

SOA and Growth Markets

A review of best practice and adoption reality

Despite having clear benefits for many organisations across the globe, Service Oriented Architecture (SOA) has been a hard concept to grasp for many others. What are the experiences of organisations in growth economies and how do these relate to SOA in general?

Jon Collins and Dale Vile, May 2009

KEY FINDINGS

SOA is as relevant in growth economies as anywhere else

When researching the economies covered by this study, a clear relationship was apparent between certain contextual criteria and an organisation's affinity to adopt SOA. Notably, we see positive relationships between how IT aligns with the business, the organisation's willingness to embrace change, and the acceptance and/or adoption of SOA. This is a similar picture to that we have seen in more established economies such as in Western Europe.

The principle of SOA is sound, but the practice is still relatively immature

Only a subset of the organisations researched report comprehensive experience of SOA, in terms of having completed more than one project. As such, it is unsurprising that the level of competence is seen to be relatively low. All the same, all the countries researched did demonstrate significant levels of early adopter activity. Interestingly, the expected benefits professed by organisations yet to adopt SOA, were different to the benefits achieved in practice by those with experience.

Early adopters see SOA as more about improving IT systems, than impacting the business

Besides the organisations that profess little interest in SOA as defined, we can identify two main categories of SOA adoption. The first concerns more how SOA can be seen as a platform, enabling better use of existing IT systems to deliver new and improved application functionality. Building on the first category, the second sees SOA as the basis for the delivery of flexible IT services, both enabling and enabled by a stronger relationship with the business.

Legacy IT organisations are potentially missing a trick when it comes to SOA

There is a clear level of disinterest in SOA from the group of respondents that also acknowledges a large amount of legacy equipment and software in place. However, the challenges faced by this group – such as how to improve application integration and delivery – are fundamentally those for which SOA was designed. It is likely therefore, that this, 'legacy' group has as much to gain as other organisations when it comes to SOA adoption.

Practical lessons can be learned from more experienced organisations

Organisations further down the SOA path can help us understand the necessary pre-requisites for SOA adoption, not least the existence of a pro-active relationship with the business and the ability to think and collaborate in terms of services. In addition, we can gain a clear picture of how different sources of information can help, depending on the stage an organisation has reached with regard to SOA understanding and adoption.

The research upon which this report is based was designed and interpreted on an independent basis by Freeform Dynamics. Feedback was gathered from 246 IT and business professionals in medium and large organisations across Russia, Romania, Czech Republic, Poland, Saudi Arabia, United Arab Emirates and South Africa, in late 2008. The study was sponsored by IBM.



Introduction

Despite the fact that much has been written about Service Oriented Architecture (SOA), there are still plenty of people and organisations who have very little idea what the term means, or whether it is relevant to their own needs. Before we start, then, it would be useful to capture what we mean by SOA. To keep things as simple as possible for this study we decomposed SOA into the following three statements:

- Service Oriented Architecture is an architectural style for structuring business applications as a set of independent, loosely coupled software elements, known as services.
- Such services are composed (orchestrated) into composite applications, promoting reuse and reducing IT complexity.
- Resulting applications are seen to be more flexible, such that they can support a company's ever-changing business processes end-to-end, and across functional units (departments).

SOA is likely to be a more familiar term to those who develop software applications, and in previous research studies[1] we have noted that many may be familiar with certain elements of the above definitions, without knowing them as SOA. This research reports considers how such views map on to the needs and aspirations of certain growth economies, notably:

- Russia
- Romania
- Czech Republic
- Poland
- Saudi Arabia
- United Arab Emirates
- South Africa

The economies represented here are diverse, but they can act as a counter-point to other geographies such as the USA, the UK and other Western European countries, when considering emerging technology areas in general, and SOA in particular.

