



MOVING THE NEEDLE

The Journey from Policy To Implementation

March 2025



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The March 2025 edition of Moving the Needle is rich with insights on how advancements in Artificial Intelligence (AI) and Machine Learning are rapidly transforming sectors like AVGC-XR, Medicine, Agriculture, and even Roadways.

With AI, the world is entering a blurry phase, and it is hard to distinguish between human creativity and machine intelligence. However, the upside to it is that it will foster a future where technology and human creativity will coexist in unprecedented harmony. We also explore how Artificial Intelligence is just the beginning and how it lays the foundation for superintelligence and even Organoid Intelligence!

On the hot topic of the revised direct tax slabs as announced in the Union Budget 2025-26, we reached out to one of the country's foremost tax law experts, who has simplified the benefits coming your way.

And of course, with the rapid geopolitical developments worldwide, we explore US domestic politics and the rapid organizational changes that are currently underway in the world's oldest democracy.

Also, don't miss out on the sneak peek into our report on 'Barrierless Tolling in India: Towards Efficient, Sustainable, and Innovative Infra'. The report lays a roadmap for hassle-free highway travel by transitioning from RFID-based FASTag to a satellite-driven, distance-based tolling system, with the objective of eliminating the need for physical toll plazas.

We hope that you have a pleasant reading!



Simplifying the Revised Direct Tax Slabs from the Union Budget 2025-26



How will the revised direct tax slabs under the New Tax Regime affect taxpayers across different income groups? Will the new structure offer substantial benefits to middle- and high-income earners?

The revised personal tax regime offers substantial benefits to lower-income groups, as taxpayers with a taxable income of up to INR 12 lakh (or INR 12.75 lakh in the case of salary income) will have no tax burden due to favorable rebate provisions introduced in the Finance Bill 2025. These benefits also extend to the middle-income group, with the revised tax slabs resulting in a significant reduction in their tax liabilities. For instance, an individual earning INR 18 lakh annually will benefit from a tax savings of INR 70,000, while someone earning INR 25 lakh will save INR 1.10 lakh in taxes.

Importantly, the revised tax rates apply not only to individual taxpayers but also to Hindu Undivided Families (HUFs) and Associations of Persons (AOPs), ensuring broader inclusivity in tax relief.

Additionally, taxpayers with incomes exceeding INR 24 lakh will save INR 1.10 lakh in taxes, making the new personal tax regime beneficial across a wide income range. However, despite these tax savings, the higher income group may not feel fully appeased, as their long-standing demand for a reduction in surcharge rates to pre-COVID levels remains unmet.





What impact will the revised tax slabs have on the government's direct tax collections? How does the government plan to offset any potential revenue shortfall to manage the fiscal deficit?

As per the Government records, the proposed relaxation in the personal income-tax rates would result in a 1 lakh crore tax relief. While this proposal would impact the direct tax collections, the Government through this proposal has also sought to provide a boost to the economy by increasing the disposable income in the hands of the taxpayers. Such extra funds could be allocated by taxpayers for various purposes such as household consumption, investments, savings etc., which in turn should result in increased indirect tax collections. Hence, while there may be a short-term dip in direct tax revenue, the Government's focus on economic expansion is expected to offset such revenue shortfalls.

With the revised tax slabs making the New Tax Regime more attractive, how do you anticipate the transition from the old regime to the new one evolving in the coming years?

Ever since the new tax regime was introduced, Government has been aggressively nudging the taxpayers to move away from the old tax regime inter alia, by making the personal tax regime increasingly lucrative. However, with the changes proposed by the Finance Bill 2025 (which are only applicable to the new tax regime), the old tax regime would now be beneficial in very limited cases, where a taxpayer is able to claim heavy deductions. Hence, it appears that the Government is no longer nudging the taxpayers to move away from the old tax regime, but it has instead made the old personal tax regime totally redundant. While the old tax regime has been retained in the New Income Tax Bill, the relaxation provided in the new personal tax regime, that too across income classes, seems to have completely robbed the old tax regime of its lustre.



