

# Challenges in Hydrocarbon Allocation

Survey Results and Implications

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## 1 Management Overview

This survey investigated the challenges confronting Hydrocarbon Allocation (HCA) professionals in 2013, as we attempted to discover what issues they face and how they are dealing with them.

Our survey scope covers topics of best practice, standards, impressions of HCA as a profession, certification of HCA professionals, HCA systems, and general perceptions of HCA within oil and gas.

The major findings of this survey indicate that:

- Best practice is an elusive concept, with 65% of respondents suggesting that it is 'Hard' or 'Very Hard' to identify sources of best practice
- Perhaps as a result, there are no universally adopted best practices
- There are major concerns around data integrity, reliability, and the use of spreadsheets
- The profession is perceived as being under-valued in the oil and gas sector
- Knowledge transfer and training is a major problem

Although these findings might not be surprising to some, the implications for the oil and gas sector are profound. There is a large amount of money passing backwards and forwards between organisations, managed by a group of people who are relatively unsupported by industry standards or best practice. The ability to recruit people into this vital profession is also hampered by the lack of professional standards and clear routes to career advancement. The individuals involved clearly believe that adoption of best practices and consistent methods is critical for success, but this is frequently not an area of investment for companies. Companies recognising the importance of HCA, and those who work in the field, is an important first step. More progress can be achieved if the professionals themselves come together to define the changes required, establishing an industry-wide set of standards, best practices, and recognised training.

## 2 Introduction to the Survey

### 2.1 The Role of EnergySys

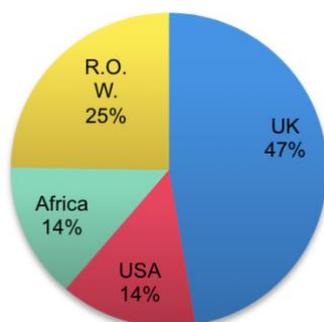
EnergySys is the first cloud-based apps platform designed specifically for the agile oil and gas business. The platform is used by companies that want to respond effectively and efficiently to the constant change that is a characteristic of the oil and gas industry, making rapid decisions based on accurate data. The Production Allocation Standard App is one of a range of apps available on the platform that can help to improve data accuracy and consistency and enhance compliance.

In 2013, we conducted a survey to explore the challenges faced by organisations and individuals working within HCA. Over five hundred survey invitations were sent out, and the response rate was approximately 20%, an extremely impressive return. This report looks in detail at the results, and what they mean for the industry as a whole and the individuals working within the HCA profession.

As a direct result of the feedback from this survey, EnergySys are currently developing a 'Hub' where we will share regular industry insights, information on standards, news, and best practices.

We hope the information from this survey will be useful to you, but if you have any questions or wish to discuss anything relating to HCA, please don't hesitate to get in touch with us at [survey@energysys.com](mailto:survey@energysys.com).

### 2.2 Location of Respondents



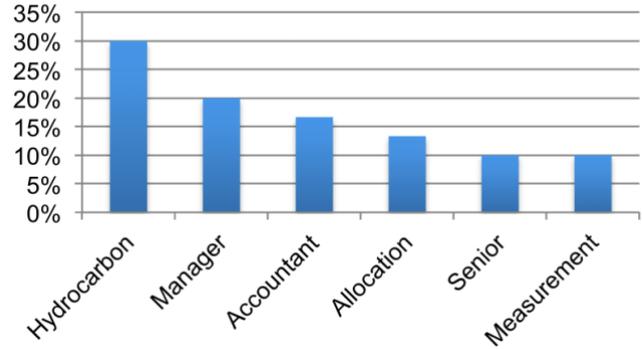
The survey was conducted online and attracted global participation. The largest response came from professionals within the UK (around 47%), though this probably reflects the weighting of membership of the original list to whom invitations were sent.

Having said that, responses show that there is little difference between countries, and that issues are shared globally.

