

# *VARIG Recovery Plan*

## *Operational Restructuring Plan*

Original

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## *1. Executive Summary*

In the context of VARIG's recovery program, the company has appointed Lufthansa Consulting as technical advisor for preparing a rehabilitation and recovery plan to achieve a sustainable operating profit.

During the seven weeks following the publication of the Court's acceptance of VARIG's request for protection under the Brazilian recovery law until the date of submittal of the recovery plan, Lufthansa Consulting carried out a high level analysis of VARIG's current performance and identified optimization potentials for the areas mentioned below.

VARIG's future viability is reflected in the operating result projection performed by Lufthansa Consulting. It shows that VARIG's operating margin has the potential to increase from currently 0,7% (January-June 2005) to 5,2% after the first full year of operation with the new structure (assumed to be 2006), and to about 12% after five years. In order to achieve these results, the implementation of all improvement measures contained herein and others still to be identified, and the introduction of a systematic planning, budgeting, and controlling system with strict revenue and cost control are necessary.

An overall company strategic plan, which defines VARIG's goals and objectives including the measures identified, is the base for the necessary action and implementation plans.

The outlines of this rehabilitation plan, the measures necessary for its implementation (identified by Lufthansa Consulting during its assignment or by VARIG), as well as the impact these measures will have on VARIG's operating result within the framework of this business plan in the next five years are presented in the following chapters.

The business plan covers a period of five years. While the year 2006 and 2007 are planned in detail, a high level approach concerning traffic and revenue development as well as cost development is used as the base for the further development from 2008 to 2010.

The fleet assumptions used in the business plan do not necessarily represent VARIG's final fleet, but are used as a base for cost and revenue calculation. A detailed fleet study and negotiations with lessors and/or aircraft manufacturers must follow within the next two to three months in order to finalize the fleet decision. However, a modernization and harmonization of the fleet is one of the essential elements of this business plan and must be

implemented in order to achieve the efficiency gains projected in this business plan.

A comprehensive analysis of each measure, fine tuning and /or adaptations to future developments and unforeseen events as well as a subsequent detailed project plan with specified actions are mandatory in the next weeks and months.

VARIG's future viability will depend primarily on the resolution of its current debt situation, but also largely on improving the airlines' own operating performance, yields and financial situation. The active cooperation and support of the government and other creditors is an important precondition for the viability of this business plan and will be crucial for VARIG's viability.

The following key initiatives to achieve a sustainable operating profit in the short, medium, and long term are:

- I. Further strengthen VARIG's current position as a strong competitor in the international market
- II. Maintain and strengthen VARIG's position in the domestic market
- III. Create a clear hub structure in São Paulo's main airport (GRU) to enhance the power of the network, attracting additional traffic
- IV. Restructure, modernize and harmonize the fleet in order to reduce unit cost and improve operational efficiency
- V. Improve revenue management consistent with competitive positioning
- VI. Strengthen organizational and strategic decision making and accountability to meet targets and adhere to plans
- VII. Clearly define organizational structures, interfaces and responsibilities within VARIG and the VARIG group of companies
- VIII. Optimize processes to improve efficiency and productivity in all areas of the company
- IX. Adapt personnel count to match optimized company structure
- X. Improve product and customer services to re-gain market share
- XI. Establish relevant co-operations and alliances and intensify current alliances to strengthen network and product

VARIG and Lufthansa Consulting have jointly analyzed the following areas within the past seven (07) weeks:

- Corporate Strategy
- Corporate Structure
- Network Planning
- Fleet
- Revenue Management
- Sales, Distribution
- Marketing
- Maintenance & Engineering

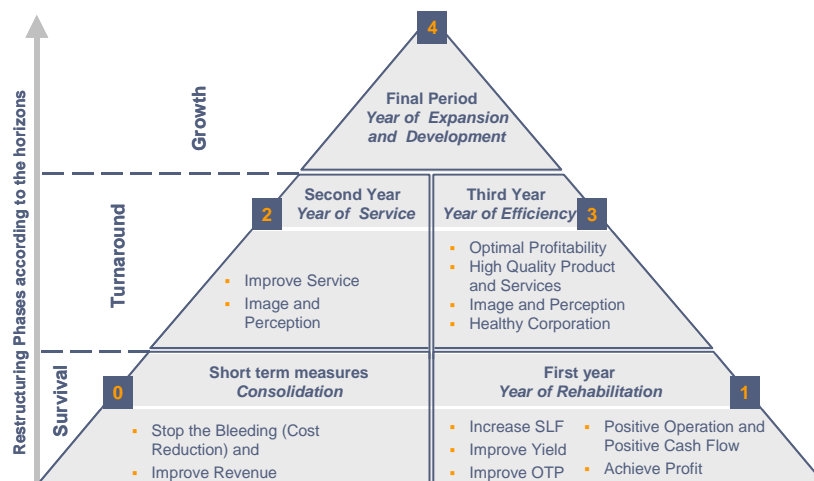


- Flight Operations<sup>1</sup> and Catering
- Information Technology and MIS
- Human Resources

Based on this analysis, and an evaluation of the current financial performance of VARIG's operations, a projection of VARIG's Operating Profit & Loss for 2006-2010 is made. A description of the status quo as well as the recommendations is shown in the respective chapters.

A long-term structured approach will stabilize VARIG's operations and finances. The figure below shows a path for achieving VARIG's long-term restructuring.

Figure 1: Airline Restructuring implementation path



Source: Lufthansa Consulting

The most essential measures for the successful implementation of this business plan are:

- Restructuring of VARIG's route network and establishment of a clear hub structure in GRU
- Harmonization and modernization of the diversified fleet
- Establishment of the main operations base in GRU for aircraft, crew and other operational units
- Introduction of a cost cutting program covering all areas of the company (e.g. fuel cost)

<sup>1</sup> Ground Operations was not part of the investigation.

## 2. Introduction

VARIG's performance in the past years has been characterized by its diversified fleet structure, the vast majority of which are operated under operating lease contracts, the shrinking of its network and the weakening of its competitive position, especially in the domestic market.