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Disrupt to Evolve: The Need for Change sans Chaos



The leadership of the new US Government was voted in for their promise of change - radical change - especially in managing the government's multi-trillion-dollar budget. This isn't a surprise; we are taught fairly early that change is the only constant. How change is carried out however, is key.

I have leamed through the arc of my career in transforming organizations, at all levels and types, that any change requires disruption: in strategy, operations, personality, communication, product or service. Private sector organizations change constantly, and their approach can often be blunt force trauma on their workforce and supplier ecosystems. This industry disruptive change typically occurs due to innovation, alterations in company structures, or transformations in business models. These fundamental changes disrupt the way organizations conduct business. Lately, the rate of disruptive change within businesses has increased exponentially, mirroring the global stage ridden with debtladen countries, COVID supply-chain hangovers, and the effects of climate change.







The current US Government leadership appears to be bringing this "Silicon Valley" approach to Washington, DC at breakneck speed. This is reminiscent, in part, of the Clinton Administration's Reforming Government project, where "It took more than eight years for former Clinton administration adviser Elaine Kamarck to cut approximately 426,000 jobs, 16,000 pages and \$136 billion — in 1990s dollars — from the federal government." The change we are witnessing in Washington DC today, however, seems to be one of profound restructuring . Perhaps, as David Brooks notes, "a crisis of state failure."

America, and the world, is in dire need of sustainable change. My experience with leading large teams through complex environments has taught me that sustainable and real long-term impactful change, requires crisp communication, which begins with listening. While the new administration's call for change seems to reflect that, it is a delicate balance. Governments were formed to provide a semblance of safety, security and basic elements for survival. To use the blunt force trauma approach in reprioritizing and re-sizing taxpayer budgets without assessing downstream and all-stream impacts to global society, is naturally challenging. Critical citizen services from housing and transportation to energy and healthcare, will suffer negative consequences. While the first serve percentage is high for the new administration, this is only game 3 in a 48-game match.

I see the beginnings of stability in the next 2-3 months, with a new government budget required in March, and new Agency leaders learning the impact of their potentially disruptive changes. These impacts will reflect on their ability to do their jobs, heightening pressure on the White House and Congress. Most US Government employees would agree that things are broken in DC and would like to assist in creating sustainable change to better deliver government services and minimize fraud, waste and abuse. The current landscape of partisan politics and radical methods is not the path to such change.





From Imagination to Immersion: How AI is Transforming AVGC-XR

Artificial Intelligence (AI) is no longer a supporting player in the AVGC-XR (Animation, Visual Effects, Gaming, Comics, and Extended Reality) industry; instead, it is the protagonist reshaping digital storytelling and immersive experiences. It is revolutionizing AVGC-XR by integrating machine learning (ML), deep learning, and neural networks into key industry processes. The global Animation, VFX and Games market, valued at approximately \$260 billion in 2023, is projected to reach \$563 billion by 2032, with India's contribution expected to rise from \$2.5-3 billion to \$26 billion by 2030. Al is changing the M&E industry by expanding creative possibilities while accelerating workflows and reducing costs. Several Al-driven technologies, including Al-based animation, generative adversarial networks (GANs), natural language processing (NLP), and computer vision, are powering the next generation of AVGC-XR content.

The rise of Al-generated content is disrupting traditional animation and visual effects. Tools like OpenAl's Sora, Runway and DeepMotion automate frame generation, reducing the need for labour-intensive keyframing and rotoscoping. As seen in major Hollywood productions, NVIDIA's Al-powered GANs (Generative Adversarial Networks) enable hyper-realistic CGI in films. In India, studios such as Technicolor India and Prana Studios leverage Al-driven facial animation and automated asset generation, which significantly reduce production timelines. Al-based upscaling tools give new life into classic animations and films, enhancing quality and resolution for modem audiences.

