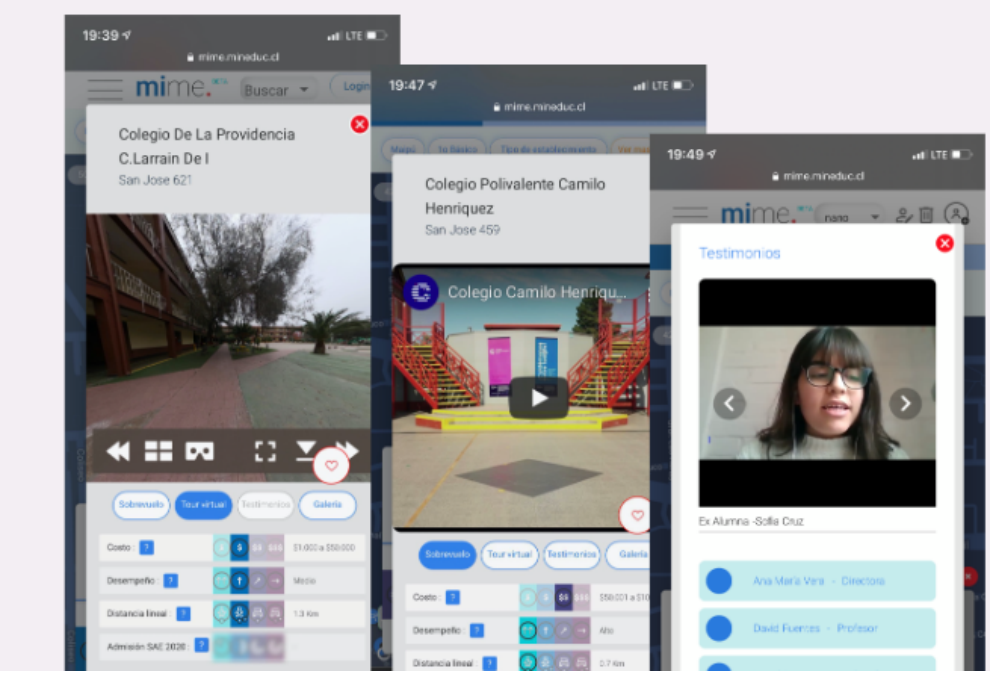
Jardín Cardenal Caro



Walking-distance + quality map.

Even simple information delivered to the right families changes choices and long-run outcomes (Allende, Gallego & Neilson, 2019/2025).

Tool 1 — School “Digital Profiles” Inside the National Platform



- Rich-media presentation of schools (text, photos, video).
- **114,000 users** in one week; ∼15,000 daily.
- Schools with videos: **5× more clicks**.
- +3 enrolled students per school; $20k NPV vs. $100 cost.
- Application gap (poor / non-poor) **closed by 30%**.

Tool 2 — MIME 2.0: A Search & Comparison Platform

Feedback-AI Assistance

Contenido estructurado y visual para facilitar decisiones informadas

Bienvenida: Carrusel de fotografías

- Muestra la infraestructura del colegio y su vida cotidiana.
- Primera impresión visual de la comunidad escolar: patios, ambiente, estudiantes.
- Elemento clave para que el apoderado forme una primera idea concreta del entorno.

Liceo Técnico Los Libertadores

Técnico Profesional | Mixto

San Javier de Sales 1342 | La Florida, RM

Datos claves

- Nombre | Tipo de formación (por ejemplo, Técnico Profesional) | Modalidad (Mixto).
- Ubicación

Agregar a lista | Postular

Botones de acción accesibles

Sobre el establecimiento | Formación | Convenios | Puntos de Orgullo | Contenido Audiovisual | Tiempos de distancia

