Insuflo

An affordable insulin pump for people with diabetes

Incubated at:
FSID, Indian Institute of Science, Bangalore

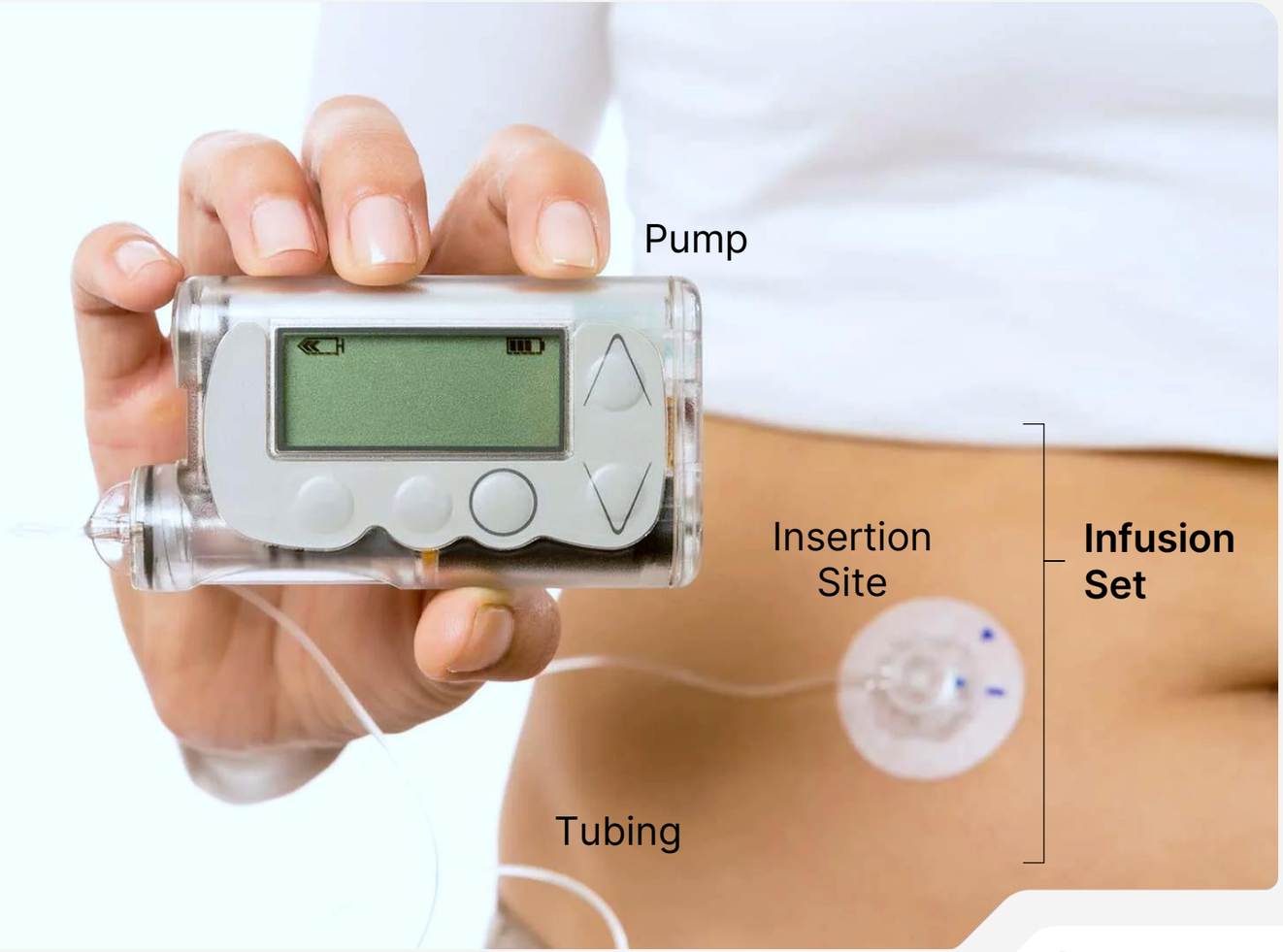
Open MedLabs

What is the clinical need?

