

MANN+HUMMEL

# Vendor Rating System 3.0

## Supplier Evaluation external

### Version

Date	Version	Change	Name / Dpt.
August 2019	1	Initial	Supply Chain
June 2021	2	Definition ABC classification	3PUST-PT

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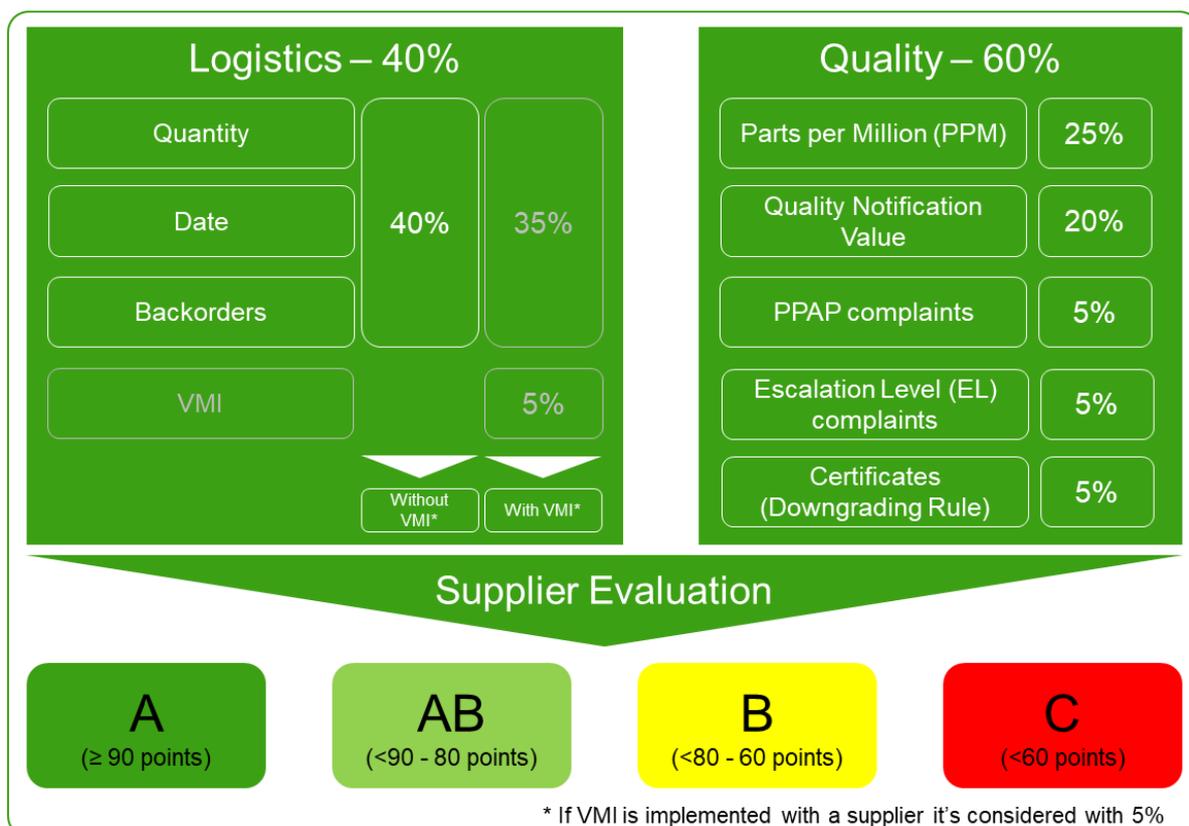
# 1 Introduction

MANN+HUMMEL strive for a trusting, cooperative long lasting relationship with our suppliers. Part of this is to evaluate the suppliers and give them feedback in a professional positive way.

As our supply base is becoming more and more global, it is important that all locations evaluate suppliers in a similar way. MANN+HUMMEL prefer suppliers with excellent performance; therefore the results of the supplier evaluation influence the selection of partners for new projects. The results are available on a monthly base in our supplier portal eCONN.

