

# Buyer's Checklist

*How to Find a Solution that Delivers Fast ROI*



## Why should my company use optimization from IBM ILOG?

To thrive in today's complex and rapidly evolving business environments, companies need to go beyond business intelligence. They need a map that gives them a clear understanding of the impacts, trade-offs and likely outcomes of their choices and decisions. Through the use of advanced analytics techniques from the Operations Research (OR) community, IBM has been providing companies with frameworks and models for testing business strategies for decades. With exponential improvements in computational power, OR technologies from the IBM ILOG® Optimization portfolio, alongside thousands of advanced analytics and optimization experts in IBM Global Business Services, are now poised to break into the mainstream, to give business leaders the tools they need to address real-world strategic and operational decisions on the fly, as they're needed.

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**As companies move to transform their intelligence into action, mathematical optimization is becoming a fundamental tool – an absolute must-have – in all strategic and operational planning and scheduling processes.**

**IBM ILOG Optimization is at the forefront of this revolution – helping to bring OR technology into the mainstream for everyday business use.**

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Building a mathematical optimization-based planning or scheduling application can provide real, significant impact on your company's bottom line and can pay for itself within a few months or even weeks. But optimization is a sophisticated analytic technology that requires real expertise to implement effectively.

IBM ILOG Optimization enables organizations to make better decisions faster by automatically generating and evaluating numerous potential solutions, many more than a human could examine, and finding the best one that satisfies complex

requirements and policies. An effective optimization application can automate many routine decision processes, allowing managers and planners to focus their attention on exceptional situations.

When you're evaluating optimization solutions, ask yourself these five questions:

- ✓ 1. Can the optimization system be trusted to solve real-world problems reliably and quickly?
  - ✓ 2. Can the decision makers in my company interact with the optimization solution in ways that make sense to them?
  - ✓ 3. Can the optimization application integrate with my corporate IT systems, databases and business processes?
  - ✓ 4. Can my technical experts and IT architects develop, deploy and maintain effective optimization solutions quickly and reliably?
  - ✓ 5. Can we easily translate our business problem into a trusted analytics solution to support mission critical business decisions?
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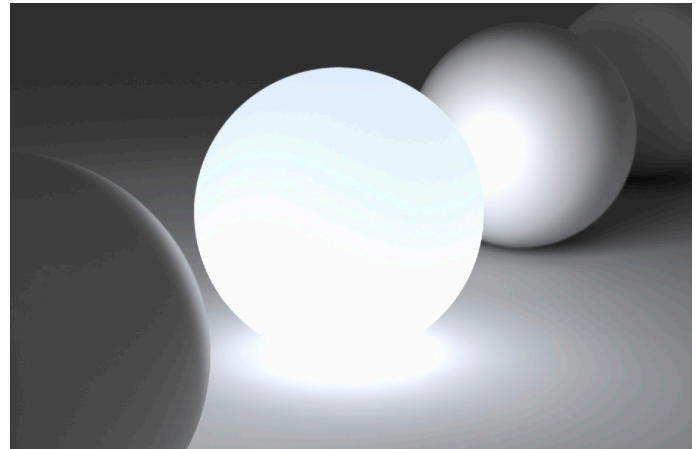
## 1. Can the optimization system be trusted to solve real-world problem instances reliably and quickly?

Solving real-world optimization problems requires a lot of number crunching. As the solution proceeds, the solver will get closer and closer to the best (optimal) solution.

You need to know that the solution it finds is truly optimal. Before it gets there, you need to know how close you are and when you're close enough to stop the search. You also want to know that you can get close enough within a reasonable amount of time, because if the solution takes too long, you may miss the window for implementing it. For instance, if you're scheduling tomorrow's deliveries to your stores, you'd better have a solution tonight so you can load your trucks and move them out in time to reach the stores and unload before they open.

The core technologies of the IBM ILOG® CPLEX® Optimization Studio are unmatched in the number of trusted and proven commercial deployments around the world, providing in thousands of instances:

- Solutions for optimization problems with millions of decisions and hundreds of thousands of constraints
- Solutions in real-time to support operational process requirements
- Multiple solver algorithms so that you can choose (or allow the software to choose) the best one for your particular instance
- Robust solutions and consistently fast solution times across numerous problem instances
- A track record of continuous performance improvements going back 20 years
- Provably optimal solutions and tight bounds on how close the best solution found so far is from optimality
- Powerful tools to adapt solutions in the real-world, where data and business conditions change almost instantaneously



## 2. Can the business decision makers in my company interact with the optimization solution in ways that make sense to them?

Optimization is a sophisticated technology that takes years of training to implement effectively. Does that mean you need to be an expert to use it? The answer is no!

Leaders in manufacturing, transportation, energy and finance rely on optimization to solve their toughest problems in mission-critical situations. Decision makers develop confidence in optimization solutions:

- When they can see the solution displayed in tables and charts they recognize.
- When the solution easily translates into specific actions they can implement.
- When they can predict how well the solution meets their company's key performance indicators.
- When they can test to see how the solution performs under different scenarios.
- When the solver doesn't just give up when it can't find a solution that satisfies all requirements.

