

FAILED SYSTEMS DEVELOPMENT PROJECTS

ASSIGNMENT 2
SYD701 SYSTEMS DEVELOPMENT METHODOLOGIES

Submission Date: 10-04-2022

Dale Stephenson

1.0 Introduction

Lloyds Banking Group (LBG) was one of several UK financial institutions that received a significant taxpayer bailout from the questionable lending risk that led to the 2008 global financial crash (*Case Study 2: The Epic Meltdown of TSB Bank*, n.d.). As a consequence, the European Commission forced a condition on the bank that would lead it to split, creating the newly formed TSB (*Written Evidence - TSB Bank*, 2019). To launch TSB at pace and ensure stability for its 8 million customers, the bank utilised existing IT systems rented from the now competitor LBG (*Written Evidence - TSB Bank*, 2019).

2.0 Legacy Infrastructure

The IT infrastructure combined many older legacy systems from several banks and earlier integrations. Under the arrangement of the split, LBG retained control of the IT infrastructure and offered it to TSB as an expensive service (*Case Study 2: The Epic Meltdown of TSB Bank*, n.d.). TSB recognised the challenges faced by multiple, interconnected platforms that had a diminishing number of engineers familiar with these systems (*Written Evidence - TSB Bank*, 2019). These challenges, in conjunction with customer demand and a competitive need for greater functionality and innovation, led to the decision to migrate to a modern, coherent platform capable of meeting customer needs (*Written Evidence - TSB Bank*, 2019). The scope of this challenge was described by TSB as "one of the most complex in UK banking history", requiring the migration of over 8 million customer records and the replacement of every software system and piece of hardware from employee devices to printers (*Written Evidence - TSB Bank*, 2019).

The financial services company Banco Sabadell purchased TSB in 2015 and instructed the bank to migrate customer data from these legacy systems to a modern suite of applications based in the cloud, with the intent to save millions of pounds in IT-related costs (Bansal, 2020, *Case Study 2: The Epic Meltdown of TSB Bank*, n.d.). The new platform, Proteo, also owned by Sabadell, is based on Accenture's Cobol-based Alnova systems and hosted on Amazon Web Services (Bansal, 2020). The newly named Protea4UK system was a development of a specifically designed application to manage the migration of small Spanish banking structures following asset acquisition, it was not built to conform to something as large and complex as TSB (Stevens-Hall, 2020). Sabadell's technology organisation, SABIS, was tasked with managing the migration (Stevens-Hall, 2020).

3.0 Regulatory Oversight

To oversee the migration the Financial Conduct Authority (FCA) maintained a Proactive Engagement programme with TSB Senior Management, which included an assessment of the independent assurance activities surrounding the migration risk, compliance, internal auditing, pre-migration testing plan and the bank's planned approach to escalating identified issues (Andrew Bailey, 2018). The FCA was clear that responsibility for a credible migration plan lay with TSB, who implemented a specific decision-making process and readiness matrix that would oversee and manage the migration so the FCA could monitor closely (Andrew Bailey, 2018). Initially, this oversight proved effective, leading the 12 members of the Business Executive Committee (BEC) to identify unacceptable risks that led TSB to delay migration in November 2017 (Andrew Bailey, 2018). However, as detailed in this report, when the BEC met again prior to migration to discuss all functions of the deployment, each member attested to the readiness of the migration stating that the risks identified were within the risk appetite, regulatory requirements, internal enterprise-wide risk management frameworks and evidence provided of the mitigating actions (Andrew Bailey, 2018). TSB was satisfied the functionality of the system would operate effectively post-migration and issued delegated authority to the newly created sub-committee, granting executive authority to give the green light to migration despite eight outstanding issues with the system's functionality (Andrew Bailey, 2018). The quality of this process was an important consideration in the investigation conducted by the FCA (Andrew Bailey, 2018).

4.0 Failure and Impact

The system migration was recognised as one of the most significant failures in UK banking history with far-reaching consequences prompting a Parliamentary enquiry and investigation by the FCA (Stevens-Hall, 2020). TSB customers were locked out of their online banking for an extensive and unacceptable period, businesses were unable to process payroll, massive pressure was placed on other customer channels and the reputational damage to TSB led to the loss of 80,000 customers and £330 million (Stevens-Hall, 2020). The seven-year tenure of the CEO at the bank came to a swift end after admitting the business was on its knees, a situation that required IBM to assist with the fallout (Stevens-Hall, 2020).