The MANN+HUMMEL vendor rating system is essentially based on 2 supporting columns: the quality of the supplier products in terms of PPM evaluation, a quality quota, PPAP complaints, CSL status and the certificate status of our suppliers and the suppliers' logistic performance in terms of a delivery reliability for quantity, date, Vendor Managed Inventory (VMI) and backorders, based on VDA 9003 recommendation.

Besides the monthly evaluation we provide our suppliers with a rolling evaluation of finally 12 months.



## 2 Targets and Contribution of our suppliers

Our suppliers receive regular information on how MANN+HUMMEL perceive them. Done properly this requires sufficient details and data and gives suppliers the opportunity to develop themselves where possible.

Our main targets are:

- Giving the suppliers an overview about their performance in terms of;
  - PPM (parts per million) per month and the rolling last 12 months.
  - Number of Quality complaints per month and the last 12 months rolling
  - Number of PPAP complaints per month and the last 12 months rolling
  - Number of CSL complaints per month and the last 12 months rolling
  - Status on the certificates per supplier according to IATF 16 949
  - Logistic performance in terms of a delivery reliability for quantity, date, VMI and backorders
- Informing them of how they need to improve their performance.
- Overall improved supplier performance in Quality and Logistics.

The latest rating is available in our supplier portal eCONN on every 15<sup>th</sup> working day each month. Our suppliers are asked to review their rating every month.

<b>A</b> (≥ 90 points)	<b>A-Supplier</b> <ul style="list-style-type: none"> <li>▪ Besides 8D/RPS management no further actions required</li> </ul>
<b>AB</b> (<90 - 80 points)	<b>AB-Supplier</b> <ul style="list-style-type: none"> <li>▪ Besides 8D/RPS management no further actions required</li> <li>▪ Development of their Management System (ISO/IATF) possibly needed</li> </ul>
<b>B</b> (<80 - 60 points)	<b>B-Supplier</b> <ul style="list-style-type: none"> <li>▪ Room for improvements in quality and/or logistics performance</li> <li>▪ Action plan has to be established and presented on demand to M+H</li> </ul>
<b>C</b> (<60 points)	<b>C-Supplier</b> <ul style="list-style-type: none"> <li>▪ New Business on Hold possible</li> <li>▪ Action plan has to be established in presented within 4 weeks by the supplier</li> <li>▪ Focus supplier, preferably will be considered for "Top Focus Supplier Meeting", process audits or improvement workshops</li> </ul>

### 3 Features of the Vendor Rating System

The Vendor Rating System has some new features implemented such as:

- Evaluation based on the same calculations worldwide.
- Suppliers can access their performance data regardless of personal resources of any one location.
- There is one platform with self-access: **eCONN**
- **eCONN** provides an overview as pdf document of how a supplier is doing regarding every location delivered; it provides comprehensive corporate evaluation for suppliers which deliver to more than one location.
- The user interface of the vendor evaluation provides the suppliers with all details necessary to understand the evaluation.
- All criteria are weighted. Quality complaints on problems which cause customer complaints with severe consequences result in an especially low rating.

### 4 Access to eCONN

You can access your eCONN account to see your current evaluation with this link:

<https://www.srm-mann-hummel.com/portal/mann-hummel/>

Details to the new Vendor Rating System can be found with this link:

<https://www.mann-hummel.com/en/the-company/download-center/documents-for-suppliers/quality-processes-and-requirements/>

Please see also our global supplier manual:

<https://www.mann-hummel.com/en/the-company/download-center/documents-for-suppliers/>

Documents with more details to our Supplier Portal eCONN can be found here:

<https://www.mann-hummel.com/en/the-company/download-center/documents-for-suppliers/documents-for-the-supplier-portal/>

