

Tinker, Tailor, Soldier, Spy: The many roles of the SAS consultant

Richard Phillips, Open University, UK
Mark Jordan, Capital One Services, Inc.

ABSTRACT

Unlike many software packages, the user base for SAS doesn't fit neatly into either a Systems Development or End-User tool. Users span organisations from corporate development to ad-hoc reporting. Not only do the users have different skills and requirements from the software, but they place varied demands on SAS support personnel. We'll explore the many 'hats' a SAS consultant should be prepared to wear while supporting the SAS community. The model we foster is horizontal skills-based vice vertical project-based – a somewhat unfashionable model with major arguments in its favour. We'll examine two large SAS-using organisations, highlighting the commonalities and differences between their SAS communities, and leverage some broadly understandable sketches to explain the roles necessary to any thriving SAS community.

BACKGROUND



Let's begin by getting a flavour of the two organisations we'll use for our examples.

THE OPEN UNIVERSITY

The OU admitted its first students in 1971, and today is the UK's largest university serving over 200,000 individual students and corporate customers, including 22% of the UK's part-time higher education student population. Using a combination of specially produced textbooks and study guides, audio tapes, TV broadcasts and videotapes, home experiment kits, computer software and other multimedia materials, students learn at home or in their workplaces, earning postgraduate and undergraduate degrees, diplomas and certificates, or taking short vocational courses. Study areas include arts, modern languages, social sciences, health and social welfare, science, mathematics, computing, technology, business, management, education and law. Every student has a local tutor, and seminars and summer schools are run at a network of 305 study centres throughout the UK. The Open University is top-ranked within the UK for the quality of its teaching. It also serves about 26,000 students throughout Europe and other parts of the world. Nearly all OU students are part-time students, with 70% of undergraduates employed full-time throughout their studies. More than 150,000 students attend classes on-line.

CAPITAL ONE

Spun-off from Signet Bank in 1995, **CapitalOne** is now the sixth largest credit card issuer in the world, and provides diversified financial services including auto financing, instalment loans and special loans for elective medical procedures. Its global customer base grew from 5 to over 40 million, and its associates from less than 100 to over 20,000 as **CapitalOne's** operations expanded from Richmond, Virginia, to locations throughout the world, from San Diego to Europe to South Africa.

	
Corporate systems (data admin, QA, CRM, warehouse)	Cross-platform data access and manipulation, data cleansing, data warehousing
Marketing/Planning analysis	Predictive modelling, decision support systems, self-serve / automated reporting
Academic administration	Performance management, financial modelling, capacity planning
Research (Mathematics, Economics, Business, Planetary Science)	Design of Experiments, Testing

WHAT IS SAS USED FOR?

Let's take a moment for a bird's-eye view of how SAS software is used within these organisations.

At first glance, there is considerable overlap. After all, SAS is a piece of business intelligence software, with a strong statistical and modelling bias – so it should come as no surprise that it's used in broadly similar ways. Digging deeper reveals similar SAS technologies and modules used in similar ways, such as SAS/IntrNet and Enterprise Reporter for distributing and publishing information derived by data analysts to the business analysts, and various other organisational levels. We begin to see some interesting parallels between the commercial and educational sectors.

SIMILARITIES...

A commercial entity is profit motivated. It exists to make money for shareholders and owners. On the other hand, a university exists to educate. As profit is the goal of a corporation, finding ways to provide more people with better education drives the university. Revenue is generated (in the case of the UK) by government funding relating to the number of people taught and from fees charged to students.

But wait – even if the important 'beans' are people rather than dollars, 'beans' are still necessary for both organisations to continue to exist. In fact, for both situations, *customers equal revenue*. Though the motivation for acquiring customers is different, the means are similar, requiring research, modelling, forecasting and segmentation.

Given the similarities in basic motivation, let's examine and compare the SAS user communities within the OU and CapitalOne. The users within these two organisations differ in their individual motivation, skill levels, and demographics. Similarities exist between the OU's commercially-motivated parts and **CapitalOne** as a whole, including Marketing and IS/IT.

The distinction between 'academic/analyst' and 'administrative/programmer' users is not an arbitrary

one. Both organisations have subsets of users who display different attitudes and personal motivations. For example, an academic researcher or business analyst typically views SAS as just one of many tools she uses to accomplish her analyses. But an administrative user or programmer delves deeper into the toolset, as their career (read: résumé) depends on developing lucrative skills like SAS. The importance of this distinction is that the user community is made up of at least two groups loosely characterised as self-motivating techies, and result-motivated business users. These groups have different support requirements.

