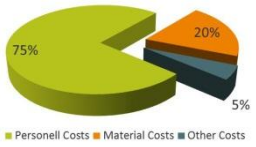
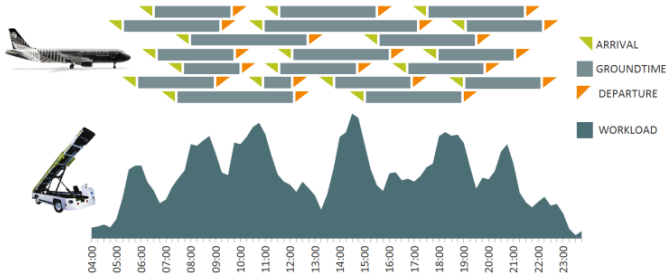
Personnel Costs around 75% of the Production Costs



The major cost driver of Ground Handling (**GH**) fees is to be found in the costs of employment as they account for more than 75% of the overall production costs.

Ground Handling Services Demand is volatile

GH services depend on the airlines arrival and departure events and are time critical.



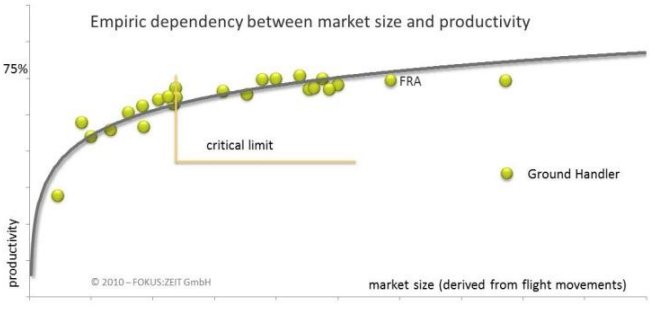
The average length of a service is approximately 35 minutes. The typical daily overall service demand has peaks and lows that vary a lot.

Volatility limits maximum Shift Productivity to 75%

With a volatile demand, there is no continuous supply of work during the shift of an employee. This results in idle times between productive tasks. These idle times account for indirect costs that affect the overall **GH** fees. The maximum productivity in a saturated environment is empirically observed to be 75%.

Smaller Markets cause less Productivity / Efficiency

In a smaller market share the supply of continuous work is even less. Unlike other industries, **GH** cannot initiate additional demand as the customer relation is originated between the airline and the airport. Market size effects on productivity were identified at all airports and **GH**



(see: Benchmark Study Aviation 2009/2010 FOKUS:ZEIT)

The sum is less than its parts !

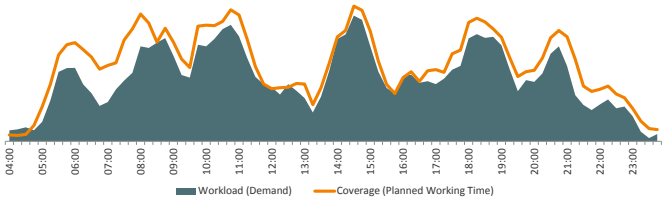
With smaller market shares the overall productivity will decrease significantly.
This effect has been shown in economic simulations at Frankfurt, Munich, Berlin and Düsseldorf airport. With an assumed additional **GH** of a 12% market share, the overall productivity decreased between 6 to 12%.
More working time will be required to satisfy the same service demand.

More Competition leads to higher Prices

Increased competition, therefore leads to a higher demand of workforce and a larger requirement in equipment. As every **GH** has to provide the maximum required number of equipment for his peak times, the overall amount of equipment is higher than with less service providers.

More Competition leads to less Quality

In a highly competitive market **GH** have to minimize idle times. They have to cover the expected workload with the least possible overcoverage in employees working time.



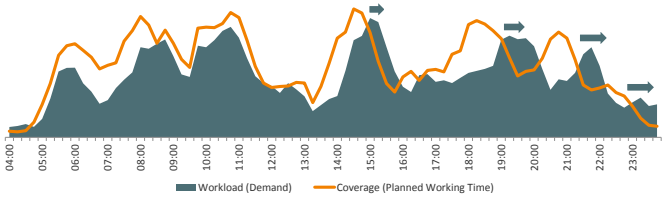
For this, **GH** have to use of as many short shifts as possible to match workload and coverage.
This will be obtained by a high number of part time employees as well as external labour, resulting in a less loyal workforce with much less opportunities in gathering experience, skills and identification with the offered services. The quality of these services will decrease significantly.

More Competition affects Security

The actual recruiting strategy of **GH** across Europe is to minimize the amount of fulltime, internal labour to the base demand to avoid daily and seasonal overcoverage. Higher workloads (peaks) are to be covered by short term contracted external and seasonal labour.
During summer 2011 the market of external labour could no longer serve this additional demand, which led to extraordinary recruiting strategies with lower quality requirements. As a consequence fluctuation is already continuously increasing.
This might have severe impact on the issues of security taking the growing amount of required security clearances and background checks into account.

More Competition causes less Stability / more Delays

If working time is planned as close as possible to the expected workload (derived from a prognosis of a flight schedule) every change in the actual arrival and departure times will result in service demand which cannot be met adequately.



Any initial delay therefore will be amplified with the subsequent turnaround. The total amount of delays will increase significantly.
Regarding the actual discussion of the supposedly high delay ratio, more competition is counterproductive.

Conclusion

The call for more Ground Handlers in the closed aviation market that grants no access to an open customer base will result in **opposing effects** on **costs** (**efficiency**), **quality**, **delays** and even **security**.

Dipl.-Ing. Hans Romeiser, Dr. Heinz-Peter Lindroth