

Open source – and why it matters in financial services

The financial sector is being transformed by digital technologies. Mark Hermeling considers how open source software is driving the transformation

Open source software is software whose source code is made freely available and may be redistributed and modified according to the requirement of the user. The roots of the approach lie in the individual passion and enthusiasm of groups of software developers and programmers.

Even today, the term is widely associated with the principles of cooperation, collaboration, transparency and community-oriented development, developers enhancing each other's work and exploring new initiatives and innovations together in a positive spirit of partnership.

Yet, at the same time open source has evolved from collaboration at the cutting-edge of computing to firmly establish itself as a mainstream commercial model. Today, we are seeing a rapid and fast-accelerating uptake of the software by businesses.

According to a recent report by research firm, [MarketsandMarkets](#), the global open source services market size is expected to grow from US\$11.40 billion in 2017 to US\$32.95 billion by 2022, at a Compound Annual Growth Rate (CAGR) of 23.65% during the forecast period (2017–2022).

Historically, financial services has not been at the forefront of this growth but today it is seeing strong growth in open source software take-up. Over the past decade, open source has been widely used to help run back-end servers, in database technologies and in analytics. During the past 12 months, however, adoption has reached a turning point in this sector.

What's driving growth today?

Partly, this is being enabled by a growing focus on digital transformation across the sector. According to a 2019 survey by BDO, 97% of financial services firms are making some sort of inroads on digital transformation - whether

they're in the process of developing a strategy or already implementing one. And 21% list developing a digital transformation strategy as their top digital priority.

Institutions are now using more open source partly to help them reduce costs as they scale. Technological innovation and automation is required to help them to achieve this and open source helps with accelerating the pace of innovation, providing an opportunity to leapfrog legacy technologies. Not taking this approach puts firms at a disadvantage and necessitates them playing catch-up with their industry peer.

In addressing a move to open source, firms should look to leverage the help of curated, open source solution providers

Given the crosswinds still impacting the financial services industry, this will be all but impossible. Competition is high with more industry consolidation to come. At the same time, firms that are essentially fintechs with a banking license, ie. challenger banks and asset managers, compete with traditional firms and have often leapfrogged their high-cost, legacy infrastructure.

However, financial services firms are also moving to open source because they are seeing productivity benefits from the approach that allow them to deliver projects more quickly. An increasingly broad set of community-maintained functionality has become available and there is a growing ecosystem and skill base that both solution providers and internal IT departments can leverage, making it easier for them to attract and retain talent.

As well as helping clients reduce software and infrastructure costs, the increasing adoption of open source is fuelling innovation across the sector and has become increasingly key for firms across financial services. Open source is ideal to use in sandbox environments and laboratory environments, often leap-frogging existing legacy technology stacks.

Open source helps firms prototype and run proof of concepts of new products and services out much more cheaply. In other words, the threshold for sandboxing different approaches has become a lot lower, driving up the propensity to innovate. The psychology of engineers also often fuels further innovation.

Typically, they like to work on cutting-edge projects. They also often appreciate the peer recognition they will get from contributing to open source projects. It is also the case that using the software makes it easier for firms to start small on new projects without having to go through a protracted procurement or tendering process.

This in turn can deliver crucial time to market advantages, accelerate the development process and – through lower cost - quickly build a portfolio of innovative projects. Across the financial services industry generally, we see a host of open source database technologies emerging that help to collect, collate and crunch relevant data.

On the client interaction side, we have seen a lot of work done using open source on visualisation and helping with customer interaction as well as the technology being used in opening up transaction histories to clients.

There are a lot of start-ups in the financial service sector also that sometimes compete with the more established players and sometimes provide components that are used by the banks and asset managers themselves. This latter group in particular, benefit from open source technologies used to underlie the user interface to clients.

We are also seeing significant innovation permeating the risk and financial modelling side of the business. In addition to all this, the use of open source helps firms avoid all the pitfalls and dangers of 'lock-in' associated with proprietary tech.