### IBM ILOG Optimization Decision Manager (ODM)

Enterprise provides an enterprise-class platform to deploy applications to operational teams, allowing decision-makers to collaborate and implement optimization solutions:

- The Optimization Programming Language (OPL), the foundation mathematical modeling language of the integrated development environment of CPLEX Optimization Studio, enables OR practitioners and experts to effectively, rapidly transform business requirements into models that can be tested and tuned for the real world
- Customizable interfaces that show tables and charts displaying input data and solution results
- Optimization against multiple criteria ranked by users
- User-created scenarios varied by input parameters, with solutions compared by scenario
- Controlled relaxation of constraints and rules by user-specified priorities. If the solver can't find a solution, it tells you why and what needs to be done to get one

### 3. Can the optimization application integrate with my corporate IT systems, databases, and business processes?

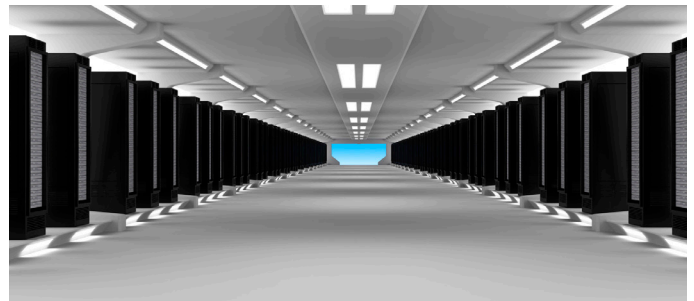
Optimization is a data-driven technology, so it usually sits at the top of the technology stack, relying on other systems to provide input data and implement the solution. Smooth interaction between the optimization application and these systems is a must for effective implementation. And decision-making supported by optimization is at the heart of managing many business processes. Effective business process management requires that verified optimization solutions be made available at the right time to the right people

CPLEX Optimization Studio and ODM Enterprise provide:

- The ability to read data and write data to a variety of data management systems, from simple spreadsheets to complex relational databases
- Separation of data from the optimization model, so that the solution scales to larger problem instances without the need to

rewrite the model – you can plan production for 3 to 300 car models with the same optimization application

- Enablement of the number crunching solver on a separate server to balance IT network load
- Creation of separate workspaces for individual planners to test what-if scenarios and enable publishing of only their best solutions to production



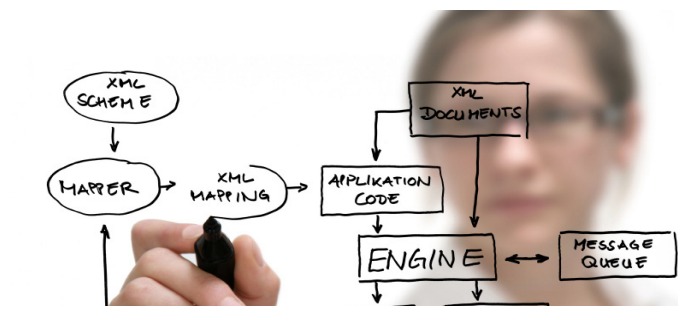
### 4. Can my technical experts and IT architects develop, deploy and maintain effective optimization solutions quickly and reliably?

Like any major software project, developing, deploying and maintaining an optimization application requires the efforts of many. Optimization experts and IT architects can make the most of their time with good tools. They need to be able to move from concept to prototype to production quickly but avoid making mistakes that undermine application reliability.

CPLEX Optimization Studio and ODM Enterprise provide:

- APIs in C++, Java™ and the .NET™ family
- An Optimization Programming Language that enables your optimization experts to define the problem in a natural, transparent mathematical language
- Powerful data structures that ensure efficient problem specifications and solutions

- An integrated development environment that supports a full range of software engineering functions including testing and debugging
- Data connectors to multiple sources, from simple spreadsheets to complex relational databases
- Configurable user interfaces to create tables and charts without coding
- Extensions of the user interface with IBM ILOG Visualization products



## 5. Can we easily translate our business problem into a trusted advanced analytics solution to support mission critical business decisions?

Mathematical optimization is a precise methodology that can produce real, significant bottom-line impact. To use optimization, you specify a business problem it can solve. That challenge often requires dual expertise in your business domain as well as technical analytics. IBM has thousands of experts in Business Analytics and Optimization with years of experience in creating effective optimization solutions for real-world business problems. They can help you build an optimization application by asking questions such as:

- How do you want to measure decision effectiveness? What are your key performance indicators? How do your decisions affect them?
  - What are the limits on decisions that could make some unfeasible? Are there resource or physical constraints such as a road network where traffic must flow? Do the decisions you consider force trade-offs to satisfy these limits?
  - What data are available that enable you to measure key performance indicators and limits? What kinds of data analytics are needed for forecasting and risk assessment?
- IBM ILOG Optimization and IBM Global Business Solutions provide:
- Professional services of business domain, analytics and optimization experts and IT architects to assist in building, integrating and maintaining your application.
  - Training on developing, deploying and maintaining your optimization applications.
  - 24-7 technical support to keep your mission critical applications running.





## Next Steps

### Request a custom demo

Our interactive demonstrations are performed either online or on site and are scheduled at your convenience (depending on the availability of our product experts). We will be happy to travel to your site for groups of five or more.

### Request a Discovery Workshop

Two day, complimentary workshop designed to help teams work through their project questions together, ensuring that IBM ILOG Optimization is the right solution to your problems before making an investment.

### Talk to a live person

These specialists are available to assist you in your IBM ILOG Optimization solution identification and research. You can email or phone them directly.

### Contact us

We will respond within 48 hours. For general questions:

- 1-800-FOR-ILOG
- [ilogcc@us.ibm.com](mailto:ilogcc@us.ibm.com)

### Contact Us

Contact your IBM ILOG Sales Representative to discuss the many services we offer to support your effective use of optimization technology and other advanced business analytics.

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