The operating environment for airlines in South America, especially in Brazil, has become more competitive since the entry of TAM and GOL several years ago and their subsequent rapid growth, and VARIG's market and traffic share has dropped accordingly<sup>2</sup> (domestic market share from 40% in 2001 to 31% in 2004).

External influences such as fixed domestic fares between 1985 and 1991, fare wars, currency devaluation, complex and costly procedures of raising foreign capital in the past, oil price development, aviation taxation within Brazil which in the year 2000 was 100% higher than in Europe and 200% higher than in the United States<sup>3</sup>.

In addition to those external factors, internal inefficiencies, a non-competitive network structure, and frequent changes of the top management in the last five years have contributed to the destabilization and deterioration of the situation.

A corporate vision and mission, as well as a systematic and consistent planning system do not exist.

In this context, VARIG's operating result has suffered considerably, due to increased operating cost and reduced efficiency and productivity. The consistently negative net income has contributed to a steady accumulation of debt. The current status of negative equity with an accumulation of debt, which in 2005 represented a value of around 300% of its assets, is the outcome of this development.

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<sup>2</sup> Source: VARIG, May 2005, based on DAC data

<sup>3</sup> Source: SNEA, Estudo para a Reforma Tributária, 2000.

Table 1: VARIG Statement of Income, 2002-2004

<b>STATEMENT OF INCOME</b>			
(Figures in US\$ 000)			
	<b>2002</b>	<b>2003</b>	<b>2004</b>
- Flight Revenues	2.377.275	2.174.561	2.487.647
- Taxes on Revenues	(36.697)	(47.020)	(42.279)
- Other Operating Revenues	115.841	78.313	179.409
<b>NET OPERATING REVENUES</b>	<b>2.456.420</b>	<b>2.205.854</b>	<b>2.624.777</b>
- Flight Operations	(1.397.866)	(1.251.652)	(1.566.438)
- Commercial Expenses	(363.750)	(345.698)	(340.337)
- Commissions	(174.286)	(105.644)	(127.182)
- Administrative Expenses	(77.760)	(50.771)	(63.525)
- Other Operating Costs	(101.943)	(63.116)	(61.149)
<b>OPERATING COST</b>	<b>(2.115.605)</b>	<b>(1.816.882)</b>	<b>(2.158.631)</b>
<b>EBITDAR</b>	<b>340.814</b>	<b>388.973</b>	<b>466.146</b>
<b>EBITDAR MARGIN</b>	<b>13,9%</b>	<b>17,6%</b>	<b>17,8%</b>
- Adjusted Operating Lease Rentals	(321.696)	(238.733)	(242.601)
- Depreciation and Amortization	(47.310)	(31.467)	(14.814)
- Other	60.138	(118.556)	(11.565)
<b>TOTAL OTHER COSTS</b>	<b>(308.869)</b>	<b>(388.755)</b>	<b>(268.981)</b>
<b>OPERATING INCOME (EBIT)</b>	<b>31.946</b>	<b>217</b>	<b>197.165</b>
- Net Finance Income	-117.844	-116.692	-194.402
- Equity in Subsidiaries	(43.845)	(1.345)	(3.598)
- Effects of Translation	16.132	(254.308)	(176.703)
- Other Non-Operating Net Income	(789.049)	(683.612)	(92.501)
	(1.713)	-	(378)
<b>NET INCOME (LOSS) FOR THE PERIOD</b>	<b>-904.373</b>	<b>-1.055.740</b>	<b>-270.416</b>

Source: VARIG

A dramatic increase in both VARIG's cost base and financial leverage, weakening the company's ability to withstand variations in its cash flow, has followed. It also undermined the company's ability to generate sufficient cash to meet its financial obligations and resulted in the need to suspend interest and principal repayments. As an example, due to the severe cash flow problems, in August 2005 only 64 of the 78 aircraft were operating, which means that 14 aircraft cannot generate the revenues required to pay for their lease cost of over 40m US\$ per year, critically deteriorating the operating result.

The development of net operating revenue and net income in 2002, 2003 and 2004 illustrates the deterioration of VARIG's position.

#### Recent developments in 2005

In the first six months of 2005, air traffic for all Latin American carriers experienced a significant growth of 14% in terms of RPK, with intra Latin American traffic up by 26%, and North American traffic up 10%. (Source: AITAL).

In the same period, compared to the first six months of 2004, VARIG's traffic measured in RPK increased by only 6%, 5% on domestic and 7% on international routes. Overall revenue increased by 18%, due to an improvement

in yield of 11% and a seat load factor increase by 1 percentage point to 72%.

A limiting factor preventing VARIG from participating in the overall traffic growth and shifting traffic to the competition, was due to the fact that by June 2005 only 79% of the total fleet of 78 aircraft was operational, and schedules had to be adjusted on a weekly basis to accommodate the changes in aircraft availability. This has led to a low reliability and on time performance, eroding customer confidence.

Cost per ASK rose by 22%, offsetting the positive effects of the revenue improvement, and increasing the break-even load factor from 69% to 72%. Main cost drivers were fuel (plus 45%) as well as overhead cost which rose by 18% compared to 2004.

The resulting decline in operating result by 66% is strongly influenced by negative performance in the months of May and June due to fare wars jet fuel price increase.

While domestic performance has shown a dramatic decline in profitability, international services show a turnaround to a positive result in 2005.

### 3. Corporate Strategy

#### 3.1 Status Quo

VARIG was founded in 1927 in Porto Alegre and was transferred in 1945 into the ownership of the newly created Fundação Ruben Berta. Within the past 20 years, VARIG has accumulated debts in the range of approximately 4 billion US\$.

For the last several years, the day to day operational imponderabilities have determined the decision making process. The accumulated debts and the subsequent cash-flow problems have resulted in a status of management and business paralysis of VARIG. As early as in 1994 and 1999, financial restructuring programs were conducted, and in 2000 a corporate restructuring effort was initiated, but not fully carried out.