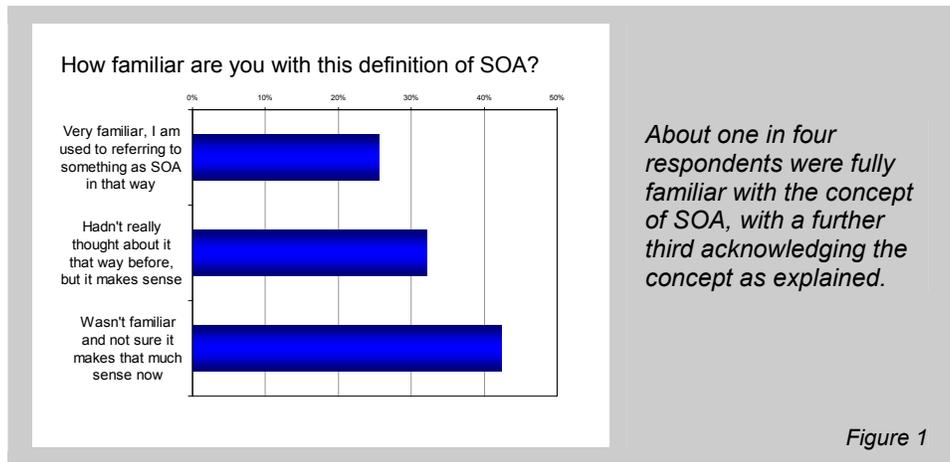
In this report we were less concerned with whether specific geographies were ahead of, or behind others. Rather, we sought to answer:

- Whether the lessons already learned in Western geographies also apply to growth economies
- How the specific characteristics of growth economies impact on the perceptions and adoption of SOA

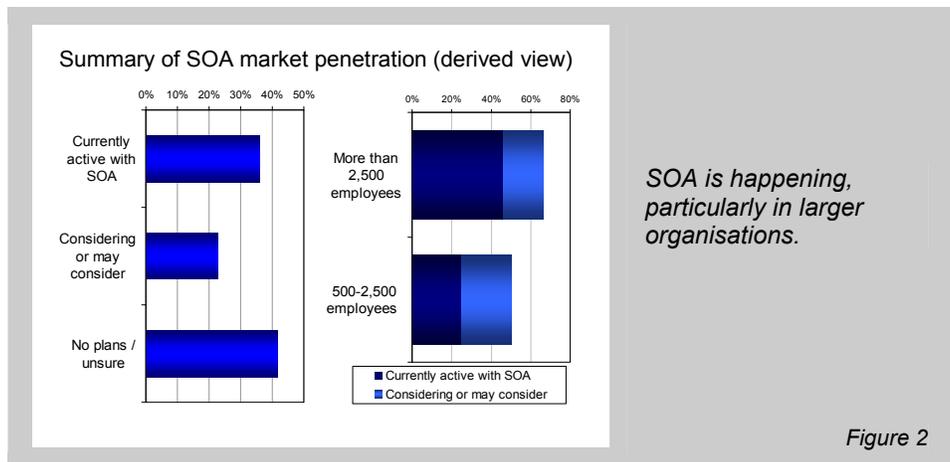
In answering the above two questions for growth economies in particular, this report draws conclusions that apply to organisations across the globe.

