BCS

Value Proposition Paper

A document describing the benefits inherent through the adoption of the QuantityWare BCS for SAP Oil, Gas, & Energy systems.

Version History

Version	Date	Description
00	2007-06-25	Initial Version
01	2011-07-18	Content revision, BCS adaptions
02	2021-03-01	Content revision, Adaptions to renovated solution offerings
03	2021-09-24	Modern QW document style applied
04	2023-11-30	Editorial revision

Contents

1.   Introduction

Oil & Gas companies have increasingly complex demands from the quantity conversions used within their business processes. This paper presents an overview of the value received by a customer using the SAP Oil&Gas solution, requiring bulk product calculations based on one or more measurement standards. At a high level, these calculations consist of:

- Different standard-based model conversion algorithms

- Volume Correction Factor(VCF) calculations

- Standard-based weight and mass calculations

- Standard based rounding rules

As an example, a VCF calculation (e.g. ASTM D1250-19e1 – the latest version of the well-known "API 1980") is one of four critical parts needed to define a calculation for the movement of bulk products but without the other three, for business calculations, it is useless.

QuantityWare BCS is a complete solution – it consists of a software package (covering all four points above), active continuing development, consulting services, training and extensive support. It is ABAP-based and purpose-built for the SAP Oil, Gas, & Energy solution and certified by SAP for usage in on-premises and cloud environments[1] . All such points must be assessed when defining the value delivered by a solution.

The importance of this value proposition for organisations dealing with bulk oil, gas and chemical products can be summed up by this simple formula:

"Product A" PROFIT = ("quantity data of product A" X "price") - "costs".

[1] Link to SAP Certification Documents

- SAP Oil, Gas, & Energy helps you to define and manage "product A", as well as to optimize the complex "price" and "cost" variables.

- QuantityWare ensures good quantity data – the source of an oil and gas companies' financial stability and health.

> **!** If you do not have absolute transparency in your quantity data, your company is exposed to a massive financial, contractual, legal and social risk. In one instance, the financial damage alone suffered by a company trading large volumes of product was defined as "millions of US dollars per day".

2. Value Factors

2.1. Lower Total Cost of Ownership

TCO - Solution Development

A commonly quoted figure for the adoption of SAP systems is the reduction of IT ownership costs by over 50%. The major factor in this calculation is the shifting of software development responsibility back to the solution provider. With QuantityWare BCS we are not considering a 'Standard ERP Platform' or the realisation of known standardized business processes – BCS is a highly specialised solution for a very specific purpose; to this end, we define the following high-level calculation for the implementation of "a piece of software" compatible with both the SAP on-premise and cloud environments to support a **SINGLE, simple, well defined, VCF standard** – i.e. ASTM D1250-19e1 (the latest version of the well-known "API 1980") as defined in the available standard specification.

Resources required:

> "Standards Specialist" (SS) required for the description and interpretation of the necessary Physical standards.
> Estimated cost – 130€ / Hour

> "Business Process Specialist" (BPS) required for the analysis and design of the standards application to the customers Business requirements.
> Estimated cost – 150€ / Hour

- "Global Quality ABAP Designer/Programmer" (DP) required for the specification, design and production of the ABAP solution.
  Estimated cost – 170€ / Hour

Expert ABAP / SAP resources with deep solution knowledge and experience are becoming increasingly rare, especially in the fields of SAP Oil, Gas, & Energy bulk goods processes, further limiting the potential field of resources. For our calculations we assume that personnel resources are immediately available; however the level of knowledge and necessary experience cannot be optimally fulfilled. Based on these assumptions, a calculation of the solution production of a **single, simple, well defined, VCF standard – not a complete, unified calculations solution (such as BCS)** would be as follows:

Tasks / Totals	Resource	SS (hrs)	BPS (hrs)	DP (hrs)	Elapsed Time
Physical standard / Business scope analysis	SS + BPS	80	96		96
Business process design	BPS	80			80
Software solution analysis	BPS+DP		48	56	56
Software solution specification	DP			80	80
Software solution design	DP			80	80
Software solution coding	DP			160	160
Software solution test	SS + DP + BPS	80	80	120	120
Total time / Total Elapsed time	Hours	240	224	496	672
Cost/hour	Euro	130	150	170	
Total Cost / resource	Euro	31200	33600	84320	
Total Resource Cost	Euro	149120			
Total Elapsed Time (working days)					84
Customer personnel involvement: 100% of Total (Spec., Design, Dev. Support, Acceptance, Management)	Hours	960			
Estimated cost of Internal resources (€/Hr)	110	105600			
SINGLE STANDRD Development cost	Euro	**254720**			

More than 250,000 Euro in development costs, this is a conservative calculation for a **single** simple measurement standard - the QuantityWare BCS solution supports **more than 100**, fully integrated into the QuantityWare conversion models, forming a single SAP solution.