### 5 Calculation Systematic

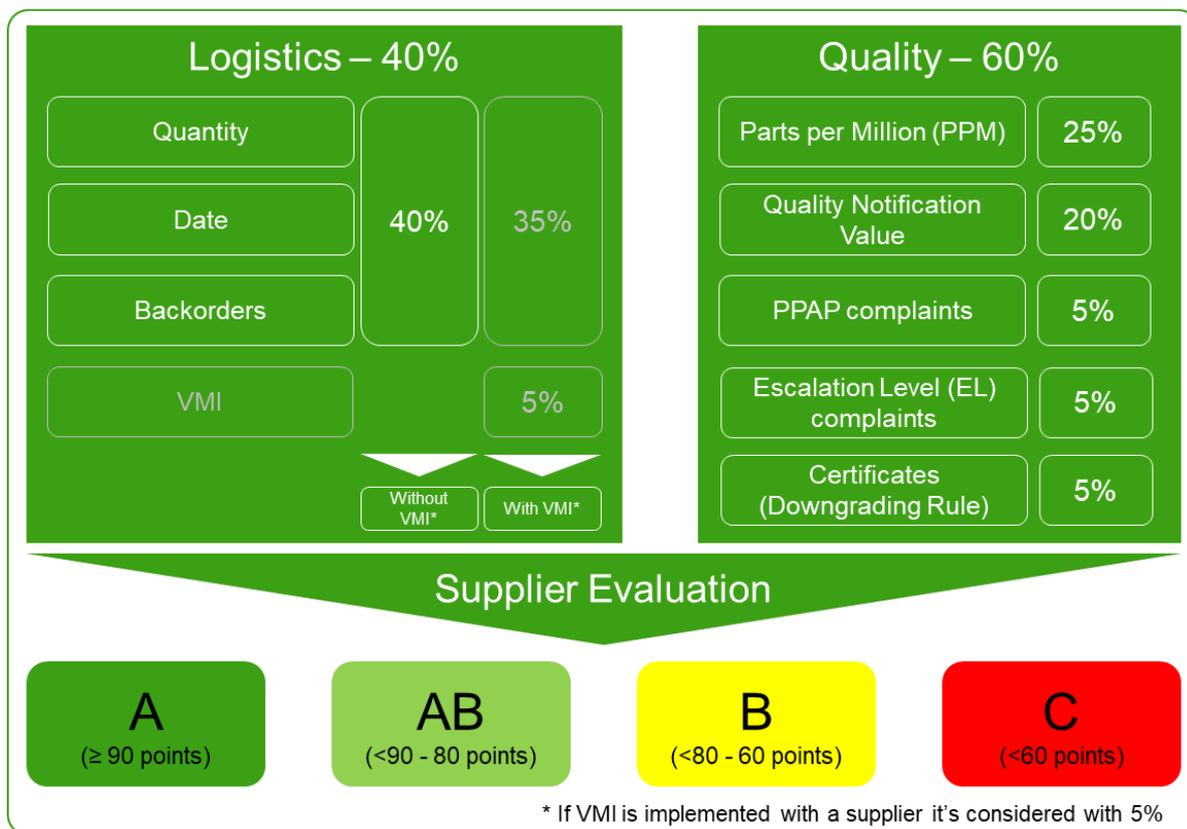
The system is based on 7 Hard Facts, which are defined as performance indicators:

- PPM (parts per million)
- Number of Quality complaints
- Number of PPAP complaints

- Number of Escalation Level (EL) complaints
- Status on the Quality and Environmental certificates per supplier
- Delivery Service in terms of a delivery reliability for
  - Quantity
  - Date
  - Backorders
- Vendor Managed Inventory (VMI) Min-Max reliability plus Zero stock level

For the evaluation existing data is combined in performance indicator forms mentioned to reflect the suppliers' performance. Such data consists of: incoming quantities, number of receipts, number of complaints, quantity of rejected materials and criticality of notification.

