

# Lost in Migration: Solving the 3 Unsolved Problems of Core Banking

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## A brief history of core banking

Banks started building their own core banking software because, when mainframe computers first emerged, there was no software industry to serve them. This later changed, with multiple vendors entering the market, including application software giants Oracle and SAP.

However, the problem for many banks is that they never replaced the systems they had built and, worse, they kept adding to them over time – additional home-grown applications, written in different programming languages and with different databases. Even where banks chose new generations of third-party systems (see below), these were either to replace point solutions (rather than for system-wide renovation) and/or were invariably augmented with local developments, meaning the application landscape remained or became complicated.

Consequently, and notwithstanding the strong growth in external spend over recent years, banks still spend more money on internal core systems than third-party systems, and that spend goes predominantly – 80% – on maintenance (run-the-bank) vs. innovation (change-the-bank).

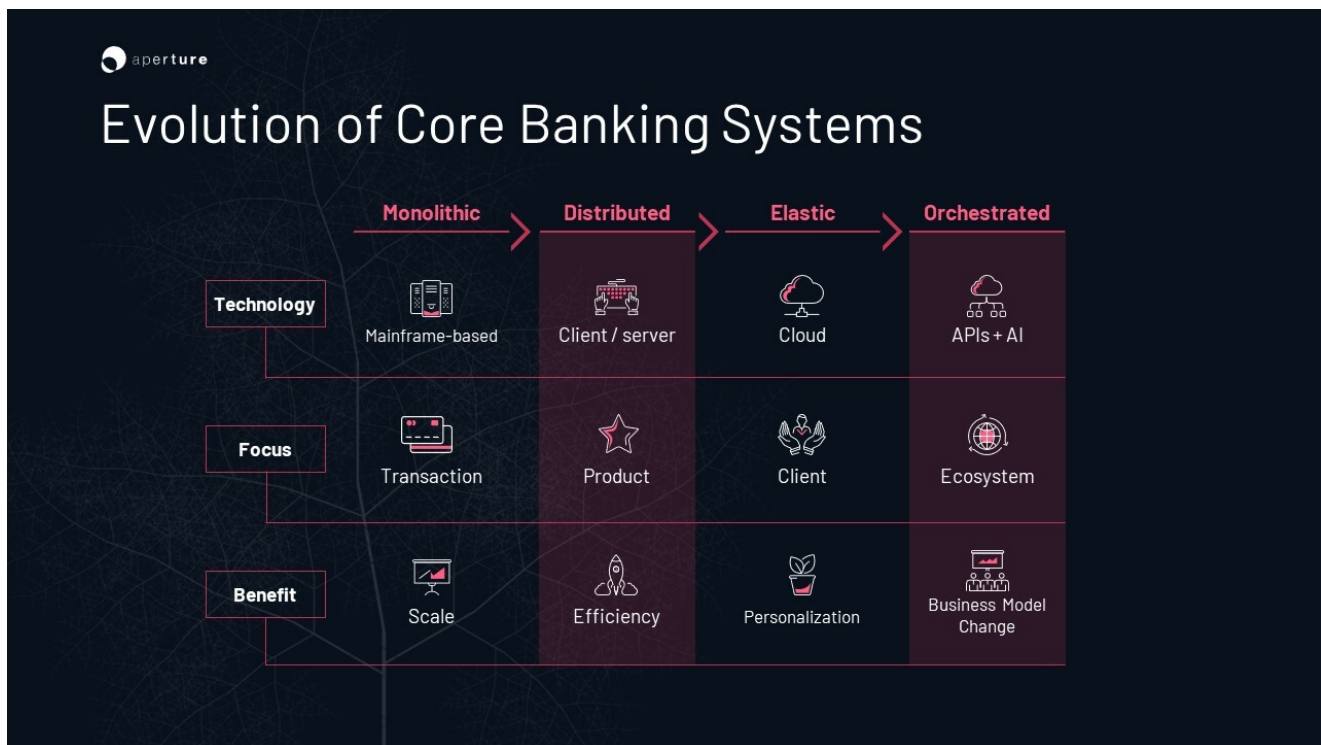
The challenge – which successive generations of core banking systems have attempted to solve – is to provide both a viable alternative to banks' existing systems as well as a credible path to making the switch.