- The additional effort required supporting the specific customer requirements are **not** included in this example - they can range between an **additional 40-120%** of the above figures.

- The efforts to define and implement the correct weight and mass calculations, rounding procedures and unit of measure configurations are **not** included in this example; they must be considered and can range between **an additional 60-200%** of the above figures.

- The effort required to extend the existing QCI to allow processing of gaseous products and products requiring an alternate calculations model (the SAP QCI supports a single model) have not been considered. **Especially in the case of gaseous products, they must be considered in a range of an additional 300-700% of the above figures**.

- The elapsed time and effort calculations are based upon a local project with all participants operating within the same time zones.

- Maintenance costs are customer and implementation extent dependent unless a fully integrated solution is created. Thus, maintenance costs have not been considered in the above calculation. Depending on the volatility of the standards implemented and the range of products being supported, **an additional 20-30% of the implementation cost per annum should be reserved for maintenance effort.**

These figures thus move in the following ranges:

POSITION:	Euro	
SINGLE STANDRD Development cost	255,000	
Additional COSTS	From	To
ANNUAL Maintenance costs	51,000	76,000
Specific Customer Requirements	102,000	306,000
Complete Weight / Mass / Rounding Procedures	153,000	509,000
QCI Extensions	764,000	1,783,000
Additonal Annual Maintenance Costs	306,000	779,000

Natural Gas and LNG calculation standards implementations have as a prerequisite highly complex planning, as defined in "Specific Customer Requirements" and the highest-end complexity and cost "QCI Extensions".

The effort of the standard implementation itself should not be underestimated and in our experience required around 200% of the effort described for the "SINGLE, simple, well defined, VCF standard".

Thus, approximate costs for the development of such a standard and the environment extension required would be at a minimum of 4,6 Million Euro:

POSITION:	Euro:
SINGLE STANDRD Development cost	509,000
Specific Customer Requirements	611,000
QCI Extensions	3,566,000
TOTAL COST	4,686,848
Additional Annual Maintenance Costs	1,406,000

For further information, please contact us via: https://www.quantityware.com/contact/

2.1.1. Adaption of possible legacy solutions:

The majority of modern measurements standards are no longer table-based and must therefore be programmed from scratch – table-based tools are not adequate and represent a maintenance risk. For specific customer calculations, please contact us as above.

2.1.2. Single Standard Implementation - Elapsed Time

An interesting aspect in addition to the financial costs, even for a simple standard, are the "Elapsed time" figures; the total sum being 84 working days. In addition to this, the lead time for procurement of the necessary human resources must be planned, and again, for customer specific requirements 60-200% of the total and elapsed times can be added.

BCS is in productive use around the globe at many customers, processing fluid- and gaseous- products; it has been determined in every case to be 'fit for purpose'. QuantityWare has implemented many customer specific requirements which, if reflecting common business practice, have been integrated as options into our standard solution. The result of this approach is that no modifications are performed to standard SAP-delivered objects, reducing effort and complexity during maintenance. Maintenance of customer development integrated into our standard product also falls within the extent of the standard QuantityWare usage agreement.

Owing to our unique automated testing tools and highly modular code, delivery time has always been faster than industry averages.

2.1.3. TCO - Maintenance and support

- In addition to development costs, significant TCO reductions can be achieved by utilising the QuantityWare maintenance offerings within the standard usage agreement.

- Leverage our experience and knowledge in the field of bulk quantity conversion functionality without the extended costs of binding experienced and knowledgeable staff in this highly specialised area; however, the main cost reduction here is inherent in the additional-value services provided by QuantityWare maintenance offerings.

- Our customers can request the provision of any national or international measurement standard by QuantityWare within the product area of BCS. Our extension strategy is defined in our FAQs (keyword "GCD").

- LNG and NGL calculations, SGERG and AGA standards are available in the product BCG (Bulk Calculations – Gas).