5.0 A Catalogue of Problems

5.1 Early-Stage Failures

The independent reports and investigations that ensued produced a clear picture of what was described as a catalogue of failures and problems that could be traced right back to the beginning of the project (Slaughter and May, 2019; Stevens-Hall, 2020). At the time of Sabadell's offer in March 2015, a programme completion date was expected towards the end of 2017, despite having inadequate knowledge of the requirement (Slaughter and May, 2019). Following Sabadell's offer being declared unconditional, a Go Live date was set on Sunday 5th November, a date confirmed in the Integrated Master Plan that was the culmination of 9 months of planning (Slaughter and May, 2019). This ambitious timeframe was described as unrealistic, requiring a plan that fit the date and would involve taking on a high degree of risk (Slaughter and May, 2019). Despite the unrealistic timeline, confidence in Sabadell's and SABIS' previous track record led TSB to accept the Go Live date (Slaughter and May, 2019).

The evidence indicates that circumstance forced the decision to structure the integration as a classic waterfall project that showcased a methodology failure, indicating that lessons learnt reinforced the argument for agile ways of working (Slaughter and May, 2019). A large, single event approach was taken by TSB from the outset, with a lack of consideration for other choices (Slaughter and May, 2019). Risks of taking this approach were not identified, nor was an understanding of how these risks might be mitigated (Slaughter and May, 2019). In addition, the choice was not discussed with the board in any substantive manner, nor was advice sought from external experts (Slaughter and May, 2019). To reduce the risk of the Main Migration Event (MME), TSB sought to implement the system with a series of transition events that included live proving and early cutovers to pilot elements of the functionality ahead of Go Live (Slaughter and May, 2019). The scope of the transitioning and risk mitigation was inadequate, constituting a minor portion of the Proteo4UK platform, leading to only some problems being identified and solved (Slaughter and May, 2019). Furthermore, live proving was performed at a level that was insufficient to identify the types of problems that could arise when the platform went live to customers (Slaughter and May, 2019).

5.2 A Lack of Technical Understanding

At a high level, the board at TSB understood the complexity of the programme. However, they failed to recognise the scope and complexity of the Proteo4UK platform as it extended to the level of customisation required and TSB's extensive digital, telephone and branch banking channels (Slaughter and May, 2019). The board also failed to appreciate the extent to which SABIS' experience

differed from the TSB use case from design, through to build, test and operation (Slaughter and May, 2019). TSB trusted the various protections that had been established to ensure the system would not Go Live before it was ready, including the carve-out exit option, insulation from an overrun in costs and the assurance matrix (Stevens-Hall, 2020). Furthermore, the migration was plagued by changes in responsibility surrounding the functional testing, first falling under SABIS, before test case design and execution were transferred to TSB (Slaughter and May, 2019). Problems with functional testing meant it took 17 months longer than planned, primarily due to the volume of errors and defects, further straining SABIS' ability to rectify (Slaughter and May, 2019). Continually missed deadlines meant that a significant portion of the functionality testing started late, running in parallel with the non-functional testing (Slaughter and May, 2019).

5.3 Missed Opportunity

One month prior to the Go Live date, TSB agreed to delay the migration (Slaughter and May, 2019). This was an opportunity to obtain a detailed, bottom-up programme status so lessons could be learnt from the mistakes made and produce an extensive replan (Slaughter and May, 2019). Instead, little investigation into the technical causes of the delays, or SABIS' capability to deliver the new plan, took place (Slaughter and May, 2019). The failures extend beyond the TSB board, both independent risk oversight and internal audits concluded the new plan was reasonable (Slaughter and May, 2019). These bodies failed to recognise simple facts, mainly that the system could be delivered a mere 4 months after the original Go Live date, despite several workstreams being as much as 7 months behind, this enabled overcommitments to be made and the state of readiness overstated resulting with a disregard as to whether it was achievable given the remaining volume of work (Slaughter and May, 2019).

5.4 Technical and Communication Woes

The changes that occurred resulting from the replan included delivery and testing of the Proteo4UK platform's core system functionality by the end of Q4 2018, avoiding another round of parallelisation and allowing for the 3 months of assurance testing (Slaughter and May, 2019). In reality, testing of the functional requirements continued into Q2 of 2018 and only finished after a process of descoping and deferring significant functionality until after Go Live (Slaughter and May, 2019). The replan included dedicated regression testing that did not occur as the programme ran out of time (Slaughter and May, 2019). Additionally, the non-functional testing of the Proteo4UK platform to determine its ability to operate at the expected service levels was rushed into a period just prior to Go Live (Slaughter and May, 2019).