In various interviews and discussions, representatives of VARIG's top and middle management identified the absence of any long-term strategy as part of the reason for the current situation of the Brazilian flag carrier. In recent years, several corporate strategic decisions were taken at the Vice President level, [REDACTED]. The vision of the Fundação Ruben Berta (majority owner of VARIG) is based on social targets, which are not directly compatible with the economic and financial needs of a commercial airline in a global competition.

#### **Weaknesses / Threats**

In spite of a very promising development of domestic and international air traffic, VARIG has to cope with repercussions of the difficulties in cash flow, as for instance a sharply reduced production due to aircraft shortage. Such cash flow problems add to existing weaknesses and threats. VARIG's greatest pitfalls are:

- A total debt of 4 billion US\$ which cannot be paid back from the operating result
- Permanent endangerment of operations due to creditors' demands
- High debt and lack of operational cash-flow leading to a grounded fleet of currently 14 aircraft for which current lease rates are due
- Increased cost of spare parts due to the fact that brokers have to be used since some business partners supply only against cash
- Diversified fleet with B737-300, B737-400, B737-500, B737-700, B737-800, B757, B767, B777, MD11 (plus B727 in cargo) with different types of engines, configurations and tires within some fleets, with a negative impact on maintenance, operations, commercial, product image, etc.

- Overstaffing (e.g. VARIG has approx. 1650 Pilots and Co-Pilots, while industry benchmarks indicate a significantly lower need)
- Non awareness by a minority of employees and managers, as well as the unions and employees' associations, of the severity of the current situation, leading to articulation of individual demands without considering the endangered status of the entire company
- Lack of consistent and optimized processes in order to match international competitors' standards and to ensure efficient operation
- Lack of strategy, leading to optimization in single areas which in several cases are unfavorable for VARIG as a whole

### **Strengths / Opportunities**

Despite all these problems, there are reasons for a positive outlook. Within the past seven (07) weeks, the following positive signs within VARIG as well as in the market were identified:

- VARIG has qualified experts in most areas of the airline business
- The majority of staff and management clearly shows the willingness to change and actively supports the change process
- VARIG still has an image as safe and reliable carrier in the market
- VARIG is a national symbol for the Brazilians
- The VARIG brand is renown around the world and strongly linked to Brazil
- VARIG has a strong international network linking Brazil with the world
- VARIG has a significant share in the highly lucrative shuttle between Rio de Janeiro and São Paulo
- VARIG is a member of a worldwide airline alliance, the Star Alliance
- The Brazilian market is showing a very positive development, having doubled in the last 10 years.

### **Short-term / immediate measures**

Due to financial and time constraints, for the short term, the focus of the current approach is on a "recovery / survival strategy" valid for the upcoming months while ensuring not to limit VARIG's future possibilities (dependent on the detailed definition of the strategic framework which is to follow). Therefore, the current approach concerning short-term measures is determined by the identification of immediate revenue and cash generation and cost cutting potential.

The most pressing task at this moment for VARIG is to manage the crisis and to guarantee operational stability by focusing on customer needs while reducing costs. The carrier has to offer an efficient, safe, reliable and good product at reasonable prices. This will enable VARIG to efficiently compete with its local and international competitors and to strengthen its deteriorating position as a key player in the airline market in its region. The coming

months will remain difficult for VARIG, having identified some major financial obstacles. The management has to consolidate and prepare the organization for the years ahead, as the carrier is [REDACTED] overstaffed with very low productivity of the approximately 12.000 employees with 78 aircraft of which only 64 are operating for VARIG passenger airline. However, currently VARIG has expensive financial commitments for the 14 aircraft it does not operate due to maintenance issues (missing spare parts, engines, etc). These and other financial barriers have to be solved immediately.

### **Medium term to long-term measures**

The development of a corporate strategy that is revised on a revolving basis is one of the upcoming tasks for the Top Management. Within the framework of the overall strategy, which sets the overall direction of the company, the business strategies of the company's organizational units have to be defined, specifying the implying actions for the respective business area. Such strategy development also implies the continuous investigation of competition, customers, constituents and markets as well as the own company's status quo.

The development of the strategy will be supported by Lufthansa Consulting and possibly a new direct report unit to the President and CEO "Strategy and Corporate Structure", to support in this process. An integrated strategy and business planning process will be established with top priority. After evaluation of the data from the current analysis and identification of the solution for the current debt situation, a top management workshop can be held to determine VARIG's final strategy, vision and mission. This should then be reflected in a newly developed / adjusted vision and mission statements in the various directorates / divisions to support the overall goal.

The future strategy / vision / mission will include a statement / position on the following key points:

- Markets to serve
- Customers
- Product
- Competition
- Technology
- Profitability & Growth
- Philosophy / Self Concept
- Image
- Employees

## Conclusion

As a general conclusion of the assessment, a lack of vision at VARIG was observed leading to an unclear and unformulated strategy, vision and mission for the company as a whole.

However, most of the constituents have understood the essential importance of strategy development at VARIG. Since long-term strategic thinking has not been required in the past, assistance in the delivery of strategic input to solve the crises and get the airline back on track is required.

Strategy development at VARIG should therefore be divided into short-term and medium- to long-term measures, which will allow for staff to understand, comment and engage in strategy development. Full support and commitment on all levels will be necessary to allow for successful implementation, as will be the staff who ultimately has to put strategy into action.

Clearly a major reason for the staff's concern is the uncertainty regarding VARIG's future. Reducing this uncertainty by improving communication is highly recommendable. In the meantime, management knowledge regarding the roles of competition, customers, constituents, markets and VARIG itself, shall be enforced supporting the definition of the future role VARIG can play in the air transport industry.

In the process of preparing this recovery and business plan, VARIG's top management will have to face several important strategic decisions, such as re-locating some units to São Paulo, following the decision to establish VARIG's major hub in GRU, and by concentrating the production units such as aircraft and maintenance facilities in São Paulo, greatly improving efficiency.

The strategic planning system in the future will include for example clear implications on the potential need for a re-location of certain VARIG units to São Paulo. Other strategic options to be evaluated in the next steps are the implications of a separated operation of local traffic which is not directly linked to the international network of VARIG, the position regarding corporate governance for existing subsidiaries / potential future spin-offs, etc.



