CASE STUDY:
Inventory Management system
By Transpacific Software Pvt Ltd

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One of the largest company in the Gemstone mining and trading, the client had a vision to cross physical boundaries and reach out to Gemstone buyers all across the world. Keeping this is view they also had to stock up, arrange and efficiently track their inventory. After collaborating with Transpacific Softwares Pvt Ltd this dream was brought to reality using the web technology. The end result helped the client to overtake its competitors and strengthen its market position in Gemstone Trading.

The Client

Since its inception in mid 1900s, This jewelry major has come a long way to be one of the largest gemstone companies in the world, featuring a vast collection of precious gemstones. They trade in large range of Gemstones like Sapphires, Rubies and Diamonds. The Company prides itself in being traders in Natural and not Synthetic Sapphires.

The Situation

The client and TPS had come up with an idea to develop an online Shop for the Gemstones traded by the company. This decision had opened flood gates for the company in terms of potential Buyers. The company had to make up for the potential orders which would be coming over and thus had to pile up large amount of inventory. The industry has about 100 prominent gemstone companies that sell Online. However, 15 months back, when we first came onto the scene, what we discovered was that nobody in the industry had a real time inventory management system which led to inefficiency in the sales activities. Thus came up a need to develop an online shopping engine and back it up with a Real time inventory management system.

The Challenge

Online shopping as a concept was a great way to reach out to customers. But the key challenges were to come up with frameworks to get the whole shop on the website and build the backend to support it. As a major player in the market with a variety of Products to showcase, The client had big challenge in devising the ways to bring the whole physical activity on a virtual basis. Moreover there were marketing strategies to be decided and ways to convert visitors to buyers. For this their website had to support reader and author created content, interactivity, multimedia, content aggregation and other Web 2.0 characteristics.

Online Security, Optimized Search, Real time updates, Logistics etc were few of the many areas which had to be dealt with.

They wanted their customers to customize their jewelry for themselves. This activity had to get in feed from a plethora of jewelry categories, build up combinations and everything had to be virtual.

The Highlights

◻ TPS's brawny experience with Agile Methodology and knowledge over varied Technologies helped the client to leverage their expertise in the Gem stone business and position themselves as a market leader.

◻ Featuring Products on the website brought the jewelry major to every Gemstone enthusiast's desk. Backing it up by a Real time inventory and order management systems TPS shortened the path from Desk to Door.

◻ Matrix powered 3D Interactive images gave a virtual reality kind of experience to the customers. Buyers now could design, price and order that customized jewelry in minutes.

◻ TPS Analytics based on OLAP technology and map analytics could precisely predict the demand trends and buying patterns. This was a move towards the Just in Time methodology.

◻ Fail Safe Backup system assured no data loss in any scenario.

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Working Towards a solution

The project began with a collaboration of TPS team in Mumbai and the client's IT team in the US. The inception phase started by analyzing the existing workflows and generating an initial list of user requirements, all in close collaboration. To ensure that the business vision and requirements were fully understood, the website and the application were delivered in small iterations. This delivery model fostered frequent feedback from the business stakeholders to developers, reducing the risk and impact of the miscommunications that frequently result under the typical offshore model

- Getting on the Web

To deliver the best value to client's technology budget, TPS proposed use of open source software, including Microsoft .NET Framework and Flex for the platform, 3D designing with Matrix for advance rendering and a distributed agile methodology for the development Phases.

After inception the development began at the offshore team of TPS. The client communicated timely with updates regarding layouts, SRS, and testing documents.

- Managing the backend

As the website skeleton started surfacing the team started to concentrate on the backend inventory management application. The application provided features for storing and tracking information for a matrix that had more than 10 types of Gemstones supporting 22 shapes, and distributed across 7 jewelry categories. For all this the application kept a track of each and every trading activity and work done on the jewelry.

This was further driven by a real time synchronization engine to synchronize the inventory with on-line e-commerce web site. The synchronization facilitated in any new item been added to the inventory to get reflected on web site within seconds. The application marked its success by backing the website and online shop with updated information in Real time.

- Streamlining the Activities

As the online shop became a hit, more and more orders started pouring. Sensing the need, TPS came up with integrated customer management software. This was another comprehensive solution that integrated the inventory management application with the online database. It enabled the client to manage customer orders, work orders for jewelers, communication with clients, invoicing, memo making and real time tracking of the shipments.

- Make to Order- A Virtual Reality

The client wanted its customers to design their own Jewelry on the web. Thus TPS came up with a 3D interactive module powered by Paper vision, Flex and Matrix to facilitate this functionality. Feeds were brought in from hundreds and thousands of jewelry designs and based on the customer's choice a 3D view was generated using JAVA Viewer. This enabled the customer to view their jewelry, adjust costing and place an order from anywhere in the world without physically having to walk into the shop.

