

# iGrafx<sup>®</sup>

Case Study

## **Using Simulation to Help Identify Inefficiencies**

Hospital cuts costs dramatically and increases revenue with iGrafx Process360 Live

## The Story

A component of a large US-healthcare system, the hospital is a renowned trauma and burn center located in a major metropolitan area. It serves as a primary teaching hospital for a prestigious medical school, providing top-quality care to insured and uninsured patients alike.

## The Challenge

Like all county hospitals, this facility was facing serious budget control issues. Because of the tight budget, the hospital was limited to doing one project at a time and decided to embark on a process improvement initiative. They hired consultants to observe and analyze how certain things were done in selected departments. Unfortunately, this generated resistance by employees, who viewed the consultants as agents of management who were looking for ways to cut headcount rather than be helpful advisors.

Based on this experience, the hospital made the decision to adopt iGrafx Process360 Live, a leading process intelligence and process management platform. While each process improvement project would have a different focus, they all shared one goal: to help the hospital to efficiently serve more patients. iGrafx was selected because it was cost-effective, very graphical and visual, and integrated with MINITAB. The process team was confident iGrafx would help analyze, simulate, and reduce cycle times for processes involving service to patients. By reducing cycle times, the hospital could serve more patients, and in turn, generate more revenue, which could further increase the number of patients served.

The team decided on two initial process improvement projects which would be followed by applying process analysis and improvement techniques to other large departments including Radiology, Labor and Delivery, Surgery, and Oncology. The patient volume in these departments has become so high that the hospital must improve processes to dramatically reduce patient cycle times.

## The Solution

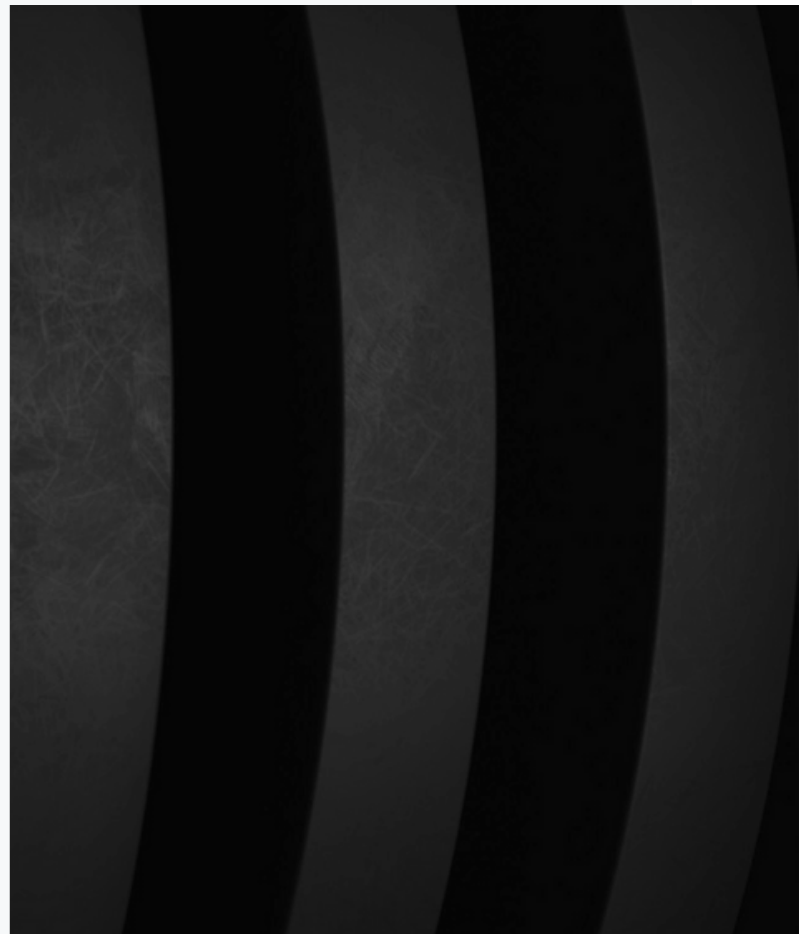
For the first project, the team applied Six Sigma methods in parallel with iGrafx Process360 Live's capabilities. They were able to identify major bottlenecks or wait times as a result. The number of bottlenecks were identified and illustrated in the "Measure and Analysis" phases of the Six Sigma Methodology. An analysis of the "as-is" state or "current" state of processes in this department illustrated that adding personnel and proper employee scheduling could improve cycle time.

### Recommendations for improvement included:

- The addition of a triage nurse in the beginning of the process to analyze patient cases more quickly.
- The addition of another provider to meet the patient demand.
- The addition of a financial counselor and expanded financial counselor hours to accommodate the patient discharge process.

These improvements to the process were determined by running iGrafx simulations in parallel with MINITAB software for statistical analysis that enabled them to access data, analyze the data, and improve on the results.

Applying these changes to the process has reduced patient wait times and cycle times. Now, the Six Sigma team has moved into the "Control Phase" of the Six Sigma DMAIC model to assess and document these improvements. In the second department the team decided to look at, the Six Sigma team performed process mapping to identify suspected wait times for services.



After measuring and mapping out the processes and procedures for performing procedures, they found multiple areas where lengthy wait times occurred between steps in the process.

### These included:

- The newly hired technician's cycle time exceeded the 40-minute departmental median.
- Inefficiency in the process step "Waiting for Attending Physician" occurred with 16% of patient exams.
- The "Waiting for a Chaperone" step held up the process with 14% of the patient exams.
- The "Waiting for a Translator" process step was required for 8% of the patient exams.

### The department solved these problems by implementing the following changes:

- A technician orientation training program.
- Increasing secondary attending physician availability during early morning, lunch and peak hours.
- Identifying resources through volunteer services for additional chaperones.
- Requesting a dedicated translator for the department.

As a result of these changes, the department reduced wait times, cut costs dramatically and increased revenue.

At the beginning of this project, only iGrafx process mapping and MINITAB were needed to identify major cost areas. iGrafx enabled the team to see wait and cycle times and allowed them to modify process variables and conduct simulations, resulting in recommendations to improve the process.

## The Benefits

By adding personnel and improving the employee's work schedules, the rate of patients leaving the center before being treated dropped by 50 percent, representing a major increase in customer satisfaction. In addition, the hospital had a potential increase in revenue of approximately \$1 million from improving this process.

The second project achieved similarly impressive results in improved customer satisfaction and new revenue. Approximately \$900,000 in new revenue was generated the first year by identifying and reducing lengthy wait times in the department's processes, thus increasing the number of patients that could be seen.

**Approximately \$2 million in new revenue was generated in the first year by identifying and reducing lengthy wait times, thus increasing the number of patients that could be seen.**

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