

# The Prism Process

A data-driven, replicable, and scalable methodology that helps fast-track the design, installation, and modernization process for data center operators.

BY SAM PRUDHOMME  
*PRESIDENT, ACCELERATION DATA CENTER BUSINESS UNIT*

instor®



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# Executive Summary

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A confluence of shifting macroeconomic forces are changing the way that North American hyperscale cloud providers scale their platforms. As this shift drives a groundswell of new demand in the country's colocation sector — particularly in fast-growing Tier II and Tier III markets like Salt Lake City, Austin, Atlanta, and the Midwest — data center operators are seeking new strategies and skillsets to manage the complexity, scale, and pace of demand from hyperscale organizations.

Organizations in these Tier II and Tier III markets that hope to successfully capitalize on this demand will need an approach that is based on a wealth of both data and expert individual experiences.

The Instor Prism Process is a data-driven, replicable, and scalable methodology that helps fast-track the design, installation, and modernization process for data center operators. By harnessing tens of thousands of data points based on the company's decades of industry experience, operators can reduce complexity and cost while meeting demanding timescales.



# The Hyperscale Market Shift

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Over the past 18 months, macroeconomic forces shaping the US data center industry have pushed cloud service providers into taking a different approach to scaling their platforms. Hampered by supply chain headwinds, stricter regulatory scrutiny, and pressure from shareholders to increase quarterly turnover, hyperscalers are increasingly shifting focus from multi-megawatt-scale campuses like those operated by Meta in Prineville, or by AWS in Ashburn, back towards the colocation market as a way to meet demand.

Development of these campus-scale projects, which have defined the past decade of growth and exerted an intense gravity on the industry, is starting to slow. Simultaneously, demand for cloud services only continues to gather momentum. The global hyperscale data center market (valued at \$59.0 billion in 2020) is [projected to reach \\$585.0 billion](#) by the end of the decade, with a CAGR of 25.9%. With the United States representing the largest hyperscale market, demand for capacity is expected to increase significantly over that period as enterprises turn to their IT departments as a source of efficiency, profitability, and growth.

In order to meet this demand, hyperscalers are mitigating their short term capital expenditure (CapEx) by pushing their capacity requirements back onto the colocation sector. The strategy has been employed before by hyperscalers in APAC, where market growth has always been supported and [fueled by construction from enterprise and colocation data center operators](#). Rather than high risk, high CapEx investments, cloud providers pass a portion of the risk onto colocation companies, turning short term expenditure into a lower risk, long term operational expense.

Now, this same trend is becoming observable in the US market. Factors like increased regulatory scrutiny, supply chain issues, material costs, and permitting delays all conspire to make it hard for hyperscalers to build at pace.



## Hyperscale Returns to Colocation

The colocation sector has been identified either as a source of readily available capacity — quick and easy to lease on short notice — or as a way to simply outsource the CapEx and risk associated with greenfield and some brownfield projects. As a result, hyperscalers are shifting demand towards colocation companies and buying up capacity to support their public cloud platforms rather than building new campuses. This means the colocation data center market has experienced a rapid new influx of demand — first in Tier I markets, and now into Tier II and Tier III locations as those Tier I markets reach saturation.

Theoretically, the continued growth of cloud and the shift of demand back into the colocation sector benefits both the colocation operators and hyperscalers. Colocation companies experience greater demand, lease more of their capacity, and can more easily secure funding for further projects that are already pre-leased on a large scale to hyperscalers. At the same time, hyperscalers convert short term CapEx into a long-term OpEx, reducing quarterly spend and overheads, minimizing risk, and increasing share prices.

However, for colocation data center operators, tapping into this emerging source of revenue and growth also represents a new, potentially significant challenge.

## The Opportunities and Challenges of Tier I Market Overflow

The last 12 months have seen virtually all available colocation capacity in Tier I US markets absorbed by hyperscale clients, and all significant capacity that will be available in facilities currently under construction has been pre-leased. There is no more room left in Tier I US markets like Ashburn, Phoenix, Portland, and Dallas, as operators there approach full saturation.

Now, hyperscale operators in search of more capacity are pushing out into Tier II and Tier III data center markets like the Midwest, Boston, Denver, and Salt Lake City. These markets, with data centers that have traditionally focused on retail colocation, are being inundated with new business from hyperscalers for multi-megawatt projects, as existing Tier II and Tier III infrastructure can provide immediate capacity by refitting, expanding, and upgrading gray or white space to suit hyperscalers' needs.