The world view of SOA

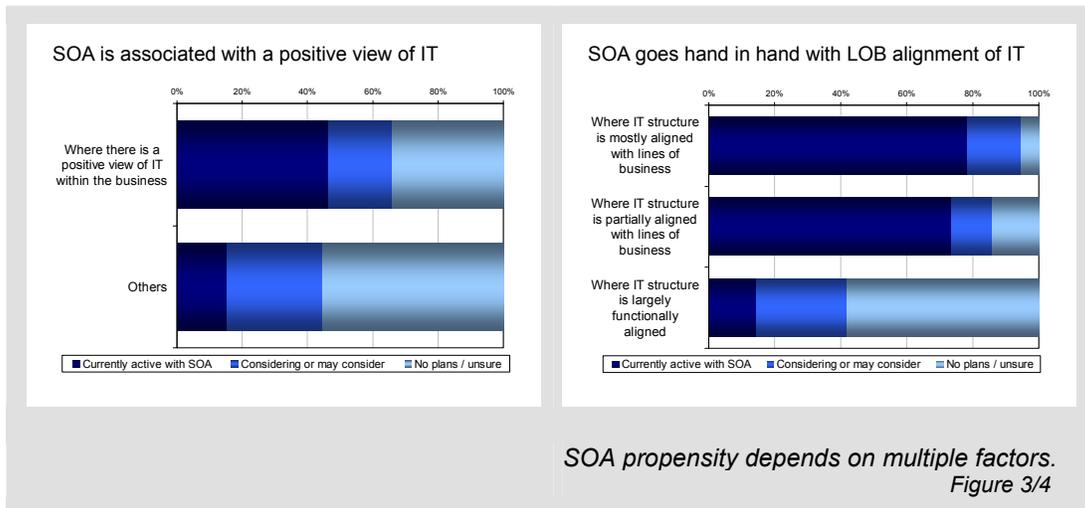
As we have already said, terms like SOA are open to abuse and misinterpretation. So how well did the definition described previously go down in the growth markets we researched? As shown in Figure 1, around a quarter were familiar with the definition as presented, and a further third felt the definition made sense – which is consistent with, if a little lower than the findings of previous studies cited.



This result is also reflected in the propensity for the organisations researched to adopt SOA. We asked a number of questions on this topic, notably around whether SOA was currently in use, and if not, what might the timescales be for its adoption. Figure 2 presents a composite view of these responses: note how adoption is significantly higher in larger organisations, which is consistent with the different challenges faced by this group compared to smaller companies.



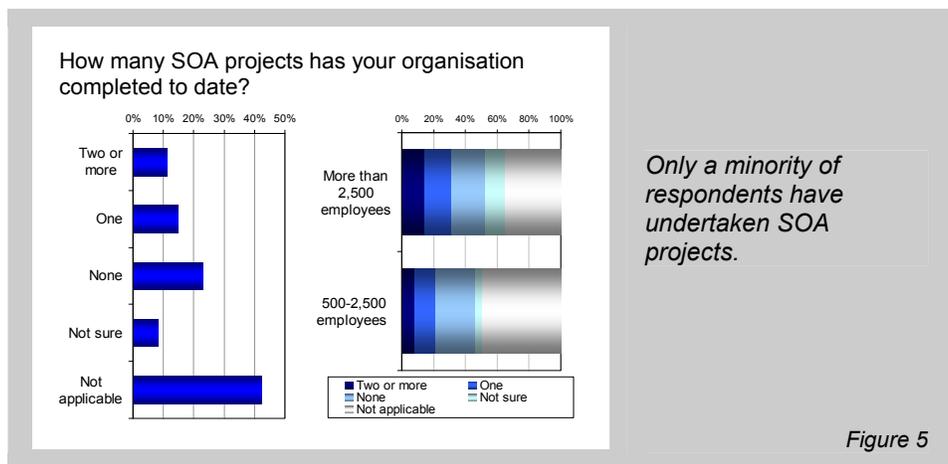
This view is reflected across the regions surveyed, and so it gives us a good starting point for further analysis. In previous studies ([1],[2]) we have found positive 'affinity relationships' between behavioural and organisational characteristics of organisations, and their propensity for SOA, and it is notable that we see similar relationships in the growth economies researched. Figures 3 and 4 show the relationship between SOA uptake and (a) how IT is viewed by the business, and (b) how well aligned IT is with business functions.