### 2.3 Job Titles

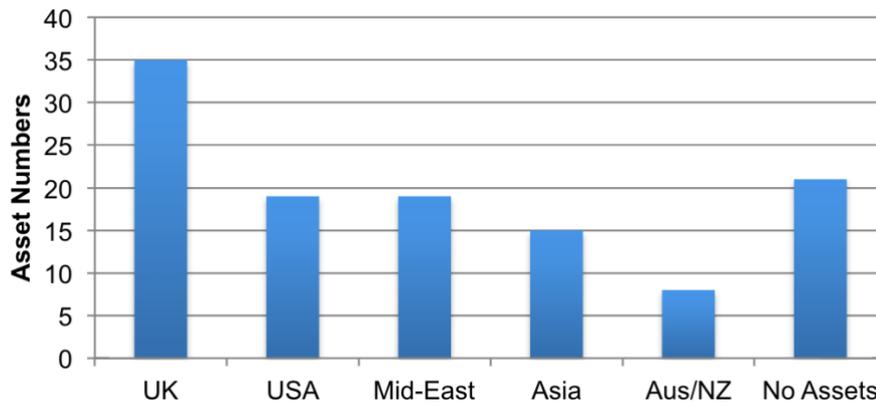
Although this was an ostensibly simple question, a request for job title produced an astonishing range of responses. To keep it simple, the chart shows the frequency and variety of key words in job titles.

Notwithstanding this, the list demonstrated a diversity of managers, consultants, engineers, marketers, and data collectors. This is a good cross-section as far as the survey goes, making it reasonable to draw fairly broad conclusions in respect of industry trends and attitudes.



### 2.4 Asset Ownership

The chart below shows the numbers of assets either operated by respondents or in which they have an equity interest. It indicates that, between them, respondents have experience that is essentially global.



### 2.5 Systems in Use

Around 50% of our respondents said they use dedicated HCA software. A figure that might be considered surprising, especially since this number is overlapped by 65% of respondents who claim to lack confidence in their data (see next section).

### 3 Information Quality

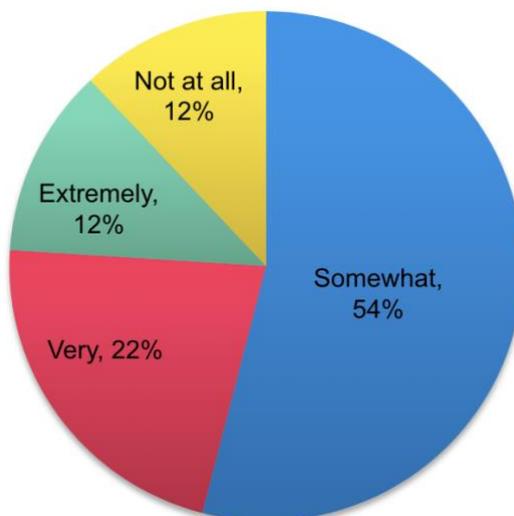
#### 3.1 Confidence

We found that only 34% of respondents stated that they were 'Very' or 'Extremely' confident about the data they were receiving. The rest were only 'Somewhat' confident or 'Not at All' confident.

Both the responses and comments demonstrate a general lack of confidence in data received, and an associated lack of consistency in how data is generated and presented.

Dependence on the measurement systems was frequently mentioned, with respondents feeling that they were not consulted sufficiently in respect of metering requirements for allocation. Metering itself was sometimes not seen to be a priority, and data provided by partner companies did not come with any mechanisms to allow independent validation. Lack of knowledge was seen to be an issue in the inappropriate use of data, or the interpretation of results.

As an interesting final point, it was noted that the real problems were never apparent until something went wrong.



#### 3.2 Adequate Reporting

“Data was not felt to be under control, and this left the contents of reports open to suspicion”

When we asked if there was confidence in the adequacy of the data being reported to partners and regulators, there was a resoundingly positive response. Almost three-quarters of respondents felt that their reporting was adequate or fit for purpose. This still left 15% of respondents who lacked confidence in their reporting, and some comments left also appeared to undermine the high proportion of 'Yes' answers.

In particular, data was not felt to be under control, and this left the contents of reports open to suspicion. Tracing data was frequently mentioned as a problem.

#### 3.3 Compliance

When we asked if respondents were concerned that inaccurate data might cause compliance issues, around three-quarters said that they were. This question provided one of the most interesting responses and we believe that work needs to be done to further examine this issue.

