



Gain confidence in decisions, operate high performing, resilient networks, deliver sustainable service and continually find opportunities for improvement

OVERVIEW

Most supply chain participants are well versed in managing distinct supply chain phases, but the dynamics of constantly adapting, hyper connected ecosystems continue to create pain points. By creating a virtual replication of an end-to-end supply chain—including time-dependent interactions between internal and external processes, systems, assets and components—X-ACT digital twin technologies help organizations balance competing objectives, improve performance and gain a competitive advantage.

- Find and remove hidden bottlenecks
- Agilely respond to changing demands at the required speed and cost
- Clearly understand how investments or changes may help or hinder business goals
- Identify events that may cause disruptions and manage unknown risks

With a complete understanding of the complex factors that drive costs, efficiency, customer satisfaction and sustainability, supply chain leaders can gain confidence in decisions, deliver the highest quality service at the lowest cost and continually find opportunities for improvement.

Other supply chain tools use big data and static analysis to predict repeating patterns and manage operational activities. But modern supply chains are sensitive to complex internal and external dynamics. A small change in one area can lead to unexpected impacts in other supply chain phases. These are the blind spots that make it difficult to agilely respond to change and plan for an unknown future.

X-ACT uses advanced algorithms to create a digital twin, which accurately replicates the outcome of time-dependent behaviors that other tools miss. Having a digital representation of real events that could happen under varying circumstances—whether or not these events have happened before—allows users to explore the impacts in a virtual world first and make more informed decisions.

- Businesses use X-ACT to anticipate the real-life outcome of decisions before making any changes that may have significant quality, capacity or cost implications.
- Unlike static modeling approaches, X ACT uses advanced algorithms to concurrently analyze time dependent interactions between tens of thousands of supply chain processes, systems, assets and components in a single model.

X-ACT DIGITAL TWIN TECHNOLOGIES



SCENARIO ANALYSIS

Through stress testing and 'what-if' analysis, X-ACT mechanistic digital twin clearly identifies any circumstances that may impede or improve supply chain productivity, efficiency and economic performance. To support tactical and strategic decisions, X-ACT calculates the outcome of any possible scenario. This makes it easy for users to change time dependent parameters, such as demand, costs, lead times and production yields to clearly understand the cumulative effect of variability on the entire supply chain.

Using the insights derived from X-ACT, users can create optimization, resiliency, transformation and fault tolerance plans with a realistic understanding of the expected results and return on investment. One of the biggest benefits of X-ACT is its ability to cover both known and unknown risks.

- X-ACT reproduces dynamics across the end-to-end supply chain and identifies risks that may result from any change in circumstances—including major market disruptions, disasters or other catastrophic events
- X-ACT uses a mechanistic model to avoid the drawbacks of big data or heuristic approaches that are data-dependent, time-consuming and less reliable



Gain Clarity

Discover opportunities and problems that other tools miss with the industry's only digital twin that covers all cross domain dynamic interdependencies—including planning, sourcing, production, inventory and logistical processes, personnel, equipment and technology—in a single model.



Plan for the Future

Verify the outcome of any planned changes that would be difficult, costly or even impossible to test with other digital twin solutions or under real circumstances.



Make Smart Decisions

Make fact-based decisions using an accurate digital representation of real events that could happen under varying sets of circumstances—regardless of whether or not those events have occurred previously.



Move at 4IR Speed

Be ready to prevent any issues that may impact supply chain performance and ensure solution robustness through algorithmic driven rules that support the speed, efficiency and customer-centric goals of Industry 4.0.



Measure & Guide Success

Use simple to understand KPI metrics and reports to communicate progress towards meeting goals and risks to all stakeholders.



Achieve Fast ROI

Derive value within the first 3 months of use with an iterative methodology and a library containing best in class supply chain configurations that make modeling and scenario analysis easy.



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OPTIMIZATION

A high-performing supply chain is efficient and responsive—so customers get what they want, when and where they want it—but also profitable and supportive of the organization's sustainability goals. X-ACT helps users identify the best way to balance competing business goals.

- Pinpoint the cause of inefficiencies across all phases and plan to optimize network utilization and scheduling processes to reduce bottlenecks
- Clearly identify when and which actions should be taken to support the highest network performance at the lowest cost
- Plan to accommodate fluctuations in demand or supply to continuously deliver the right products and services to end customers at the right time

RESILIENCE

The turbulence of that last few years has exposed the fragility of complex, distributed and highly globalized supply networks. X-ACT helps users identify potential points of failure, evaluate options for risk mitigation and build more resilience into operations.

- Gain a clear view across the entire supply chain—including storage management, transportation, distribution, triage, scheduling constraints and processing
- Expose risks hidden deep inside complex multitier supply networks
- Create a stepwise program to weather supply chain disruptions through advanced planning and structural changes
- Know when and which processes, networks and assets to reengineer or replace

TRANSFORMATION

When considering a disruptive move, X-ACT helps decision makers validate the best course of actions, costs and expected outcomes. As transformation programs evolve, X-ACT exposes any project risks and ensures that the implementation conforms to the promises made during the early stages of project definition.

- Innovate in virtual world to validate the benefits of new technologies or anticipate real-life decision outcomes that may be impossible to determine otherwise due to cost or safety concerns
- Clearly assess the financial, regulatory, operational, environmental or safety risk/reward of any changes

EXAMPLE RESULTS: POSTAL SERVICES



SCOPE

- 17,000 postal services outlets (sorting centers, hubs, distribution nodes, etc.), handling over 15 billion pieces of mail and parcels per year
- Model covering time dependent interactions between 8 million objects:
 - > Products and characteristics: volumes, KPI's, SLA's
 - > Business processes: mail inbound/outbound, sorting, storage, transport
 - > Infrastructure: centers, machines, humans, trucks, network, etc.
 - > Time dependencies: day, week, season and year

GOALS

- Achieve short-term cost reductions without reducing quality of service (QoS) or mail volumes
- Proactively manage, plan and anticipate potential problems across the end-to-end supply chain
- Keep cost of operations in alignment with predicted mail volumes and anticipated revenues
- Offer new products or services to maintain revenue as traditional mail volumes decline
- Identify best pricing based on competitive scenarios

RESULTS

- Cut number of sorting centers by 30%
- Optimize routes and transports between centers
- Reduce dependency on expensive and carbon emitting transportation

ABOUT URM GROUP

- **Global presence:** Offices in EMEA and US serving hundreds of customers worldwide
- **Market proven:** 20+ years of experience delivering decision intelligence to executive and operational supply chain, manufacturing, financial services, government and healthcare stakeholders
- **Technology excellence:** 28 patents drive business value by exposing risks that other solutions miss
- **Demonstrated ROI:** Collectively have saved customers billions