

## Editorial of the Day – 04.02.2026

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### 1. AI's next investment cycle belongs to applications (TH)

**General Studies 3–** Science & Technology

**Topic–** Developments and their applications and effects in everyday life (Artificial Intelligence).

**Sub Topic–** AI Commercialization & Startups.

#### Introduction

The AI industry is undergoing a pivotal shift from an initial phase of "infrastructure hype" (building massive models and hardware) to a mature phase of application-led profitability. Similar to the internet era, where value shifted from bandwidth to websites/apps, the next investment cycle in AI is focused on real revenues, enterprise adoption, and sustainable business models. The core narrative has moved from "experimental performance" to "measurable financial returns."

#### The Strategic Shift– Infrastructure to Applications

##### The Profitability Challenge–

**Performance vs. Profit–** The industry's challenge has shifted from proving AI works to proving it can be profitable.

**Infrastructure Saturation–** Massive spending on GPUs and data centres (\$320 billion in 2025) has not guaranteed sustainable returns.

**Foundation Model Economics–** Companies building foundation models face thin margins due to high inference costs and fierce competition.

**Example–** Despite \$13 billion in annualized revenue, OpenAI recorded a \$5 billion loss in 2024, highlighting the unsustainability of a model reliant on venture capital.

##### Rise of Applications–

1. Spending Shift– AI applications now account for the majority of generative AI spending, reaching \$19 billion in 2025.
2. Market Penetration– Within three years of ChatGPT's launch, AI apps captured over 6% of the global software market.

#### Where Real Value Is Emerging

##### Departmental AI & Coding Tools–

1. Coding Dominance– AI coding tools contributed \$4 billion to the \$7.3 billion departmental AI market in 2025.
2. Adoption Rates– ~50% of developers use these tools daily, rising to 65% in top-performing firms.
3. Value Proposition– Investors now Favor "task-oriented AI" (doing specific jobs) over generic "conversational AI."

##### Vertical-Specific Solutions–

1. The strongest long-term potential lies in specialized solutions for healthcare, law, finance, and manufacturing.
2. Success comes from being deeply embedded in workflows rather than acting as standalone interfaces.

### M&A Activity

1. Meta's Acquisition- The \$2 billion acquisition of Manus (which reached \$125 million revenue in 9 months) underscores the demand for proven, revenue-generating applications.
2. Private Equity Surge- PE deals in AI apps grew by 65% (Q3 2025), with strategic M&A deal values rising 242% year-on-year.

### Revenue Concentration

**"Winner Takes Most"**- Over 10 AI products now earn >\$1 billion in Annual Recurring Revenue (ARR), and ~50 products generate >\$100 million.

**Metrics Matter**- Investors have returned to core metrics- revenue, retention, growth, and profitability, moving away from speculative tech bets.

### Market Dynamics- Applications Driving Infrastructure

**Demand Pull**- Applications are now the primary drivers of demand for models and infrastructure.

**Shifting Leadership**- Anthropic has captured 40% of enterprise LLM spending, largely due to its dominance in coding applications (54% market share). OpenAI's enterprise share has declined despite its early lead.

**Margin Improvement**- Generative AI reached a 34% contribution margin in 2025 (its first profitable year). Margins are projected to rise to 67% by 2028 as efficiency improves, with profits flowing to end-to-end solution providers.

### Policy and Regulatory Challenges

**Competition Concerns**- Governments must monitor vertically integrated giants (model providers building their own apps) to prevent them from squeezing out smaller developers. "Acqui-hires" pose a risk to innovation and workforce stability.

### Legal Frameworks-

1. Copyright & Data- Disputes over training data and intellectual property are central legal concerns.
2. Privacy- Frameworks must adapt to "AI Agents" that handle sensitive data autonomously.

**Regulatory Balance**- Over-regulation at the application layer could stifle the very innovation that is driving the industry's economic value.

### Conclusion

The AI industry is entering a decisive "monetization phase." The era of funding "raw capacity" is ending; the future belongs to scalable, practical applications that solve real-world problems and generate external revenue. Just as the internet was monetized through applications like e-commerce and social media rather than fibre-optic cables, AI's long-term value lies in useful, workflow-embedded software.

**Source-** <https://www.thehindu.com/opinion/op-ed/ais-next-investment-cycle-belongs-to-applications/article70588552.ece>

## 2. Delhi HC issues notice to govt- What rules govern frozen embryo donation, why they have been challenged (IE)

### General Studies 2- Polity

**Topics**- Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

**Sub Topic**- Reproductive Rights, Health Policy, Judicial Activism, Bio-ethical concerns in medical technology.

### Introduction

The Delhi High Court has recently brought the spotlight onto India's reproductive laws by issuing a notice on a Public Interest Litigation (PIL). This PIL challenges specific provisions of the Assisted Reproductive Technology (Regulation) Act, 2021, which currently prohibits the donation of surplus frozen embryos for reproductive use. The petitioners argue that mandating the destruction of viable embryos, even when both the donor and recipient couples consent to donation, is arbitrary and unconstitutional. This case opens a critical debate on the intersection of bioethics, reproductive autonomy, and state regulation.

### Key Details of the PIL & Issue

**The Challenge-** The PIL questions the statutory mandate that requires the destruction of surplus frozen embryos instead of allowing them to be donated to other infertile couples.