Type 1 diabetes (T1DM), is a chronic condition in which the pancreas produces little or no insulin. People living with T1DM must administer insulin to sustain life.

What is an insulin pump?

An insulin pump is a small wearable medical device that supplies a continuous flow of insulin underneath the skin.



[1] https://gluroo.com/blog/diabetes-101/all-about-insulin-pumps/

What are the barriers we face?

Costs of such a device are often found to be a withholding factor to widespread adoption [1], [2]

upto ₹6 lakhs

Fixed expenditure ~ $7,200

₹63k

Annual recurring expenditure ~ $760

[1] Doyle, E.A, Weinzimer, S.A. Steffen, A.T.,Ahern, J.A.H., Vincent, M. and Tamborlane, W.V., 2004. A randomized, prospective trial comparing the efficacy of continuous subcutaneous insulin infusion with multiple daily injections using insulin glargine. Diabetes care, 27(7), pp.1554-1558.
[2] Karia.D., Nambiar, R.S. and Arora.M., 2019, July. An affordable insulin pump for type-1 diabetic patients: A case study of user-in-the-loop approach to engineering design. In Proceedings of the Design Society: International Conference on Engineering Design (Vol.1, No.1, pp.847-856). Cambridge University Press.

Our solution

Insuflo: An affordable insulin pump for people with diabetes

Intermediate prototype

Our USP

Delivery accuracy

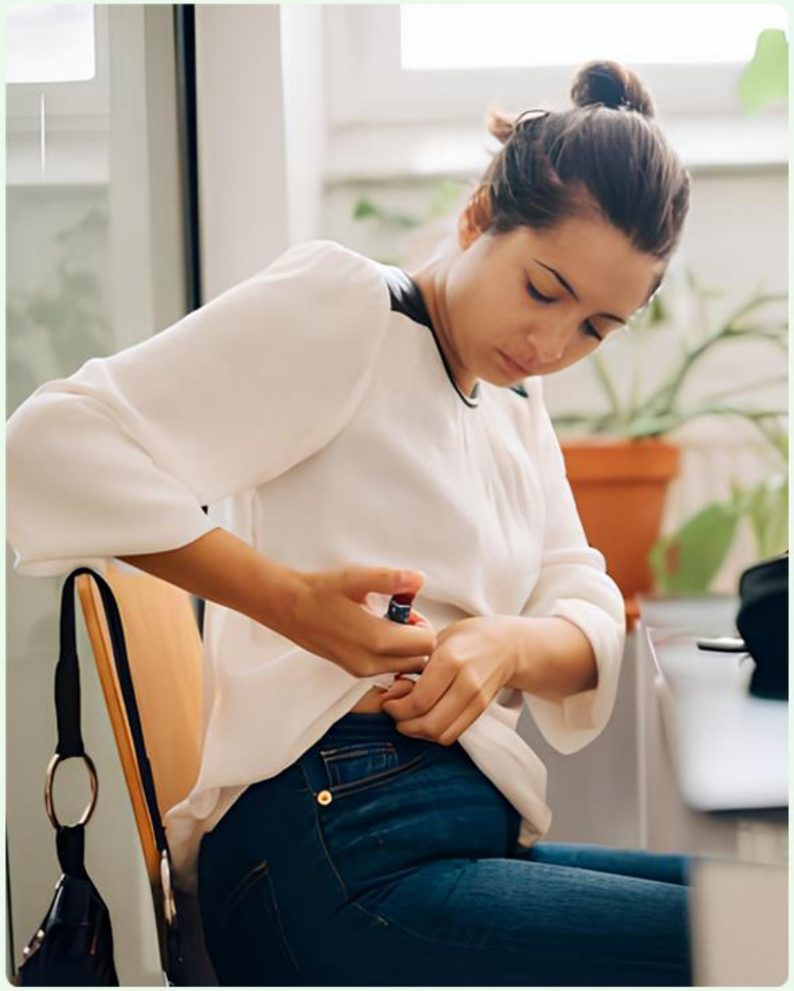
Open APIs

Fraction of the cost

Potentially, the first insulin pump to be designed and commercially launched in India.

