



ARTICLE

Airport BER

Time for an objective analysis by a forensic expert proBER?

The toponym ‘Berlin’ originates from old Slavic and has its genesis in the word ‘swamp’ (Berlo) when the town was founded in the 13th century. Ironically this word stem found its way into the name of the new Berlin Airport BER in memory of the invested sums, one may argue.

It’s all about the money

In 1999, the award for a €2.5billion¹ investment by the first Hochtief-led consortium had been successfully challenged by the competing consortium led by IVG. The second bid in 2001, at the time submitted jointly by Hochtief and IVG, was significantly less advantageous for the airport authority than the original bids from the separate bidders.

Berliners say: “*Money alone won’t make one happy – one should also have it*”. So, the shareholders—the states of Berlin and Brandenburg and the German State—decided to roll up their sleeves and tackle the project on their own.

Despite costing approximately €7.3billion,² the German capital now has one of the most modern and elegant airports in Europe. The long tradition of superlatives in the Berlin airport construction has therefore been preserved, if you think of the ‘mother of all airports’, Berlin-Tempelhof. This was the first major hub airport and

is, until now, the longest continuous building in Europe - and possibly the largest historical monument in the world. Berlin-Tegel (which was also designed by Meinhard von Gerkan, the same architect of the original BER) is an optimal shape of the terminal building; you could sit on the public bus on your way home 20 minutes after landing with your luggage!

However, the difficulties in the realization of the BER should not be swept off the table. In 2016, the Berlin parliament commissioned an extensive probe and obtained very important insights.³ These included, among others, the reasons for the disrupted planning and construction process, the triggers for the programme delays, the accumulation of misinformation, the diluted responsibilities, as well as several hundred design changes intended to accommodate the increasing passenger numbers and new security regulations, as well as to increase the revenues.

¹ Converted from Deutschmark.

² <https://www.spiegel.de/wirtschaft/soziales/flughafen-berlin-brandenburg-ber-kosten-steigen-auf-7-3-milliarden-euro-a-1195101.html>.

³ [https://www.parlament-berlin.de/C1257B55002AD428/vwContentbyKey/206D70E8863C06F9C12580C60051E19A/\\$FILE/d17-3000.pdf](https://www.parlament-berlin.de/C1257B55002AD428/vwContentbyKey/206D70E8863C06F9C12580C60051E19A/$FILE/d17-3000.pdf).

Should the employer bear the additional costs alone?

A forensic expert review of a project addresses the cost developments and programme dynamics in a bi-directional dependency. The following questions are answered as part of this process: “Why has the project become so much more expensive?” and “Why has it been completed so late?”. It enables you to identify breakeven points for future projects based on the knowledge generated from forensic analyses and to derive the respective calls for action.

Following the long-awaited airport opening in October 2020, it seems like now is a good opportunity for a final forensic analysis of the additional costs, in particular, whether or not the claimed additional expenditures from the involved contractors were attributable to the project owner, as well as with regard to the extension of

time and cost implications resulting from over 150,000 construction defects.

To be fair, it must be said in this context that none of the problems in the BER implementation that were widely discussed in the media were unique, maybe only their combination in a nearly ‘perfect storm.’

Can a project such as BERlin airport be assessed retrospectively?

For a retrospective analysis of a project, the information given in the form of data must be accurate and reliable. This data can include correspondence, invoices, time schedules and other information which can be used for a problem-specific reconstruction of the facts. In most cases, a high level of abstraction is a starting point, which represents the global project development. Based on the available information, cause and effect within the project can be shown.

What problems have other major airport projects experienced?

One of the authors was involved as a junior estimator in the BER (called ‘BBI’ at that time) as well as in six other airport projects overseas (including airport hubs in Dubai, Athens and Moscow) and can report about the complexity and plenitude of technical, commercial, operative and political challenges that are typical for such projects.