Gaming is one of the most dynamic sectors within AVGC-XR and is witnessing an unprecedented Al-driven evolution. The Indian gaming market was around \$3.1 billion and expected to reach \$8.92 billion by 2030, with Al-driven innovations playing a crucial role in this growth. Procedural content generation allows game developers to create vast, open-world environments in real-time, a leap forward from static, pre-designed levels. Al-generated non-playable characters (NPC) are becoming more intelligent by adapting their behaviour based on player actions and it results in personalized gaming experience for user. Also, companies like Nodding Heads Games and Nazara Technologies, India's growing gaming ecosystem is increasingly integrating Al into game design, improving realism and engagement.

Extended Reality (XR) is perhaps the most futuristic domain where Al's influence is making a tangible impact. Al-enhanced AR and VR experiences are bridging the gap between the physical and digital worlds to revolutionize industries beyond entertainment — education, healthcare, and retail are rapidly adopting Al-driven XR solutions. Alpowered real-time object recognition enables seamless AR applications, while deep learning algorithms enhance realism in VR environments. The global XR market in 2024 was valued at \$24.17 billion and is projected to grow at a CAGR of 28.4% to reach \$139.07 billion by 2031.







Global tech leaders like Meta, Microsoft, Amazon, Samsung and Google are heavily investing in Al-integrated XR, such as Al-powered smart glasses offering real-time text translation and augmented overlays. Recognising the need to integrate Al into their operations many industry leaders like Walt Disney has established a dedicated unit to coordinate the use of Al and augmented reality to enhance consumer experience and streamline content creation.

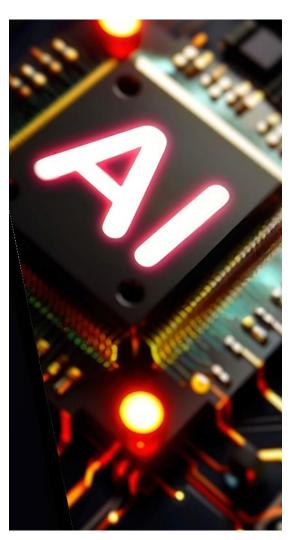
India is rapidly embracing AI within its AVGC-XR sector through global partnerships, domestic research and development and proactive government policies. With the establishment of the National Centre of Excellence (NCoE) for AVGC-XR in Mumbai the Indian government aims to position India as a global hub for AI-enhanced content creation by providing state-of-the-art infrastructure, funding opportunities, and dedicated research support. Various states such as Karnataka, Maharashtra, and Telangana became early mover by launching their dedicated AVGC-XR policies to foster a conducive environment for industry growth. Recently, northern Indian states like Rajasthan, Madhya Pradesh, and Haryana announced policies to support the sector.

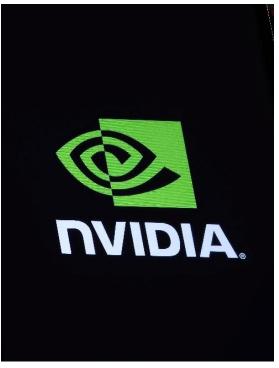
Indian studios and gaming companies are increasingly integrating Al-powered tools of global leaders such as NVIDIA, OpenAI, and Unreal Engine to facilitate advancements in Al-driven animation, real-time rendering, and procedural content generation. For instance, Charuvi Design Labs (CDL) has been incorporating Al at various stages of its production pipeline, observing gradual yet significant improvements in efficiency and creativity. The use of Al-driven XR solutions is not just limited to the media and entertainment industry instead enterprises are developing solutions for industrial training and medical simulations as well.

Moreover, cloud-based Al solutions from technology giants like Google, Microsoft, and Amazon empower creators to access robust machine learning models without the necessity for high-end local infrastructure. The emergence of Al-as-a-Service (AlaaS) platforms enables small and mid-sized studios to utilize pre-trained Al models for animation, visual effects, and game development.