**Legal Conflict-** While the ART Act, 2021 explicitly permits sperm and oocyte (egg) donation, it inexplicably bars the donation of embryos for reproductive purposes.

**Public Health Scale-** With infertility affecting an estimated 27–30 million couples in India, access to Assisted Reproductive Technology (ART) and In-Vitro Fertilization (IVF) is a significant public health necessity.

**Constitutional Basis-** The plea invokes Articles 14 (Right to Equality) and 21 (Right to Life and Personal Liberty), alleging that the prohibition is arbitrary and violates the "decisional autonomy" of couples.

### Assisted Reproductive Technology (ART)- Concept & Context

**Definition-** ART encompasses medical procedures used to address infertility, including IVF (In-Vitro Fertilization), ICSI (Intracytoplasmic Sperm Injection), and gamete donation.

**India's Growth Story-** India has become a global hub for ART due to-

1. Rising infertility rates.
2. Delayed marriages and lifestyle diseases.
3. Growth of medical tourism (affordable, high-quality care).

**Regulatory Vacuum-** Historically, the absence of laws led to the exploitation of surrogates/donors and the mushrooming of unregulated clinics, necessitating the 2021 Act.

**Global Best Practices-** Countries like the UK, Australia, and parts of the European Union allow embryo donation, governed by strict ethical frameworks that prioritize informed consent.

### The ART Act, 2021- Restrictive Provisions

**Clinic Regulation-** Mandates the registration of all ART clinics and gamete banks to ensure standardization, accountability, and safety.

**Permitted Donations-** The Act allows altruistic donation of sperm and oocytes. It even permits "double donor IVF," where a child is conceived using both a donor sperm and a donor egg (meaning neither intending parent has a genetic link).

**Storage Rules-** Surplus embryos can be cryopreserved (frozen) for a maximum of 10 years.

**The Prohibition-** After the 10-year period (or if the couple no longer needs them), the embryos must be destroyed or donated for research. Transferring these frozen embryos to another infertile couple for reproductive use is strictly banned, even with consent.

### The Medical Perspective- Frozen Embryos

**Surplus Generation-** To maximize success rates, IVF cycles typically generate multiple embryos. Since only one or two are implanted, "surplus" embryos remain.

**Biological Viability-** Frozen embryos, upon thawing, are considered biologically equivalent to fresh embryos and are successfully used in pregnancies worldwide.

**Cost & Access-** Full IVF cycles are expensive and physically demanding. Embryo Donation offers a significantly cheaper and less invasive alternative for infertile couples who cannot produce their own gametes.

**The Disconnect-** Current Indian law treats these biologically viable embryos as "non-transferable" waste, contradicting their medical potential.

## Constitutional Challenges (The Legal Argument)

### Article 14 (Right to Equality)-

1. **Arbitrary Classification-** The plea argues that allowing "fresh" donor embryos (created via separate sperm and egg donation) while banning "frozen" embryo donation creates an unreasonable classification.
2. **Double Standard-** If genetic non-linearity (raising a child not genetically yours) is legal in "double donor IVF," why is it illegal when using a frozen embryo?

### Article 21 (Personal Liberty)

**Decisional Autonomy-** The right to make reproductive choices—including how to dispose of one's biological material (embryos) or how to become a parent—is part of the fundamental right to privacy and dignity.

**Judicial Review-** The Court is tasked with determining if this differentiation by the State is "constitutionally reasonable" or merely a relic of conservative policymaking.

### Ethical & Social Dimensions

**Destruction vs. Life Potential-** Mandating the destruction of viable embryos raises ethical questions about wasting potential life that could help another family.

### Infertility & Equity-

1. **Widening Options-** Donation could provide a lifeline for women unable to produce viable eggs or couples with severe male factor infertility.
2. **Class Divide-** Wealthier couples can bypass these laws by seeking treatment abroad, while poorer couples are left without options, deepening social inequality.

**Consent Framework-** The petitioners emphasize that the process should be based on voluntary, altruistic, and informed consent from both the donor and recipient, mitigating fears of commercialization.

## 7. State Regulation vs. Individual Autonomy

**State's Rationale-** The ban likely stems from a desire to prevent-

1. **Commercialization-** Buying and selling of embryos (though the plea argues for *donation*, not sale).
2. **Legal Complications-** Disputes over parentage or future claims by biological parents.

**Paternalism Concerns-** Critics argue that the State is being "over-paternalistic," restricting personal freedom and dignity under the guise of protection.

**The Balancing Act-** The judiciary must balance the State's interest in preventing unethical practices with the individual's liberty to make reproductive decisions.

**Role of Courts-** As seen historically, courts often step in to update laws when statutory frameworks lag behind technological advancements and changing social realities.

### Conclusion

The debate over frozen embryo donation illustrates the tension between technological possibility and regulatory caution. The current blanket ban appears to be legally inconsistent and ethically wasteful. A nuanced policy shift—moving from prohibition to a strictly regulated, consent-based donation framework—could uphold reproductive rights while maintaining ethical safeguards. As the Delhi High Court examines the matter, the outcome could redefine the boundaries of reproductive autonomy and medical law in India.

**Source-** <https://indianexpress.com/article/explained/explained-law/delhi-hc-notice-rules-frozen-embryo-donation-10510446/>