*Hyperscale operators in search of more capacity are pushing out into Tier II and Tier III data center markets like the Midwest, Boston, Denver, and Salt Lake City.*

This trend represents a golden opportunity for Tier II and Tier III colocation providers to capture new business. However, the scale, complexity, high levels of specification, and short timelines demanded by hyperscale customers can present significant challenges. For operators that have primarily focused on enterprise and retail colocation — and are unaccustomed to fitting up white space to accommodate hyperscalers' demands — this process can create genuine pain points on both sides.

Each hyperscaler requires highly specific, standardized environments for their data center white space — efficient, scalable, and replicable across a global platform with little margin for variation. These requirements must be married successfully to the existing physical environment provided by the data center operator.

Smaller colocation providers might not have the necessary experience in outfitting white space to the exacting specifications required by hyperscalers. Colocation companies in Tier I markets often employ large, dedicated teams that handle the complex, demanding process of executing a hyperscale fit out. Tier II and Tier III operators have rarely — if ever — needed these competencies before, but are now at risk of losing bids as a result.

Hyperscalers' specifications are also becoming more demanding. The digital infrastructure architectures used to support hyperscale cloud are exhibiting increased rack densities to support the next generation of chips — not to mention growing demand for GPU-based processing to support predictive and generative artificial intelligence — at the same time as increased scrutiny and regulation of data centers' environmental impact demand more energy efficient solutioning and design. Hyperscalers are increasingly driven by their ESG policies, which are more demanding than ever before, not only in terms of where power is sourced, but how efficiently it is consumed.

Connectivity, compute, and power requirements are all on the rise, and operators have less leeway than ever when it comes to the electricity and water they consume to meet those requirements. Managing those complexities requires deep reserves of experience and expertise, skilled professionals, and the ability to move at scale and pace.

In this new era for the US' Tier II and Tier III colocation data center market, organizations working with a third party solutioning partner can source expertise from outside their organization. In a market increasingly defined by increased demand and a sweeping skills shortage, partnering with an external organization can be pivotal when marrying the requirements of hyperscale clients with the physical environment colocation companies possess — tackling complexities to execute projects on time and under budget.







## Hyperscale White Space Challenges

When engaging the services of a colocation operator, hyperscale customers' demands center on three criteria:

1. **High levels of standardization;** hyperscalers replicate their environments across global platforms to drive efficiencies and offer an identical experience to their customers, regardless of geography. Hyperscalers often present colocation data centers with a strict and detailed playbook to complete white space fit outs.
2. **Greater complexity;** hyperscale white space is more complex with regard to conveyable, containment, connectivity, and power.
3. **Speed;** hyperscalers are expanding rapidly into Tier II and Tier III markets because of those markets' existing physical environments and the potential to scale their platforms at pace. Colocation data centers that are unable to meet this fast-moving hyperscale demand are in danger of missing out.

Instor has the experience and expertise to take a hyperscaler's playbook, break down its complexities, and determine how best to implement it within the colocation provider's environment. Pain points are then identified, and plans can be made to complete the work within the necessary time frame, empowering colocation operators' infrastructure to tap into this new wave of demand.

The Prism Process — an approach that combines the individual and objective data gathered by Instor over the past 30+ years in the industry with the Instor Multivariate Analysis Project Process Theorem to tackle complexities, predict hidden variables, and complete projects on time and on budget.



# The Prism Process

## Step by Step

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All projects face the same three core problems: budget, time, and execution. Complexity obscures the correct path to overcoming these challenges and conceals potential variables with the potential to throw off expected results. These unknown variables are the most likely thing to negatively impact the successful execution of a project on budget and within its timeline.

By combining Instor's subjective and objective expertise into a data-driven approach, the Prism Process solves complexities by identifying the likelihood of variables that can affect a project's outcome with the multivariate analysis process, and adjusts accordingly. Once identified and understood, those variables can either be responded to in-time or ahead of time, minimizing risk to the project. The client also gains a more accurate insight into the project ahead of time, improving their chances of winning work from a customer.

### Breaking Down the Problem

#### The Prism Process, Step-by-Step

1. Break down data center design and installation criteria into smaller component tasks and sub-tasks.
2. Identify all variables with the potential affect on each component sub-task.
3. Using Instor's wealth of experiential data, apply weighted probabilities to each possible variable, giving an aggregate score for each sub-task using Multivariate Analysis.
4. Recombine each individual task's result for total project score.
5. Use findings to design a plan utilizing key expertise and skillsets to deliver data center modernization and white space installation projects on-time and on-budget.
6. Once the project is complete the positive and negative outcomes are then fed back into the Prism Process evolving future predictive outcomes.





