

EPM (E-commerce Procurement Management)

Kelsar EPM provides intelligence methodological support and undertakes routine procurement activities automatically. User involvement is implemented through the user interface, and assisted by software agent. Procurement content includes issues, options, possible packages, reservation values, alternatives, and utility ratings.

The following scenario describes a typical situation where a company is making a purchasing decision on automobile parts.

Scenario Description

Company A (a US company) purchases automobile parts – newP. The purchase accounts for 55% of the company's transaction volume, but only 5% of the total purchasing dollars. Each batch of purchases took 57 days to process internally, and 30% of the orders required re-work.

Mike is the new procurement manager who has been assigned this task. Manufacturing requires the parts within 45 days. The parts are available from manufacturers B1, B2, B3, B4, and B5. From the supplier catalogue, Mike knows that the price for each part varies from \$4 to \$5. Previous purchases have been made from suppliers B1 and B2, and the quality of B1 has typically been better than parts from B2. Supplier B3 is new on the market and their parts have been found to be of high quality.

Mike has chosen Kelsar's eprocurement solution, EPM. He uploads previous purchasing records and vendor list to EPM. EPM stores the data and automatically perform numerical analysis on available information. EPM also assists Mike in structuring the problem, and identifying issues that needs to be addressed.

The following issues have been raised by EPM, and Mike evaluates the relative importance of the issues and available options. One of EPM's features is to provide step by step instructions in the user's preference setting, and from that it allows Mike to determine his bottom line – reservation value, and his desired outcome – aspiration value. These values will be used as a guideline for proposal analysis throughout the procurement process.

Issue	Weight	Reservation Value	Aspiration Value
Price	50%	< \$5.00	\$4.0
Quantity	5%	20,000 – 30,000	20,000
Delivery	30%	< 45 days	30 days
Warranty	10%	> 6 months	1 year
Defects	5%	<10%	2.5%

The RFP History displays a summary of previous purchase, listing the final offer from different vendors. Graphical presentation is also available for Mike to view the change in pricing and terms of different vendors.

Vendor	Price	Delivery	Warranty	# of RFP	Decision
B1	\$4.25	30 days	9 months	6	Compromised
B2	\$4.75	20 days	1 year	4	
B4	\$4.50	50 days	6 months	8	
B5	\$3.50	60 days	3 months	10	

Suppliers considered – B1, B2, B3, B4, and B5.

Supplier chosen – B1

Quantity per Order – 20,000 units

Latest price and part information are being updated automatically in EPM. The following vendors have been identified in EPM's database, and relevant information has been presented to Mike.

Vendor	Location	Listed Price	Previous Price	Rating	Last Purchase
B1	New York	\$4.5	\$4.25	***	2002-06-22
B2	San Jose	\$5.0	\$4.75	**	2001-08-23
B3	Stockton	\$4.1	N/A	N/A	N/A
B4	Minnesota	\$4.3	\$3.9	*	2001-04-15
B5	Buffalo	\$4.5	\$4.9	*	2000-09-16

Given the above information, EPM's search mechanism helps Mike to explore new potential suppliers by browsing the Internet for products that meet the criteria, and has found 2 foreign vendors, located in Japan and Argentina respectively. EPM supports companies that need not to be physically present in the same location and process procurement in an efficient way.

Vendor	Location	Listed Price
C1	Tokyo	\$3.8
C2	Argentina	\$4.5

After a preliminary analysis by EPM, Mike decided to request quotes from Vendor B1, B2, B3, C1, and C2. A standard proposal request is developed by EPM and sent out electronically, and vendor proposal account is created for each of the vendors.

Vendors submit their initial offer with associated proposals which are being stored in the EPM database. EPM provides numerical utility analysis on the received proposals based on Mike's pre-determined preference. Proposals that fall below Mike's predetermined criteria (i.e. Reservation Values) are automatically rejected. One week later, Mike receives sample parts from various vendors and updates his preferences in EPM. EPM provides strategic suggestions and presents a summary and highlights the pros and cons of each proposal.