Al will have a profound economic impact on its flourishing animation, VFX and gaming industry. With the help of Al tools businesses are transforming the traditional creative pipeline, reducing production costs and enhancing storytelling and audience engagement. The National Centre of Excellence for AVGC-XR is estimated to generate 5 lakh Jobs (5) by creating a dynamic ecosystem for research, development and innovation in immersive technologies.

As Al-driven tools become more sophisticated, the distinction between human creativity and machine intelligence will blur and it will foster a future where technology and artistry coexist in unprecedented harmony. The use of Al will transform storytelling, change business models and reshape audience engagement and their digital experiences. As India and the world embrace this transformative wave, the AVGC-XR sector stands poised for an era of boundless innovation, limitless possibilities and a new frontier for immersive storytelling. With a burgeoning talent pool, escalating Al integration, and robust policy frameworks, India will soon be a significant player in the global Al-driven AVGC-XR landscape.







The Future of Intelligence: We are on the cusp of a New Species Generation



Imagine a world where machines not only think but evolve. A world where computers are no longer just silicon chips but living, breathing neurons. This isn't science fiction—it's reality unfolding before us.

Yet, as we edge closer to artificial general intelligence (AGI) and eventually artificial superintelligence (ASI), an entirely new frontier is emerging—organoid intelligence (OI), a fusion of biological neurons and computational power that could redefine intelligence itself.

From artificial intelligence (AI) to superintelligence (SI) and eventually delve towards organoid intelligence (OI). By 2030 we will entering an era where intelligence will be redefined.



Artificial Intelligence: The Foundation

Al has already transformed industries, from healthcare and finance to creative arts and research. Al-powered systems contribute over **\$15.7 trillion** to the global economy, increasing productivity by **40%** in many sectors.

Examples:



Google DeepMind's AlphaFold solved a 50-year-old protein-folding mystery, predicting the structure of over 200 million proteins.



IBM Watson AI assists doctors in diagnosing diseases more accurately than humans.

However, Al still lacks human-like cognition, intuition, and adaptability. The next step—Artificial Superintelligence (ASI)—poses both opportunities and risks.







The Leap to Superintelligence

Superintelligence, often portrayed as either a technological utopia or existential threat, raises profound ethical concerns. A 2023 survey by the Future of Life Institute found that **72% of Al experts** believe superintelligent Al could pose a risk if not properly controlled.

Examples:



Fictional Als like **Skynet from The Terminator** symbolize fears of uncontrolled SI. However, real-world systems like **GPT-4 and DeepMind's Gato**, capable of performing multiple tasks across domains, indicate early steps toward superintelligence.

The world's fastest supercomputer, **Frontier**, now **processes 1.1 exaflops** (one quintillion calculations per second). But what if the future of intelligence isn't siliconhased at all?



Organoid Intelligence: The Rise of Biological Computing

Organoid Intelligence (OI) integrates biological neurons into computing systems. Unlike AI, which follows predefined algorithms, OI leverages living brain cells to process information dynamically.

Examples:



In 2022, **Cortical Labs** developed a brainchip with **800,000 human neurons** that leamed to play Pong faster than AI.



Johns Hopkins University's "Brainoware" demonstrated how lab-grown brain organoids could store and process information.

OI has key advantages—biological neurons are energyefficient (the **human brain runs on just 20 watts**), selfleaming, and adaptable. This could revolutionize AI, leading to systems that evolve like living organisms.

The Future: Collaboration or Convergence?

The convergence of AI, SI, and OI opens new possibilities. Could hybrid intelligence surpass even ASI? Could braininspired computing lead to machines with emotions or consciousness?

At the same time, ethical concerns arise. If an organoid-based system becomes sentient, does it have rights? How do we ensure Al—whether artificial or biological—remains aligned with human values?

As **Stephen Hawking warned**: "The development of full artificial intelligence could spell the end of the human race."