These technical problems were compounded by a lack of communication across organisations, specifically where update reports were provided, this led to identified risks lacking context and detail (Slaughter and May, 2019). The lack of investigation into these problems caused the programme to deviate further from the milestones set out in the replan (Slaughter and May, 2019). The investigations revealed a decision was made that allowed performance testing to be conducted on only one of the two data centres, making it impossible to identify issues that were discovered to be a significant cause of the problems that customers experienced immediately after Go Live (Slaughter and May, 2019). Additionally, performance testing targets of both the banking and mobile apps were lowered after original target load tests failed to pass (Slaughter and May, 2019). Reporting failed to clearly state that changes had been made to the targets and that actual volumes after Go Live exceeded these lowered targets (Slaughter and May, 2019). Key programme activities were being pushed to finalise at an unsustainable pace close to Go Live, this was despite the high number of reported defects outstanding on the platform (Slaughter and May, 2019). A lack of transparency was found to have significantly lowered this number to around 800, when in fact, further investigation uncovered a total of 3,317 identified defects (Slaughter and May, 2019).

The communication problems extended to SABIS leading to internal controls that identified deficiencies not being shared with TSB (Slaughter and May, 2019). SABIS had struggled to make new services live after each transition event, meaning they were failing to meet the service level agreements (Slaughter and May, 2019). SABIS also experienced a lack of capability to respond to and resolve incidents (Slaughter and May, 2019). TSB relied solely on SABIS' written assurances, no evidence was provided to back up their claims of readiness and TSB failed to exercise its contractual audit rights or to conduct adequate due diligence (Slaughter and May, 2019; Stevens-Hall, 2020).

5.5 Insufficient Role Independence

The relationship between the parties made it difficult to act on an arm's length basis resulting in a lack of clarity over the development (Slaughter and May, 2019). Specifically, the CIO of TSB had a career history that included Chief Process and Information Officer at Sabadell and directly ran SABIS, this made risk allocation and key decision making a challenge, which likely led to the decision to conduct performance testing on only one data centre (Slaughter and May, 2019). To compound the problem the investigation determined that insufficient independent advice was sought by the TSB board to challenge the decisions being made, an independent advisory team might have identified problems with the readiness assurances provided by SABIS and recognised that the system was not ready for the Go Live date (Slaughter and May, 2019).

6.0 Conclusion

The failures of the systems migration, in this case, are numerous and significant, there was not one single point of failure, technical or otherwise and the scale of the parliamentary and regulatory response highlights the size, scope and impact of the failure (*Case Study 2: The Epic Meltdown of TSB Bank*, n.d.). The methodology and methods acted as the foundational cause of the myriad of problems of what was a complex programme, activities should have been carefully coordinated to ensure they performed as expected and to the required standard (*Case Study 2: The Epic Meltdown of TSB Bank*, n.d.). The independent audits indicated that there would have been sufficient internal talent and expertise from the large migration team, enabling them to completely understand the mature and well-tested source and targets of data and different codebases (*Case Study 2: The Epic Meltdown of TSB Bank*, n.d.). The expertise deployed in the migration would have recognised the importance of performance testing, being an essential task that cannot be rushed (*Case Study 2: The Epic Meltdown of TSB Bank*, n.d.). Ultimately the plan from the beginning should have focused on what it took to develop the system to the standards expected, with a completion date built on the back of that process (*Case Study 2: The Epic Meltdown of TSB Bank*, n.d.).

References

Andrew Bailey. (2018). *TSB IT Migration*. Financial Conduct Authority.

<https://www.parliament.uk/globalassets/documents/commons-committees/treasury/Correspondence/2017-19/fca-to-chair-tsb-300518.pdf>

Bansal, N. K. (2020). *A COBIT based approach for migrating legacy systems to cloud infrastructure*.

Case Study 2: The Epic Meltdown of TSB Bank. Retrieved March 27, 2022, from

<https://www.henricodolfing.com/2019/03/case-study-epic-meltdown-of-tsb-bank.html>

Slaughter and May. (2019). *TSB Migration*.

Stevens-Hall, J. (2020). Lessons from the TSB failure: A perfect storm of waterfall failures. *Medium*.

<https://jonstevenshall.medium.com/lessons-from-the-tsb-failure-a-perfect-storm-of-waterfall-failures-4f4d2e789b35>

Written evidence—TSB Bank. (2019).

<https://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/treasury-committee/it-failures-in-the-financial-services-sector/written/95274.html>