Who are our primary users?

People with T1DM and a limited number of people with T2DM who have a significant insulin resistance.



Insuflo

What opportunity does Insuflo tap into?

Primary focus is on T1DM, with subsequent expansion to T2DM.

People with T2DM

~30m TAM

(~40% of T2DM) [4]

~770k SAM (~7.5% of TAM)

~150k SOM (~20% of SAM)

People with T1DM

~860k TAM

Potential obtainable valuation of market [2]

T1DM + T2DM

> ₹3,300 Cr

Current valuation [2]

₹80 Cr

Tapped size

T1DM

<0.5%

T2DM

Untapped

[2] https://www.fortunebusinessinsights.com/industry-reports/india-insulin-pumps-market-101773
[4] Kumar, A., Tewari, P., Sahoo, S.S. and Srivastava, A.K., 2005. Prevalence of insulin resistance in first degree relatives of type-2 diabetes mellitus patients: A prospective study in north Indian population. Indian Journal of Clinical Biochemistry, 20(2), pp.10-17.

In-vitro testing results

In-vitro studies have established the delivery accuracy of our prototype device [1]

Pump	Programmed Bolus Value (U)	Delivery Error Mean (%)
Insuflo	1 (0.01 ml)	2.62 ± 0.066
M722G		-0.26 ± 0.019

[1] Kumar, S.S.,Karia, D., Gopkumar, A., Koty, P.G. and Arora, M., 2022. Novel Methods to Understand the Temporal Nature and Accuracy of Delivery for Insulin Infusion Pumps, Journal of Diabetes Science and Technology, p.19322968221115749.

Pre-clinical animal investigation at a GLP certified facility

Delivery accuracy comparable to competitor device

Who are we competing against?

Medtronic Minimed Inc. is currently the only major player in the Indian market

>5x the cost of Insuflo

Who are we competing against?