## Previous generations of core banking systems

The first generation of core banking systems were built on mainframe technology. These were systems such as Midas from Finastra or Systematics from FIS. They scaled pretty well, but they had batch-based hierarchical databases and no graphical user interface.

With the client/server revolution, a new generation of systems emerged. They had graphical user interfaces, relational database structures that could be organised around products and clients, and, in later iterations, real-time processing. The market leader was Temenos, which to its enormous credit, remains the leader today, even though the market has undergone a further technological paradigm shift from on-premise to cloud.

Public cloud systems benefit from many advantages over on-premise installations, such as lower infrastructure costs, lower internal operational needs, constant upgrades and infinite and elastic scalability. However, the drawback vis-à-vis on-premise installations is the extent to which a bank can extend the solutions and customize to their needs. The complaint levelled against Mambu, the initial market leader in the cloud era, is very much this, that bank clients are constrained to the existing functionality, with only limited configuration tools, and heavily dependent on the company to deliver on its roadmap for them to be able to broaden their usage.



## Next generation core systems – solving for extensibility

Newer entrants to the market are attempting to solve for this trade-off. That is, they seek to harness the non-functional advantages of cloud deployments, but without imposing the same functional constraints.

Thought Machine, with its Smart Contract concept, was the first to offer a breakthrough. Smart Contracts enable banks to write their own logic on top of the platform logic and build products from scratch, to meet their specific needs or to adapt to changing market conditions, without being dependent on the software vendor. This approach has proved popular, especially with large banks. But, since the bank needs to build, test and launch products themselves and then maintain the code they write, it places significant obligations and costs on the bank, and is likely best suited to banks with large development teams and mature DevOps functions.

Tuum takes a different approach. First, through its “Business Builder” capabilities, it offers a very broad range of fine-grained configuration tools, enabling each client to have a high level of autonomy within a closed-boxed set-up (“configuration without customization”). In addition, it increasingly allows clients to extend the platform, permitting them to add to or override product logic based on their specific needs, including conforming to local market rules, through the use of custom parameters. Effectively, a customer can build their own IP, but within given constraints, posing no risk to upgradability and allowing all code to be governed within Tuum’s testing and deployment cycles.

## What about GenAI?

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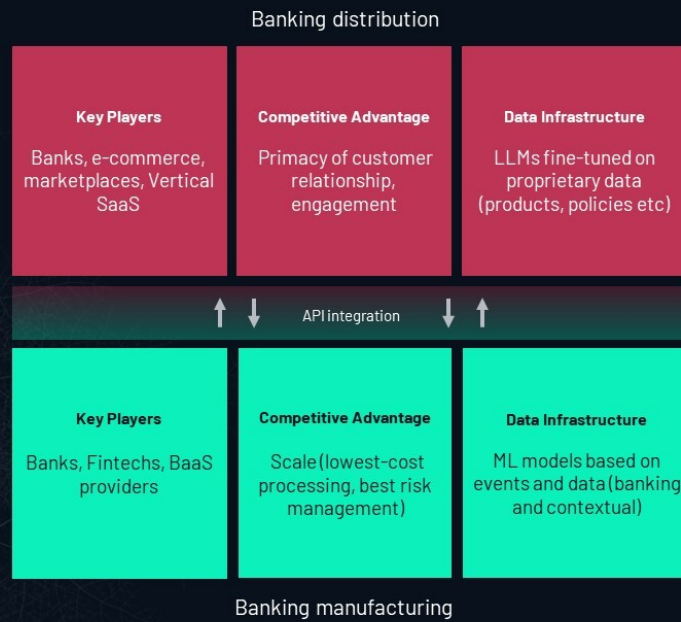
When ChatGPT burst its way into our collective consciousness in late 2022, it set off a hype cycle and a lot of investigation into the best ways to deploy generative AI. Notwithstanding the step change in AI efficacy that was exemplified by ChatGPT, our view about the market landscape has not changed materially.