### 3.2 Recommended Improvement Measures

As stated before, the definition and implementation of a strategy for an established company cannot take place within a few days. This entire document is designed on an interim strategy, a so-called recovery / survival strategy. All described measures are concentrated on immediate actions, while not limiting VARIG in the definition of the future strategy, which will take place in the fourth quarter 2005. This strategy definition will be supported by Lufthansa Consulting.

Of immediate importance is the creation of strategic awareness. It is recommended to form a "Strategy and Corporate Structure" function (described and reflected in the Corporate Structure chapter). This will be the beginning of a systematic development process at VARIG, which will increase the level of understanding of the overall strategic direction due to be formulated. A new culture incorporating a mental change will be established within VARIG, continuously checking internal and external influence factors (competition, customers, constituents and markets). The greatest challenge will be to scrutinize all barriers and to continuously search for optimization potential in all areas. As an example, the need for lobbying with the relevant authorities to ensure the necessary participation of VARIG in future decisions, policies and laws, should be addressed within the strategic framework.

The development of a corporate strategy with clear, precisely formulated and communicated strategic objectives, both immediate and long term, as well as strategic plans on how to achieve these objectives and how to successfully implement the resulting strategic projects, will be the base of VARIG's business model and its planning and budgeting processes. In this context of strategic, operational and tactical planning, continuous cross checks of the strategic guidelines against the determining factors must be incorporated. The Top Management together with employees and other key constituents, supported by the technical consultant, will develop a successful and promising strategy for the future.

Such strategic effort has to be fostered for the medium term planning horizon with a 5 year Business Plan for VARIG.

#### **Strategic principles included in this business plan**

The underlying strategic decision reflected in this business plan is that VARIG should remain one of the strongest carriers in South America. VARIG will battle for the position of the leading airline in Brazil, especially by assuring connectivity between domestic and international origins and destinations. The extensive network in conjunction with the Star Alliance (with even further enhanced connectivity) will foster VARIG's position in this regard. With a more homogeneous fleet adjusted to market and customer needs, VARIG

will ensure state of the art transportation within Brazil as well as between Brazil and other South American destinations, US and Europe. Due to the extensive cooperation with the other members of Star Alliance, VARIG will also ensure transportation to Asia and Africa.

VARIG shall maintain a position of one of the largest employers in Brazil with competitive remuneration for its employees. For the future it is foreseen that VARIG will remain under very strict cost control while continuously renewing and reshaping its product according to market demand and profitability targets. Continuous cost and revenue optimization and cash flow improvement initiatives will be conducted, all without compromising safety and security, paving the way to a state-of-the art airline fulfilling customer demands with a special Brazilian style. Within the time frame of the business plan, VARIG will subsequently relocate some operational units to São Paulo.

### 3.2.1 STRATEGY 01: Develop and Implement corporate strategy, vision and mission statement

<p><b>Current Status:</b></p> <p>There is no valid corporate strategy, vision and mission statement available within the organization.</p>
<p><b>Measure Description:</b></p> <p>In a first instance, the current crisis demands a recovery / survival strategy. This strategy will take into consideration all factors of influence of the future strategy definition while remaining flexible for changes. In the 4<sup>th</sup> quarter of 2005, a consolidated strategy definition and implementation approach will be conducted. This approach is further supported by all collected information and the introduction of a "Strategy and Corporate Structure" function, as described in the respective chapter.</p>
<p><b>Future Status:</b></p> <p>The introduction of the final strategy after a solution for the current debt situation has been found will have significant importance for the future business of VARIG. This future strategy will set the framework and direction of the entire company. An integration of the major strategic issues into the existing Balanced Score Card process should be investigated.</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>This measure implies a huge saving potential (avoid unnecessary costs of unguided, sub-optimal decision making processes). It forms the key to the optimization of future results. Many of the described improvement measures of this recovery plan are strongly linked to strategy, as for instance fleet homogenization, product decisions, network, treatment of subsidiaries, etc. As far as such measures have an impact on the result, it is directly incorporated in the respective described measures in the following sub-chapters. The additional potential for improvement based on a uniform direction for the "New VARIG" is seen as additional potential for result improvement.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>None</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>Measure will take place within the coming months and will be finalized latest until end of 2005, depending on the solution of VARIG's debt problems.</p>
<p><b>Required Manpower input for the project:</b></p> <ul style="list-style-type: none"> <li>▪ Collection / development of information for the strategy process</li> <li>▪ Top Management Strategy Workshop of approximately 3 days</li> <li>▪ New "Strategy and Corporate Structure" function</li> </ul> <p>External assistance is recommended for the set-up, staffing and goal definition of the unit as well as for the strategy workshop itself.</p>

<b>Preconditions / Dependencies:</b> None
<b>Opportunities / Risks:</b> The required personnel have to be taken preferably out of the existing staff of VARIG. Nevertheless, this task has not been in the focus during the past few years and in case no competent employees are found, an external staffing may be considered. This measure has rather to be seen and understood as long overdue and will lead to significant improvements for the company.