Clearly, the results don't imply that all these individuals actually have a problem with compliance, just that it is a real source of concern. However, the additional comments left by almost all of the respondents indicated that they were experiencing issues with inaccurate data, related to a number of factors. Of these, the inability of the allocation engineer to control the data "end to end" was one frequently cited issue, with inadequate information on the quality of metering, well test data, samples, and other input data.

Some respondents went as far as stating that they already had real compliance issues.

### 3.4 Impact of Inaccurate Data

In the next part of the survey we investigated the potential impact of inaccurate data on operational and business decisions.

"Three-quarters of respondents were concerned that incorrect choices might be made on the basis of flawed data"

In respect of operational decisions, three-quarters of our respondents were concerned that incorrect choices might be made on the basis of flawed data. There was great concern amongst the respondents that the data they receive is inaccurate and therefore the data they report creates a situation where wrong decisions can be made.

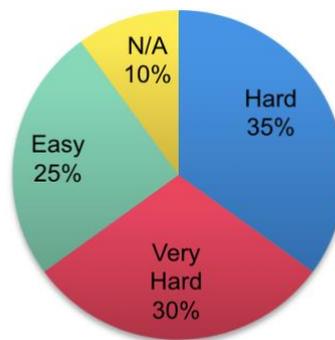
Many of the respondents believe that the wrong data leads to misallocation of investments, lower production, and over or under payment of royalties. Indeed, some respondents went as far as to say that inaccurate data could lead to early and inappropriate closure of wells.

The same proportion of respondents, three-quarters, also believed inaccurate data leads to missed business opportunities. However, many of the comments indicated that the HCA data was not as important for wider decision making and identification of opportunities. It may be that the decisions made in early commercial negotiations are the critical factor in the success, or otherwise, of a given asset.

## 4 Best Practices

### 4.1 Identification

Around 65% of respondents thought that it was 'Hard' or 'Very Hard' to identify sources of best practice. This was a surprisingly large number with only 25% of respondents finding it 'Easy'. There were also a large number of comments that added to the overall impression that this is an ill-defined area. As one person said: "I'm not sure what industry best practice is for Hydrocarbon Allocation." There was an expectation that consultancies should be responsible for ensuring best practice as part of their delivery.



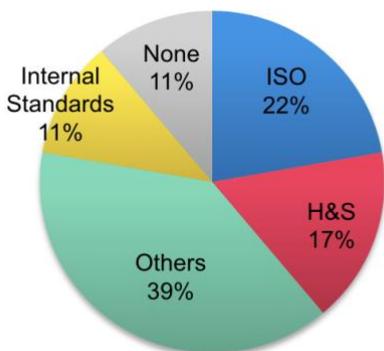
Only 25% of respondents thought it was 'Easy' to find sources of best practice

A few of the comments indicated that some companies had custom-built HCA systems, adding explicitly that this made it difficult to use best practice. As one respondent said: "Systems are uniquely tailored for our specific requirements so little or no best practices used."

This lack of clarity causes problems not just across organisations, but within them, with a respondent saying that there was "no defined practice that is applicable across all our asset(s)".

Some respondents also believed that there were no defined best practices at all, or that there could be nothing specific to the HCA value chain, with its multi-disciplinary aspects from production to finance.

### 4.2 Adoption



The respondents were asked whether they used any industry best practices in the workplace and a surprising 55% said that they did not. Though this might be less surprising given the difficulties in identifying sources of best practice that were revealed in the last section.

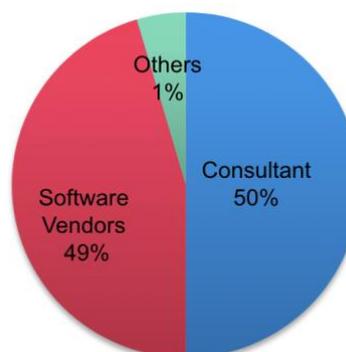
A subsequent question about systems of best practice revealed that no clear and consistent methodology or process was evident, even among the 45% who asserted that best practices were used.