Conclusion

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Boosting India's Horticulture Exports: A Roadmap for Growth

India, a land of vibrant hues and diverse landscapes, boasts a rich tapestry of horticultural produce. From the succulent Alphonso mangoes of Maharashtra to the tangy Kinnow oranges of Punjab, the country's orchards and fields overflow with fruits, vegetables, and flowers.

India's current horticultural export basket, while diverse, is often characterized by low value-added products and a reliance on traditional markets. Fresh produce, susceptible to spoilage and requiring specialized handling, dominates exports. This creates vulnerabilities related to shelf life, and price fluctuations in international markets. Furthermore, a lack of consistent quality and adherence to stringent international standards often limits market access and price realization. The absence of robust infrastructure, including pack houses, refrigerated transport, and irradiation facilities, further compounds the problem.

So, how can India cultivate a more bountiful future for its horticultural exports? A multi-pronged approach is required, focusing on infrastructure development, technology adoption, value addition, and market diversification.









We need to partner with leading agri-businesses around the world to anchor commodity-specific clusters. This will ensure investments in technology, R&D, modem practices, and above all, robust market linkages.

This need not, and cannot, be done for all crops in one go. We should prioritise. Start with select high-potential value chains, such as basmati rice, shrimp, etc. The government should review export policy, but more importantly, look at what buyers are willing to invest into.

According to the buyer requirements, we should facilitate partnerships among farmers, Farmer Producer Organizations (FPOs), processors, and exporters. We can involve large input companies as well, who are keen to work on value chain development. We should strengthen the role of FPOs as key aggregators, empowering them with grading and packaging facilities, market intelligence systems, and financial support for value addition.



Add value before exporting

While fresh produce exports remain dominant, India must pivot towards value-added products such as frozen fruits, dehydrated vegetables, purees, and juices. Processed horticulture products not only have a longer shelf life but also fetch higher prices.

This requires promoting the development of food processing industries, particularly in areas close to production centres. Incentives for setting up processing units, coupled with support for research and development in value-added products, can significantly enhance export earnings. PMFME scheme is a good step in this direction. It needs a more sustained push.

Building decentralized processing facilities aligned with crop-specific clusters would help. For example, spice drying units in Kerala or millet processing units in Rajasthan.



GI-tagging of Agri commodities is good idea, but it is merely the first step. To make it truly impactful, there is a need for sustained efforts to build a narrative, strengthen the brand; ongoing digital marketing campaigns are a must. Collaborating with industry associations and export promotion councils can facilitate marketing campaigns and brand building initiatives.

We should expand traceability initiatives like Blockchainbased systems to ensure end-to-end transparency in supply chains. Integrating these systems with platforms like e-NAM can ensure better accessibility for farmers.

Also, promoting technology adoption at the farm level is essential. This involves encouraging the use of precision farming techniques, high-yielding varieties, and integrated pest management practices to enhance productivity and quality. Providing farmers with access to training, credit, and extension services will enable them to adopt these technologies effectively.



One of the biggest constraints in India's horticulture export ecosystem is inadequate post-harvest infrastructure. Nearly 30-40% of fruits and vegetables perish before reaching the market due to poor handling, lack of proper storage, and inefficient logistics.

We need to urgently scale up the existing cold chain infrastructure under Pradhan Mantri Kisan Sampada Yojana (PMKSY) by incentivizing public-private partnerships. We should deploy decentralized solar-powered cold storage at farm levels, particularly in underserved regions, to reduce perishability. India must expand its network of modem packhouses and ripening chambers. Investments in controlled atmosphere (CA) storage, pre-cooling facilities, and efficient transportation solutions such as reefer trucks can significantly reduce wastage and extend shelf life, making Indian produce more competitive in international markets.

If the packhouses can be equipped with Al-powered quality sorting and grading tools, the results can be all the more transformational. Automation in packaging is another area needing massive upgrade to existing infrastructure. Such steps can have a significant impact on the price realisation of all our commodity exports.

