



The Blob

Why banks need to adapt their technology DNA

Wall Street's current business leaders strongly disagree with their portrayal as society's villains. Rather than ruthless Masters of the Universe, they view themselves as moral warriors battling it out in the financial markets to provide advice, liquidity and creative solutions to their global clients. They would rather be perceived as Steve McQueen's character from *The Magnificent Seven*: tough, ethical, community-minded, and willing to stand up to the forces of evil.

But the Steve McQueen movie that more closely represents Wall Street's current challenge is his first: *The Blob*. In this 1958 B-movie classic, a meteorite lands on earth carrying a giant amoeba-like alien, which terrorizes the small community of Phoenixville. As the alien devours screaming locals, it grows at an alarming rate, eventually attacking the movie house and the local diner to satisfy its ravenous appetite. Everything the townspeople do to thwart the monster makes it bigger and nastier, until the hero, played by Steve McQueen, valiantly comes to the rescue.

The alien blob that is currently terrorizing Wall Street's denizens is its technology budget. Every year it grows and grows, eating up all the discretionary dollars available for product innovation and revenue expansion. Wall Street spends more on technology than does any other industry as a percentage of its revenues (6.9%). Global technology spending by financial services institutions is expected to reach \$363.8 billion in 2011, according to research house Celent, with spending by banks increasing by 4.1% more than 2010.

Since the 1960s, Moore's Law has accurately predicted the doubling of transistors per chip every two years. This has led to a dramatic reduction in the price-performance of hardware technology. A simple \$100 camera today has ten times more compute power than the Apollo 11 capsule that landed on the moon in 1969. The price of technology hardware—servers, storage, networks—has reduced dramatically over the last decades. So why does the cost of managing technology for banks keep rising? The real cause is not the hardware; it's the proliferation of software and the complexity of banks' systems architecture. What is termed the "technology DNA" of these global banks has become a tangled web of spaghetti systems: a big blob. And it keeps on growing.



The technology arms race in financial services started more than 20 years ago, and it shows no sign of abating. In addition, the regulatory environment adds significant burdens in terms of people, data, procedures and record keeping. A typical global investment bank operates approximately 3,000 to 7,000 major systems with an annual technology budget of \$4 billion to \$7 billion. Up to an astonishing 75% of this annual budget is spent on keeping its old systems running. From the rest of these tech-budget dollars, the bank needs to perform all its regulatory and mandated projects, before it can invest one cent in any new technology initiative. The old oaks in the forest are crowding out the new saplings, while the regulatory creepers are sapping the growth nutrients from the soil. Ask bank execs and they will all clamor for more investments in flexible, innovative technology so they can compete, today. But like the healthcare debate in the US, the question is one of matching unlimited demand with a limited supply of resources. The only way to square this circle is to radically reduce the complexity and cost of the existing systems and reinvest the savings in modular, standard components that can be reused an organization. This requires an advanced technical DNA that can be replicated and adapted. The banks need an evolutionary technology strategy.

If you try to map the legacy systems for an investment bank, you will notice three things. Firstly, no one really knows how many applications exist; secondly, if they do have a good inventory, they don't know how the applications interconnect; and lastly, there is often no association between these applications and their hardware, data consumption, networks, or storage media. In addition, there is little understanding of how these systems map to business processes, projects, or regulatory programs, let alone what their fixed or variable costs are. In short, these major Wall Street firms are flying blind, with no dashboard instrumentation by which to navigate. Their technology is also very expensive and fragile.

The airline sector has some startling similarities to the current state of investment banking: Both businesses suffer from overcapacity, high regulatory burdens, expensive staff contracts (though pilots are a lot cheaper than traders), and high fixed costs of technology (planes and trading systems); and each consumes a lot of money (in kerosene and regulatory capital) to keep the planes flying and the trading floors buzzing.

But the technology to support an airline has become much more commoditized and inexpensive over the last couple of decades. New airlines can launch with cost as a competitive weapon. Boeing, Airbus, Bombardier, Embraer, and a handful of airline reservation systems have become industry standards

focused on efficiency and safety. For investment banks, there are very few off-the-shelf technology solutions? Over the past 20 years, banking technology has been hand-grown, hand-rolled and hand-smoked. There are many standardized component technology manufacturers: Thomson Reuters, Bloomberg, IBM, Sungard, Oracle, Microsoft, but assembly and customization of new technology is mostly performed by in-house developers, hosted in bank-owned data centers, and supported by internal database administrators. And due to the complexity of the spaghetti systems architecture, testing processes have lengthened, considerably slowing down all new projects.