Complex systems are more easily observed when they're broken apart. When a large project — like the fit out of a multi-megawatt data center — is subdivided into its component tasks, each individual piece can be more easily observed, which simplifies the process of identifying potential obstacles and finding solutions. These smaller tasks are then broken down again into smaller subsets of tasks, further simplifying the process of observing, understanding, and solving for complications. It's at this point that a sub-task's variables are calculated.

The process can also account for tasks that are measured by different metrics, feeding them into a single equation; some elements of a fit out might be measured in hours of labor, whereas other aspects might be measured in inches of cable laid.

The same task may contain multiple sub-tasks measured using different metrics. For each discrete sub-task, a baseline value is assigned, based on a combination of Instor's data gathered over the past 30+ years and client data.

For each discrete sub-task that makes up a larger, more complex project, variables that could positively or negatively affect the outcome of the project are then identified. Based on the tens of thousands of data points drawn from Instor's prior experience operating in the industry, each variable is assigned a likelihood — drawn from prior success rates, the local geographical conditions, macroeconomic market trends, etc. — which then affects the base rate.

## Multivariate Analysis

To solve for such a wide array of variables, all of which can apply weight to an outcome in different and unique ways — all of which are subject to changes in context — Instor employs a multivariate analysis approach. Multivariate analysis is a process that allows multiple dependent variables to be used to solve for a single outcome, and is used throughout many data-driven industries, from health to environmental science to tracking sales.

Though complex, multivariate analysis can make more accurate predictions about real world situations, as more than one independent effect on a particular task can be taken into account when calculating the weight of each variable. The result is a nuanced and holistic understanding of the factors — whether they be geographical, environmental, or experiential and based on Instor's own wealth of data gathered over more than 30 years — affecting any particular sub-task.

Once the weighted variables applied to each sub-task have been calculated and applied to the base score, the score from each sub-task is aggregated into its overall task, and then each task is aggregated, resulting in a total project score.

When each element of the larger project is examined and solved for in this manner, using this multivariate analysis approach, the elements can then be reassembled to achieve an understanding of the project as a whole. Understanding the component elements of a project on a granular scale like this allows Instor a more insightful, holistic view over a project's timeline, budget, and how to execute on those factors with minimal impact from previously unknown variables.

That holistic, weighted, project-level understanding is then used to create the best possible solution for any given project, regardless of complexity.

*Based on tens of thousands of data points gathered over more than 30 years in the data center industry.*

# Empowered by the Prism Process

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The Prism Process enables Instor to translate the expertise of our elite professionals into a data-driven, replicable, and scalable process.

Based on tens of thousands of discrete data points gathered over the course of more than 30 years operating in the data center white space design and installation sector, the process allows Instor to fast-track the design and installation process by better understanding customer requirements in order to make outcome-based decisions.

Prism takes the subjective experiences of Instor's elite workforce, combines those experiences with objective data gathered over 30+ years in the industry, and applies a mathematical formula using multivariate analysis. The result is an ever evolving data-driven project process that allows Instor to tackle the kinds of complexities that might seem intractable to our competitors.

By using Prism, Instor can more accurately predict budgets and deadlines, alleviating customer pain points before they even occur. This predictive solutioning process is baked into everything Instor does from start to finish, enabling unbeatable levels of flexibility, agility, and resilience in a sector where time, money, and quality of service are all in high demand.

In order to further enable Instor to accelerate and scale its application of the Prism Process for the benefit of data center customers, Instor is currently developing an AI-powered, patent pending software tool. By using AI and machine learning capabilities to feed new client data through the Prism Process' multivariate analysis, Instor will be able to identify and more accurately predict the effects of unknown variables on elements of customer projects, at greater scale and speeds than ever before. The use of the new tool within the process will fully enable cloud providers to deploy at the speed and scale of their customers' demand.







## Benefits of the Prism Process

The Prism Process is a distillation of Instor’s elite workforce’s combined centuries of experience — allowing a small team of experts to scale without increasing headcount or compromising quality of service.

Taking Instor’s collective experience and using it to create a process that allows those with less experience to achieve better outcomes, allowing the team to tackle more business, faster, with fewer complications is a more efficient utilization of the company’s combined skill base.