...AND DIFFERENCES

We've successfully found enough similarities between organisational *raison d'être* and individual staff outlook to reassure us that any SAS professional could enter either of these two organisations and have a reasonable idea of the requirements for supporting the user community. To excel at the job, it's vital to respect

User Attributes	The Open University		CapitalOne	
	Academic	Admin	Analyst	Programmer
Population	12	40	150	1000
Mean Age	46	41		
Gender (%)	44/56	62/38		
Days SAS training p.a.	2	6	4	9

the distinct features of each environment. At a high level, then, we conclude that commercial and educational entities are motivated in similar ways, with groups of people doing similar jobs and using SAS in similar ways. Despite the similarities, cultural differences still exist between the educational OU and commercial **CapitalOne**. The OU is not driven by profit, indeed it would (paradoxically) be damaging to market penetration if a UK university was seen to be commercially motivated. Its operational units are the schools and faculties that make up various academic disciplines. However, the funding a UK university receives is dependent on 'market share'. The central administrative function of the university must direct and control the activities of the academic part of the institution to achieve their individual objectives while ensuring the overall objectives of the university are not compromised. Even though the OU has a small, disparate SAS community, the need for cost-effective IT support still exists. Supporting such a community is just as challenging as supporting a much larger, more homogeneous set of users.

Other notable differences stem from the 'ethnic' culture of the two organisations. **CapitalOne** is American to the core, and the OU is very British. We can laugh (or cry) at national stereotypes but they do have *some* basis in fact. Let's use a size 12 brush and say that UK users are likely to soldier on alone in the face of adversity, being generally more reserved. They aren't used to proactive IT support and can be irritated by unsolicited help. They generally mistrust central services (like the IS department) and organisation usually consist of

'island teams' within business units. This is compounded by the disaggregate nature in a university where there is little communication between business units (faculties) except where specifically facilitated.

The English are polite by telling lies. The Americans are polite by telling the truth.

- Malcolm Bradbury (1932-)

CapitalOne's culture, in the stereotypical American way, is highly diverse, collaborative and team oriented. Associates in the US offices come from all over the world. SAS users come from a wide variety of disciplines, and are part of a large, dynamic and innovative community. Many mechanisms are in place to facilitate knowledge sharing and easy access to help. While these stereotypes are not always true, it's important to remember that differences *will* exist in outlook and needs within the user community, particularly when they are spread across countries and continents.

An Englishman is a person who does things because they have been done before. An American is a person who does things because they haven't been done before

- Mark Twain (1835-1910)

So we find that these two organisations are vastly different, yet strikingly similar. Their cultures and SAS communities seem quite disparate, yet there is a remarkable resemblance from the SAS support point of view.

Let's look at an individual user's requirements upon rolling up to their desk on their first day at work.

WHAT USERS NEED

SAS is a complex and sophisticated piece of software. Any user, whatever their level or intended use needs start-up training and support. This includes not only use of the software itself, but information about corporate data, business models and analytical techniques, and someone to pursue resolution of technical issues, especially during deployment of a new SAS release. When **CapitalOne** enters a new country, great effort is expended to ensure new associates are acclimated to the company's unique culture. Start-up teams always include some associates from the United States. New associates from abroad frequently serve "internships" in existing US business lines. The OU has a more pragmatic approach to employee induction, with many skills picked up on the job. Both the OU and **CapitalOne** deem SAS sufficiently sophisticated and vital to invest significant time and training dollars bringing new users up to speed. New users are introduced to a more experienced mentor and provided some CBT training. Because of the OU's budgeting model, further training depends on individual departments. Progress is being made towards in-house training materials and cost sharing for on-site instructor-based training. **CapitalOne** has several in-house training classes developed and taught by Enterprise SAS Solutions, the internal support team and / or outside contractors. In addition, **CapitalOne** uses instructor-based training from SAS Institute, both in-house and at SAS training facilities.

For the new user, training in business knowledge is often as necessary as technical training. Because SAS is heavily used in the intelligence and reporting areas, the task of educating users about sources of data, platforms and general analytics frequently falls to the SAS consultant. Extra complexity arises when a user poses a problem that the consultant does not have the background or training to understand. **CapitalOne** addresses this issue by drawing its support team from a wide variety of backgrounds.