Menú de navegación rápida

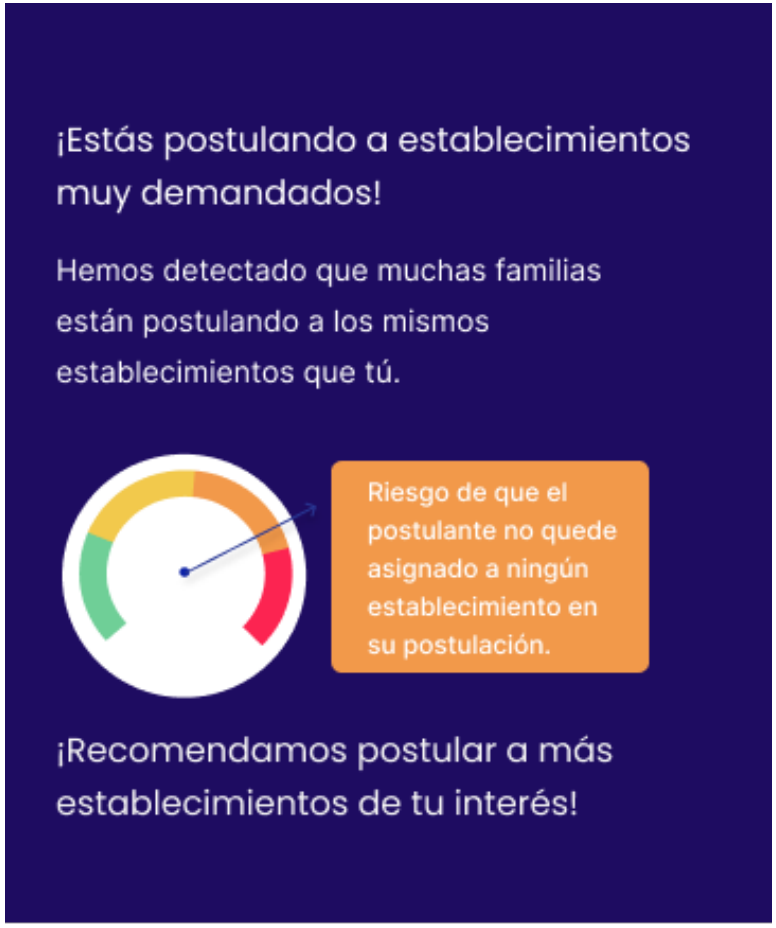
El menú de navegación rápida permite acceder de inmediato a la información más relevante del colegio, facilitando una exploración ágil y enfocada.

Vacantes en tu grado de interés

Postulaciones abiertas 2025

Postulación: acceso a información relevante

Tool 3 — Real-Time Risk Warning (Live UI)



Orange: elevated non-assignment risk.

Red: high risk + suggested alternatives.

Shown inside the application form, before the deadline. Timing is everything.

Tool 3 — Iteration over Time (2018 → 2023)

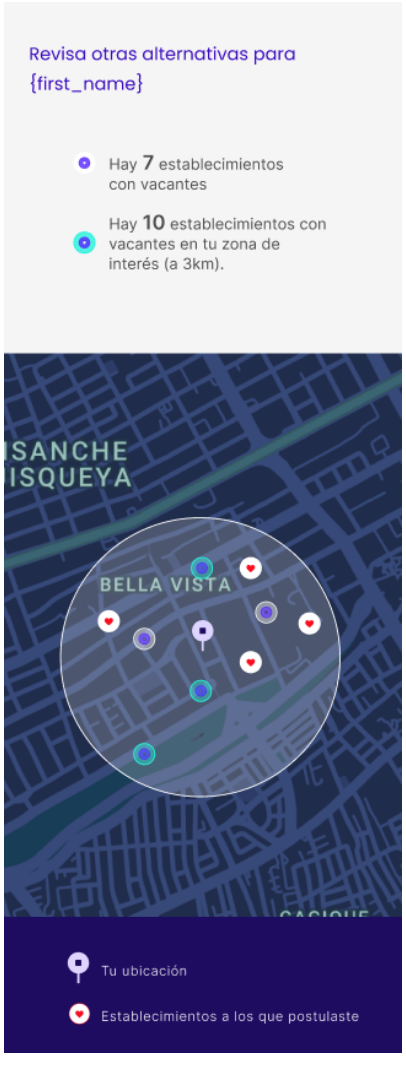
2018: simple pop-up.

2021: in-context guidance.

2023: personalised + actionable.

From *generic warning* to *personalised mechanism-aware nudge*. Each iteration was tested empirically.

