

X-ACT PLATFORM

*Using X-Act Libraries for Intelligent Design
and Prescriptive Management of Risk*

How to Guide





Introduction

When business and IT stakeholders want to build best in class systems or ensure the optimal performance of exiting business ecosystems, mathematical emulation is an effective way to validate plans, predictively expose risks, and identify which corrective actions will achieve the desired results for any given situation.

But to gain dependable intelligence, emulations must mathematically encapsulate all the characteristics, dynamic behaviors and dependencies among each component of the ecosystem being analyzed. When the emulation adheres to all the applicable rules that govern system behaviors—whether these patterns of behaviors are known from the outset—it becomes possible to reliably predict the future behaviors of the system under any set of conditions and dynamics that may evolve. This includes conditions that have never occurred before or are believed to be highly improbable.

With this information, stakeholders can make decisions with confidence because they are able to realistically quantify the financial and operational impact of any decision and prepare for future changes that may occur for any reason—including changes outside their control, like a sharp increase in unemployment, a trade war or the introduction of a complete revolutionary technology.

X-Act Libraries Speed Delivery and Control Processes

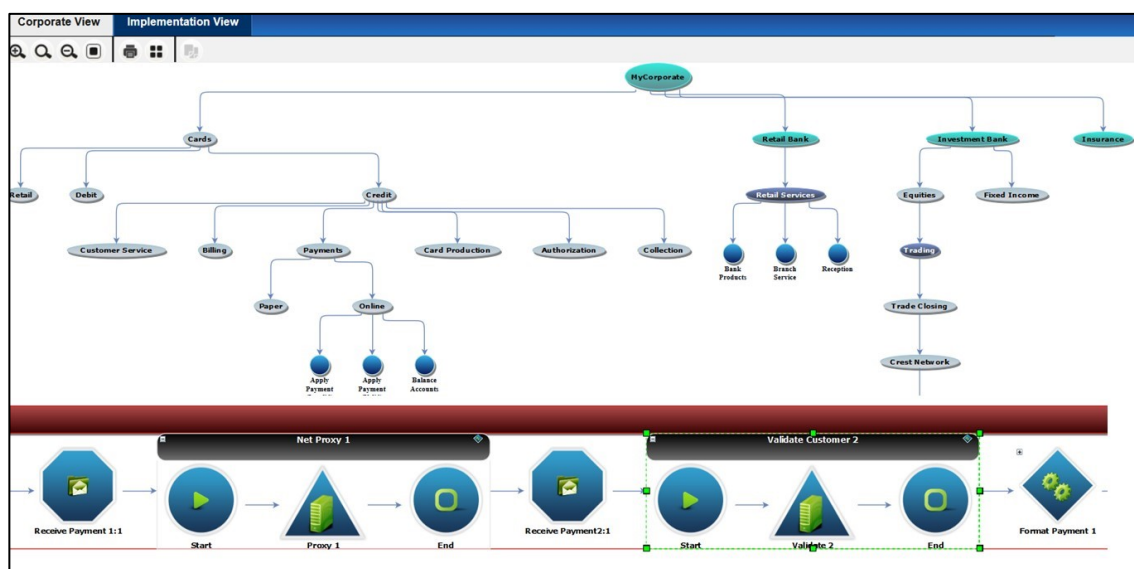
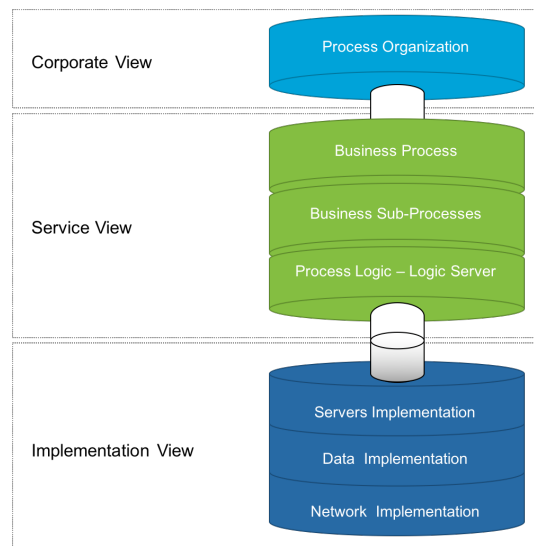
A global business is an amalgamation of millions of dynamic parts and interdependencies. Manually building a mathematical model that sufficiently represents the dynamics of each component would be a monumental task. To make mathematical emulation practical for business use, X-Act® platform automates the steps necessary to accurately represent system dynamics and provide reliable predictive intelligence.