- Data to Information

The sapphire buyers also comprising of gemstone enthusiasts, dealers and traders started coming up with varied requirements and interests.

Through these inquiries, purchases & surfing patterns they accumulated huge amount of data and potential information. TPS thus did a comprehensive analysis of this data based on OLAP. Crystal reports supported graphs as well as analytics were generated by churning through these records, providing clear trends on gemstone buying including most sought after sapphire shape, color, price range and other parameters. These facilitated the client to capture the market demand and apply effective inventory management measures.

- Smart Analytics

A TPS Analytics application was developed in back end and linked it up with Google earth API to pin point the location of the customer orders in real time for sales staff. TPS used this interactivity and visual representation as tool to understand the geographical spread of the sales data thus enabling location intelligence gathering.
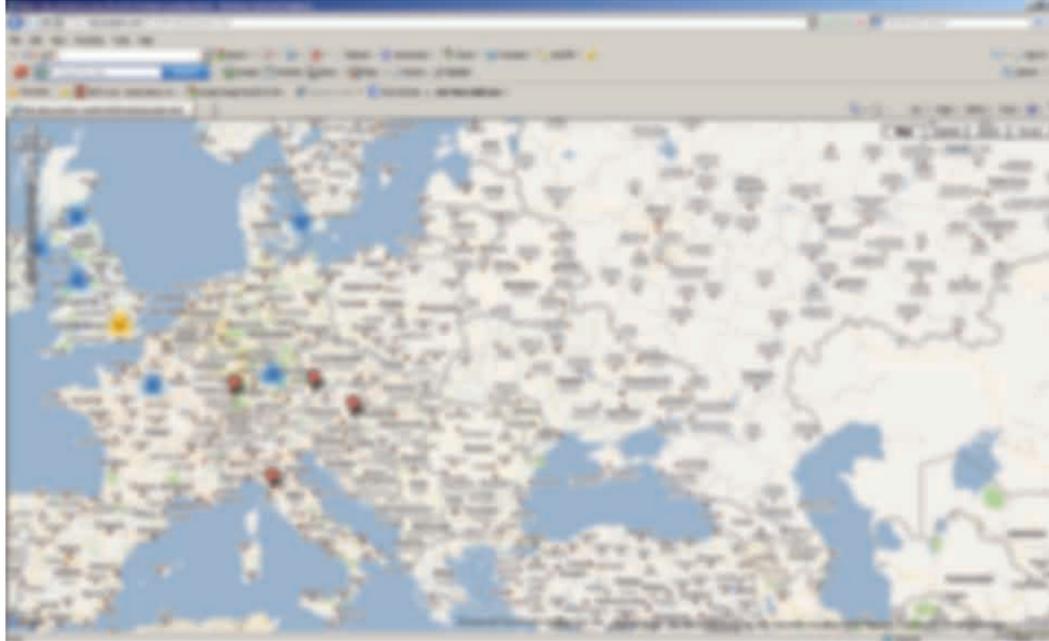
- Facilitating JIT

The client had always known that streamlining the processes was the best way to do away with operational wastes and save cost. As a step towards this they had a vision to maintain their inventory at an optimal basis. TPS was quick to react to this scenario and used their analytics expertise to materialize this need. Cashing on the real time Synchronization functionality and OLAP engine with the support of Google API, TPS could precisely predict the inventory requirements for the client. Further this facilitated faster order processing and quick delivery to the customer bringing the Order delivery time to a mere 2 days for existing jewelry and 5 days for custom jewelry. The result was a move towards the Just in Time approach that led to heavy cost savings for them.

- Auto Backup

The entire system was programmed to handle the worst case scenario of data loss with minimum down time. Entire critical data was backed up at geographically different location every 12 hours through customized "fail safe" backup system which through TCP/IP protocol backs up the data.

The whole application now works as collaborative software with features that have streamlined the online shopping experience to an extent that the client has now become the #1 seller of online gemstones.

- Numbers say it all

• Monthly hits on the site : 3 to 3.5 million

• Unique visitors every day: 4000-5000

• Total stones and items in inventory: 5000 +

• Visitors and dealings: From more than 20 countries

• Number of images on FTP server: 30,000

The Future

The joint Client and TPS team successfully launched the website featuring the online store in a record time of 12 months. The teams are now planning to take the online gemstone trade to higher heights by incorporating the inventory information available with a circle of Dealers and facilitate Business to Business as well as Business to Customer trading. The new application will now have added features for new activities like Production, markup Pricings which will facilitate better trading opportunities for both the dealers and the customers.TPS will be using cloud technology to host this application with a step towards optimizing cost and resources.