The new airport that was put in operation in 2001 in Athens also had problems to solve during the construction. An old church had to be put on a specially designed rail track and relocated outside of the construction site. Flooding of the underground cable ducts and stormwater culverts occurred shortly before commissioning filled them with sand and clay. The Schengen Treaty implementation in the middle of construction put the passenger flow concept on its head and necessitated design changes in practically all trades, from the basement to the roof, where even the smoke extract hatches had to be relocated.

The concept of a huge shopping mile in the terminal, called the retail area, was completely redesigned by the project owner’s architect in the middle of the shell construction works, throwing the site back by several months.

The permanently growing requirements to the actual airport and airfield systems along with hundreds of

changes made the construction process especially thrilling, accompanied by the popular local strikes and a few subcontractor insolvencies.

During the extension, the Dubai airport had to handle over 80 million passengers annually;⁴ its airport authority, similarly to the BER project owner, availed itself of the construction management approach.

Construction contracts were awarded to multiple contractors, with design responsibility remaining to a great extent with the project owner. This allowed some more flexibility with (also innumerable) design changes and better control over the quality and selection of specialist contractors, building services and materials by the project owner. At the same time, this procurement approach made the airport authority a linchpin for all disputes stemming from a multitude of interfaces between the trades, which took years after the construction to resolve.⁵

A forensic probe of a construction project by an expert team with a focus on cost, delays, claims and variations often closes the construction chapter to pave the way for a new successful chapter of commercial operation to commence.

⁴ <https://gulfnews.com/business/aviation/dubai-airport-records-836-million-passengers-in-2016-1.1967039>.

⁵ http://www.murrob.co.za/pdf/sens/2019/MUR_Dubai_Airport_Arbitration_Award_9_April_19.pdf.

Risk management during project execution

A common practice in the context of risk management of an ongoing project is to conduct continuous risk analyses, which allows risks with a negative impact on the project to be identified. This identification process requires a lot of forensic expertise and is essentially supported by three methods: collection, analytical and creative. These can be differentiated into two classes: methods (collection/creative method) purely identifying risks and evaluating methods (analytical method). After the identification of risks, interdependencies among them can be further identified.

The advanced risk analysis determines the statistical probability of risk occurrence and quantifies an amount of the estimated damage to occur. With this knowledge, it is possible to initiate measures at an early stage to mitigate and/or avert the expected damage.

The correct execution of project risk management is the responsibility of the risk manager. In large projects, the risk manager can, if needed, be supported by the professional expertise of experienced forensic consultants, to identify key risks at an early stage and take the action needed.

Risk management after project completion

If the risk management measures during project execution were not successful, a retrospective risk analysis can be carried out at the end of a project. This focuses on evaluating time schedules and performance. Any shortcomings in the project objectives - such as costs, milestones, or services - are identified, including the causes from the available data records created during the project.

In a large-scale project with high complexity, one of the main challenges is to link the available information and data in such a way that individual risks can be disentangled, considered and evaluated separately, and then integrated back into the overall context of the project.

On this basis, the following aspects of the project can be evaluated as part of the retrospective risk analysis:

- Cost and effectiveness (cost, performance)
- Results or impact of specific events (time)
- Adequacy of project implementation (project management)

Reasons for retrospective risk analysis by forensic experts

Essential for the analysis of a project is the use of an appropriate database including recovered deleted files and email accounts. Based on this, the forensic construction expert can prepare the critical facts in expert reports for negotiations, court proceedings, arbitration proceedings or mediation.

Learning for the future

In addition to providing a basis for arguing, the forensic analysis of a project offers another very important advantage: “best practice” recommendations for future projects can be identified from negative experiences, allowing optimization and adaptation of already existing processes and mediation.

Due to the high project dynamics in the BER example and the awarding of construction work in individual lots to contractors, very special challenges arise for risk/project management. The true causes of the ‘swamp – BERLO’ devouring sums of money are manifold and can only be evaluated in their totality of events. A special role in the possible retrospective risk analysis for such a large project is information processing at the highest level, for which FTI Consulting offers highly efficient computer-based forensic project analysis performed by construction experts.

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