X-Act libraries are a critical asset that shortens the time to value of an X-Act deployment from months to weeks and allow businesses to benchmark their systems against best in class implementations.

Every business system, whether it be a global supply chain, payment settlement system or manufacturing production line, has some characteristics that make the system unique, but in large part the system is built using common building blocks. X-Act libraries contain many of these common building blocks with over 10,000 certified dynamic patterns that can be used in the same way pre-built models are used in Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) to speed the delivery of designs and control processes.

In X-Act, a business system emulation starts at the organizational level, which is then served through the generation of processes and sub-processes, implemented through a certain logic or layout (architecture, urbanism or design), on a physical layer (factory, data center, sorting/transport configuration or economic instrumentation).

X-Act Libraries Accelerate End-to-End Modeling of Business Systems



X-Act Libraries Support End-to-End Modeling of Business and IT Infrastructure

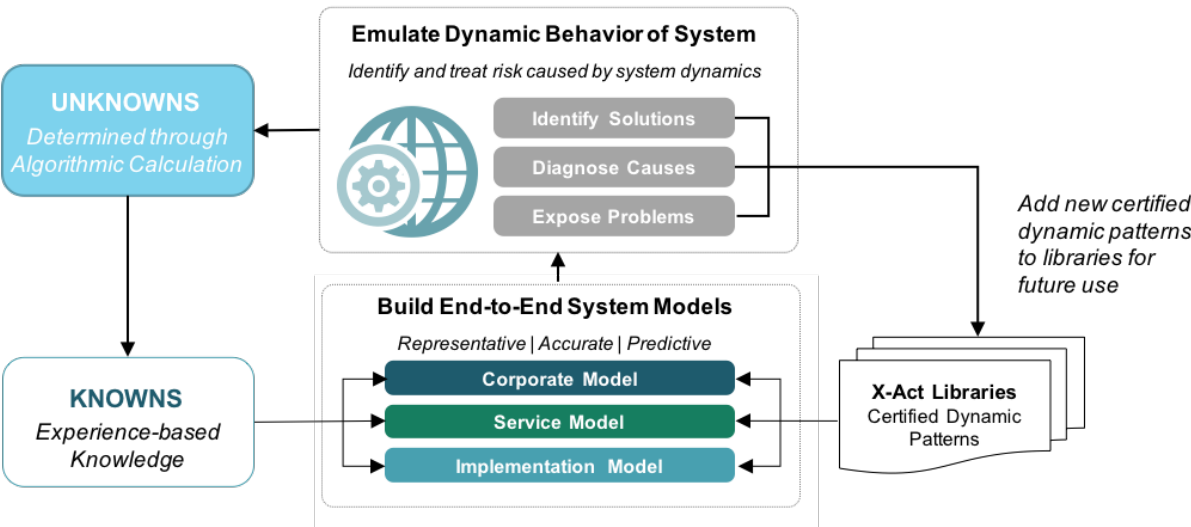
To build a representative model, users of X-Act simply select dynamic patterns from the libraries that span everything from common business operating structures and technologies to specific platforms and databases.

Sampling of X-Act Library Modeling Components

| | | | | | | | | |
|------------------------|------------------|-----------------|-------------|----------------|-------------|----------------------|---------------|--------------|
| Service Organization | Retail Bank | Investment Bank | Insurance | Stock Exchange | | Supply/Distribution | | |
| | Automotive | Logistics | Geography | Constraints | Strategy | Competition | Practices | |
| Service Processes | Posting | Cycling | Collection | Trading | Settlement | Claims | Mortgage | |
| | Authorization | Type | Class | Priorities | Dynamics | Constraints | Methods | |
| Service Architecture | Balance Account | | Get | Reward | | Interest Calculation | | Notification |
| | Loan Updates | | Suspension | | Legacy | Data Centric | Distributed | Hierarchical |
| Service Infrastructure | SOA | Internet | Distributed | | Cloud | | Heterogeneous | |
| | Messaging | | RDBMS | Store | Procedures | Security | | |
| Service Platforms | MVS/z | UNIX/Linux | Wintel | N-stop | Virtualized | Clustered | | Cooperative |
| | Massive Memories | | Oracle | DB2 | Sybase | z/.. | HP | Sun |

These dynamic patterns are created from mathematical emulation of business and IT ecosystems through algorithmic models that encapsulate behaviors, dependencies, and surrounding rules for ecosystem behaviors so they can perform predictive analysis. Each model stores remedial options to support prescriptive actions for risk avoidance. They become, in effect, dynamic Legos modeling entire business ecosystems with IT and business infrastructure interdependencies.