*If you understand, things are just as they are;
if you do not understand, things are just as they are.*

- Zen Proverb

Because of the scale of SAS software, users need a champion for technical issues. Most SAS contracts require a central point of contact between SAS technical support and the organisation. To most users, SAS just works – they are not be aware of the liaison and co-operation that is necessary to balance user requirements and infrastructure. The successful SAS support professional needs to be able to assess the impact of host and network issues on the end users and communicate this to the necessary technical departments. Users can't (and shouldn't) be concerned with the details of the underlying architecture. The SAS consultant must work closely with systems support staff in order to maintain SAS services (e.g. Integration Technologies, SAS/IntrNet, SAS/CONNECT, SAS/ACCESS, SAS/SHARE), as they may lack knowledge of SAS software. The SAS consultant keeps abreast of opportunities that arise when new SAS products become available, ascertains the fit with business requirements, communicates these findings to stakeholders, and helps acquire the requisite new skills for end users.

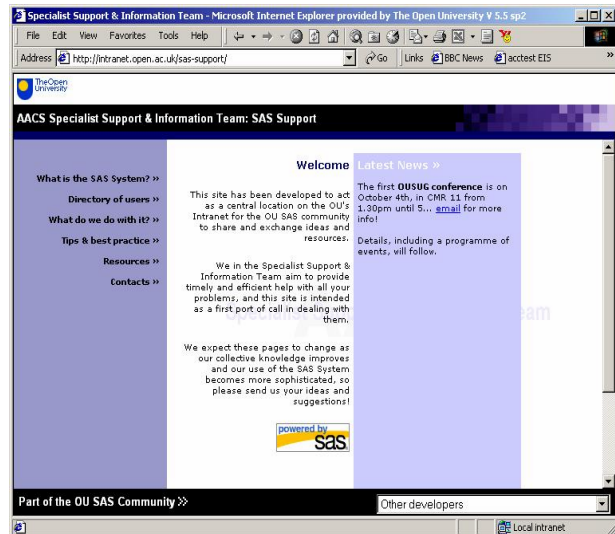
It's vital that users feel they have somebody to talk to about their problems! Well-constructed knowledge sharing networks (we mean social networks, rather than any technical solution) help teach users to fish for themselves, instead of calling the help desk for every question. A centralised, trusted source of help is priceless – but users have to know where to look. Web logs can be monitored to track common search terms and investigate the apparent gaps in knowledge they represent.

Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information upon it

- Samuel Johnson (1709-1784)

For more active knowledge sharing, consider establishing a user group. Activities can range from informal semi-regular gatherings aimed at networking, to full-blown professional conferences. **CapitalOne's** user group (**OneSUG**) sponsors monthly Brown Bag Lunch presentations, quarterly informal networking sessions, and an annual two-day SAS conference modelled after SAS Users Group International (SUGI), with three concurrent tracks, presentations by internal and external speakers, hands-on training sessions and user forums.

Of course, we all love a bit of code-cutting. Fortunately, there's always room for down and dirty programming, even for the loftiest SAS consultant. From our central



The corporate intranet can be used to distribute SAS community news, promote knowledge sharing, and provide a central repository for SAS resource

viewpoint, we can often see opportunities for new applications of existing technology, or for new products and features from SAS. We're also well placed to prototype these to 'pathfind' for user departments, and this creates a useful training opportunity, helping to build good relations with our customers. At the other end of the 'fun' scale is the practical problem posed by what happens when an end-user leaves and somebody else has to pick up their job. In addition to promoting best practices in programming and documentation and mentoring personnel replacements, fire-fighting support is often necessary.

WHAT THE BUSINESS NEEDS

Partisanship is our great curse. We too readily assume that everything has two sides and that it is our duty to be on one or the other.

James Harvey Robinson (1863 - 1936)

SAS is expensive and SAS skills are in short supply. Skills existing within the organisation must be broadly leveraged when possible. If Marketing needs a SAS practitioner with a financial background, they should be able to procure help without breaking down brick walls. The IS/IT department often (though not always!) sits outside the normal politics and power struggles of an organisation, as they provide facilities and support across business lines without preference for one business area over another. Thus, the cross-departmental support function is best situated within IS/IT. Good relations within the business and other IS/IT groups are essential. The job demands diplomacy, a gentle bedside manner and flexibility. The multi-skilled SAS consultant must combine all these interpersonal skills with technical authority.

Organisations can only benefit from having properly managed vendor relations with a supplier – in this case, SAS Institute. In the UK, universities are licensed under a collective bargaining agreement arranged by a body

called CHEST (The Combined Higher Education Software Team) is a not-for-profit negotiating body representing the FE and HE sectors). From the SAS point of view, it licenses the software either for academic (teaching/research) or administrative (public sector) use in the UK. This position allows considerable flexibility in negotiating software 'bundles', from the position of association for SAS with research projects, leading to juicy straplines on press releases: 'SAS in search for life on Mars'. The licensing picture is complicated a little by the nature of these projects; they involve many and diverse institutions, some commercial, some academic. SAS can and does 'gift' software to suitable collaborations of this kind, but this isn't an option for the commercial world.