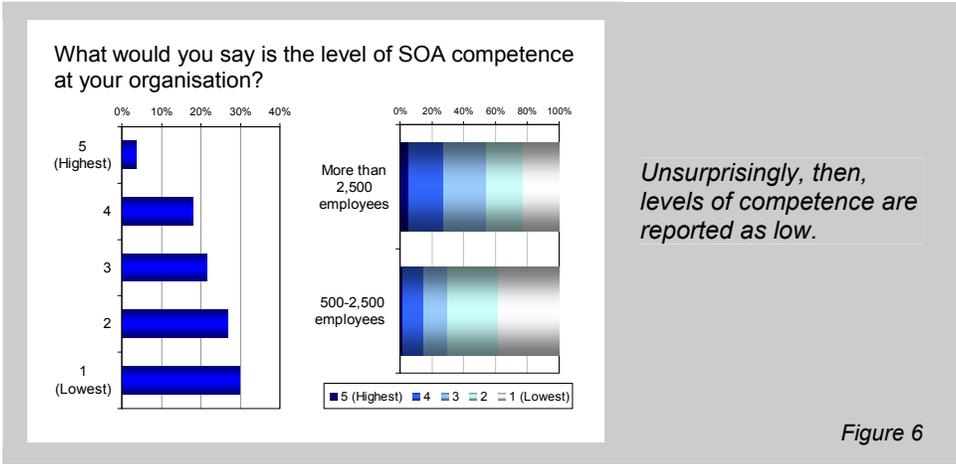
These clear relationships should not be considered purely in terms of cause and effect as the linkages can be difficult to decipher. Rather, we would make the general point that SOA can be tightly associated with organisations that are more mature in how they liaise with the business to deliver IT services. That's the principle – so what's the practice in growth economies?

The Emerging Picture of SOA

While the general picture about SOA is quite positive in the geographies researched, we can see from the research sample that these are still early days for deploying SOA. Only a minority of respondents have conducted two or more projects, and over 40% have no plans at all for SOA. As we have seen in previous studies however, SOA penetration increases for larger organisations (Figure 5).



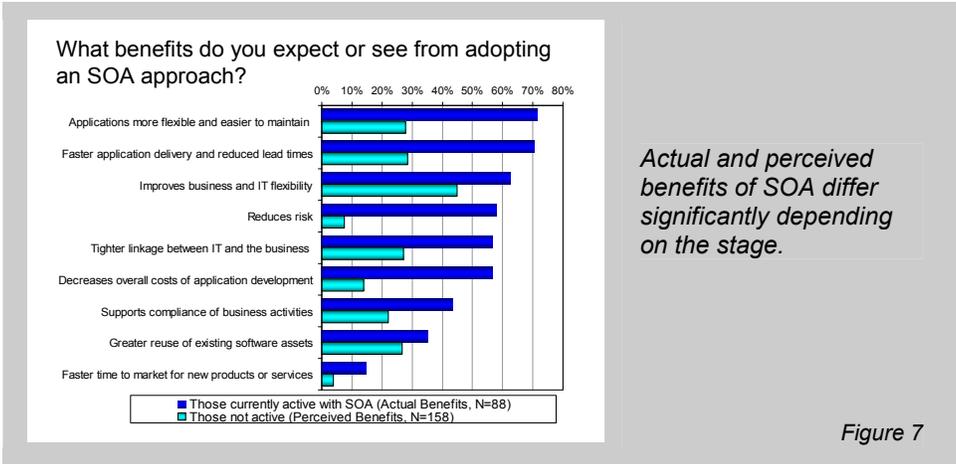
We shall revisit the question of SOA applicability later in this report, but first we need to look at SOA competence. When we asked the subset of 'early adopter' respondents (a total of 88 only), most alluded to the presence of a competency gap (Figure 6).



While the reported level of competence is low across the regions researched, this does give us a view on where efforts should be focused. Growth economies are clearly still in the 'early adopter' stage when it comes to SOA, and may therefore require different kinds of assistance to those organisations that are further along on the SOA journey – notably in education about the concepts in principle, support with building appropriate business cases, and prioritisation as to which initiatives and projects might benefit from an SOA approach.