- All standard updates, for all supported standards, e.g. support for the ISO 91:2017 and it's associated standards for LPG, or the continual support of the ASTM D1250 evolution (from 1952 to the latest 2019 versions) are included in standard maintenance and maintained within our usage agreement.

- Minor consultancy requests (with a total effort of less than 1 hour) are also included in the maintenance agreement scope via "Low" priority tickets.

- The Adoption of an ABAP solution provides an encapsulated solution, both operating system and database independent, which can be freely migrated between released SAP Netweaver and S/4 HANA platforms as well as between on-premises and SAP cloud environments (H4C EX).

2.2. Success in a Dynamic Business Environment

2.2.1. Change-adept

Our knowledge and experience in the area of SAP Oil, Gas, & Energy bulk product quantity conversions, within a streamlined, proven development structure allows us to provide immediate support - enabling quick response to regulatory, market and customer demands.

2.2.2. Design

Our employees' experience in providing development resources and support for the SAP Oil, Gas, & Energy solution has resulted in a product design based upon proven customer experience and requirements. Solution design experience results in maximum quality which when coupled with extensive automated and manual testing, leads to a lower support incident rate, higher availability of the product and therefore greater ROI.

- Experience – a necessity in a complex programming area and environment

- The software solution itself is complex owing to its nature and environment:

- The software realization of technically complex standards

- The optimal usage of the SAP QCI (Quantity Conversion Interface) solutions' interface.

- Design and coding style lowering the chance of errors in the code and thereby reducing down-time and maintenance effort.

- Design and coding allowing maximum flexibility in supporting future standards.

The 'core' of our team has over 40 years of SAP experience – in the design, programming, technical delivery and support of the SAP Oil&Gas solution. Members of our organisation were responsible for the design and programming of the SAP QCI product – our design and programming and implementation knowledge is truly unique in the global market. We have supported customers in critical situations – we know your problems and how to avoid them!

2.3.   Mitigate Business Risk

QuantityWare has multiple installed sites around the globe. We have to ensure that our product and services meet the requirements and standards demanded by our existing customers. Customers benefit from our experience in supporting an extensive international customer base. More customers represent a more complex environment – if any errors exist within the product, they are more likely to be found in a shorter period with more customer experience. During the procurement phase, a major South American Oil company (who is now a satisfied customer), tested the BCP product extensively and found only one issue – which was not of productive significance - but nevertheless it was identified, documented, fixed and the fix delivered within 8 hours of the initial customer report.

2.4.   Governance, Risk and Compliance

"Noncompliance with regulations is simply not an option"[2]

The QuantityWare solution is a key component in the fundamental materials movement processes by which an organisation trading in Oil, Gas, Chemicals or other bulk products generates profit; such organisations require detailed and well planned GRC practices in order to guarantee transparency and meet legal compliance requirements. Simple examples of this are (internally) the enhancement of segregation of duties and (externally) support of methods to meet the requirements of sections 302 and 404 of the Sarbanes-Oxley Act. By implementing the QuantityWare Petroleum Measurement Cockpit, the 'business' departments of a company can assert control over an area which has been traditionally challenged in providing transparency, both within the organisation and to external regulatory bodies.

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[2] Schöler, S.; Zink, O.: SAP Governance, Risk and Compliance, p17, at: http://www.sap-press.com/

2.5. Additional Services:

At the simplest level, the SAP-Certified QuantityWare solution encompasses our delivered ABAP functionality and maintenance offerings. In addition, our customers can access detailed project and implementation support through QuantityWare-Certified consultants – either independent, or working for such companies as SAP, Accenture or WiPro. For customers looking to develop in-hose skills, we offer comprehensive, high-quality training courses. If you are looking for a single source of vital information concerning bulk measurements calculations for your SAP Oil, Gas, & Energy investment, then we are the answers you have been looking for.

3.   Conclusion

QuantityWare BCS encompasses high-value software and services – based upon QuantityWare's unique experience in this highly specialised field.

The adoption of a standard software and service solution, geared to grow with the increasing diversity and extent of requirements in the modern transport and logistics market, can provide easily quantifiable value as described in the point "TCO - Solution Development". These clearly definable benefits, when combined with the additional points of value, result in a unique software and services package which, when realised within the world-class capabilities of the SAP Oil, Gas, & Energy Industry Solution, will help our customers meet and beat the challenges of the bulk materials transport and logistics market in the 21st Century.

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