### 3.2.2 STRATEGY 02: Implementation and revolving update of a corporate business plan

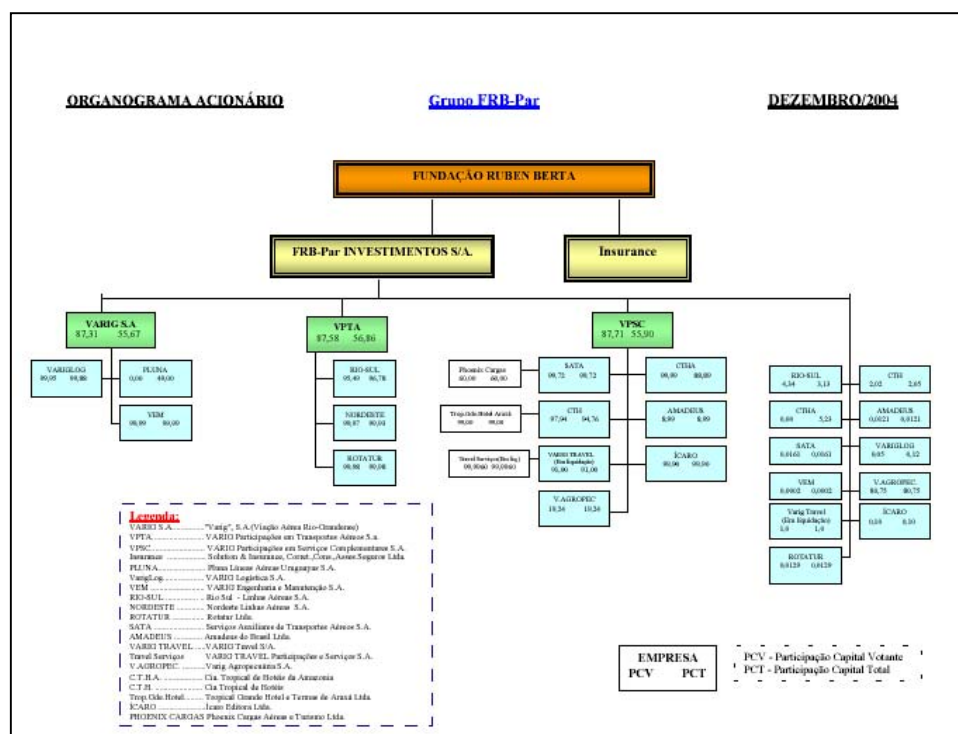
<b>Current Status:</b> VARIG is currently operating on a one year budget planning base only. For several years, there has been no sound, company wide business plan for at least the coming 3-5 years, available.
<b>Measure Description:</b> The current Business Plan is developed by VARIG with the assistance of Lufthansa Consulting (Technical Advisor for the operational plan) and UBS (Financial Advisor for the financial plan).
<b>Future Status:</b> The new Business Plan, as well as the accompanying continuous measurement of real results against the forecasted figures of the Business Plan will develop into a "natural" controlling task. A revolving revision of the newly developed Business Plan will have to be implemented.
<b>Cost Saving / Revenue Generation Potential:</b> A calculation of the implied cost saving / revenue generation potential of this measure is not possible, although undisputable existing. In any case, the cultural change within the organization of VARIG to develop a 3 - 5 year horizon will ensure a stronger focus on planning of all decisions not only on a day to day basis and lead to significant result improvements.
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> None
<b>Required Manpower input for the project:</b> Already finalized within the chapter 11 requirement of a recovery plan including a business plan for the judges and the creditors.
<b>Preconditions / Dependencies:</b> None
<b>Opportunities / Risks:</b> There is no risk related to this measure. The opportunities are described above.

## 4. Corporate Structure

### 4.1 Status Quo

VARIG is part of the Fundação Ruben Berta. Within the historically developed and diversified structure of the Fundação, various companies with a more or less direct connection to the passenger air transportation business can be identified. It is not the existence of such diversification itself, but the lack of transparency of business processes within and between the entities as well as the diverging targets of a foundation with the economic implications in the international airline business, that are a primary source of concern. The Fundação has already stated its willingness to reduce the shareholding in VARIG to the status of a minority shareholder, which would improve the currently unfavorable processes regarding corporate management. Linked to this organizational structure and also a primary cause of concern is the missing continuity in the leadership of the airline. The company has seen seven (07) Chief Executive Officers during the past few years. This continuous change is partially caused by the given corporate structure. For long-term profitable survival, the company needs a strong and constant management and control that is not undermined or hindered by internal stumbling blocks.

Figure 2: Organizational Chart of the Fundação Ruben Berta



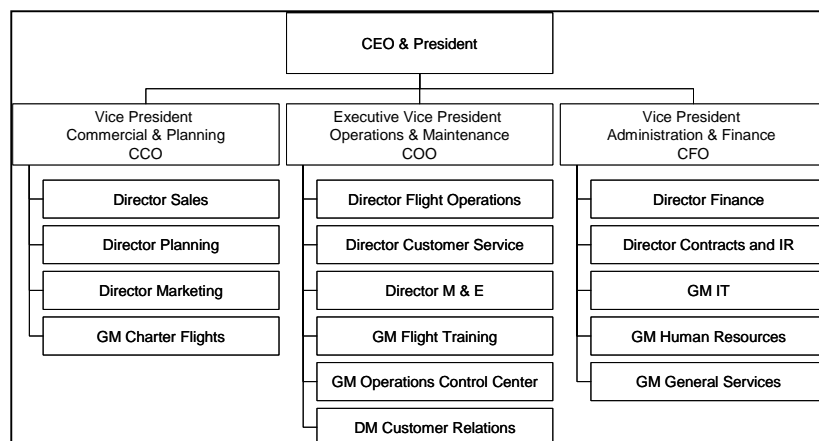
VARIG's organization resembles the traditional vertical and partly dysfunctional bureaucratic structure. The current structure was re-designed approximately 2-3 years ago, based on an external study by Spencer Stuart dated June 2002. The organization is headed by a CEO / President, leading three (03) Vice Presidents (CFO, CCO and COO) out of which currently two (02) positions are not staffed. The Vice Presidents (VP's) also hold one of the director positions reporting to the VP in order to allow for a potential future change from this VP structure. One of the Vice Presidents is representing the CEO & President in case of absence and marked as Executive Vice President for clear identification.

Decision-making has been characterized by very centralized responsibilities (delegated upwards) and also by very little horizontal communications (silo mentality) between the organizational units. The span of control is neither regulated nor related to the specific requirements. Also the entire organization shows a trend for fragmentation into very small units. Besides, there is no consistent system of corporate objectives.

VARIG has seven (07) hierarchical levels reporting to the Board of Administration:

- Chief Executive Officer (CEO) & President
- Vice President (VP), Chief Financial Officer (CFO), Chief Commercial Officer (CCO) and Chief Operating Officer (COO), out of which the first two (02) positions are currently not occupied
- Director
- General Manager
- Divisional Manager
- Coordinator / Supervisor
- Technical / Operational Staff

Figure 3: Organizational Chart of VARIG



Source: VARIG

There are six direct reports to the CEO:

- Regional Director Brasília; BSB DC
- Regional Director Rio Grande do Sul; POA DS
- General Manager Public Relations and Press; RIO GQ
- Organizational Development Department; RIO DD
- Flight Safety, Accident Investigation & Prevention Department; RIO EA
- Legal Affairs Department; RIO DA

Units in charge of strategic questions as well as for organizational structure are missing in this list. The reason for the two regional directorates is not transparent at the moment.