SOA benefits vs adoption

To help understand how best to proceed, we can gain some good insights by comparing the differences between more seasoned adopters of SOA and those only just starting on the path. In Figure 8, we compare the *actual* benefits seen by those currently active with SOA, with the *perceived* benefits expected by those who are not active.

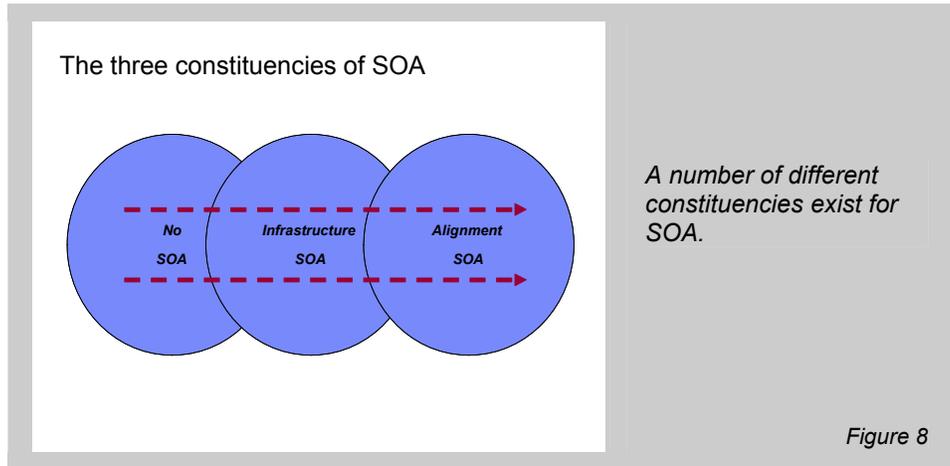


What is interesting is how the 'currently active' sample majors on IT specific criteria rather than what could be viewed as IT-business alignment criteria. This is an important finding, and bears comparison to some of the conclusions of previous studies, as discussed earlier. We know that IT-business alignment benefits are being achieved by those with more experience of SOA, and from Figure 8 we can see how such benefits are also seen as an aspiration of those yet to adopt SOA. We can surmise therefore, that SOA adopters tend to work through a phase of making SOA work in IT, before using it to support the IT-business relationship.

With this in mind we can consider three stages/constituencies with regard to SOA:

- Stage 1 – those with no SOA in place
- Stage 2 – those adopting SOA within the IT infrastructure
- Stage 3 – those using SOA as an element of IT-business alignment activity

Such constituencies exist as a continuum (Figure 8).



It's important to point out that none of the above stages are necessarily wrong – there are undoubtedly places where SOA can only play in a limited fashion, if at all. Equally, it would be difficult for 'Alignment SOA' to exist without first having worked through a stage of 'Infrastructure SOA'. There are certain drivers and gating factors for each stage, as shown in the table below.

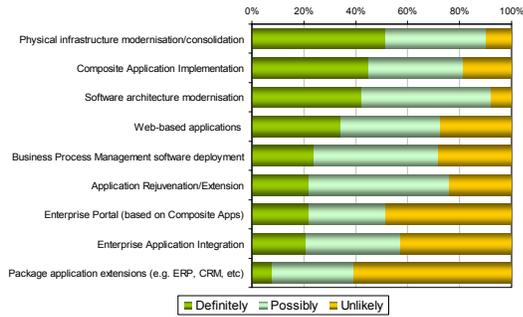
| | Drivers | Gating factors |
|--------------------|---|--|
| Infrastructure SOA | The need to integrate existing and new IT systems | Imperative to gain an architectural view of IT |
| Alignment SOA | The need to engage better with the business | IT-business dialogue in place Existence of a services mindset |

Given this view, we would place the majority of the sample researched as between Stages 1 and 2 – that is, between 'No SOA' and 'Infrastructure SOA'. This view is also reflected in where the respondents see the applicability of SOA (Figure 9): the view is more on how SOA can work within the application architecture to deliver specific applications, than to work across the architecture to enable integration between applications.

