



1. Purchasing Strategy

BMW loses supplier appeal

BMW's attractiveness as a partner has fallen markedly since the last BMW supplier satisfaction survey conducted in October 2003. The results of the February 2005 survey conclude that suppliers are losing trust in BMW and that the quality of communication between BMW and its suppliers has fallen.

The major area of contention, according to our survey, is cost pressure. In the first survey BMW rated as one of the most attractive OEMs for suppliers to do business with. While on many counts the results for BMW have remained broadly similar, on that specific measure, BMW's attractiveness as a partner now rates more closely to that of DaimlerChrysler or Premier Automotive Group than Toyota. A negative result on this point tends to indicate that suppliers are thinking more carefully about whether business contracts really make financial sense. In the past suppliers would win contracts and then try to make them work financially over the life of the contract. Now, suppliers are thinking a lot more carefully about whether contracts make sense beforehand. This clearly applies to BMW as much as any other OEM.

Like Toyota, BMW is focusing on long-term relationships and this is causing some frustration that it can be difficult to break existing relationships and win new business, particularly for small and medium-sized suppliers. Innovative technology, management or organisation are the main attributes that will win BMW's attention.

Cost pressures

Given the increasing cost pressures that are being felt across the automotive sector, it is not surprising that BMW and its suppliers are feeling this pressure too. "BMW started to reduce prices to increase pressure on sub-suppliers," said one respondent. "BMW cost controlling demands a lot of capacity from the supplier," said another. "There is little willingness to solve older outstanding cost problems," said yet another.

Nevertheless maintaining and strengthening communication and trust is an important focus for the BMW purchasing department, particularly on this cost issue. According to Dr. Klaus Richter, Head of Materials Purchasing at the BMW Group, "you need to get a better insight into the operations of a supplier, to identify the substance of the cost reduction potential. Then you basically change the content or the technology of the product, which results in cost reductions and not just in price reductions." He continues, "what we call the Quality and Cost Initiative, launched in January last year, is aimed at exactly this approach."

BMW claims to have actively sought support for this initiative from its supply base and has held annual meetings in 2004 and 2005 to review processes with suppliers. This joint co-operation, aimed at addressing increasing cost pressures without compromising quality is based on transparency and suppliers are actively encouraged to generate cost-down ideas, which focus on the technical specification of parts with no negative impact on quality. Resulting ideas are then evaluated and driven via engineering through to implementation.

BMW expects benefits for suppliers to include: - having a clearly identified and committed BMW platform to jointly work with on ideas to improve both product, process and reliability;- having an opportunity to address the cost of quality (warranty) thus improving their 'bottom line'; and- fair and open exchange of ideas with potential benefits to improve



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3. Plant and Model Mix

Where is each model produced (including CKD assembly)?

BMW	
1 Series	Regensburg [Germany]
3 Series	Regensburg [Germany], Leipzig [Germany]; Rosslyn [South Africa]; Shenyang [China]
5 Series	Dingolfing [Germany]; Shenyang [China]
6 Series	Dingolfing [Germany]
7 Series	Dingolfing [Germany]
X3	Magna Steyr, Graz [Austria]
X5	Spartanburg, South Carolina [USA]
Z4	Spartanburg, South Carolina [USA]

Mini	
Mini	Oxford [UK]

Rolls-Royce	
Phantom	Goodwood

What is produced at each plant?

Western Europe	
Regensburg [Germany]	3 Series Touring, Convertible, Coupe, Saloon, M3 and four-wheel drive versions; 1 Series
Dingolfing [Germany]	5 Series, 6 Series, 7 Series; also body shells for Rolls-Royce Phantom
Munich [Germany]	3 Series four-door and Compact
Oxford [UK]	All Mini versions
Graz [Austria]	Contract assembly of X3 by Magna Steyr
Goodwood [UK]	Rolls-Royce Phantom

Eastern Europe and Russia	
Russia	CKD assembly

North America	
Spartanburg, South Carolina [USA]	X5; Z4
Mexico	CKD assembly

Asia-Pacific	
Shenyang [China]	3 Series, 5 Series
Malaysia	CKD assembly
Philippines	CKD assembly
Vietnam	CKD assembly
Thailand	CKD assembly
Indonesia	CKD assembly

Africa and Middle East	
Rosslyn [South Africa]	3 Series
Egypt	CKD Assembly



4. Forward Model Program

Filling more segments

BMW has broadened its product range significantly with the addition of the BMW and Rolls-Royce brands, and within the BMW brand it has added small cars (1 Series) and SUVs (X5 and X3). Now, according to chairman of the board Helmut Panke speaking at the presentation of the group's 2004 financial results in March 2005, BMW is planning two new products by 2008 that will lift the company's total segments to 12.