When we analysed the answers and broke them down into broad categories, the absence of a universally agreed standard was clear.

### 4.3 Sources

When asked to name sources or organisations that individuals considered to be authoritative, the list was long and there was little or no consistency.

Interestingly, a significant number of people identified consultancies and software vendors as authoritative resources, rather than seeing them as implementers of standards. The chart shows the split of mentions in responses for those sources mentioned, with "Others" comprising a mixed group that received only a single vote each.

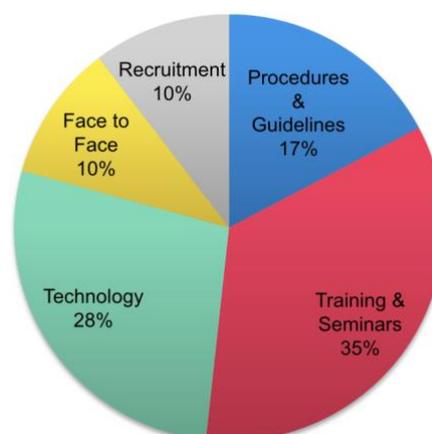


### 4.4 Knowledge Management

In thinking about the way knowledge is built and retained in the organisation, we asked an open question about the way knowledge was kept and transferred within their companies.

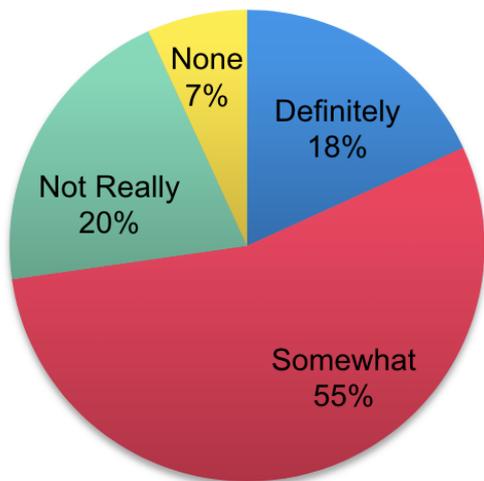
We received many responses and were able to divide the results into a number of categories, as shown in the pie chart. The results appear to indicate that a combination of techniques like documentation of procedures, training, and use of technology, represent the best ways to ensure retention and transfer of knowledge.

Better communication was cited alongside Face-to-Face Meetings as important, with respondents mentioning SharePoint and Wikis as key technology enablers.



## 5 Professional Status

### 5.1 Recognition



The vast majority (over 80%) did not believe that the profession or the work of HCA professionals was fully recognised by the industry. There is clearly an issue with the perception of HCA in the industry or HCA professionals feel they are undervalued.

Some of the comments indicate a general lack of understanding, both inside and outside the industry, of the importance of HCA and how it relates to the business.

“The vast majority (over 80%) did not believe that the profession or the work of HCA professionals was fully recognised by the industry”

### 5.2 Standard Training

Over 70% of the respondents believe there are currently standards for training, but the associated comments would appear to contradict this. In a subsequent question we asked who should, or could, be responsible for delivery of standard training, and the responses demonstrate little in the way of consistency. A wide variety of organisations, including company internal groups, vendors, and governmental bodies, were identified as potential sources of training.

The type of training required was also somewhat unclear, as people focussed on issues as diverse as regulatory compliance, allocation methodologies, metering, and software product training. The comments that focussed on HCA itself mentioned understanding of “the physical model”, “the prior period adjustment dynamics”, “comingled flow models”, “basic geology models”, “allocation inputs”, “measurements”, “uncertainties”, “validation”, “SOX”, “regulations”, “commercial considerations”, and “allocation rules”. There was also interest in global trends in hydrocarbon production and technology.

### 5.3 Certification

80% of respondents thought that certification of HCA specialists would be a positive thing

When asked if certification of HCA specialists would be a positive thing, almost 80% agreed. Despite this, the comments suggest that the lack of agreed standards in training, and the diversity of views about HCA, would make implementation of certification a difficult task. This appears to lead to a degree of scepticism about the value of certification. When asked who should be responsible for

certification, almost 80% of respondents opted for an external institution linked to Government, while

not-for-profit and independent were also cited. Examples given include professional engineering organisations or standards bodies like the Energy Institute. Ultimately, it is seen as extremely important that the process of certification has both value and recognition.