Note that this chart is normalised based on the percentages of respondents actually planning or executing each activity.

Which project types would you say are candidates for the use of SOA?

(Normalised, i.e. percentages relate to those executing or planning each activity)



There is a variable understanding of where SOA is applicable – priority areas are application delivery and modernisation.

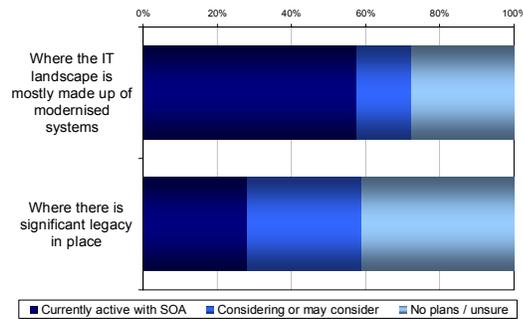
Figure 9

As a final point on the chart, it is worth remarking that packaged application extensions are at the bottom of the list of candidate projects. Given the amount of effort packaged application vendors have put into building SOA capabilities into their own application architectures, it will be disappointing for them to note how such extensions are seen as the lowest priority.

SOA and Legacy Thinking

Another finding concerns how organisations with more of a dependency on legacy systems, appear less likely to adopt SOA. As shown in Figure 10, organisations with more of an investment in modernised systems, are roughly twice as likely to have adopted SOA as organisations with significant legacy in place.

Legacy can act as a brake on SOA adoption



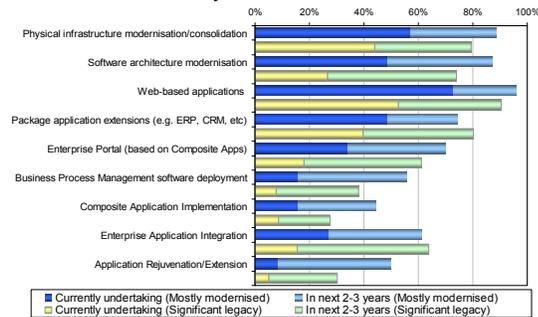
Legacy-rich organisations are less likely to see the relevance of the SOA approach.

Figure 10

Many of the challenges faced by organisations with significant legacy in place are the kinds of issues that SOA can address. This is not the place for a deep dive on IT architecture, but we know from other studies that organisations are consistently looking for ways of leveraging legacy assets, for example to add new functionality to existing systems, to expose certain capabilities in the form of Web-based services, or to integrate legacy data sources with newer applications.

As we can see from Figure 11, some of these initiatives (in particular the drive for Web-based applications, and modernisation of the software architecture) are significant across the economies researched. Interestingly, when we compare the responses of those organisations that have more significant quantities of legacy systems, we can see that there is a smaller, yet still sizeable amount of activity in these areas.

Which of the following kinds of projects listed below are you currently undertaking or likely to undertake within the next 2 or 3 years?



Projects being undertaken are the kinds of projects that might benefit from SOA.

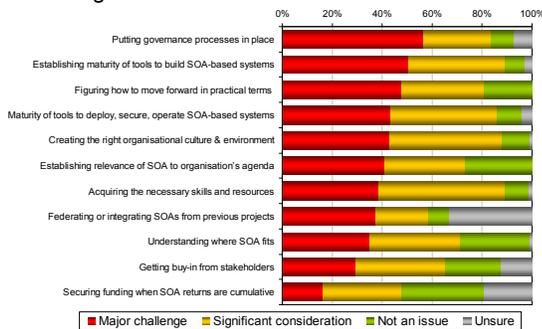
Figure 11

Given these factors, it might well be that organisations with significant legacy investment are missing an opportunity, either through a lack of awareness of what SOA can bring, or through a lack of will to change.

Taking the first steps with SOA

So, what are the challenges faced as the organisations researched adopt SOA? We can learn from the early adopter group (88 respondents) that the more significant difficulties lie in organisational and governance issues, as well as in technology (Figure 12).