The first is a designed for Europe crossover people carrier vehicle, called the Space Functional Concept. BMW is adamant it is not an MPV and it is not like other crossover cars on the market, but will be a new use of space and functionality while retaining car like driving qualities. This car will be built in Germany. We are assuming this will have some commonality with the 7-series in our forward model program table below.

The other major new segment is thought to be based on the new X5 platform due in 2006 and is a sporty SUV crossover, designed primarily for the US market.

There are several other options for new body styles including a 3-series MPV and estate/Touring versions of the Mini and 1 Series but BMW's strategy of pursuing only premium segments may rule these out.

Figure 2: Forward Model Plans, 2005-2012
Source: *SupplierBusiness.com*

Platform (model code)	Model	Versions	Segment	2005	2006	2007	2008	2009	2010	2011	2012
E81	1 Series	Limousine	C								
E82	1 Series	3-door	C								
E84	1 Series	Coupe	C				possible project	(not yet decided)			
E86	1 Series	Roadster	C								
E87	1 Series	Touring?	C				possible project	(not yet decided)			
E46/4	3 Series	Limousine	D								
E46/2	3 Series	Coupe	D								
E46/5	3 Series	Touring	D								
E90	3 Series	Limousine	D								
E91	3 Series	Touring	D								
E93	3 Series	Cabrio	D								
E92	3 Series	Coupe	D								
E9xxx	3 Series	M3	D								
E9xxx	3 Series	MPV	D-MPV				possible project	(not yet decided)			
E60	5 Series	Limousine	E								
E61	5 Series	Touring	E								
E60	5 Series	M5	E								
F10	5 Series	Limousine	E								
F11	5 Series	Touring	E								
E63	6 Series	Coupe	E								
E64	6 Series	Cabrio	E								
F12	6 Series	Coupe	E								
F13	6 Series	Cabrio	E								
E65 / E66	7 Series	Limousine	E								
F01	7 Series	Limousine	E								
F02	7 Series	LongVersion	E								
F?	Space-functional concept	MPV	MPV								
E85	Z4	roadster	Sports								
E85 - new	Z4	roadster	Sports								
E83	X3	SUV	SUV								
E83 - new	X3	SUV	SUV								
E53	X5	SUV	SUV								
E70	X5-new	SUV	SUV								
E70	X6 or X-Sport	SUV	SUV coupe								
R50	Mini	3-door	B/C								
R52	Mini	Cabrio	B/C								
R53	Mini	Cooper S	B/C								
R56	Mini	3-door	B/C								
R57	Mini	Cabrio	B/C								
R55	Mini	Cooper S	B/C								
?	Mini Traveller	Estate	B/C					Possible project			
RR01	Rolls-Royce Phantom	Limousine	F								
RR02	Rolls-Royce	Cabrio	F								



5. Outsourcing and Systems Strategy

Acceleration of the module approach

As well as outsourcing component manufacture, BMW has also made strides in outsourcing modules and systems to suppliers. On the systems side, technologies such as airbags and safety components which it has never made have long been outsourced to trusted suppliers; on the modules side, BMW has begun to give suppliers more and more responsibility for delivering fully assembled modules, including a Faurecia complete front-end module on the new 1 Series premium compact car.

Seven forces behind modularisation

The company has given seven main reasons for this trend:

- i. Where a supplier already supplies the same basic or generic module to other OEMs, then BMW believes it can benefit from volume cost savings.
- ii. Common parts should themselves encourage more efficient design and suppliers' involvement in design should result in the use of fewer parts.
- iii. Weight reduction - better design, as referred to above, should directly help in terms of fewer parts, new materials and therefore reduced weight.
- iv. Modules delivered by suppliers should reduce the internal organisation required by BMW to approve the module.
- v. The use of modules should in turn simplify the task allocation between BMW and its suppliers.
- vi. Modules should mean simpler logistics.
- vii. Modules also help reduce the number of direct or first tier suppliers delivering into BMW plants.

Modules in new, high volume models

Recently, BMW has been working on applying the modules approach more widely for the new 1 Series and the next generation 3 Series (E90). At the new plant in Leipzig, the company intends to make far greater use of modules than on earlier models and while Leipzig-made (from 2005) 3 Series cars will have the same suppliers as the 3 Series cars made in Munich and other southern German plants, the degree of modularity in terms of the way in which parts will be delivered into the plant will be far higher in Leipzig than elsewhere.