Banking continues to split between manufacturing (the regulated function of money creation, movement and transformation) and distribution (the non-regulated function of arranging financial products for consumers through digital and physical channels). This creates opportunities for platforms that can mediate between the two but, increasingly, we should think about two arenas for intelligence.

Intelligence in the arena of distribution will be dominated by Generative AI. There will be co-pilots/AI companions conversing with consumers, guiding them to make smarter commercial and financial decisions. These co-pilots will be built on LLMs fine-tuned to specific use cases using proprietary data. Proprietary data will be critical, of course, but access to the workflows (the channels) will be more so. In effect then, the battle for consumer attention will continue to play out, with AI companions deepening the competitive moat for those platforms with already high engagement and data capture and, by extension, we expect banking distribution to continue to leak into non-banking (embedded) channels.

In the arena of manufacturing, Intelligence could be based on Generative AI, but it is also likely that AI will remain more deterministic than probabilistic. It’s one thing for a co-pilot to aid navigability and discovery, calling upon a wide range of data inputs, but it’s another thing for an LLM model to make a credit decision. It may be that for regulated activities, where there is a need to explain fully decision-making processes, AI won’t be based on neural networks. Regardless, the key going forward will be access to proprietary data, used to determine core decisions, to train (or fine-tune) models. In the manufacturing process, core banking systems remain a concentration point for key decision-making information, and around which to create a hub into which other data flows get integrated, unlocking a flywheel effect. This underlines the importance of orchestration in financial services manufacturing.

# Manufacturing vs. distribution



## Orchestration

When we use orchestration in this instance, we mean the coordination of different players to deliver customer success.

Some vendors in the core banking market attempt to orchestrate value across a suite of their own products. This has the advantage of tight integration of solutions, but it makes it challenging either to orchestrate a solution that brings together best-of-best applications or that is loosely coupled enough to be tailored to the specific needs of the customer.

The alternative is for a bank to assemble its own ecosystem of suppliers, but this presents an integration challenge.

A middle ground has been for vendors to introduce marketplaces. They offer a curated set of suppliers, where the vendor has done some level of vetting and possibly some level of integration. But, in reality, the integrations are rarely plug-and-play.