For the evaluation summary of a MANN+HUMMEL location all points of the performance indicators are combined into a total. The relative weight of each is shown below:



The performance indicators are calculated for each location and for a corporate score for all relevant locations. The weight for the corporate evaluation is based on goods received quantity and number of goods receipts. The following picture is only a schematic example for this evaluation:

## 5.1 Evaluation criteria - Quality

In general all quality complaints (standard quality complaints, PPAP, EL) have a factor for the criticality.

Examples for very critical complaints are those which have led to a situation where an OEM puts MANN+HUMMEL in a bad category e.g. non source able. Every complaint with a high impact on MANN+HUMMEL customers is defined as critical or very critical.

Example: A EL 2 complaint (1 notification) is count as 1.4 notifications.

Coding Name	Coding	Factor
PPAP complaint	080	1
Complaint from incoming goods inspection	010	1
Complaint from warehouse	015	1
Internal complaint EL1	016	1,2
Complaint from picking	017	1
Internal complaint EL2	018	1,4
Complaint from production	020	1
Blocked New Business	021	1,4
Customer complaint (0 km)	030	1,2
Customer complaint EL1	031	1,2
Customer complaint (Field)	040	1,2
Customer complaint EL2	041	1,4

### 5.1.1 PPM (Parts Per Million)

The PPM - Indicator shows the problems in comparison of faulty parts and parts delivered. For each supplier number, plant and month the quantities delivered and rejected are set in proportion.

It is calculated as follows:

$$\text{PPM-performance} = \frac{\text{Quantity rejected}}{\text{Quantity delivered}} \times 1.000.000$$

To get the PPM-performance indicator the system distinguishes between suppliers with the general target value and suppliers with a location-specific target value. If there is a supplier specific target value agreed it needs to be entered in the evaluation system.

The evaluation scale is as follows:

Supplier PPM	
PPM	Evaluation
Target PPM	100
< =1% (over target)	90
> 1% & <= 5 % (over target)	80
> 5% & <= 10 % (over target)	60
> 10% & <= 20 % (over target)	40
> 20% & <= 50 % (over target)	20
> 50% (over target)	1

### 5.1.2 Quality complaints

The quality complaints (QN ~ Quality Notification) are calculated as values for the number of deliveries and weighted number of complaints are set in proportion, grouped by the vendor number, plant and month, as well as the 12 months rolling value. Normally every notification has a weight of 1. For critical or very critical cases the factor written above is used.

The value is calculated as follows:

$$QN \text{ Value} = \frac{\text{Number of Quality Compliants} \times \text{Factor}}{\text{Number of incoming deliveries}}$$

QN-value	
QN-value	Evaluation
Target QN	100
> 0 % & <= 1%	90
> 1% & <= 5%	80
> 5% & <= 10%	60
> 10% & <= 15%	40
> 15% & <= 20%	20
> 20%	1

### 5.1.3 PPAP complaints

The PPAP complaints are calculated by each complaint according to the following scheme:

PPAP Complaints		
Complaint	One time	Repeated
Standard complaint	-10	-15
Critical complaint	-20	-25

Depending on the criticality of the PPAP complaint and if it's repeated defined points will reduce the overall achievable points.

### 5.1.4 Escalation Level (EL) complaints

The EL complaints are calculated by each complaint according to the following scheme:

EL level	
EL implemented	Evaluation
EL 1	-50
EL 2	-100

Depending on the EL level 50 or 100 points will reduce the overall achievable points.

### 5.1.5 Certificate status

According to the IATF 16 949 MANN+HUMMEL ask the suppliers to provide required Quality Certificates.

MMS Certificates	
Certificate requirements acc. To MG	Evaluation
QM certificate 16949 - YES	85 points
QM certificate only 9001	40 points
QM certificate ==> No	Downgrading A => AB; AB => B'
EM certificate (14001) - YES	15 points
EM certificate (14001) - NO	1 points

In case a supplier has no quality certificate IATF 16949 but only an ISO 9001 uploaded to his supplier profile in eCONN he will get a downgrade by 60 points.