Most innovation on Wall Street occurred over the last twenty years, where as each firm tried to leap-frog its competitors, racing to buy teams and building technology before product margins commoditized. New businesses and product teams arrived on a monthly basis during the peak market cycles: Peruvian Banana futures, Mongolian Yak options, Philippino residential mortgage securities, Belorussian credit default swaps. Teams of technologists— parachuted in to quickly rig up trading systems, create analytical libraries, install middle-office risk systems, implement back-office processing engines and operate financial ledgers—no expense was spared. But after the guaranteed bonuses were paid, the front-office team be poached by another bank, and these costs would become stranded. Repeated acquisitions lead to an archipelago of legacy systems. It wasn't unusual to end up with a museum of technology running on 50,000 to 200,000 physical devices in 50 data centers scattered all over the world, operated by more than 15,000 technologists.

During the past decade, these technologists have been beaten down, kicked around, outsourced and offshored. Some Chief Information Officers (CIOs) have been layered three levels down the organization from their CEOs. CIOs have reacted soberly by attacking many of the cost inputs: reducing the cost of labor, setting up captive technology centers, reducing the number of vendors, and aggressively renegotiating contracts. They have also moved to more standardized, shareable technologies: service-orientated architectures, virtualization, blade technology, middleware, and data-center consolidation. But the costs continue to rise because the number of systems keeps growing. Each system behaves like a newborn babe. When it's small, it's very exciting. But as it grows, it requires constant care and feeding—regular software upgrades, new hardware, new database versions, emergency patches, more upstream and downstream data feeds. To create a truly global system from a regional one may require a wholesale re-engineering of its architecture to deal with multiple times zones, multiple currencies, multiple entities

and multiple languages. Once the system reaches its teenage years, the trouble really sets in: There are fewer senior developer nannies around who really understand the original code base and have the patience to babysit an unstable global system now running 24/7.

Banks need to gain control over their complex systems to reduce costs and allow them to invest in next-generation architectures, But Wall Street's focus on quarterly earnings works against long term planning. As soon as a bad quarter occurs, all projects are canceled and headcount slashed.

The transformation of a bank's shanty-town technology requires the same political will and architectural blue print planning that allowed Baron Georges Eugène Haussmann to modernize Paris under Napoleon III. The structure of Paris in the 1850s had not changed much since the Middle Ages: Narrow, interweaving streets, cramped buildings, little fresh water, and open sewers resulted in disease-ridden conditions and constant gridlock. In the 1830s, a cholera epidemic killed more than 20,000 Parisians. Haussmann's *grand projet* encompassed all aspects of urban planning, both in the center of Paris and in the surrounding districts. Streets and boulevards, facades, public parks, sewers and water works, city facilities, and public monuments—all were regulated. It required a commitment over many years between the public and private sectors to set standards and, most importantly, to enforce them.

But when Wall Street executives are on average six months from their next bonus, they operate with a *rentier* mentality. No one has an incentive to bulldoze the technology ghettos, to create open architectures or regulate system standards. Yet this is exactly the sort of courage required. Two distinct changes need to occur: the development of a partnership-based operating model, and a complete understanding of existing technology assets and future investments.

This foundational mapping of a bank's technology DNA is absolutely necessary, but still not sufficient to solve its problems. Ultimately, to reap the full rewards from enterprise transformation, banks also need to introduce a new operating model that starts at the top of the house with the CEO and the business heads. Twenty-first century bank executives must develop a strong emotional connection with their technology assets and investments. Empowered chief operating officers then have to engage actively with CIOs, operations, risk and finance managers to design and implement a technological version of Paris—avenue by avenue, boulevard by boulevard. The current approach of cautiously trimming budgets will only result in a slightly cheaper shanty town. To transform rather than merely to trim requires a business-led



operating model where business heads really roll up their sleeves and become committed, not just occasionally involved. Only through disciplined decision-making by the business can the appropriate dialogue take place. In a partnership model, this requires tradeoffs, enforcement of standards, judgment over disputes, and an unrelenting focus on driving out inefficiencies, increasing innovation and reducing risk.

A handful of firms have started to address this problem in a systematic manner: BlackRock and Goldman Sachs are two that come to mind. Both have a recent history of partnership culture, which may be the differentiating factor. Other businesses in process-intensive industries where leaders take technology seriously to create competitive advantage include WalMart, CapitalOne, FedEx, Amazon, and BMW.

If the current crop of Steve McQueen's running Wall Street really want to tame their monster technology budgets, they have to take a long-term business view and stay committed. To evolve their systems DNA requires hands-on involvement, with partnership decisions based on business, risks and clients. Otherwise, these firms will atrophy under their own inertia: Costs and risks will increase, flexibility will decrease, and they will all end up consumed by the Blob.

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Aron Miodownik is a Managing Director at Cambrian Consulting. He has worked in CIO, COO and Technology Strategy roles at Merrill Lynch and UBS and as a strategic consultant at Accenture.