When the modeling is complete, these “dynamic Legos” make up the X-Act platform’s emulator. The deployed process allows users to control and manage the targeted environment, predict the eventual crisis or singularity points, and augment X-Act libraries with their own newly discovered patterns to gradually build and support more intelligent automation.

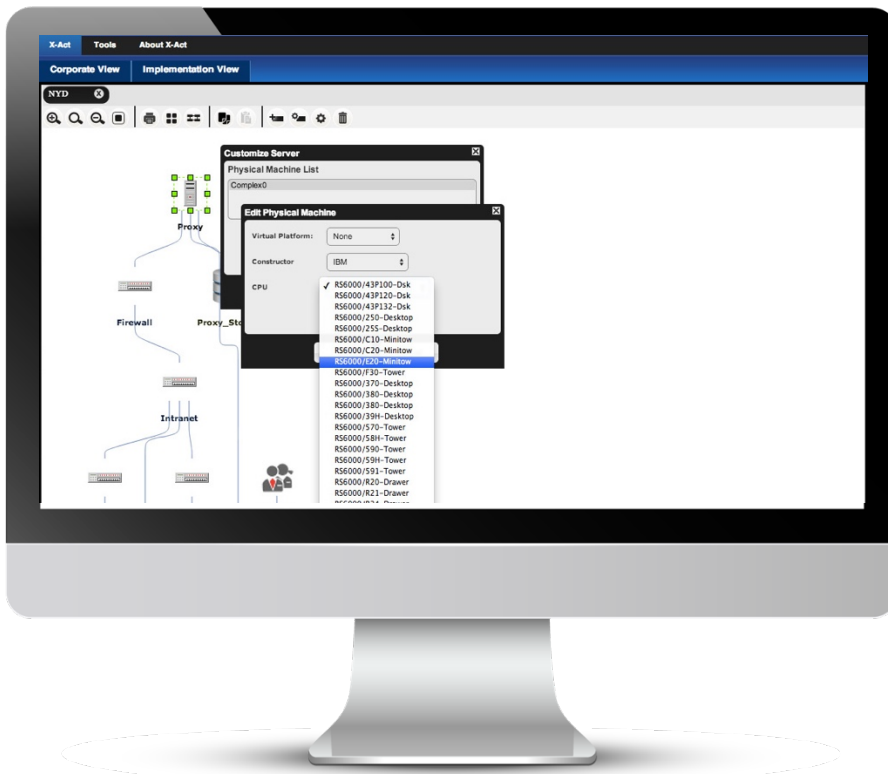
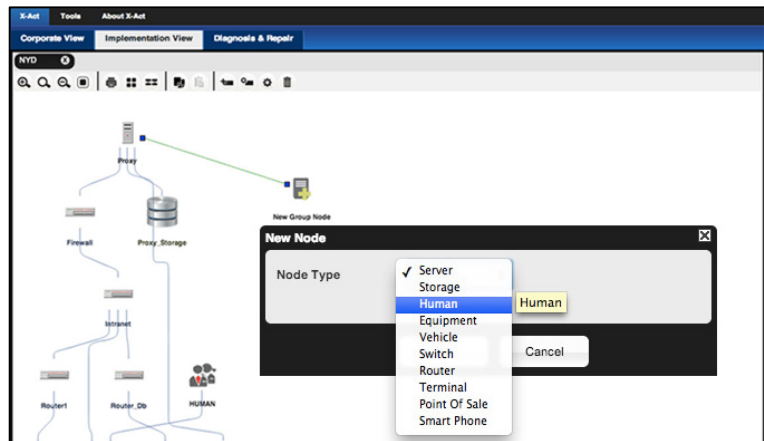


Building a Representative Model Using X-Act Libraries

To construct the framework for the emulation, users select applicable components through a hierarchy of menus and sub-menus categorized by business, processes, services, database and physical assets. Selecting any top-level item opens a list of possible subitems with details of the related characteristics and specifications, which can then be customized to represent the desired implementation.