What do you see as the most significant challenges to moving forwards with SOA?

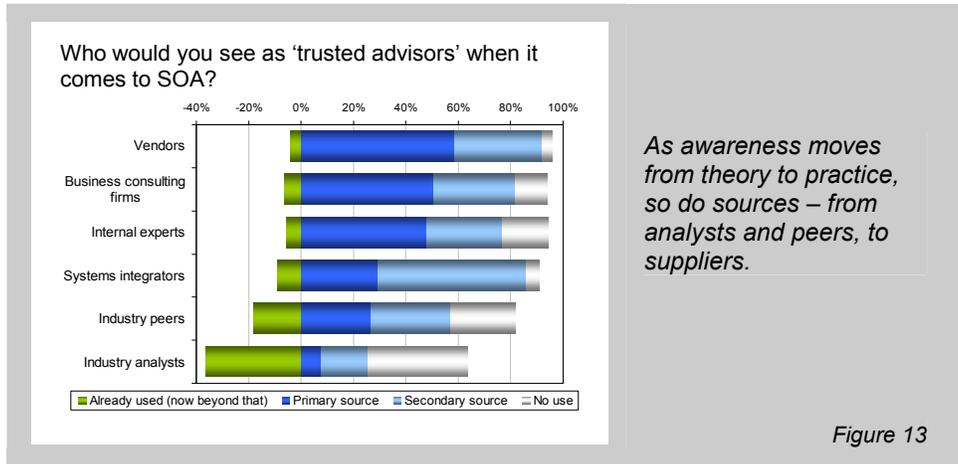


The challenges highlighted by early SOA adopters in the region are many and varied.

Figure 12

Dealing with the governance and organisational issues can be a challenge for any company, as they tend to imply the need for some type of change management initiative. Without over-blowing this point, the essentials of any such initiative include understanding complex dependencies, managing risks, and gaining buy-in from parties across the organisation. These are no simple tasks, particularly as whoever is driving the SOA initiative needs to be very clear about what the initiative is to achieve, and how.

From Figure 13 we get an insight into how to assist such a process. In the early stages, the task is more around awareness raising and getting initial buy-in, in which case analyst reports and peer experience can be very helpful. As the process moves from theory to practice however, organisations move more towards the practical advice that can be supplied by internal experts, consulting firms and vendor partners.



Discussion and Conclusion

While SOA is still at an early adopter stage in growth economies, there is nothing to suggest in principle that these regions should be any less successful in its adoption. In practice however, a number of organisations may find it difficult to see beyond their existing legacy. Of course some businesses may have little need to change what they already have in place, but where modernisation or integration is necessary, SOA does provide a path.

When implementing SOA however, a key message is: “don’t walk before you can run.” A logical first step with SOA is to see it as a mechanism for improving the application infrastructure; by getting this step right, an organisation will be better placed to reap some of the more esoteric rewards that SOA can offer. It is worth revisiting the third statement in our definition of SOA: “Resulting applications are seen to be more flexible, such that they can support a company’s ever-changing business processes end-to-end, and across all functional units (departments).” First work on the applications, is the message, and IT-business flexibility will follow.

While SOA is not something to be considered lightly, it is worth seeing it in the context of IT as a whole. The history of computer science may have included a number of game-changing innovations – the arrival of the Internet for example, or mobile phone adoption. However, behind the hype there has been an evolutionary process of improvement, from considering applications as monolithic and stand-alone, to an architecture where software units can communicate with each other and deliver services to the business as a result. This evolution has taken place because it is a better, more flexible way of building applications than the monolithic approach.