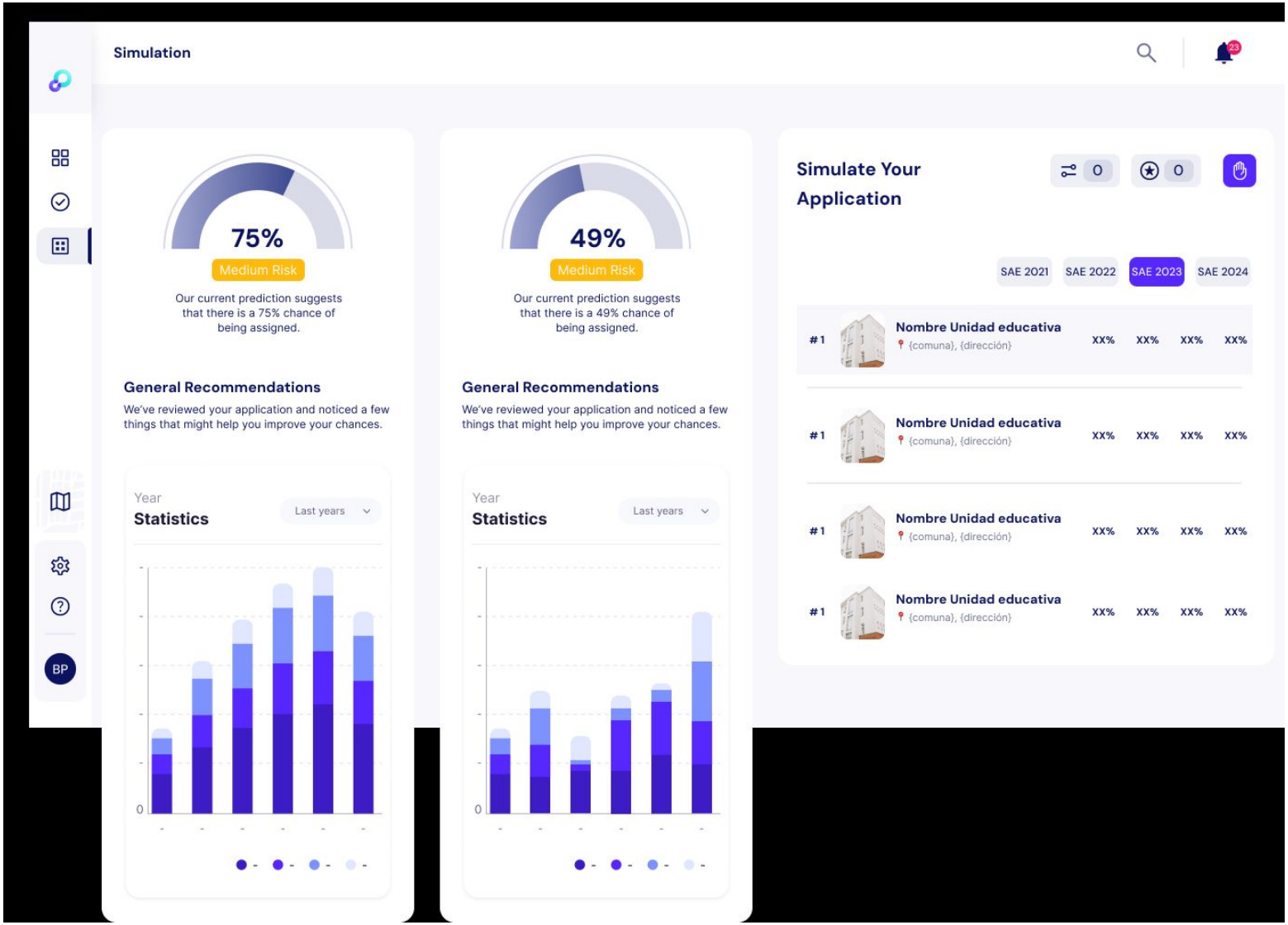
Tool 4 — Proactive Outreach Beyond the Platform



WhatsApp follow-up to at-risk families.

- Many families do not return to the platform after submitting — proactive channels matter.
- Messages are **personalised** (predicted risk, suggested alternatives) and **time-aware** (before deadline).
- SMS, e-mail, WhatsApp.
- Implementation fidelity drives effectiveness.

Tool 5 — A Policy Simulator for the Authority



Behind the family-facing tools sits a simulator that lets the authority test policy changes — priorities, quotas, perimeter — before implementing them at scale.