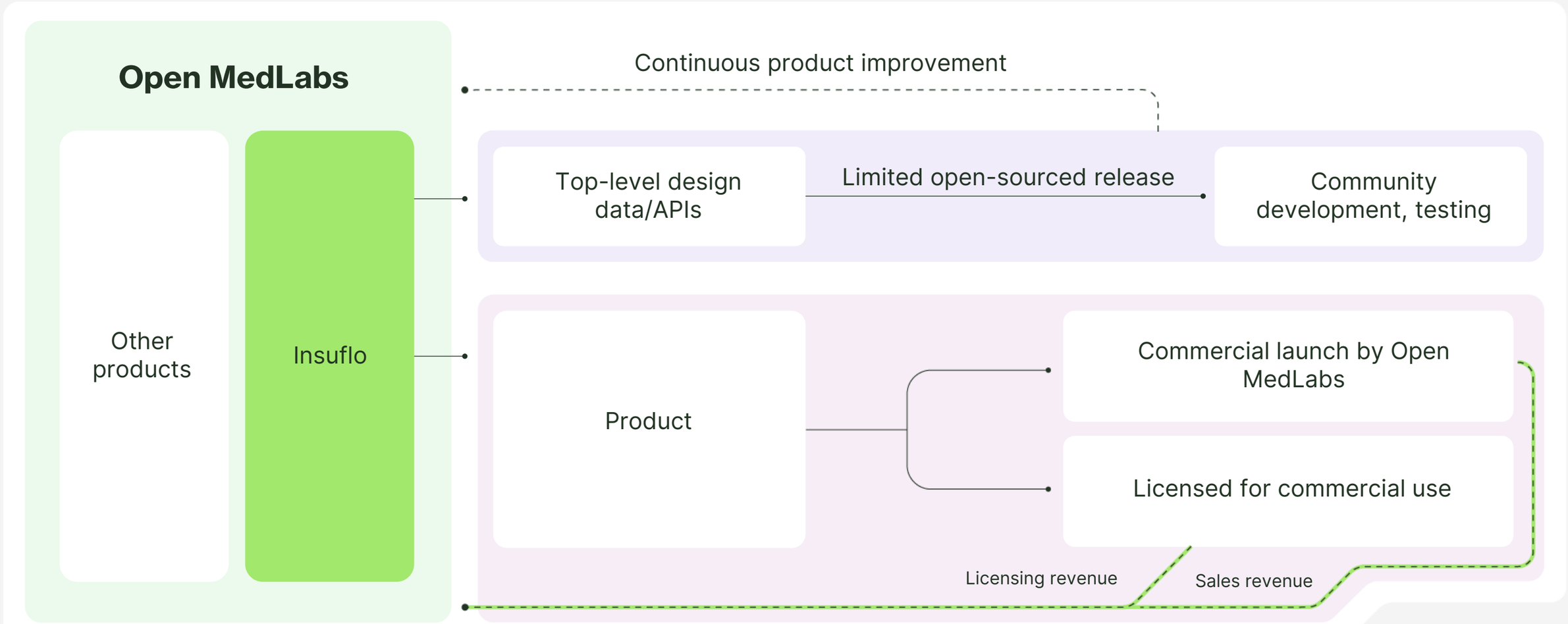
The western markets, in contrast, have more than 7 major players

US$ 4 billion

Value of these markets by the end of 2022 [1]

[1] https://www.researchandmarkets.com/reports/4337474/north-american-insulin-pump-market-prospect

Business model



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Timeline

Available financial runway
Supported via grants

Seed funding

TRL 6

Early 2024

- Animal study
- Usability studies

Mid 2024

- **Meeting additional standards**
  IEC 62304
  ISO 15223
  ISO 11073-10419-2019
  (Cybersec.) etc.
- Device size reduction

End 2024

- CDSCO application for test license
- Pilot manufacturing

Early 2025

- Pilot clinical evaluation
- CDSCO application for marketing of the device

Our team

Deval Karia

Co-founder and CEO

M.Des. (Gold medalist), IISc

Design, Prototyping, Technology development

JDDA, LDAI National winner

Dr. Manish Arora

Co-founder

PhD (U. of Twente)

Technology development, Business model development

15+ years of industry/academia experience

Neha Bhatia

Co-founder

MBA (IIMA)

Design, Prototyping, Technology development

9+ years of industry experience

Advisory board

Dr. V. Mohan

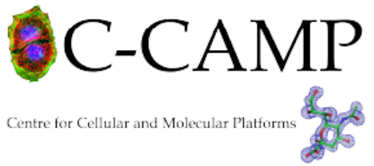
Chairperson of Dr. Mohan's Diabetes Specialities Centre

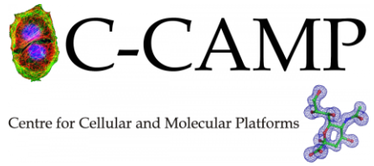
Jazz Sethi

Founder and Director, Diabesties Foundation

“We’ve had so many instances where people with diabetes can benefit significantly from using an insulin pump, but how can they get one **when they earn ₹25,000** (~$300) **per month?**”

Our supporters





Acknowledgements

Dr. V. Mohan, MDRF

Jazz Sethi, The Diabesties Foundation

Dr. S.Srikanta, Samatvam Endocrinology Diabetes Centre

IMPRINT team

Come change the landscape of diabetes in India!

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