No Modeling Experience Required

Using the existing library components which are accessible through the X-Act interface, even users with no previous modeling experience are able to build a representative model of all business and technology layers.

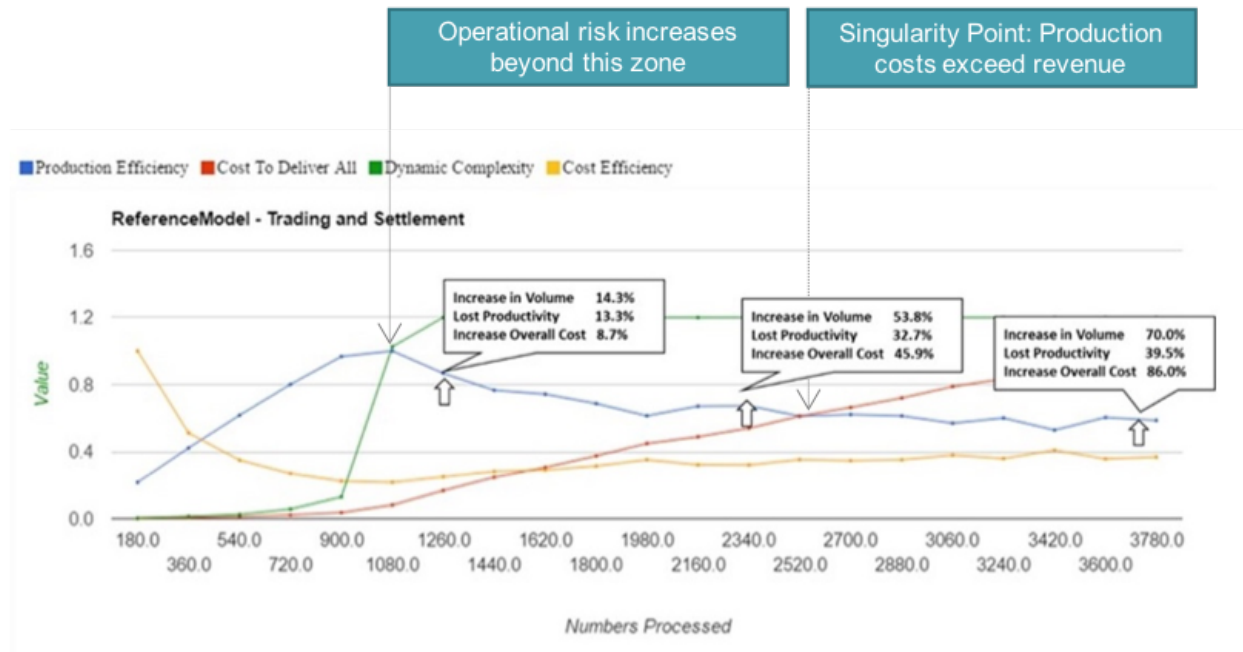


Easily Customize Library Components

X-Act library components can be easily customized to represent any unique characteristics of the system being modeled through drop down menu selections and text field inputs.

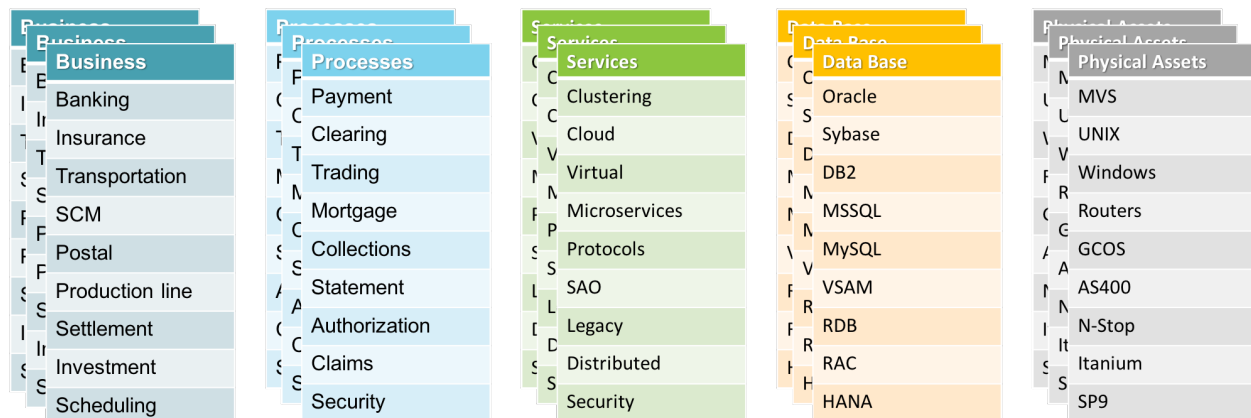
Using X-Act Libraries to Identify and Remediate Risks

