S×H SMIO × HEXALY · 2026

MONTERREY · MEXICO OCT 7–9, 2026 XIV CSMIO

Location Routing *Challenge*.

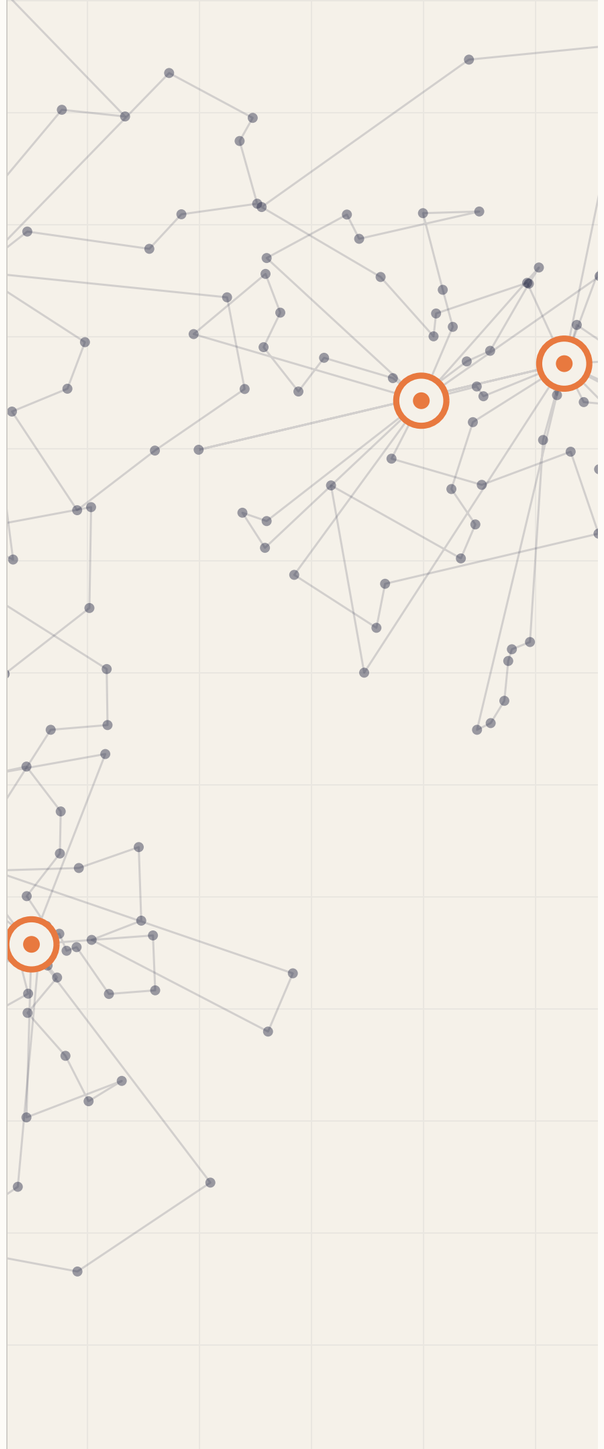
A collaborative community optimization competition organized by the **Mexican Society of Operations Research**, with **Hexaly** as Diamond sponsor for the CSMIO 2026.

SMIO
SOCIEDAD MEXICANA DE INVESTIGACIÓN DE OPERACIONES

XIV CSMIO Monterrey

hexaly

ORGANIZED BY: SMIO
DIAMOND SPONSOR: HEXALY



01 / WHAT IT IS

A *benchmarking* competition for the OR community.

PROBLEM	INSTANCES	TRACKS	WINDOW	TOP PRIZE	CONFERENCE
CLRP Capacitated Location-Routing	30 200–3,000 customers	02 Undergraduate · Open	~3 wks Mid-July → Early August	CSMIO Travel + stage + $	Oct 7–9 XIV CSMIO · Monterrey

02 / ALLIANCE

Organized by SMIO. Powered by Hexaly.

SMIO
SOCIEDAD MEXICANA DE INVESTIGACIÓN DE OPERACIONES

Mexican Society of Operations Research

The scientific society that represents the Operations Research community in Mexico. Organizes XIV CSMIO and stewards the educational mission of the challenge through the Undergraduate track.