In case he has not uploaded any quality certificate to eCONN he will be downgraded as follows:

Rating A → Downgrade Rating AB

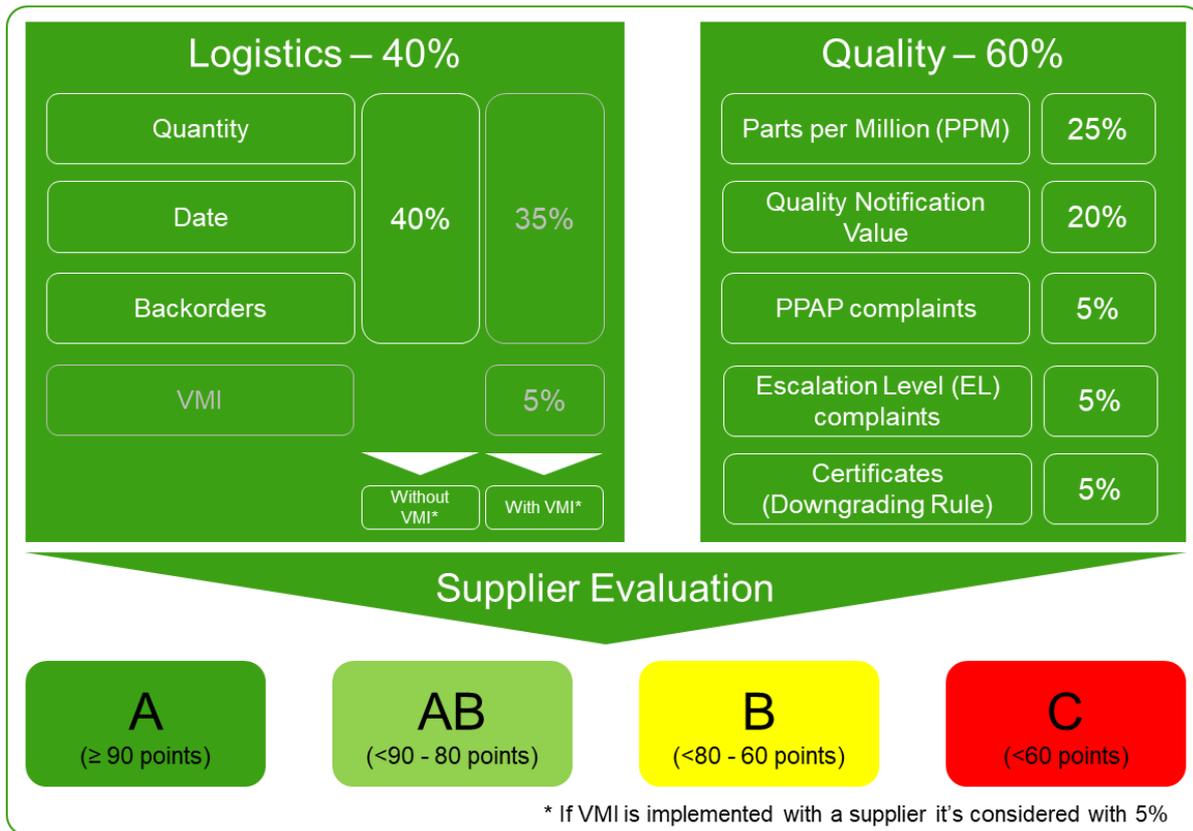
Rating AB → Downgrade Rating B

For missing environmental certificates he will get a downgrade by 15 points.

## 5.2 Evaluation Criteria Logistics

The supplier delivery performance is based on the following Key Performance Indicators:

- Delivery Service
  - Quantity reliability
  - Date reliability
  - Backlogs
- Vendor Managed Inventory (VMI)



The worst evaluation index of the quantity- or date reliability is used for the KPI “**Delivery Service**”. The delivery performance are weighted with factor 35 for the ABC-VRS classification!