In a data center market where, according to the Uptime Institute’s 2022 survey, 53% of operators had difficulty finding qualified candidates for open jobs, up from 47% in 2021, and 38% in 2018, the ability to design, build, and install custom white space solutions at scale can be an invaluable tool for organizations feeling the bite of the skills shortage.

At the same time as hyperscale-driven demand spills into new markets, the need to reduce energy consumption, water usage, and carbon emissions is more urgent than ever before. Both at the state and federal level, regulating bodies in the US are starting to take very real steps to curtail data center industry emissions — with potentially serious consequences for those who fail to comply.

# The Instor Approach

## Empowering Data Infrastructure

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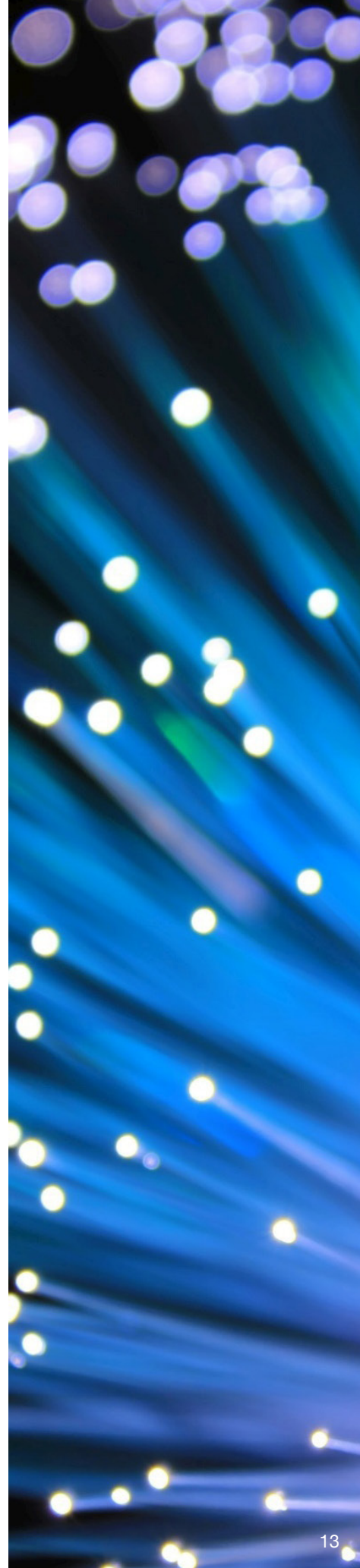
[Instor Solutions](#) is a comprehensive critical facility services organization centered on the belief that our employees and their experience are the company's most valuable asset when empowering our clients' data infrastructure. Instor is an elite group of professionals with a laser focus on delivering customer success through our expertise in data center caging, cooling, connectivity, containment, conveyancing, design, electrical systems, white space installation, and optimization.

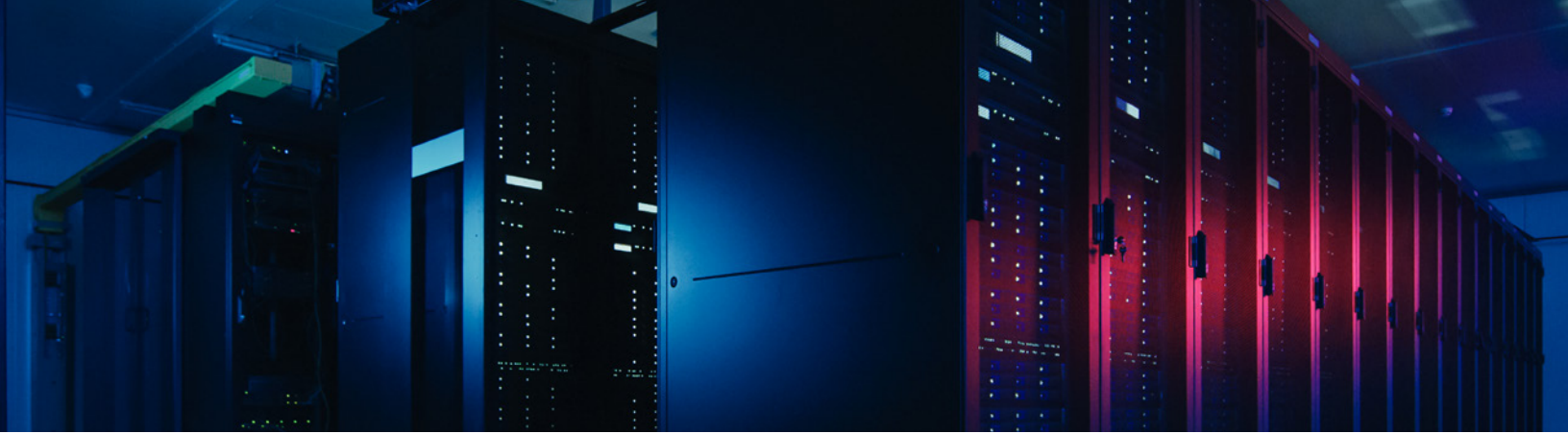
A competency-specific approach enables Instor to work as an extension of our customers' organizations, providing access to a highly skilled workforce focused on delivering customer success. Instor's collective experience and process-driven approach enables us to custom-engineer data center white space to meet customer requirements on-time, on-budget, and at scale. The combination of Instor's elite team of experienced professionals, our collective experience, and the power of our Prism Process has made Instor a trusted partner for colocation and hyperscale data center operators in North America, South America, Canada, and soon globally.