SMIO.ORG · CSMIO2026

hexaly

• DIAMOND SPONSOR

Hexaly is an industrial optimization company whose solver produces the baseline solutions for each instance. All participants receive free academic licenses — whether you use Hexaly to compete or not.

HEXALY.COM →

Where to open depots. How to route *vehicles*.

Two layers of decision, solved jointly — strategic facility location combined with operational vehicle routing.

03 / DECISIONS

Open depots. Assign customers. Design *routes*.

DECISION 01 — STRATEGIC

Depot opening

Which depots to open — each with cost f_i, capacity W_i and vehicle limit m_i.

DECISION 02 — TACTICAL

Customer assignment

Each customer visited exactly once by a single route from an open depot. No splits.

DECISION 03 — OPERATIONAL

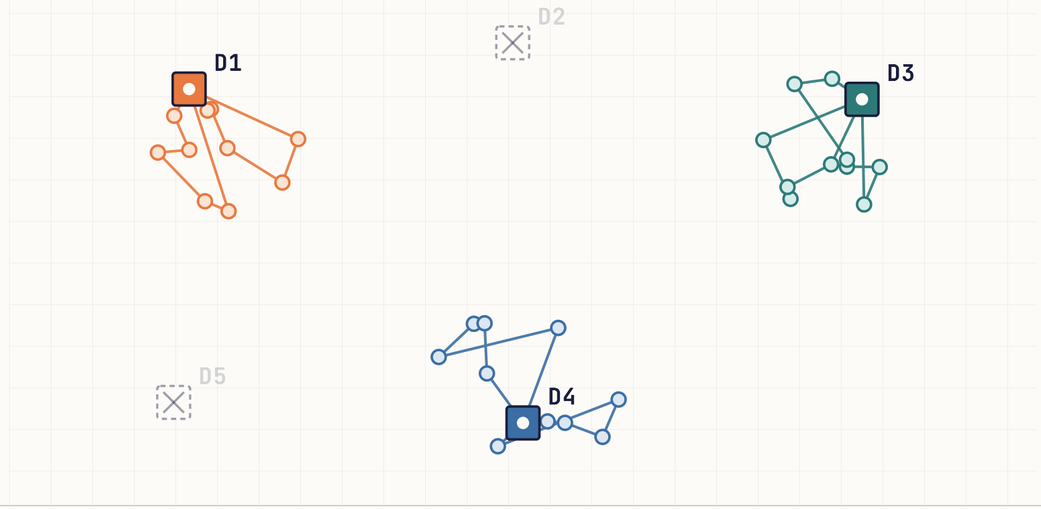
Vehicle routing

Route a fleet of identical vehicles (capacity Q) — each route starts and ends at its depot.

04 / EXAMPLE

30 clients · 5 candidates · open 3.

A miniature CLRP instance. Every client is assigned to exactly one open depot; each open depot runs a small set of routes that respects vehicle capacity. Closed candidates are crossed out; each open depot and its routes share a color.



D1 10 clients · 2 routes · load 111/150

D3 10 clients · 2 routes · load 109/150

D4 10 clients · 2 routes · load 110/150

Travel ≈ 1912

05 / OBJECTIVE

Minimize total cost across *three* components.

$$\min \quad \sum_{i \in D} f_i \cdot y_i \qquad \text{// depot opening costs}$$
$$+ \sum_{r \in R} v \cdot z_r \qquad \text{// fixed cost per dispatched vehicle}$$
$$+ \sum_{(i,j) \in E} c_{ij} \cdot x_{ij} \qquad \text{// total travel distance}$$

subject to customer service, vehicle and depot capacity, vehicle limit.

Directly relevant to companies like OXXO, Bimbo and FEMSA — decisions they face daily in the Mexican logistics landscape.

06 / INSTANCE DESIGN

30.

instances — three scales, no overlap.

Generated by an open-source Python generator released in June 2026. Variation across dimensions prevents overfitting.