Once users of X-Act platform emulate an implementation, they can explore various scenarios. The libraries become an indispensable knowledgebase that includes the characteristics and behaviors of system dynamics that then allows X-Act platform users to quickly identify a system degradation and manage the continuous improvement process necessary to avoid negative business outcomes.



The libraries help users quickly monitor risks as they develop and identify the best fit solution for potential problems found during project definition or execution. The number and sophistication of patterns will increase over time—allowing for more intelligence and a level of surveillance that surpasses what is achievable based on experience alone.

The Value of X-Act Increases as the Libraries Expand

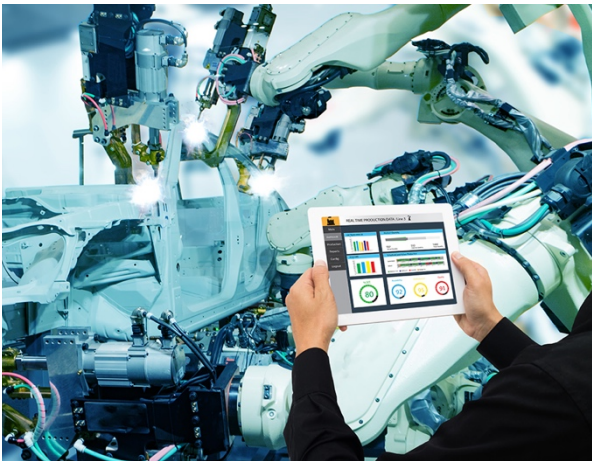


Summary of Common X-Act Library Use Cases



New Construction

In this case, all the layers—from business through to infrastructure—of the system are built from the top-down using library components. This allows business, IT and production line stakeholders to start first with an ideal construct and vet all subsequent decisions by comparing the predicted outcome against the best in class implementation with full knowledge of the impacts at all levels from the top down. As decisions are made, new constructs can be certified and then added to the libraries for future use.



Optimization

X-Act libraries help organizations identify opportunities for improvement or risk avoidance within existing business and IT systems. This includes identifying and prescribing treatment for conditions that may cause future system failures or escalating costs as well as guiding all change management exercises. In each case, the libraries help X-Act users justify decisions (including disruptive moves), control risks and achieve the best possible results.



Strategic Boardroom Planning

X-Act libraries help board members prepare for the future and make decisions with confidence in the financial and operational impact to the business. This includes intelligence relating to mergers and acquisitions and business renewal decisions as well as informative exercises such as competitive analysis or comparisons of current versus ideal business operations.