Evidence 1 — Smart Matching Platforms (QJE 2022)

Challenge: families' beliefs about admission chances lead to overoptimism, increasing non-placement risk.
Solution: "smart matching platform" giving live, personalised application-risk feedback.
Results (Chile & US):

- **22% more applicants** added schools.
- Non-placement risk **down 58%** among compliers.
- Enrolled at schools with **+0.10 SD** higher value-added.

SMART MATCHING PLATFORMS AND HETEROGENEOUS BELIEFS IN CENTRALIZED SCHOOL CHOICE*

FELIPE ARTEAGA
ADAM J. KAPOR
CHRISTOPHER A. NEILSON
SETH D. ZIMMERMAN

Many school districts with centralized school choice adopt strategy-proof assignment mechanisms to relieve applicants from needing to strategize based on beliefs about their own admissions chances. This article shows that beliefs about admissions chances shape choice outcomes even when the assignment mechanism is strategy-proof by influencing how applicants search for schools and that "smart matching platforms" that provide live feedback on admissions chances help applicants search more effectively. Motivated by a model in which applicants engage in costly search for schools and overoptimism can lead to undersearch, we use data from a large-scale survey of choice participants in Chile to show that learning about schools is hard, beliefs about admissions chances guide the decision to stop searching, and applicants systematically underestimate nonplacement risk. We use RCT and RD research designs to evaluate scaled live feedback policies in the Chilean and New Haven choice systems. Twenty-two percent of applicants submitting applications where risks of nonplacement are high respond to warnings by adding schools to their lists, reducing nonplacement risk by 58% and increasing test score value added at the schools where they enroll by 0.10 standard deviations. Reducing the burden of school choice requires not just strategy-proofness inside the centralized system but also choice supports for the strategic decisions that inevitably remain outside of it. *JEL Codes:* D83, I21, I28.

Evidence 2 — Replication in Peru and Ecuador

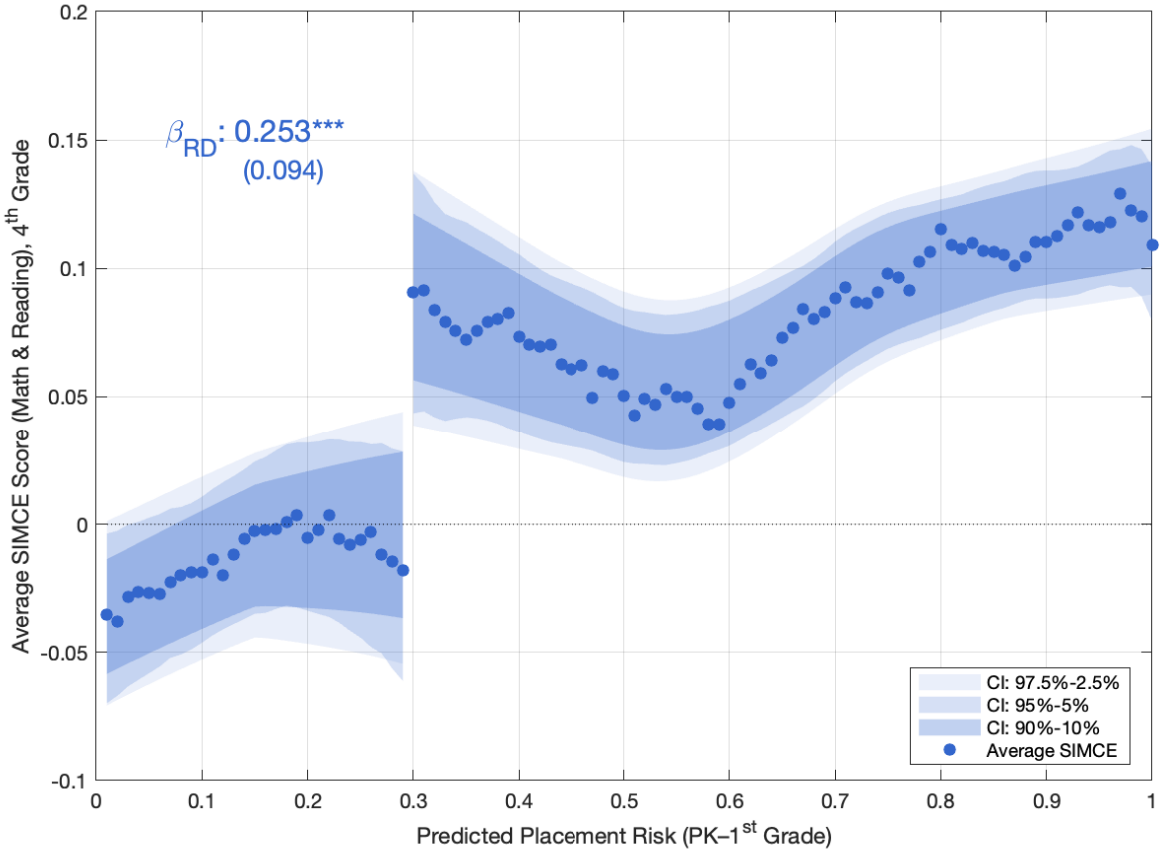
Intervention: personalised “risk reports” (with suggested alternatives) delivered via e-mail / WhatsApp.
Results:

- **Peru (Tacna, 2021–22):** families added up to 23% more schools; non-placement risk down 8–12pp. Effects nearly identical to Chile’s earlier pilots.
- **Ecuador (Manta, 2021):** null or marginal impacts — lower school density, weaker WhatsApp outreach.

Lesson

Risk-feedback tools scale across contexts, but success depends on **implementation fidelity** and **local market conditions**. The same tool can work in one place and fail next door.

Evidence 3 — Long-Run Impacts of Personalised Pr(admit)



4th-grade test scores (2018–2023 pooled) by predicted entry-grade application risk: warnings shift not just placement, but long-run academic outcomes.

What Chile Actually Did (the Package)

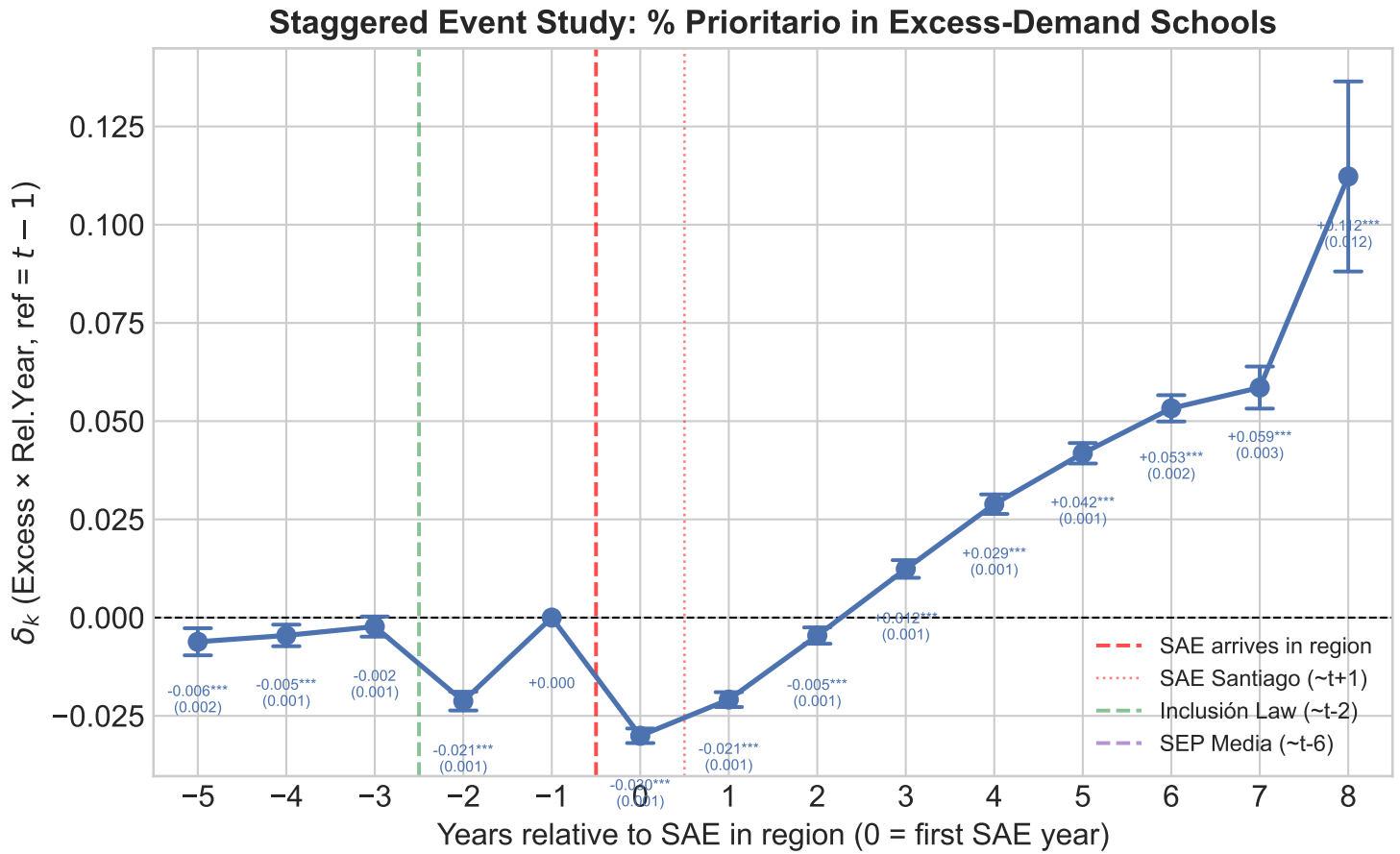
The 2015 *Ley de Inclusión Escolar* + the staggered rollout of SAE (2016–2019) bundled four big changes:

1. **Banned academic and socio-economic selection** at all publicly funded schools (tests, interviews, parental information).
2. Centralised, deferred-acceptance assignment with **explicit priority for vulnerable students**.
3. Phase-out of family copayments (*financiamiento compartido*).
4. Mandatory non-profit conversion for voucher schools.

A specific implementation *within* the variety we saw earlier — more egalitarian than Brazil's quota-plus-score model, more interventionist than England's catchments. Here is what happened.

Result A — More Poor Students at Oversubscribed Schools

Identification. Staggered DiD using SAE's 2016–2019 regional rollout, with the selection ban held fixed nationally.



At excess-demand schools, the share of prioritarios (vulnerable students) rises by ∼+6 pp by year 7 ($p < 0.01$). Pre-trends flat.

Result A — Magnitudes and Mechanism

What this means

- ∼**+6 pp more *prioritarios*** at excess-demand schools by year 7.
- Closes **about a third of the pre-SAE 17 pp gap** between excess- and non-excess schools.
- Stock-flow buildup: ∼+1 pp per year as new SAE cohorts replace pre-SAE cohorts.

Why it happened

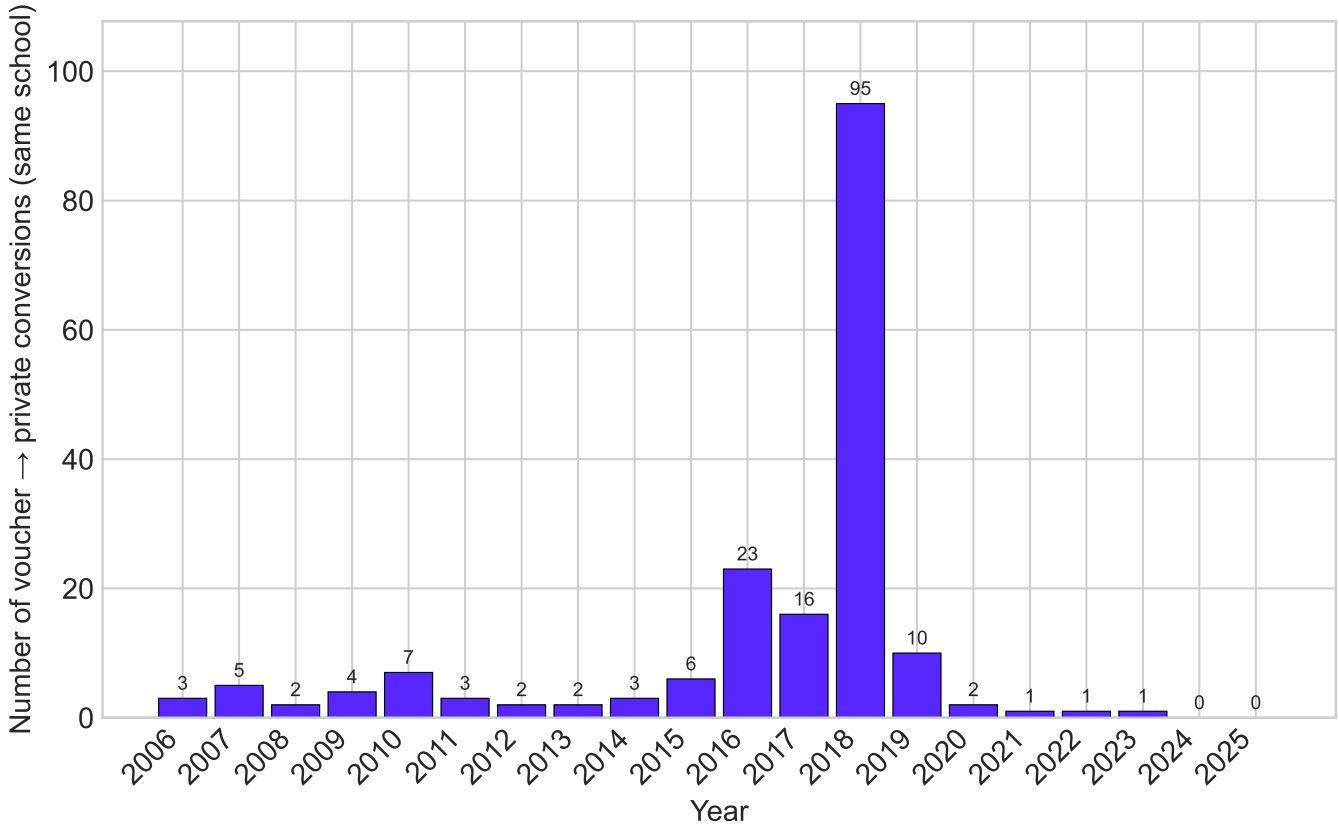
- Before: popular schools used **test scores, interviews, and discretion** to screen out disadvantaged applicants.
- After: with selection banned and priority for vulnerable students, the same families compete on equal footing.

Headline

Eliminating selection at oversubscribed schools *did* let more poor students in.

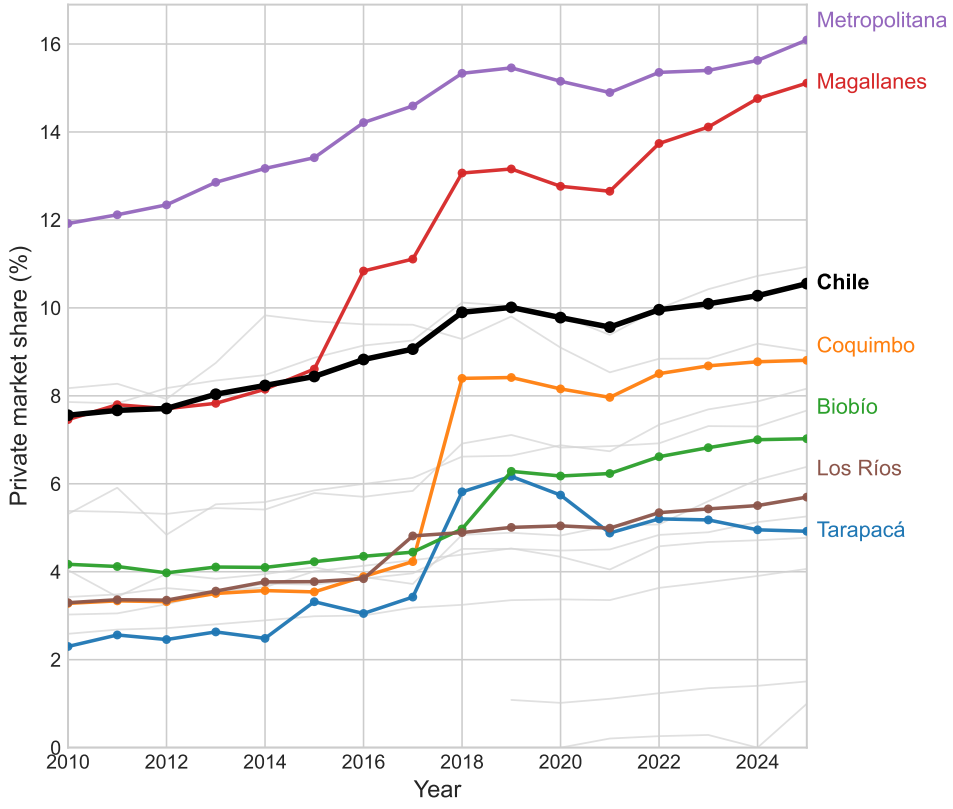
Result B — But: Some Schools Left the System

The supply side responds. Schools that wanted to keep selection, copayments, or for-profit status had an outside option: convert from voucher to fully private (outside SAE).