Regarding the Vendor managed Inventory (VMI) process we evaluate supplier against:

- Minimum and maximum stock level which was define together with the supplier weighted with 2 %
- Zero stock level weighted with factor 3%
- VMI process in total is weighted with 5% in the ABC-classification

Detail information about the VRS reliability measurement you can find in the individual sub-chapters.

### 5.2.1 Delivery Service

The logistics evaluation of a supplier regarding the Delivery Service is based on:

- Date reliability
- Quantity reliability
- Backlogs of still open quantities from the previous months

The evaluation takes place during the goods-receipt posting against the available purchase requirements in the SAP ERP system.

**Quantity:**

In order to calculate the quantity reliability each goods receipt is compared with the quantity to be delivered.

**Date:**

The difference between the requested and the actual delivery date is always calculated in working days according to the factory calendar assigned to the plant.

**Backlog:**

Remaining open supplier deliveries from the previous six month (=supplier backlog) are also considered similar to the VDA 9003 recommendation.

Examples for the evaluation of the Delivery Service:

Delivery Service				
Case		Evaluation on Date	Evaluation on Quantity	Delivery Service
Pre or Late Delivery	Date not okay	1 point	100 points	1 point
	Quantity okay			
	Date not okay	1 point	1 point	1 point
	Quantity not okay			
Correct Delivery Date	Date okay	100 points	100 points	100 points
	Quantity okay			
	Date okay	100 points	1 point	1 point
	Quantity not okay			
Backlog	Backlog over several months	1 point	1 point	1 point
	Goods receipt posting of backlog item	No separate validation at goods receipt		

### 5.2.2 Vendor Managed Inventory (VMI)

Specific processes like Vendor Managed Inventory (VMI) are considered separately.

The following VMI elements are evaluated:

- VMI-stock level (quantity unit) against the defined minimum- and maximum stock level
  - **VMI score**
- VMI-Zero stock
  - **Zero stock score**

By usage of a VMI process the materials will be evaluated against the defined MIN/MAX inventory levels or zero stock.

Important: The VMI-materials are not relevant for the (additional) evaluation process in Date and Quantity reliability.

**VMI-Scoring model:**

VMI	
	Evaluation
VMI within defined MIN/MAX range	100 points
VMI below MIN range	30 points
VMI above MAX range	70 points
VMI 0 stock	1 point

- If the stock-level of the VMI-consignment stock is within the acceptable limits, the program which evaluates the daily VMI score assigns 100 points to the vendor for this material.
- If the stock level was above or below the limits, the program evaluate
  - above: 70 points
  - below: 30 points
- If the VMI stock level is = 0, then the VMI KPI zero stock is 1 point.
- If the VMI stock level is > 0, then the VMI KPI zero stock is 100 points.

**Special cases:**

- If no minimum stock level was defined, the score will be 100, as long as the maximum stock level was not exceeded.
- If no maximum stock level was defined, the score will be 100, as long as the stock is higher than the minimum stock level.
- If both stock levels were left empty, the program will score the daily stock with 0 for statistical reasons. However the overall score will not be influenced by this score.

### 5.3 Evaluation on MANN+HUMMEL corporate level

In addition to the location evaluation, the new supplier rating calculates a corporate evaluation for MANN+HUMMEL as a whole. For this the points of each criteria on location level are summarized in a weighted average by criteria, and then combined into a corporate total value. The weighting between criteria remains the same as on location level.