The spin-offs of VEM (Maintenance & Engineering) as well as of VARIGLOG (Cargo and Logistics) were performed in the end of 2001. Since these spin-offs have not been performed to the last consequence, leaving many grey areas concerning functions and responsibilities of VARIG and these subsidiaries, a lack of transparency with regard to business processes between them remains. Up to now, a number of employees of the subsidiaries are initially paid by VARIG (this issue is addressed in the Human Resource section of this recovery report). The main issue, however, is that the customer-supplier relationship has never been defined. VARIG must finally start treating VARIGLOG as customer and VEM as supplier and ensure that all services are continuously benchmarked to potential competitors. There is no reason for a “quasi-monopoly” for the now independent subsidiaries.

In addition the concept of Shared Services deserves a deeper investigation, dependent on the future relationship between VARIG and VEM / VARIGLOG and should be carried out as soon as the future status of the current subsidiaries companies is decided.

During the past 20 years, the three (03) airports in São Paulo developed from approx. five (05) million passengers per year to a total of approximately 27 million passengers per year, while the two (02) airports in Rio de Janeiro developed only from approximately seven point five (7.5) million Passengers in 1984 up to approximately ten to twelve (10-12) million Passengers in 2004. Regardless of this impressive shift in customer demand, the main site / location of VARIG is still Rio de Janeiro. Maintenance bases are in Rio de Janeiro and in Porto Alegre and two practically integrated regional airlines (Rio Sul and Nordeste) have bases in Porto Alegre and Salvador. For the future, VARIG has to develop a long-term detailed plan to successively strengthen the core operational location in São Paulo.



## 4.2 Recommended Improvement Measures

In the current situation, we recommend to perform only minor changes in the organizational design, which are obvious from the findings of the analysis in the various areas.

The very first measure is to initiate a company-wide investigation and project plan regarding the transfer of the operational home-base from Rio de Janeiro to São Paulo. Such investigation must include research on operational needs as well as external factors, as for instance taxation.

Dependent on the mandatory clarification and decision on the future of the Air Operator Certificate of Rio Sul and Nordeste, we propose to investigate the full integration of these subsidiaries.

A new function “Strategy and Corporate Structure” is to be included into the current organization of VARIG, as a direct report to the CEO & President. In line with this measure, a verification of the current direct reports will be performed. VARIGLOG and VEM must finally be completely separated, and all interweaving between VARIG and its siblings still existing must be sorted out. (This includes a recommendation for the improvement of the VEM organization).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

A new organizational structure will be included for the VARIG Maintenance directorate in order to support the legal requirements given by law. This organizational measure will ensure that VEM is treated as a supplier.

Operations control and dispatch should be centralized in one location, in line with measure STRUCTURE 01.

Investigation into the possible change of the Flight Training Center from a cost center into a profit center. In a second step, a sale of the unit should be envisioned. Independent of the sale, the Flight Training Center must investigate the locations where VARIG as well as third parties would like to have a flight training provider. [REDACTED].

Corporate IT should be repositioned in order to separate IT governance and IT provider functions. Presently VARIG's corporate Information Technology (IT) is involved in a mixture of IT governance and IT service provisioning such as system support, applications development etc.

Human Resource Management is a crucial function in regards to corporate development and success. HR will either be directly linked as a staff function to the CEO. The positioning of the General Services function should also be decided in line with the fine-tuning of the organizational structure.

#### **Initial thoughts regarding rules and regulations of a future VARIG**

The development of a final corporate structure, including the necessary tool kit is one of the major tasks for the new function "Strategy and Corporate structure", as soon as the new strategy for VARIG is jointly defined (structure follows strategy). Targets will be to decrease transactional and administrative costs and to increase productivity, necessary communication and knowledge exchange focused on the following topics:

- Delegate downwards responsibility maintaining control and improving teamwork
- Investigate into the Implementation of an administrative shared service organization with centralized transactional activities and reduced administrative headcount. Such measure must first of all be started with a fostered / strengthened administrative function within VARIG (as for example explained in measure STRUCTURE 14). Organizational capabilities can be segmented into transaction-based (high routine, high volume, sensitive to scale), expertise-based (technically specialized, require considerable contact with internal customer) and strategy-based (critical to competitiveness). The approach should start with the transaction-based services, as for instance Human Resource, Facilities and Services, Accounting, IT. Savings of 20% – 50% of total costs in each field can be envisioned. In a second step, the expertise-based services, as for instance Tax, Legal, IR, etc.) should be investigated and on a case to case basis

included. The strategy-based services should not be included, in order to ensure the independence of the subsidiaries.

- [REDACTED]
- Streamline forecasting, budgeting and planning processes
- Redesign and consolidate facilities
- Simplify non security relevant work rules

We recommend a transformation of the current general structure into a new lean structure under the administration board based on a Managing Board with one President/CEO and three (03) Vice Presidents with clear procedural rules and complementary objectives. To increase communication and enhance knowledge exchange, it is necessary to improve teamwork –for example following a matrix structure – by founding cross-functional groups related to the core processes. In addition, it is mandatory that decisions with potential strategic impact on the entire company are discussed and agreed upon in the board. An organizational structure must be implemented in order to be able to set up and stabilize processes and to define clear interfaces.

The vertical structure should be transferred step by step (as far as it is improved in the aviation industry) into a more horizontal structure based on processes and customer focus. The legal department – also directly linked to the president – should be responsible for all legal relevant activities and documents.

The organizational structure is based on an in-depth process analysis and definition, leading to the best fitting organizational structure.