Eight areas identified for modules

The eight areas for modularisation are:

- i. The cockpit - most of which are currently made by BMW but which will gradually be outsourced to for example, Intier.
- ii. The front-end and bumpers - historically most BMW bumpers have been delivered by Rehau and Dynamit Nobel; HBPO and Faurecia will be amongst the suppliers looking to take on full front-end module delivery in new model programmes.
- iii. Seats - currently BMW makes a large proportion of its seats although Lear and Faurecia share the supply on the 3 and 5 Series respectively; both companies are certainly capable of making major contributions to improving the modularisation of seats.
- iv. Electrical and electronic systems - here BMW is looking for wiring companies like Dräxlmeier and electronics suppliers such as Delphi to deliver systems assembled with the functions they control.
- v. The roof assembly - here Webasto will be one of the important suppliers, at least for sunroofs.
- vi. Body and door assemblies - ultimately some body parts will be modularised and outsourced, although this may take longest of all the parts considered for modularisation, essentially because of



6. Production Strategy

BMW is demonstrating a strong commitment to transforming its global production network of assembly plants into a highly flexible entity that is capable of giving the customer the model he desires on the day that he wants it. The new shape of the production chain that is emerging is characterised by greater reliance on suppliers, particularly for pressings and welded sub-assemblies. In addition, BMW's body shops are becoming more flexible by using modules in a similar way to trim and final assembly shops. However, to give the customer the opportunity to change his order trim specification as late as possible in the production cycle, BMW is relying on a store of painted bodies. Only when the painted body starts the trim and final assembly cycle is it associated with a particular customer order.

Platforms Platforms have not been a feature of BMW in the past but this is changing. Three new niche models (6 Series, X3 and Z3) are to share platforms with saloon models (5 Series and 3 Series). This will facilitate BMW in its aims to be able to manufacture each model in more than one plant and for each plant to be able to build more than one model.

Modular assembly BMW uses modular assembly on a widespread scale. However, modules are frequently built internally. The new greenfield plant in Leipzig, due to start production in 2005, will rely on bought-in modules more heavily than other European plants. The 7-series that went into production at Dingolfing in 2001 currently has BMW's highest level of outside sourcing, at 65%. At Leipzig, this could go higher. Five major modules will be outsourced initially, including the entire cockpit, the seats, front end and doors.

BMW does not consider press shop a core activity. Many of the assembly plants do not incorporate press shops, and the activity is outsourced. The Mini plant at Oxford and the BMW facility in Spartanburg do not possess press shops, for example. The new greenfield plant in Leipzig, due to start production in 2005, is not planned to incorporate a press shop either. While BMW's plants in Germany have some excess capacity available to supply the needs of the new Leipzig plant, the company is anticipating the need to outsource pressings and welded sub-assemblies.

Supplier parks Supplier parks are not a feature of BMW assembly plants. However, with the move towards build-to-order production, the company is introducing new logistics initiatives designed to ensure the just-in-time delivery of parts and sub-assemblies to the adjacent assembly plant.

Leipzig The new Leipzig plant has a logistics service centre on site for this purpose. It will also have the facilities for pre-assembly operations so that late-configuration work does not have to be completed on the main assembly lines.

Also at Leipzig, BMW has encouraged major suppliers to locate facilities within 50km of the plant and to make just-in-time deliveries directly to the assembly lines.

Spartanburg At Spartanburg, 37 of the plant's 118 suppliers have located in the locality of the assembly plant. TNT Logistics acts as a third-party logistics partner for the plant, managing the entire inbound supply chain of auto parts and operating a warehousing and sequencing activity adjacent to the plant. TNT will oversee the flow of 98 percent of the



7. Supplier Ranking of BMW

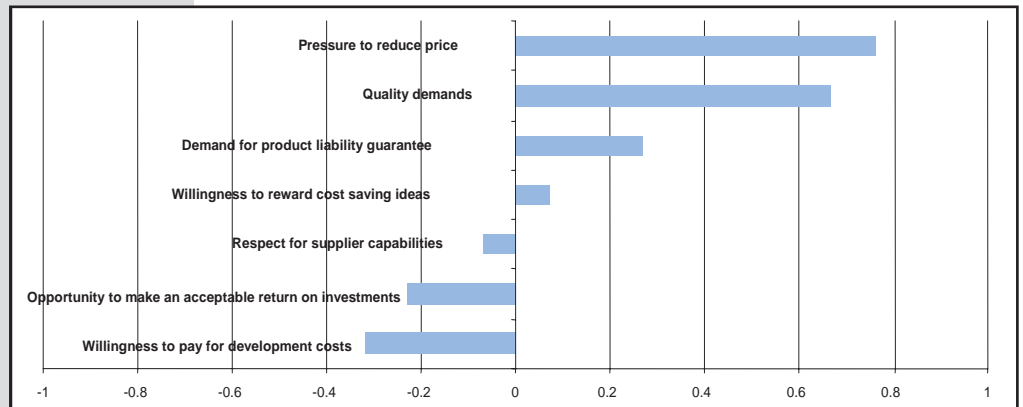
BMW Supplier Satisfaction Survey Results