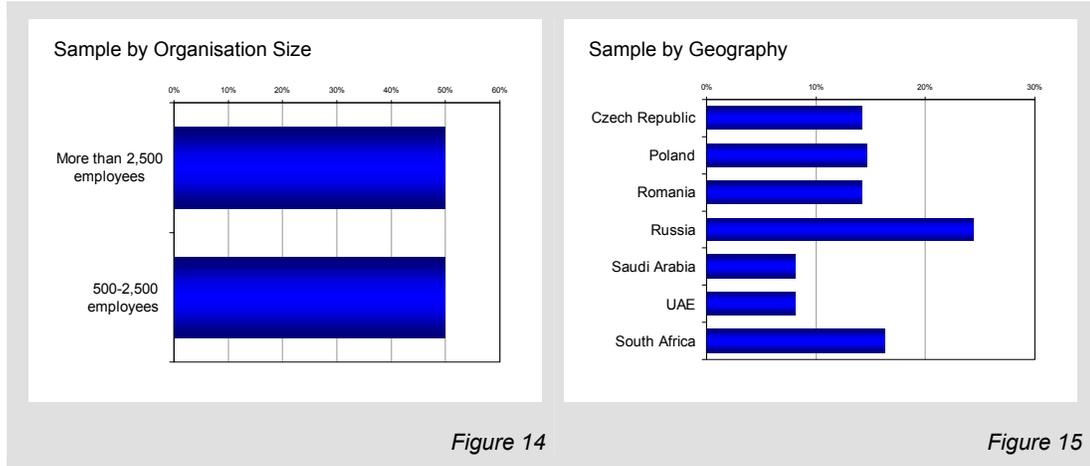
In conclusion then, SOA should not be considered as a ‘new IT trend’ to be seized: this would be missing the point. It is up to each organisation to make the decision on whether SOA is right for them. However, it should not be simply avoided, as experience shows that it offers an improved way of building applications, and its benefits are as applicable in growth economies as any other geography.

Appendix A – Research Sample

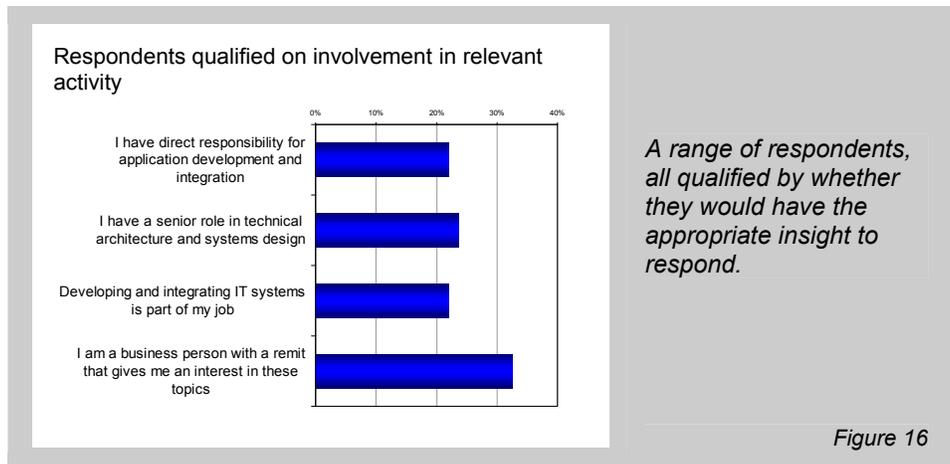
The research sample was 246 qualified respondents, spread evenly across:

- Sectors: Industrial, Financial Services, Distribution, Communications and Public Sector
- Job roles: Business Manager, Senior IT Manager and Senior Architect (or nearest equivalent).

Respondents were also distributed as shown in Figures 14 and 15 below.



In addition, care was taken to ensure respondents were suitably qualified to respond (Figure 17)



Appendix B – Referenced Work

[1] "Service Orientation in Business", Jon Collins, July 2008
(<http://www.freeformdynamics.com/fullarticle.asp?aid=632>)

[2] "IT on the Front Foot", Jon Collins and Dale Vile, April 2008
(<http://www.freeformdynamics.com/fullarticle.asp?aid=318>)

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