As a trusted partner to the data center industry, Instor understands the needs of both the colocation and hyperscale operators — with a vested interest in securing successful outcomes for both.

The hyperscale demand shift onto the colocation sector represents a sizable opportunity for data center operators in Tier II and Tier III markets. Securing that demand through the tender process also represents a challenge in a section of the market populated by evenly-matched operators, few of whom have the necessary experience working alongside hyperscale clients.

This is where a partner like Instor is instrumental in creating the necessary roadmap to win work from hyperscalers, and then ensure said work is completed on time and under budget.





## Instor's Differentiators

There are three core elements of Instor's competency as an independent data center services and white space solutions provider — differentiators that ensure our ability to empower our customers' data infrastructure.

1. Intricate knowledge of the white space environment drawn from 300+ years of combined employee experience.
2. A data-driven approach to in-house design, installation, and optimization services — fueled by data gathered over 30+ years.
3. The ability to tackle complex problems at scale and pace with the Prism Process.

Instor's intricate knowledge of the white space environment and build-out process is rooted in more than 300 years of combined white space installation experience, thousands of successfully completed migrations, hundreds of megawatts deployed across five continents, 36,000 miles of network circuitry installed every year, and zero damage claims filed in the past decade.

Whether installing a single rack for a retail colocation environment, or thousands as part of a multi-megawatt hyperscale deployment, Instor's in-depth understanding of the white space environment provides the ability to quickly understand our customer's needs and custom-engineer a solution from rack to row. Leading analyst organization, McKinsey, considers Instor a US market leader in the small-to-medium data center (1-10 MW capacity) white space build-out market; this reputation is built on meaningful customer relations, extensive market knowledge, and high rate of delivery.

Instor believes our employees and their extensive reserves of experience are the company's greatest asset.

Drawing from that deep well of experience, and finding a way to replicate the benefits of that experience beyond the individual is at the heart of how Instor can help our clients manage complexity and neutralize pain points — even before they appear. This approach, built on tens of thousands of data points and weighted against Instor's decades of experience, defines the Prism Process and allows Instor to manage complexity at pace and scale without compromising quality of service.



# Conclusion

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The Prism Process enables Instor to replicate the expertise of our elite workforce regardless of scale — whether that means number of projects or project size. At a time when the colocation sector is faced with both a generational opportunity to capture new growth opportunities, and serious challenges that risk leaving those unprepared to meet the demands of hyperscalers behind, securing access to the right expertise is critical.

Instor is here for the current generation of colocation data center operators — especially those in Tier II and Tier III markets poised to capture this wave of demand. As a purpose-driven organization, founded on the key principles of customer service and success, Instor combines the power of customer data with decades of collective data center experience to solve complex customer problems at scale.

Powered by the Prism Process, Instor's offering has been built by our people, for our customers, and is intentionally focused on delivering 100% customer success. Instor's success is tied to the success of our customers, and the Prism Process has been tailor-made to reduce customer complexity and cost while meeting demanding timescales — no matter the location or scale.

instor®

US: 877.441.2234    EU: +353 (1) 4869372  
EMAIL: [contact@instor.com](mailto:contact@instor.com)    WEB: [instor.com](http://instor.com)