CUSTOMERS	200 – 3,000
DEPOTS	10 – 50
DISTANCE	Symmetric Euclidean · asymmetric at large scale
DISTRIBUTION	Uniform · clustered · mixed
CAPACITY	Multiple levels · loose → near-infeasible
DEMAND	Multiple distributions with controlled variance and skew

THREE PHASES

Prepare. Compete. *Present*.

07 / HOW IT WORKS

Three weeks. One *public* leaderboard.

01 · PREP

Register and build

Form a team (up to 3, plus a guide in the Undergraduate track). Develop freely using the open-source instance generator released in June. Official instances are NOT published at this stage.

02 · COMPETE

Compete

~3 weeks in July. Official instances and the Hexaly baseline are published. Submit via the web platform. Lead-time scoring rewards finding good solutions early *and* holding them.

03 · PRESENT

Present at CSMIO

Winners present their approaches in a dedicated session during CSMIO 2026 in Monterrey. Final solutions become a permanent public benchmark.

08 / SCORING

Find good solutions *early*. Hold them.

```
# score per team, per track

score_t  =  Σ_{i∈I} days_i(t)
            // days leading instance i
       + B · |{ i : final_i(t) }|
            // bonus for leading at close
```

For each instance, the team holding the best solution accrues points for every calendar day they hold it. A bonus is awarded for leading at the close of the competition.

LEADERBOARD · LRP-14 · LIVE

#	TEAM	BEST COST	LEADING
01	alpha_or	128,440.21	6d 12h
02	tec_mty_a	129,112.08	2d 3h
03	uanl_clrp	129,880.55	0d 18h
—	hexaly · baseline *reference*	131,208.40	—

↑ Illustrative mock · live mid-July 2026

09 / TRACKS

Two tracks.
Same *instances*.

• UNDERGRADUATE

For students.

Teams of up to **3 undergraduate students** plus **1 mentor** — graduate student, professor or professional.

Aligned with SMIO's educational mission; fosters mentorship.

• OPEN

For everyone.

Teams of up to **3 participants**, no profile restrictions. Students, researchers and industry professionals.

SMIO membership required — ALIO discount for associated societies.

10 / PRIZES

A stage at *CSMIO 2026*.

• UNDERGRADUATE

Winning team

XIV CSMIO Monterrey

TRAVEL + STAGE

+ Support for attending the CSMIO 2026
+ Dedicated presentation slot in the Challenge session
+ Hexaly hoodie + t-shirt for each member (up to 4)
+ Amazon gift card $100 USD per person · $400 total includes guide
+ Final solutions published in the permanent benchmark

• OPEN

Winning team

XIV CSMIO Monterrey

TRAVEL + STAGE

+ Support for attending the CSMIO 2026
+ Dedicated presentation slot in the Challenge session
+ Hexaly hoodie + t-shirt for each member (up to 3)
+ Amazon gift card $200 USD per person · $600 total
+ Final solutions published in the permanent benchmark

11 / TIMELINE

From today to *CSMIO Monterrey*.

APR 22–24, 2026	●	**EPIO & Challenge announcement** Close of V EPIO (Virtual Spring School). Call for participation published. Interest registration opens.	• TODAY
JUN 2026	●	**Instance generator release** Open-source Python generator, sample instance, solution verifier. Formal registration opens.	
MID-JUL 2026	●	**Competition launch** Official instances and Hexaly baseline solutions published. The leaderboard goes live.	• LIVE
MID-JUL → EARLY AUG	●	**Competition window · ~3 weeks** Teams submit via the platform. Lead-time scoring runs in real time.	
AUG – SEP 2026	●	**Close, verification and logistics** Final solution verification. Travel coordination with winning teams.	
OCT 7–9, 2026	●	**CSMIO 2026 · Monterrey** Challenge presentation session. Hexaly workshop. Awards ceremony.	• FINALE

— JOIN THE CHALLENGE

See you on the *leaderboard*.

smiochallenge.com →

COMPETITION
Mid-July
Early August 2026

CONFERENCE
XIV CSMIO
Oct 7–9, 2026

CONTACT
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ORGANIZED BY
SMIO
Sponsor: Hexaly