X-Act Libraries Support a Goal Oriented Approach

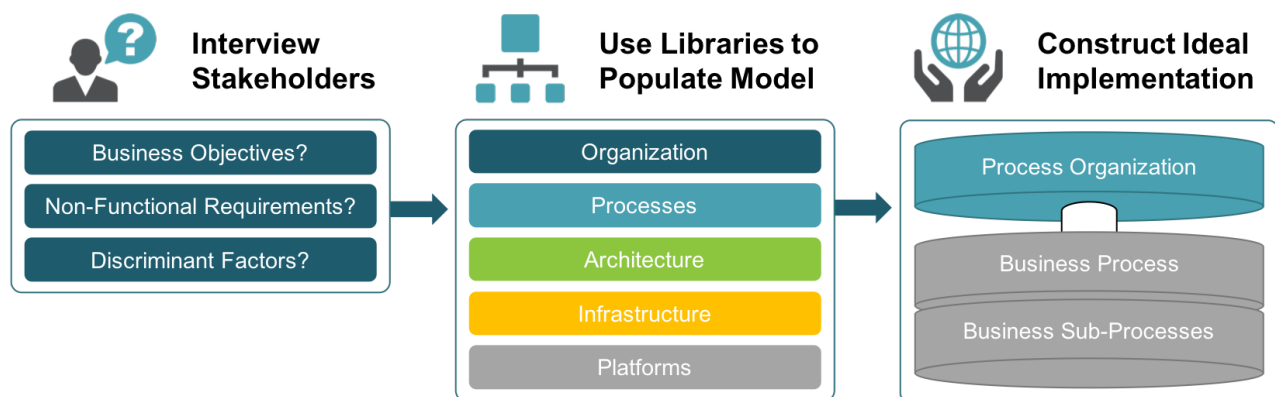
When building a new model, X-Act users have two choices: (1) the quick start method, which uses the libraries to emulate an ideal implementation, or (2) the detailed method, which uses data extractors and e-surveys to emulate a real implementation.

After building hundreds of emulations, we have found that in most cases, the quick start method is sufficient to compare, benchmark, diagnose and predict the best-case scenario for system limits and find which scenarios may cause a future disruption. While the detailed approach is necessary to support optimization and transformation program decisions. Further, emulating the real implementation can help businesses successfully plan and execute projects.

Option 1: Quick Start, Ideal Implementation

The quick start option provides a fast path to predictive insights as the emulator can be easily constructed based on the inputs of subject matter experts and dynamic patterns chosen from the X-Act libraries. This is helpful during the early stages of design or when creating a new business, as it is unlikely that the real-world measurements necessary to build a representative model would be available. It is also useful when businesses want to examine their current implementation against benchmarks of ideal situations and metrics.

Building an X-Act Platform Emulation QUICK START METHOD

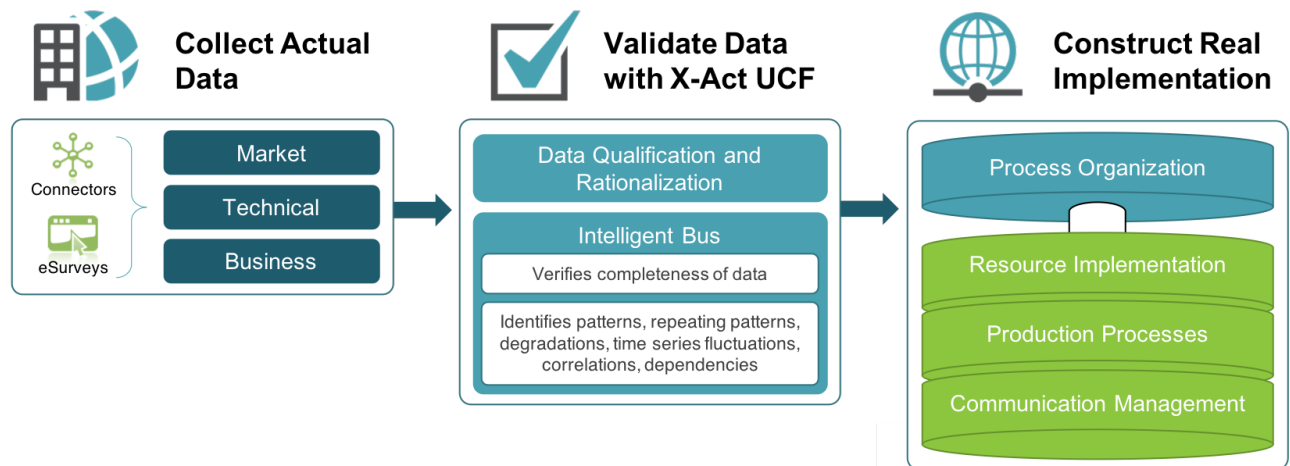


Once the business system is physically available, a comparison between the benchmark metrics and actual implementation can be made to calibrate the emulator and keep it aligned with the actual implementation.