The chart below is a statistical representation of the responses to our second Supplier Satisfaction Index survey for BMW suppliers. The survey is designed to measure change over time in BMW's relationship with its suppliers. By measuring this, we can determine what aspects of BMW purchasing strategy and policy have had the most impact on suppliers in the last year.

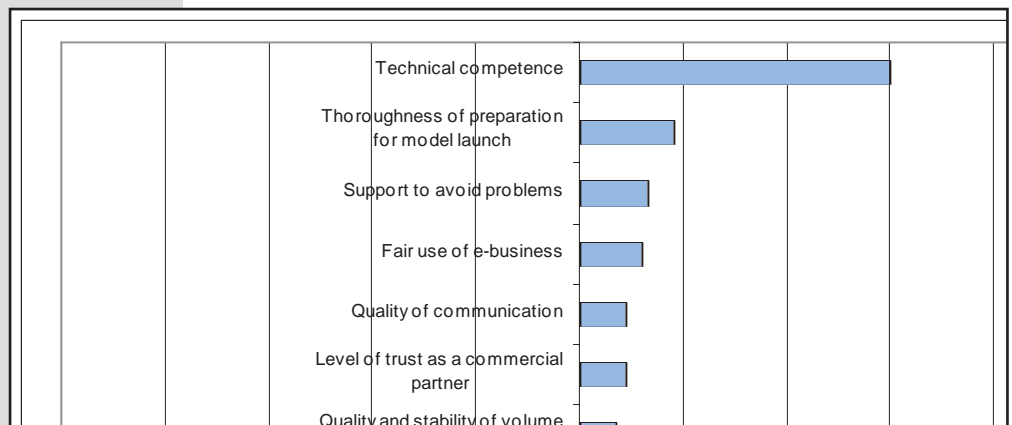
SupplierBusiness.com differentiates between material demands as a customer (top graph) and qualities as a partner (bottom graph). In surveys so far, changes in customer demands prompt a more emphatic response than changes in qualities as a partner, perhaps because the latter are harder to measure.

The responses are analysed statistically and represented in an index. Zero would mean no change, +1 would mean 100% of respondents said the criteria had increased. -1 would mean all of respondents said the criteria had decreased. For a fuller explanation of the methodology involved please see www.SupplierBusiness.com/methodology.html

Changes in BMW's demands in the last year
 Source: *SupplierBusiness.com*



Changes in BMW as a partner in the last year
 Source: *SupplierBusiness.com*





8. Major Suppliers by Component Sector

EXTERIOR	
Accessories	TI Automotive
Body side mouldings	Thyssen Budd
Bonding/adhesives	Le Joint Francais, Bayer
Bumpers and components	Decoma, Dynamit Nobel, F/O/R, Gedia, Hydro, Mitras, P & B Automotive, Peguform, Plastic Omnium
Convertible tops	ASC, Edscha, Premier Roofing Systems (PRS)
Door components	N/A
Exterior lighting	Hella, Osram, Schefenacker
Exterior mirrors	Flabeg, Gentex Corporation, Magna Donnelly, Nitto
Exterior trim	A. Raymond, Bayer, Decoma, Edscha, F/O/R, Gerhardt, Hyq, Inoplast, Le Profil, Progressive Plastics, Linden, Maier, Nitto, Rehau
Fasteners/fixings	A. Raymond, Fairchild Fasteners, Illinois Tool Works
Fog lights	Automotive Lighting, Zizala
Front end module/carrier	Faurecia
Front lights	Automotive Lighting, Electro Optica, Hella, North American Lighting, Valeo
Glass and parts	Amlite Corporation, Pilkington, Plastic Omnium, PPG, Saint-Gobain, Solutia, Splintex
Grilles	Bayer, Gerhardt, Guardian, Peguform
Handles/latches	Bosch, HüF, Kiekert, Valeo
High mounted stop light	Hella, Osram, Schefenacker, Valeo
Hinges	Edscha, Gedia, Gencorp, Siemens VDO, Stabilus
Indicator/repeater lights	Hella, Schefenacker, Valeo
Lock systems	Alps Electric, Bomoro, Bosch, Hella, HüF, Kiekert, Siemens VDO, Tubsä, Valeo
Pressed/ stamped/ metal parts	Drive Automotive, Gedia, Spartanburg Steel, Stadco, Thyssenkrupp, Wagon, WKW KTR Swiss
Rear lights	Automotive Lighting, Hella, Schefenacker, Valeo
Rocker panels and parts	Decoma, Dynamit Nobel, Rehau, Peguform
Seals	Gencorp, Hutchinson/Ljf, Le Joint Francais, Meteor, Metzeler, Multibase, Nitto, Stanton Rubber & Plastics
Side impact protection	Gaillon, Gedia, Thyssenkrupp, TRW
Sound deadener/insulator	Bayer, Carcoustics, C.A.Greiner, CWW Gerko, Fairchild Fasteners, Illbruck Inc., Janesville Products, Rieter, Stankiewicz
Sunroof	ArvinMeritor, Meteor, Pollmann, Senior, Webasto
Surface treatments (paint, zinc)	BASF, Bayer, DuPont, PPG
Washer/wiper systems	Bosch, Codan Roulands, INA, Kautex Textron, Kostal Mexicana, Küster, Siemens VDO, Trico, Valeo
Window lift mechanism	Bosch, Brose, Küster, Siemens VDO, Sportrack