#### 4.2.1 STRUCTURE 01: Corporate Structure, Investigation into a potential transfer of VARIG's operational base to São Paulo

##### **Current Status:**

VARIG is currently operating domestic, regional and international passenger services from its headquarters location in Rio de Janeiro. Within the past 20 years, traffic dramatically shifted from Rio de Janeiro to São Paulo, the industrial heart of Brazil. VARIG cannot constantly neglect this development and has to evaluate a potential move towards the new location of business. In the context of establishing the main hub in GRU, the operational base for long haul aircraft and part of the short and medium haul aircraft must necessarily be located in GRU in order to generate the efficiencies included in this business plan.

##### **Measure Description:**

Set up of an internal working group, preparing a detailed investigation of all areas, to investigate if VARIG can move and to make a financial evaluation. Such evaluation must include the best possible timing and action plan for a potential relocation. Such a relocation process will not take place within a short time frame, a sequential action plan as to who will move first and which departments do not need to be at the hub in the first instance has to be developed. In the short-term, the immediate stop of hiring people in Rio de Janeiro should be envisaged.

This is also and especially valid for the fleet and all related services (Maintenance) and the cockpit and cabin crews. Special procedures must be developed for an interim period to allow crews to shuttle between Rio de Janeiro and São Paulo without payment, but also without using working hours for this shuttles, in case the above mentioned decisions favors a move to São Paulo.

##### **Future Status:**

In the long term, most of VARIG production related units should be located in São Paulo. Few others might remain in Rio de Janeiro.

##### **Cost Saving / Revenue Generation Potential:**

Savings are to be seen in various areas:

- Staff working time for working and not flying
- Telephone and other communication costs
- Higher productivity by reduction of travel time
- Reduction of direct operating cost through reduction of employee travel (fuel, catering etc)
- Fewer positioning flights for maintenance
- Reduced office needs in Rio de Janeiro, Porto Alegre and Salvador

These potential savings and the potentially required investment / costs are to be seen as future additional potential. Some of the current operations are

already concentrated in São Paulo.
<b>Required investment (Cash-Outflow):</b> Cash outflow will mostly take place due to: <ul style="list-style-type: none"> <li>■ Relocation package for staff (part of negotiations for working conditions)</li> <li>■ New / additional office infrastructure in São Paulo</li> <li>■ Higher fuel taxation for domestic flights in São Paulo (25%) than in Rio de Janeiro (04%)</li> </ul>
<b>Required time for implementation / Required time for first results:</b> The in-depth analysis of this measure should be performed within 3 – 6 months time. A completion of this measure will take several years. Nevertheless, initial process improvement (move under one roof) and cost savings will be generated as soon as the process is initiated.
<b>Required Manpower input for the project:</b> The planning process for the relocation is a complex project which requires a full time project management by VARIG and additional management capacities in the various directorates
<b>Preconditions / Dependencies:</b> The first precondition is a plan showing the positive financial prospect of the measure. The full support of the Top Management is mandatory and an agreement with the Government of the different regions for special tax regulations must be found. Another important pre-condition is to settle an agreement with the unions regarding their support. There is a strong link to various measures, as for instance working conditions, network, maintenance, etc.
<b>Opportunities / Risks:</b> As this relocation is a lasting process, VARIG should carefully analyze the pros and cons for the relocation (business processes and involved costs and benefits). Based on a positive outcome of this analysis a relocation plan must be developed and agreed. Infrastructure restraints especially in GRU are to be investigated (including gates, transit lounges, immigration & customs, slots, ground support availability, VEM facilities and service concept, high airport taxes.

#### 4.2.2 STRUCTURE 02: Corporate Structure, Final Integration of Rio Sul & Nordeste

<b>Current Status:</b> <ul style="list-style-type: none"> <li>Integration of two adjacent flight operation organization is incomplete</li> <li>Insufficient planning &amp; steering complexity</li> <li>Insufficient optimization of structural different organizations</li> </ul>
<b>Measure Description:</b> Final integration of Rio Sul & Nordeste into the VARIG organization
<b>Future Status:</b> We consider VARIG, Rio Sul and Nordeste as one joint organization
<b>Cost Saving / Revenue Generation Potential:</b> TBD
<b>Required investment (Cash-Outflow):</b> The issue of currently negative equity of Rio Sul and Nordeste has to be solved
<b>Required time for implementation:</b> 3 –6 month
<b>Required time for first results:</b> 6 month
<b>Required Manpower input for the project:</b> VARIG: TBD; external assistance is recommended
<b>Preconditions / Dependencies:</b> Negative equity of companies / Legal implication
<b>Opportunities:</b> <ul style="list-style-type: none"> <li>- Complexity reduction</li> <li>- Cost reduction potential</li> </ul>
<b>Risks:</b> AOC Ownership

#### 4.2.3 STRUCTURE 03: Corporate Structure, Ensure full separation of VARIGLOG

<p><b>Current Status:</b></p> <p>The measure described below abstains from a potential sale of VARIGLOG, which is currently under investigation.</p> <p>The separation of VARIGLOG from VARIG is not fully in place. For instance, VARIG still pays the salaries of 297 employees on behalf of VARIGLOG. This payment is reimbursed to VARIG. (Please investigate measure HR 01 for further details on the salary situation.)</p>
<p><b>Measure Description:</b></p> <p>Clearly separate all functions of VARIGLOG and VARIG and ensure full disentanglement of the two companies.</p>
<p><b>Future Status:</b></p> <p>Independent, if VARIGLOG remains an affiliate of VARIG, all functions and processes will be clearly separated.</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>There is no direct cost savings potential accounted to the Business Plan. Nevertheless, it has to be assumed, that the sheer existence of competition will ensure more favorable results for VARIG than the current situation.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>None</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>This measure will need a few weeks for the full separation, as contracts of employees have to be sorted out.</p>
<p><b>Required Manpower input for the project:</b></p> <p>A working group consisting of VARIG and VARIGLOG must be formed. External support is not necessary</p>
<p><b>Preconditions / Dependencies:</b></p> <p>Full commitment of the Management of VARIG and VARIGLOG</p>
<p><b>Opportunities / Risks:</b></p> <p>The logistic company VARIGLOG has to prove itself as an important player in the Brazilian market and beyond and must be treated as one potential buyer of the cargo capacities of VARIG.</p>

#### 4.2.4 STRUCTURE 04: Corporate Structure, Ensure full independence of VEM as a Maintenance, Repair and Overhaul (MRO) entity

##### **Current Status:**

The development of VEM as an independent MRO is hampered by the still existing "Parent-Subsidiary-Relationship" in almost all significant areas. The contract between the two entities, resulting in a reimbursement of VEM according to "Power by the Month" represents no challenge to the qualifications and abilities otherwise crucial to an independent MRO. Example: Customer ratio VARIG to others at the start 80/20, at present 70/30. The present, very unusual situation surrounding the operator is taken in consideration in this viewpoint. The future of VEM is in the hands of the operator VARIG.