$$\begin{aligned}
 \text{Delivery Service points (Corp)} &= \frac{(\text{Delivery Service points site 1} \times (\text{GR site1} \times \text{quantity delivered site 1})) + \dots + (\text{Delivery Service points site XY} \times (\text{GR siteXY} \times \text{quantity delivered siteXY}))}{(\text{GR site1} \times \text{quantity delivered site 1}) + \dots + (\text{GR siteXY} \times \text{quantity delivered site XY})} \\
 \text{VMI points (Corp)} &= \frac{(\text{VMI points site 1} \times (\text{GR site1} \times \text{quantity delivered site 1})) + \dots + (\text{VMI points site XY} \times (\text{GR siteXY} \times \text{quantity delivered siteXY}))}{(\text{GR site1} \times \text{quantity delivered site 1}) + \dots + (\text{GR siteXY} \times \text{quantity delivered site XY})} \\
 \text{Supplier PPM points (Corp)} &= \frac{(\text{PPM points site 1} \times (\text{GR site1} \times \text{quantity delivered site 1})) + \dots + (\text{PPM points site XY} \times (\text{GR siteXY} \times \text{quantity delivered siteXY}))}{(\text{GR site1} \times \text{quantity delivered site 1}) + \dots + (\text{GR siteXY} \times \text{quantity delivered site XY})} \\
 \text{QN Value points(Corp)} &= \frac{(\text{QN points site 1} \times (\text{GR site1} \times \text{quantity delivered site 1})) + \dots + (\text{QN points site XY} \times (\text{GR siteXY} \times \text{quantity delivered siteXY}))}{(\text{GR site1} \times \text{quantity delivered site 1}) + \dots + (\text{GR siteXY} \times \text{quantity delivered siteXY})} \\
 \text{MMS points(Corp)} &= \frac{(\text{MMS points site 1} \times (\text{GR site1} \times \text{quantity delivered site 1})) + \dots + (\text{MMS points site XY} \times (\text{GR siteXY} \times \text{quantity delivered siteXY}))}{(\text{GR site1} \times \text{quantity delivered site 1}) + \dots + (\text{GR siteXY} \times \text{quantity delivered siteXY})} \\
 \text{PPAP points (Corp)} &= \frac{(\text{PPAP points site 1} \times (\text{GR site1} \times \text{quantity delivered site 1})) + \dots + (\text{PPAP points site XY} \times (\text{GR siteXY} \times \text{quantity delivered siteXY}))}{(\text{GR site1} \times \text{quantity delivered site 1}) + \dots + (\text{GR siteXY} \times \text{quantity delivered site XY})} \\
 \text{EL points(Corp)} &= \frac{(\text{EL points site 1} \times (\text{GR site1} \times \text{quantity delivered site 1})) + \dots + (\text{EL points site XY} \times (\text{GR siteXY} \times \text{quantity delivered siteXY}))}{(\text{GR site1} \times \text{quantity delivered site 1}) + \dots + (\text{GR siteXY} \times \text{quantity delivered siteXY})}
 \end{aligned}$$

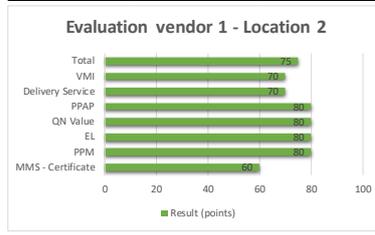
The weighting per location is based on a factor of the numbers of goods receive multiplied with the quantity received, see following example:

- Number of goods receive: 10
- Number of quantity received: 100.000
- Weighting factor: 1.000.000

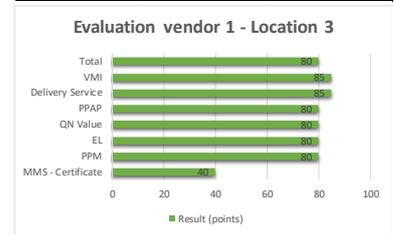
Evaluation vendor 1 - Location 1		
Criteria	Weight	Result (points)
MMS - Certificate	5%	100
PPM	25%	80
EL	5%	100
QN Value	20%	80
PPAP	5%	100
Delivery Service	35%	85
VMI	5%	100
<b>Total</b>	<b>100%</b>	<b>85,75</b>
ABC classification		AB
# Goods receive	100	Weighting Factor
Goods receive qty	800.000	80.000.000