CapitalOne's situation as a large multinational concern is very different. Their unique North American SAS license makes it cost effective and very attractive to leverage SAS in many business applications. While SAS itself is a multinational company, it functions more like a confederation of independent SAS companies acting semi-autonomously. International licensing becomes complex and tricky, making it difficult to realise economies of scale during periods of international expansion, as each new country brings with it the need to re-negotiate with the local SAS office without the ability to leverage **CapitalOne's** close relationship with SAS in North America. This can limit the cost-effectiveness, and therefore the use of SAS in international start-up ventures.

WHAT THE TECHNOLOGY NEEDS

We've already noted that users need a champion where it comes to technical issues with SAS. This is necessary to ensure availability of services and resources, as it is for any major software package. Sometimes, the converse is true – technical issues need to be publicised to the users and service outages planned for. In fact we can simply say that communication between the business and the technical community must be two-way. This can be difficult for an out-and-out techie – and even more difficult for someone with no technical knowledge at all. Ideally we need to be hybrid, business knowledgeable technical persons, or even technically savvy business folk. Nowhere is it more necessary to have a foot in both camps than during the process of SAS installation or a major upgrade. While business requirements define the type of installation and required modules and products, the technical infrastructure dictates the possible permutations. The skill lies in finding middle ground between the business and technical requirements.

THAT'S ALL VERY WELL, BUT...

So far, we've identified a pretty overwhelming host of demands on our resources. Different users have different needs, the software needs a nursemaid, and we have to keep an eye on the bottom line for the sake of our boss. CapitalOne and the OU have both made SAS a core part of their business strategy. In both cases, the effective use of SAS directly affects the well being of the organisation as a whole. How's a simple guy or gal to make sense of it all? What sort of person is the successful corporate SAS professional?

SO WHICH ONE'S THE SAS GUY?

An excerpt from the dictionary:

Archetype (n):

1. An original model or type after which other similar things are patterned; a prototype: "'Frankenstein'... 'Dracula'... 'Dr. Jekyll and Mr. Hyde'... the archetypes that have influenced all subsequent horror stories" (New York Times).
2. An ideal example of a type; quintessence: *an archetype of the successful entrepreneur.*
3. In Jungian psychology, an inherited pattern of thought or symbolic imagery derived from the past collective experience and present in the individual unconscious.

So, an archetype is a shorthand way of referring to a set of personal qualities that can be easily and widely grasped for the purposes of illustration. In this spirit, we present a few "hats" a multi-skilled SAS consultant should be prepared to wear:



Tinker:

The best of craftsmen, the tinker constructs and repairs solutions with great attention to detail and impressive skill. He knows every nuance of his toolset and the materials he works with.



Tailor:

Sews together budget, software, and infrastructure to provide solutions that perfectly fit the customer's needs



Soldier:

Champions the cause, works in the trenches, slogs through the wearying details to win victory over technical glitches.



Spy:

The shadowy power behind the scenes, who keeps abreast of activity across the organisation and the industry and monitors the effectiveness and efficiency of systems and procedures. Produces intelligence reports to keep his constituency informed.

CONCLUSION

A sizeable SAS community is likely to be disaggregate, representing a wide range of needs, skill levels and objectives. SAS software is complex and sophisticated, as reflected in the wide varieties of applications. Additionally, expertise in SAS often lies within the business and therefore outside the IT department.

If we're all 'Tinker' then we end up with a solution looking for a problem. And if we're all 'Spy' then we'd never get a proper handle on the technical solution to our business problem.

The professional SAS consultant must combine technical expertise, appreciation of business needs and well-developed interpersonal skills to support a diverse community and back end system administration.

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REFERENCES AND ACKNOWLEDGEMENTS

"Tinker, Tailor, Soldier, Spy" by John Le Carre - ISBN: 0340733950, available in an edition by Hodder & Stoughton, and ASIN: 9994122533 from Bantam Books

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CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the authors at:

Mark Jordan
CapitalOne Services, Inc.
Attn: 12060-0411
11011 West Broad Street
Glen Allen, VA 23060
Phone: (804) 967-8493
Fax: (804) 934-5001
Email: mark.jordan@capitalone.com
Web: www.capitalone.com

Richard Phillips
SSIT, AACs
The Open University
Walton Hall
Milton Keynes, UK
MK7 6AA
Phone: +44 (0)1908 858432
Fax: +44 (0)1908 858449
Email: R.H.Phillips@open.ac.uk
Web: www.open.ac.uk