CHASSIS/UNDERBODY	
Axles	Hydro, Thyssenkrupp, Valfond, ZF
Ball joints	TRW, ZF
Brake calipers	Continental Teves, Teves
Brake components	Alfmeier Prazision, Brembo, Dura, TRW
Brake discs/drums	Auma/Bocar, Brembo Rassini, Fagor Ederlan, TRW
Brake lines	Bristol Bending, Continental Teves, FTE, Gedia, Norma, TI Automotive, Veritas
Brake master cylinders/ boosters	Continental Teves, TRW
Brake pads	Continental Teves
Brake systems	Bosch, Brembo Rassini, Continental Teves, SA de CV, Siemens VDO
Chassis parts (cradle, subframe, crossmember)	Benteler, Dura, Gedia, HP Pelzer, Hydro, Silvatrim, Tennex, Textron, Thyssenkrupp, ZF
Fasteners/fixings	A. Raymond, Champion, Continental Teves, Federal-Mogul, Hans Oetiker, Legris Autoline, Norma



9. Major Suppliers by Model

BMW 1 Series

CHASSIS	
Alloy wheels	Austria Alu-Guss
Booster & brake hoses	Continental Teves
Brake hoses front	Freudenberg
Brake line	TI Automotive
Brake pads	JURID Honeywell
Calliper front & rear axle	Continental Teves
Carbon canister	Delphi
Chassis bearings	ZF Friedrichshafen
Coil springs	ThyssenKrupp Automotive AG
Complete under body stampings	Tower Automotive
Cross-member for front axle frame	Hydro Aluminium
Diaphragms	ContiTech
Front axle assembly	ThyssenKrupp Automotive AG
Front calipers	TRW Automotive
Front stabilizer bars & front suspension springs	Muhr & Bender KG
Front wheel bearings	FAG
Fuel hoses	ContiTech
Fuel line	TI Automotive
Fuel supply units	Siemens VDO
Fuel tank system	Inergy Automotive Systems
Fuel tank ventilation pipes	Benteler
Longitudinal for front axle frame	Hydro Aluminium
Rear axle assembly & rear axle links	ThyssenKrupp Automotive AG
Rear calipers	TRW Automotive
Rear wheel bearings	FAG
Shaft seal for rear axle	Hutchinson
Shock absorbers & stabilizer links	ZF Friedrichshafen
Stabilizers	ThyssenKrupp Automotive AG
Steering column	Nacam
Steering spindle sleeve (passage of the steering column through the engine-bay partition)	Vibracoustic
Steering system	TRW Automotive
Subframe rear	Benteler
Suspension control arms	TRW Automotive
Suspension joints	ZF Friedrichshafen
Suspension mounts	Trelleborg Automotive
Suspension struts	ZF Friedrichshafen
Tyres	Bridgestone Europe & Pirelli

ELECTRONIC/ELECTRICAL	
ABS magnetic impulse rings	Hutchinson
Airbag ECU and sensors	Bosch
Alternators	Bosch, Valeo
Audio harness	Dräxlmaier
Automotive control devices	Siemens VDO
Battery	Varta
CD and MD head units & CD changer	Alpine Electronics
Centre console module	Kostal