Option 2: Detailed, Actual Implementation

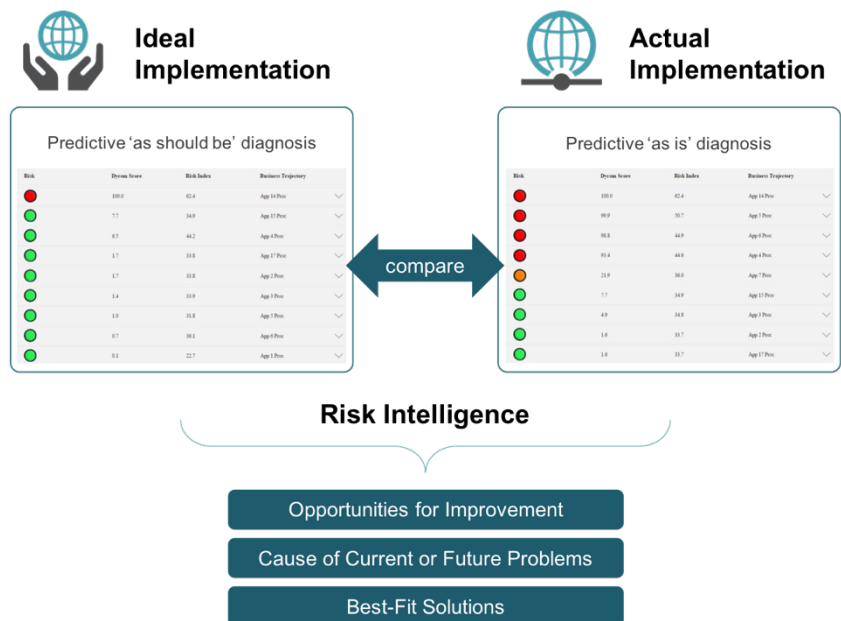
In this case, the numbers that were used from the libraries in the quick start method are replaced by real measurements. The point and click features of the X-Act platform make it very easy to update the model as knowledge is gained through interviews or the collection of data. Each level of the model hierarchy depends upon a list of objects that users can change on demand and continuously update, or augment as needed to match the reality of the business environment.

Building an X-Act Platform Emulation DETAILED METHOD



The results of the detailed construct fulfil two distinct purposes:

1. It allows users to verify the representativeness of the emulator in comparison to a real instantiation and apply any calibration that is needed to represent the actual implementation.
2. Since the quick start construct represents an ideal situation, the comparison of the quick start versus the detailed construct helps X-Act users diagnose issues and identify which actions are required. Any deviations between models can be analyzed to identify the related origin and causes.





Which Approach Should We Choose?

The best way to use the predictive ability of X-Act will be dependent on your risk analysis goals.

New System

When building a new business system, the emulator can be used to select the optimal infrastructure that will satisfy a business objective and service level guarantee as well as deliver the right support and predictable scalability to meet growing volume requirements and changes in dynamics at multiple levels. An emulator built using certified and pre-tested mathematical objects and data can support all types of *what-if* analysis—covering all possible models and patterns to support decisions. Experience shows that this approach supports a new era of systemic enterprise in which concepts are fully tested through emulation before any monetary or resource investments are made in the actual implementation.

Existing System

When optimization and transformation of an existing organization and its systems is the goal of the predictive analysis exercise, the user will need to build both the quick start construct and actual construct. Once both emulations have been built, the user will be able to identify the cause of an eventual deviation between ideal and actual as a first step. Obviously, this process will take more time than would be the case with a new system, since the objective is both a renewal as well as transformation. In this way, the emulator then becomes a field experimentation facility. Companies can typically expect to increase performance and reduce costs by a few orders of magnitude when following this process.

Maturity of X-Act Libraries Translates to Competitive Advantage



The libraries are representative of time and space conditions. Keeping the libraries up to date is a continuous exercise through which the representativeness and usability and therefore the value of the libraries as a competitive differentiator will improve over time in the same way industries have benefited from the use of Computer Aided Engineering (CAE) and Computer Aided Design (CAD).

X-Act includes built-in features that facilitate the expansion of the libraries. The *X-Act Libraries Manager* manages all the customizations and extensions of existing constructs and keeps the ledger and nomenclatures up to date. While the *X-Act OnDemand Libraries*, enables X-Act users to certify new components and constructs so that they can be added to the knowledgebase of library components and be made available for use by all X-Act users within the enterprise.