Vendor	Price	Quantity	Delivery	Warranty	Defects	Utility
B1	4.3	50,000	20	9 months	10%	68
B2	4.6	30,000	15	1 year	15%	52
B3	3.9	20,000	25	1 year	25%	80
C1	4.1	20,000	30	2 years	10%	60
C2	4.2	25,000	10	3 months	5%	75

Although B3 offer seems to achieve the highest utility, EPM indicates that the issue on "defects" has violated Mike's reservation value. Mike would not accept a return policy only if 25% or more are defective products. Despite this issue, B3 seems to be offering the best proposal. Mike also realized that B2 and C1 meet his minimum requirements; however their proposals are not too attractive.

The procurement assistant is a proactive decision support feature in EPM, which interprets the vendors' activities and provides advice on bargaining strategies, suggests moves and possible alternatives for the user. EPM takes the following action for Mike:

1. *Send a message to B3 regarding particular issue*
2. *Optimize counter-offer to All Vendors – request the following terms*

Price: \$4.5

Order Quantity: 20,000

Delivery: Within 45 days

Warranty: One Year / Defects: <5%

3. Arrange Online Meeting with Vendor representatives

After online meetings, two new issues (payment period, contract term) have been brought up by a manager in C2. Mike agrees to put the two new issues in the proposal, and update EPM preference settings:

Issue	Weight	Reservation Value	Aspiration Value
Price	50%	< \$5.00	\$4.0
Quantity	5%	20,000 – 30,000	20,000
Delivery	30%	< 45 days	30 days
Warranty	10%	> 6 months	1 year
Defects	5%	<10%	2.5%
Payment	0%	COD	2 months
Contract	0%	< 3 years	1-2 years

Since the two issues are suggested by vendors, it does not affect Mike's purchasing decision. Mike assigned 0 weighting to the two new issues, although he defined his bottom line. After adding the two new issues, EPM receives vendor's final proposal and presented to Mike.

Vendor	Price	Quantity	Delivery	Warranty	Defects	Payment	Contract	Utility
B1	4.5	30,000	20	9 months	10%	60 days	2 year	68
B2	4.4	30,000	15	1 year	15%	30 days	2 year	70
B3	3.9	20,000	25	1 year	10%	30 days	2 year	90
C1	4.0	20,000	35	2 years	5%	COD	2 year	90
C2	4.2	25,000	10	6 months	5%	COD	2 year	75

The result indicates that B3 and C1 are equally acceptable in terms of utility rating. Mike request EPM to perform further analysis. EPM sent a counter-offer to B3 and C1, by raising the order quantity to 30,000. Within the same day, B3 and C1 sent a response:

Vendor	Price	Quantity	Delivery	Warranty	Defects	Payment	Contract	Utility
B3	3.9	30,000	35	1 year	10%	30 days	2 year	90
C1	3.9	30,000	35	2 years	5%	COD	2 year	95

Due to economies of scale, C1 may offer a lower price with 30,000 unit order. The 30,000 unit is within Mike's reservation value and Mike ends up with a higher utility. As suggested by the decision analysis component in EPM, Mike decided to accept C1 offer. The final offer is being automatically transformed in a purchasing contract and sent to C1 electronically. Once the

purchasing process is completed, Mike inputs a rating on C1 and also a brief comment on this transaction for future references. EPM stores Mike's preferences and procurement history in its database. Next time when Mike need to order newP, his previous entries would automatically selected as his default preferences.

One of the benefits of EPM, is the flexibility of its usage and integration. EPM may play the role of an electronic procurement assistant that take over all the routine tasks for Mike, and provide intelligent support and analysis to bring favorable and optimal compromise for Mike. However, if Mike's suppliers (vendors) are also using EPM, the system will become a mediator to facilitate the process, assisting both parties to reach an mutually beneficial agreement. Furthermore, 90% of the procurement process can be automated.

With the internal use of EPM, Company A anticipates reducing the cost of process purchase orders by 40%, and shaving the order cycle time to less than 3 days. Because product and contract information is automatically generated on purchase order (upon compromise), the error rate is expected to shrink to zero.

The following case studies are not available:

1. Decision support – methodological support scenario
2. Mediation between buyer and supplier scenario
3. Intelligent support and facilitation scenario
4. Auction and negotiation support scenario
5. Buyer supplier collaboration scenario

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