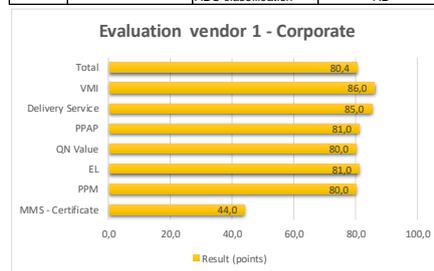
Evaluation vendor 1 - Location 2		
Criteria	Weight	Result (points)
MMS - Certificate	5%	60
PPM	25%	80
EL	5%	80
QN Value	20%	80
PPAP	5%	80
Delivery Service	35%	70
VMI	5%	70
<b>Total</b>	<b>100%</b>	<b>75</b>
ABC classification		B
# Goods receive	10	Weighting Factor
Goods receive qty	1.000	10.000



Evaluation vendor 1 - Location 3		
Criteria	Weight	Result (points)
MMS - Certificate	5%	40
PPM	25%	80
EL	5%	80
QN Value	20%	80
PPAP	5%	80
Delivery Service	35%	85
VMI	5%	85
<b>Total</b>	<b>100%</b>	<b>80</b>
ABC classification		AB
# Goods receive	500	Weighting Factor
Goods receive qty	2.000.000	1.000.000.000



Evaluation vendor 1 - Corporate		
Criteria	Weight	Result (points)
MMS - Certificate	5%	44,0
PPM	25%	80,0
EL	5%	81,0
QN Value	20%	80,0
PPAP	5%	81,0
Delivery Service	35%	85,0
VMI	5%	86,0
<b>Total</b>	<b>100%</b>	<b>80,4</b>
ABC classification		AB



In case a supplier delivers to one location only, the plant values and the corporate values are identical. If a supplier delivers to a number of locations, the points by criteria are weighted and integrated.

## 5.4 Rolling evaluation

As mentioned we are providing a rolling evaluation to Vendor Rating evaluation for the last 12 months.

The calculation scheme is the same on location level as on corporate level.

In both cases we only count months where an evaluation is available. Months without any delivery are not included in the rolling evaluation.

The formulas are seen below:

Rolling Delivery Service =	$\frac{(\text{Delivery Service points month 1} + \dots + \text{Delivery Service points month n})}{((\text{Month 1 with evaluation}) + \dots + (\text{Month n with evaluation}))}$
Rolling VMI =	$\frac{(\text{VMI points month 1} + \dots + \text{VMI points month n})}{((\text{Month 1 with evaluation}) + \dots + (\text{Month n with evaluation}))}$
Rolling Supplier PPM =	$\frac{(\text{PPM points month 1} + \dots + \text{PPM points month n})}{((\text{Month 1 with evaluation}) + \dots + (\text{Month n with evaluation}))}$
Rolling QN Value =	$\frac{(\text{QN value points month 1} + \dots + \text{QN value points month n})}{((\text{Month 1 with evaluation}) + \dots + (\text{Month n with evaluation}))}$
Rolling MMS =	$\frac{(\text{MMS points month 1} + \dots + \text{MMS points month n})}{((\text{Month 1 with evaluation}) + \dots + (\text{Month n with evaluation}))}$
Rolling PPAP =	$\frac{(\text{PPAP points month 1} + \dots + \text{PPAP points month n})}{((\text{Month 1 with evaluation}) + \dots + (\text{Month n with evaluation}))}$
Rolling EL =	$\frac{(\text{CSL points month 1} + \dots + \text{CSL points month n})}{((\text{Month 1 with evaluation}) + \dots + (\text{Month n with evaluation}))}$

This rolling evaluation is key for the overall supplier evaluation.

## 6 MANN+HUMMEL contact

In case of any questions to your evaluation please contact the responsible contact in the respective location.

<https://www.mann-hummel.com/en/the-company/locations/>

For general information you can also contact: [Supplier.Evaluation@mann-hummel.com](mailto:Supplier.Evaluation@mann-hummel.com)