Building this systemic and iterative collection of knowledge is the only way to keep pace with the complexity of modern business systems and rate of technological disruption. The algorithmic-based management approach supported by X-Act empowers leaders with visibility across the boundaries of all business systems so that they can more reliably define and maintain a path to better business results.

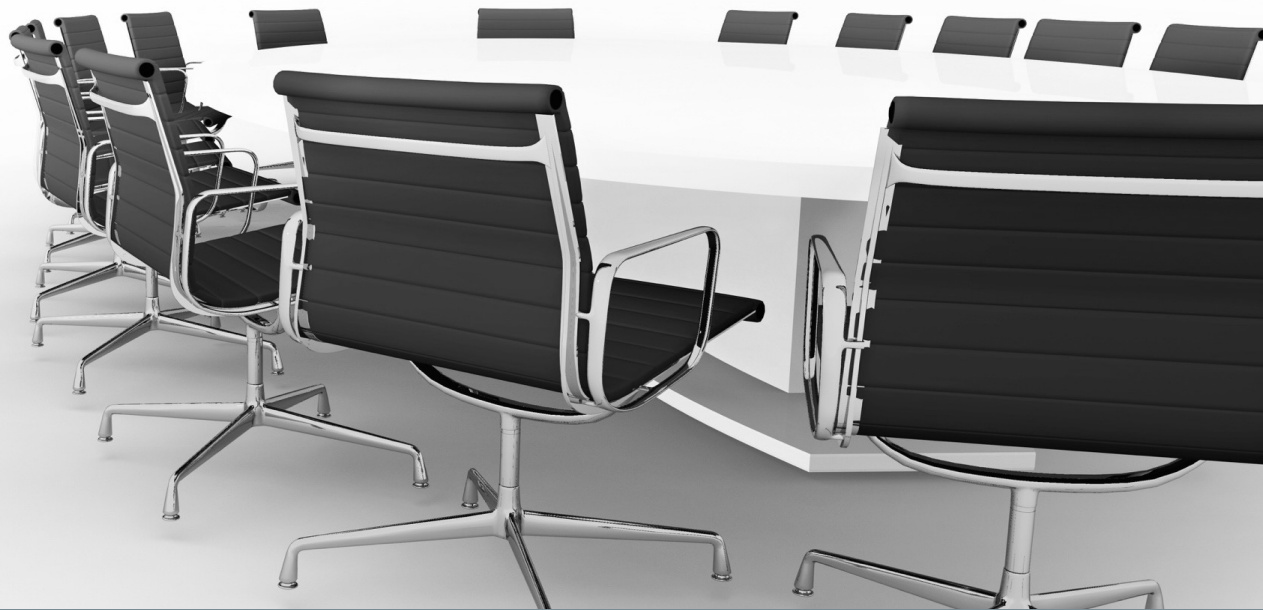
Using emulation and advanced analytical capabilities, executives can gain a forward-looking view of the health of interconnected systems and know when a system transformation or disruption is needed. Any decisions can be justified with accurate knowledge of the benefits, costs and constraints of any proposed change.

Conclusion

Using libraries populated by the mathematical predictive platform represents a real breakthrough that alleviates many of the pains created by the traditional management, which starts with problem-analysis-diagnosis and ends with an eventual cure well beyond the point of optimal action.

As the libraries are continuously enriched by the dynamic characteristics that continuously evolve during a system's lifetime, the knowledge contained within the libraries becomes more advanced. By continuously recording within the libraries foundational or circumstantial system changes, the predictive platform will identify any new risk, determine the diagnosis and define the remedial actions, and finally enhance the libraries with this new knowledge.

In this way, algorithms will help businesses create a defensible advantage—by revealing the factors that may impact performance or limit agility and automatically retuning systems to maintain the highest level of performance and flexibility to respond to changing business dynamics.



About URM GROUP

URM GROUP is committed to helping organizations mature their risk management practices to more effectively and agilely respond to risks that are growing in frequency and severity due to the dynamic complexity of our modern world. Through our research and applied use of proven prescriptive analytic technologies, we teach people how to proactively discover and control risks at the right time to avoid future surprises and unwanted outcomes. Our universal risk management methods arm business and governmental leaders with the foresights they need to confidently respond to changing dynamics and clearly understand which (and when) preventive and opportunistic actions should be taken to ensure the continuous efficiency and cost effectiveness of operations.