Another reason why we have reached a tipping point driving the ongoing usage of open source in financial services is the growing acceptability of cloud infrastructures to firms across the sector, especially compared to five years ago. Adopting open source typically means deploying cloud native apps and migrating workloads to public or private cloud built on open source infrastructure.

Open source often provides foundational technology, including programming languages, libraries and database technologies that can provide a rich foundation to quickly develop applications. That, coupled with an increase in the uptake of managed services options, is making open source still more attractive to financial services businesses – and is further driving innovation within these organisations.

The use of open source also helps to enhance systems security, including cyber-security, for financial services firms. That's because if an organisation is using open source technology that is being leveraged by a large community, it is unlikely, statistically speaking, that it will be the first to catch a bug.

Fuelled by the cloud

In addition to the drivers highlighted above, the uptake of open source by financial services firms is also being driven by the growing prevalence of cloud resources. In fact, the two technologies often go hand-in-hand. One of the reasons they are such a good combination is the fact that they came of age together. Open source NoSQL database technologies like MongoDB and Cassandra are highly-scalable, flexible and good for big data storage and processing, all qualities that the use of the cloud can further support.

The two technology areas complement each other really well. Traditional applications, using eg. a commercial RDBMS as a database, can of course be shifted to the cloud but will not necessarily benefit from scale advantages and the more flexible way of provisioning resources that cloud infrastructure brings.

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Firms can maintain cost-effectiveness, while tapping into the expertise of the open source user community. Also, deploying open source in the cloud allows firms to adopt a more agile opex-based model, sourcing capacity when they need it, which in turn leads to lower capital expenditure.

In addition, open source technologies have to be weighed against the increasingly deep and proprietary tech stack offered by the main cloud providers as they can provide some insulation against the problem of vendor lock-in. That, coupled with an increase in the uptake of managed services options, is making open source still more attractive to financial services businesses and further driving innovation within these organisations.

Why managed services matters

A managed services approach can, after all, play a key role in helping financial services firms overcome the challenges they may face today as they migrate over to a cloud-based approach. Firms will, for example, need to ensure they are picking the right open source projects where they will attain optimum value and also ensure they are using the right open source tools.

Just as in the world of commercial software, there will often be a range of competing tools available to them which could potentially be used to tackle a problem and choosing the right one is critical. Some technologies, such as Python, Spark and Cassandra, have caught enormous momentum. Others may have lost it. So it is important that firms do their normal sourcing homework.

Aside from these more general challenges, financial services firms will be likely to have more specific data management issues that they need to address. They may well want to use NoSQL database technology that came out of open source for data management purposes. Cassandra is good for time series data modelling, while Spark is effective as a data processing framework.

As financial services firms look to get more out of their data and source more data, data scientists need to be properly equipped both with the requisite data preparation and data quality solutions as well as with the tools they would need to analyse the data and test their data models.

In addressing a move to open source, firms should look to leverage the help of curated, open source solution providers that both understand the cloud and use open source themselves and therefore benefit from some of the advancements that have been made in order to deliver cost-effective scalable solutions.

It is important in this context to look at the breadth of innovation and of the proposition a provider is offering more generally. To tap into far-reaching data management benefits it is worth seeking out firms and solutions that offer a broad data management proposition encompassing not just core data sourcing and mastering but also exploration and discovery, leveraging the innate benefits of the Cassandra/Spark stack.

Providers can also help with the consultancy element. While many banks and asset managers have caught on quickly to the potential offered by open source, providers can help here by explaining the choices they have made when it comes to the open source components they use.

By partnering with a commercial provider, firms will also be able to access the support they require. In other words, instead of taking on the onus for leveraging the technology alone, the onus will be on the provider to deliver the underlying technology, which will often also involve using various cloud infrastructure providers.

All this will enable financial services organisations to optimise their deployment of open source and get the most they can out of the technology today. ■

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