Same-school (same RBD) voucher→private conversions per year. Acceleration after the Inclusion Law and SAE rollout.

Result C — Geography Determines the Aggregate Effect



Private (non-subsidised) share, 2010 → 2025, by region. National: 7.5% → 10.6%. Metropolitan: 12.0% → 16.2%. Magallanes: 7.5% → 15.1%.

Where a family lives now matters more than before. *In regions with thick private alternatives the elite-exit margin is large and offsets the within-perimeter gain. In regions with no private alternative, the gain is preserved.*

Putting Result A + B + C Together

What we now know

- **Within the SAE perimeter**, the mechanism does what theory says: it narrows compositional gaps at schools where it binds.
- **Outside the perimeter**, the private-paid sector grows and absorbs the slack — especially where it was already strong.
- **The aggregate effect is geography-dependent.**

The aggregate null is not a mechanism failure

It is the sum of (a) a positive within-perimeter effect and (b) a between-sector offset the mechanism cannot reach.

What This Means for Other Countries

The Chilean experiment is informative precisely because it isolates several margins. But the answer for any other country depends on local conditions:

- **How wide is the regulatory perimeter?** A reform that covers all publicly funded *and* private schools forecloses the elite-exit margin.
- **How thick is the unregulated alternative?** The size of the "escape valve" is an empirical question.
- **How residentially segregated is the country?** A mechanism that operates only at the school gate can do little about who lives where.
- **What complementary policies travel with the mechanism?** The package is not separable.

Translating to Prague

The 2028 reform will face the *same tradeoffs in a different market*. The Chilean results are a menu of mechanisms, not a forecast.

Policy Response: Smart Platforms & Nudges

- Interventions co-developed with Mineduc (Chile), evaluated with RCT and RD designs:
  I. **Warnings (2016–2024):** pop-ups flagging risky applications.
  II. **Feedback & recommendations (2020–2024):** suggested alternatives.
  III. **School Explorer (2020–2024):** personalised, data-driven discovery.
  IV. **Tutorials (2021–2024):** timed learning support.

- **Nationally deployed and targeted the full applicant population** — not small pilots.

Key note

These tools addressed behavioural frictions and improved access *without altering the core mechanism*.

The Promise of AI: Personalised Navigation at Scale

An AI-assisted layer can now do at population scale what only motivated, well-informed families used to manage on their own:

- Map alternatives to the family's situation in real time.
- Explain the **mechanism** in plain language.
- Predict the costliest **mistakes** before the deadline.
- Surface **backup options** and feasibility scores.
- Reach families on the channels they actually use.

Live risk warning inside the application form.

Done well

Mechanism-aware AI shifts behaviour *and* long-run outcomes.

The Best of Both Worlds, Revisited

The trend is digitalisation and coordination of school admissions worldwide. The **benefits** are real: lower transaction costs, transparency, fairness, monitoring, better matches, an evidence base.

The catch is that real systems are complex. **Most families don't understand them**, and a **digital / informational divide** risks turning efficiency gains into new inequality.

The response is two things at once:

A. **Smart design** — minimise how strategic the mechanism is. DA, uncapped lists, multi-round / waitlist, published priorities and cutoffs.

B. **AI-assisted smart platforms** on top. Personalised admission chances, suggested alternatives, deadline-aware nudges, proactive outreach. AI makes this possible at population scale.

Combined, we get efficiency *and* equity — the best of both worlds.

For the Czech Republic on the road to 2028

Part A (mechanism) was largely answered in 2024 with deferred acceptance. Part B (smart platform) is open — and that is where the largest equity gains are still on the table.

Děkuji.

Thank you.

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With thanks to Daniel Münich, Alena Bičáková, Tomáš Protivinský, and the IDEA / RSJ teams.