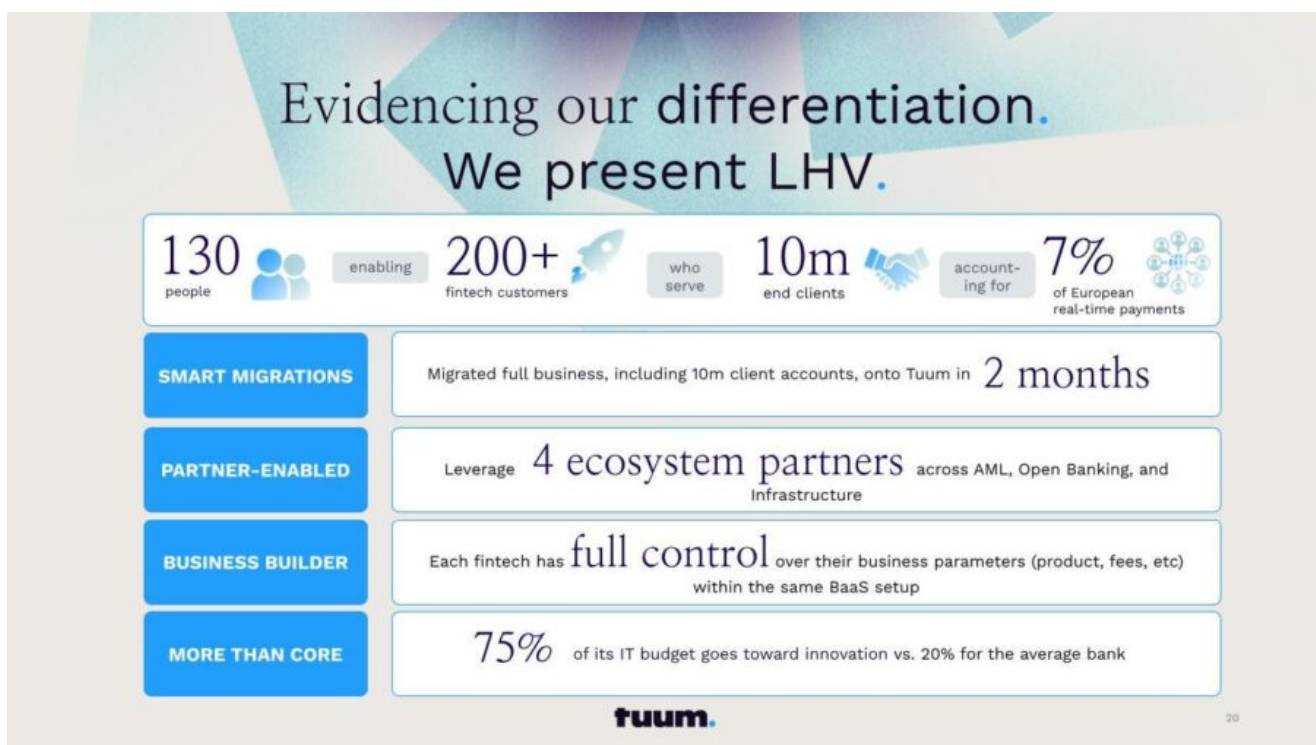
The opportunity exists to do marketplaces better and the stakes are rising given that competitive advantage in core banking continues to evolve from functionality to non-functional architecture to ecosystems and data. In the future, the best core banking systems will be open and accessible solutions that can act as the orchestration point of for processes across applications, catering for regional needs and domain-specific use cases, with pre-integrated partner functionality, simple contracting, and optimized for training AI models.

## Smart migrations

As we wrote before, all of this is academic if the system doesn't go-live and the industry still has a very poor record in this regard. According to McKinsey, the typical timeline for a core banking implementation is 4-10 years and the typical implementation cost is \$50m.

The final problem to solve, then, and arguably the most critical, is to give banks a predictable path to renovating their systems. This is also somewhere Tuum is making great strides.

Where most vendors run migration scripts, data cleansing and regression testing, Tuum provides automated migration and reconciliation across massive datasets, structured and semi-structured, from contracts to interest conditions, using data import APIs. This lies at the heart of its "smart migration" approach, which saw LHV UK migrate millions of customer accounts in three months. Further, given the openness of the platform, both in terms of API interaction and event-driven integration with other systems, Tuum has demonstrable success with progressive renovation projects, as it is demonstrating with a Tier 2 Nordic bank which is replacing its full IT estate system by system.



## Summary

Banks face multiple sources of change – regulatory, consumer, competitive, technological. For this not to be an existential threat, but a source of potential growth requires banks to be able to adapt their operating, sourcing, and distributional models. This requires them to run a highly scalable, open, and microservices-based tech stack. This requires them to modernize core banking systems.

The industry has come a long way from green-screen, monolithic systems running on AS/400 machines, but it still hasn't solved all of its issues. If it had, the rate of core replacement, which currently stands at around 3%, would be much higher. The remaining challenges center on Extensibility, Orchestration and Migration.

Our view is that Tuum, which entered the market in 2019, is well placed to solve these three challenges, which is why we have invested in them.

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*Sources for the size of the core banking market are variously: Fortune Business Insights: Core Banking Software Market Size, Straits Research: Core Banking Software Market, Temenos: Capital Markets Day, Ovum, Aperture estimates.*