#### 5.4 Professional Affiliation

Those who responded to the question on professional affiliation mentioned a wide variety of organisations, including their own companies. Of these, the most frequently mentioned were the SPE (16%), PPDM (10%), and the Energy Institute (10%).

## 6 Professional Status

### 6.1 Recruitment

Over two-thirds of respondents said that they found it difficult to recruit and retain HCA staff. The comments indicate that the positions are perceived to be rather niche, with little room for progression. This causes problems for many, as there is a perception that the result is a focus on money as the primary motivator, and a willingness to move frequently for a higher salary.

“Over two-thirds of respondents said they found it difficult to recruit and retain HCA staff”

Others feel it is seen as a relatively junior role, and a small number suggested that they don't have a requirement for a specific HCA position. This view is likely to reinforce the perception that HCA does not command much respect.

These are interesting results, considering the high percentage of respondents who believe inaccurate HCA data can lead to missed business opportunities, compliance issues and poor business decisions.

### 6.2 Career Progression

Over half of the respondents felt there were limited opportunities for career progression, with only 28% saying that this was not a problem. A lack of career opportunities and, therefore, salary progression seems to be a recurring theme. It also appears that some allocation engineers view their positions as temporary career moves or are simply unaware of how many opportunities there are within HCA.

Working in HCA is not perceived as a career in itself, more “a step on the management ladder”

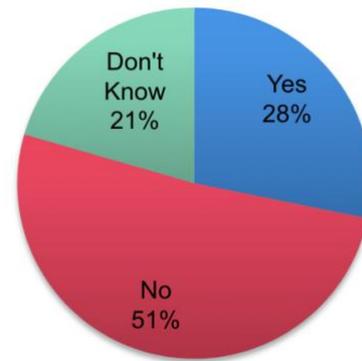
As one respondent said, “It is not a career in itself, but a step on the management ladder. “Having HCA report to production rather than commercial was seen as a problem, limiting the opportunities for advancement beyond “team lead”.

Again, this result is at odds with the previous suggestions that inaccurate or poorly reported data can lead to missed business opportunities, compliance issues and poor business decisions.

### 6.3 Staff Turnover

Around half of our respondents stated that staff turnover is not an issue. However, there were a number of comments that contradicted this, with two clear views emerging.

First, the "very fast-paced working environment with various deadlines and lack of adequate compensation contributes to high rate of turnover." Secondly, money is the primary motivator, as there is no individual development.



## 7 Conclusions

Despite the diversity of respondents –their roles and locations –the overwhelming theme within the survey relates to data integrity, and concerns that the processes surrounding this can be unreliable. This, in turn, suggests a general lack of standardisation; different approaches are being used, and IT itself is sometimes seen as a barrier to efficient data flow, rather than facilitating it.

A lack of standardisation also refers to staff training, knowledge sharing within companies, and notions of best practice. Training standards seemed to be relatively company specific, and when it came to best practice most respondents asserted that it was ‘hard’ to identify sources of industry best practice, and some didn’t seem to think it relevant.

Responses on knowledge sharing and retention were diverse; and though documentation was often cited, it wasn’t always clear how the presence or importance of it was communicated to staff. It appears that employees with allocation expertise often move on quickly due to salary and progression limitations.

Many comments seemed to reflect frustration over a lack of understanding of the importance of HCA (recognition of the value of respondents’ professions was deemed by most only to be ‘somewhat recognised’), alongside poor data accuracy, missed commercial opportunities and a lack of retained skills in certain areas.

“It would appear that HCA is an undervalued sector, although there is a certainty that it is important to the integrity of the business it serves”

From the data collected, it would appear that HCA is an undervalued sector, although there is a certainty that it is important to the integrity of the business it serves.

It can be concluded that individuals and companies operating within HCA need to become more vocal and push for standardization from an independent body, better visibility of the importance of HCA to business and better knowledge sharing.