



## Designing an Information System for Massachusetts General Hospital Using a Process-Driven Approach

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Founded in 1811, Massachusetts General Hospital (MGH) is the third oldest hospital in the United States, and the largest hospital in New England. Located in the heart of Boston, MGH is a 900-bed premier academic medical center, affiliated with Harvard Medical School. MGH is dedicated to providing high-quality care for their patients.

### Challenge

MGH wanted to replace its antiquated Case Management information system, which supported processes such as Census Management, Utilization Review, Facilitation of Care, Referral Processes, and Payor Requests for over 100 users. Hospital executives wanted to take the opportunity to improve operational processes and adopt a process-driven approach. In addition, MGH wanted to complete the information systems (IS) solution selection in a shorter amount of time than usual.

### How Tefen Helped

**Process Mapping:** Prior to improving MGH's processes, it was important to understand their current state of operations. Working side by side, Tefen and MGH's Case Management Unit developed a comprehensive process mapping, identifying six groups of processes with 31 sub processes.

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- **Process Re-Engineering:** Tefen and MGH mapped out each process to identify non-value added activities embedded in the old information system, and highlighted the gaps that needed to be filled in the new system. The comprehensive process analysis ensures that the new system will not only support users' needs, but also will help to increase efficiency and effectiveness.

A few areas for improvements include:

- *Real Time Work Lists-* The original information system made communication between case managers (CM) and support staff cumbersome, requiring additional paperwork to support the process and relying on individuals' habits to ensure they will perform their tasks. A computerized work-list was in order, and the new process design helped reveal what the work list should entail.
- *Systems Flags and Triggers-* A new feature of the system needed to be able to highlight patients with key information or issues requiring special follow-up.
- *Key Performance Indicators-* Tefen & MGH identified KPIs, driven from the processes to govern efficiency and effectiveness. These KPIs were not available in the previous system and inhibited management's ability to effectively oversee the hospital's operations.

**System Specifications:** Upon defining the new processes, it was essential for the new system to support the redesigned processes. In addition, it needed to be customizable to include the desired configuration, fields, and reports that would support MGH's goals. Tefen created a comprehensive specification document, encompassing all processes and configuration requirements for the newly implemented system.

**System Selection Process:** After the specifications were complete, MGH needed to find a provider that would support their needs. The system selection process was comprised of three steps:

1. Research for solutions and software packages in the Case Management field. This includes identification of commonly used off-the-shelf systems and a cursory study of their capabilities.
  2. Development of scripted scenarios and invitation to select vendors to participate in this unique Request for Proposals (RFP) process: specific process-driven scenarios were developed, and vendors were requested to present how their systems support these situations, including mock-up screen shots, and ability to comply with the various requirements set forth in the script.
  3. Pair-wise decision making evaluated each vendor's software capabilities to understand how each measured against MGH's requirements. Tefen and MGH used a pair-wise comparison method to increase objectiveness of each vendor's capabilities. In a pair-wise comparison each system is compared "head-to-head" with another system, on each criterion the group has pre-defined. The evaluator not only is being asked to select preference, but is also requested to quantify how much more they prefer the selected alternative – for each criterion. A multi-disciplinary group was assembled comprised of software and database experts, users, managers, and Tefen's consultants to evaluate the vendor's capabilities.
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**Task: Compare the Preference of Two Alternatives**

1. Which of These Two Alternatives (to the Left and Right) is Preferable?
2. Using the Scale Below, Indicate How Much More Preferable

**System  
A**

Communication

Criteria	System A (Green)	System B (Orange)
1	9	1
2	8	2
3	7	3
4	6	4
5	5	5
6	4	6
7	3	7
8	2	8
9	1	9
10	0	10

**System  
B**

• **Comment:**

## Performance Excellence Delivered

After the vendor was selected, MGH experienced the following:

**Reduced Timeline for Vendor Selection:** MGH was able to select their IS within 12 weeks, rather than the expected 7-11 months time.

**Productivity Improvement:** Overall, the new IS system improved productivity 25%, through:

- Reduction in morning set-up time for case managers
- Elimination of Rework
- Patient Assignment to Case Managers

These productivity improvements allow the CM unit to avoid additional staffing costs. By applying this process-driven methodology, the unit can support the new processes without increase staffing costs.

**Development of Key Performance Indicators:** Re-engineering of processes highlighted several KPIs that allowed management to monitor the area's performance. Furthermore, hospital management received a clear picture of the overall improvement taking place in the operational area.

## Client Testimonial

*The solution we chose was very different than the one we originally had. The process that we went through taught us new ways to be more efficient and manage our resources. This is a must do exercise for any large investment.*

– James Noga, Chief Information Officer, Massachusetts General Hospital

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## About Tefen

Tefen is an international management consulting firm, committed to improving overall operational effectiveness for Fortune 500 companies around the world. The firm's main areas of focus include operations excellence, manufacturing, quality, customer service, research and development and supply chain management. With its "hands-on" approach philosophy, the company has achieved tremendous success in delivering quantifiable and value-driven results for its clients in a variety of industries, including healthcare, life sciences, general manufacturing, high-tech and financial services. All of Tefen's support programs are ISO 9001 certified. Tefen currently employs over 300 professionals worldwide.

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