In conclusion, India's horticultural sector holds immense potential for growth. By addressing the challenges and implementing the strategies outlined above, India can transform its horticultural exports from a trickle to a torrent, creating a more prosperous future for its farmers and boosting its position in the global market. The time is ripe to cultivate a truly bountiful future for India's horticultural exports, reaping the rewards of its fertile lands and dedicated farmers.

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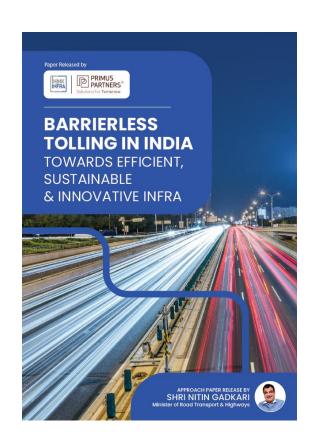


Barrierless Tolling in India: Towards Efficient, Sustainable, and Innovative Infra

Primus Partners recently launched its report, 'Barrierless Tolling in India: Towards Efficient, Sustainable & Innovative Infra', highlighting a major shift in India's toll collection system. The report was officially released by Shri Nitin Gadkari, Hon'ble Minister of Road Transport & Highways, reflecting the Government of India's commitment to modemizing and transforming India's highway infrastructure. The report presents a roadmap for Global Navigation Satellite System (GNSS)-based tolling, a barrierless, distance-based toll collection system aimed at reducing congestion, enhancing efficiency, and promoting environmental sustainability.

This approach paper is the result of extensive research, rigorous interviews and collaboration with over 50 global and domestic stakeholders, representing key players in telematics, GNSS technology, highway operations, payment ecosystem, policy and legal experts. It encapsulates global success stories, technology standards, policy considerations, and strategic implementation insights.

The stakeholders during the conference included senior government officials from MoRTH, IHMCL, NHAI, global industry leaders from Telematika, Skytoll, Kapsch, former ISRO chairman, representatives from VISA, Policy Bazaar, SatCom Industry Association-India, Legal and policy experts, marking a moment of convergence for the best minds in the field.



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Key Highlights of the Report

- From Booths to Seamless Tolling: The transition from RFID-based FASTag to a satellite-driven, distance-based tolling system will eliminate the need for physical toll plazas, ensuring hassle-free highway travel.
- Fair, Usage-Based Pricing: Unlike the current fixed-fee model, GNSS-based tolling will charge users based on the actual distance travelled, making toll payments more equitable and efficient.
- Leveraging Indigenous Technology: The system will be powered by NavIC, India's homegrown satellite navigation system, ensuring high accuracy, secure transactions, and seamless vehicle tracking.
- Economic & Environmental Gains:
 - ₹12,000 crore annual savings from reduced fuel wastage.
 - 5 million tons of CO2 emissions cut annually, supporting India's sustainability goals.
 - 15-20% increase in toll collection efficiency, minimizing revenue leakages.
- O Strategic Implementation:
 - Phased rollout, beginning with commercial vehicles before fullscale adoption.
 - Hybrid model where GNSS tolling coexists with FASTag during transition.
 - Al-powered enforcement using Automatic Number Plate Recognition (ANPR) and geofencing to prevent toll evasion.
 - Data privacy and security measures ensuring user protection.



The Road Ahead

As India gears up for its next phase of highway modemisation, GNSS-based tolling is set to revolutionise the country's transport infrastructure by ensuring that India's 'Highways to Prosperity' become barrierless. This initiative will make India's highways smarter, greener, and more user-friendly by eliminating toll booths, enabling automated payments, and integrating smart technologies.







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Primus Partners has been set up to partner with clients in 'navigating' India, by experts with decades of experience in doing so for large global firms. Set up on the principle of 'Idea Realization', it brings to bear 'experience in action'. 'Idea Realization' – a unique approach to examine futuristic ideas required for the growth of an organization or a sector or geography, from the perspective of assured on ground implementability.

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The firm has a presence across multiple cities in India, as well as Dubai, UAE. In addition, the firm has successfully executed projects across Africa, Asia Pacific and the Americas.

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