Valuable time is spent by high-ranking management personnel to fulfill their managing duties of controlling the various branches within the organization of the MRO. (Please investigate measure HR 01 for further details on the salary situation.)

##### **Measure Description:**

Provide contractual requirements making VEM accountable for their actions. Introduce reimbursement for maintenance services according to "Power by the Hour". Establish rules of reimbursement, if not adequate at present, for services provided by VEM other than aircraft maintenance (aircraft spares handling and storage, common materials, equipment and tooling particular to VARIG).

To meet future expectations it is of utmost importance for the MRO to move from the present functional structure of organization to a process orientated organization. Providing customers with the highest quality of service on a daily basis, it is necessary to have an organizational structure that generates positive conflicts between the leading units resulting in optimal benefits to the operator/customer.

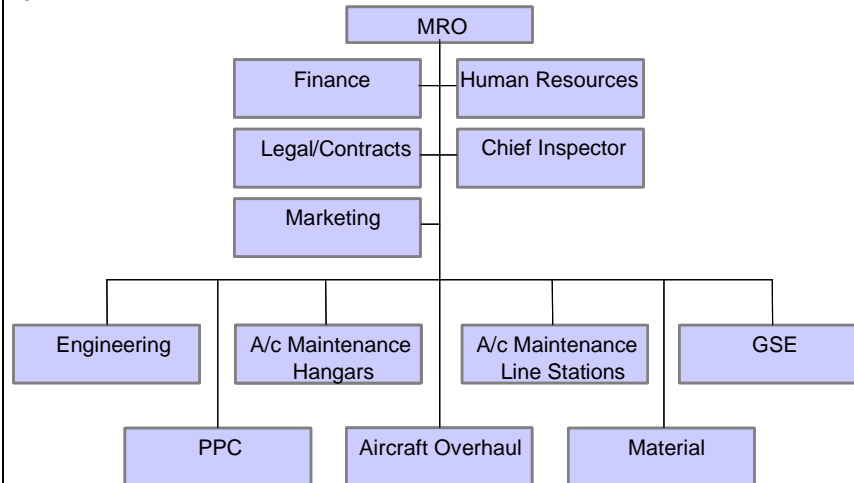
##### **Future Status:**

VEM will work as if VARIG would be an external customer and will act and react accordingly. The MRO is an independent Profit Center with its own budget responsibility. The main processes of the MRO are defined as:

- **System Engineering** (centralized) is the legislator.
- **Production Planning & Control** (centralized) is preparing workable solutions for production and is controlling the results.
- **Maintenance Production** (de-centralized) is executing the maintenance requirements.
- **Material** (centralized) is providing support to production as known.
- Finance, Human Resources, Legal/Contracts, Chief Inspector/Quality Assurance, Marketing and Maintenance Control Center are staff functions supporting the MRO operation.



The products of the MRO are “maintained aircraft” respectively “flight hours”. Please find below a draft for a process oriented organizational chart for VEM:



**Cost Saving / Revenue Generation Potential:**

The savings potential of this measure are to be seen as future additional savings.

**Required investment (Cash-Outflow):**

No investment required.

**Required time for implementation / Required time for first results:**

The clarification process of segregation in administration, planning and engineering functions will require 6 month.

**Required Manpower input for the project:**

- A working group consisting of VARIG and VEM representatives (of main maintenance locations) must be formed
- External support is recommended

**Preconditions / Dependencies:**

The goal of the segregation process must be a clean separation of administrative and engineering function between operator and MRO. Willingness of VARIG Management to place the economical risks full in the hands of the MRO. The readiness of the MRO to accept the challenge of responsibility for economical success. Clearly defined management guidelines for all processes (know your goals).

**Opportunities / Risks:**

For the MRO to prove itself as an important player in the Brazilian market and beyond. For the operator to use the free market to find the best deal for the maintenance services it requires according to their standards. The process oriented organization puts management in the “driver seat”. The parameters provided by different cost centers gives management full control over each process including budget and allows corrections as warranted in real time.

#### 4.2.5 STRUCTURE 05: Corporate Structure and Strategy, Set-up of a "Strategy and Corporate Structure" function

<p><b>Current Status:</b></p> <p>There is no corporate strategic planning process existing at VARIG. Also the corporate structure is currently not consistent.</p>
<p><b>Measure Description:</b></p> <p>Set-up of a "Strategy and Corporate Structure" function within VARIG. This unit should report directly to - and be steered by - the President &amp; CEO.</p>
<p><b>Future Status:</b></p> <p>Regarding the strategy development, this unit will be responsible to support the Top Management of VARIG in strategy development and introduction. In addition, the unit will be responsible to ensure that the corporate structure is broken down into fitting business strategies by the various VP's and Directors. Last but not least, it is mandatory that this unit will investigate trends in the industry and will support the Top Management with information / scenarios of the possible development of markets, customers, etc and the result of the various possible actions / re-actions of VARIG. A clear reporting process will have to be part of the Rules &amp; Regulations for the new "Strategy and Corporate Structure" unit.</p> <p>"Structure follows Strategy" leads to the second core duty of this unit. They will be in charge to ensure a fitting (to the strategy) corporate structure. Principles for lean organization will guide the process oriented investigation in all areas and lead to significant reductions in the entire organization of VARIG. This unit shall investigate in detail, which functions should be decentralized and which should be centralized. A further investigation regarding the scope of the internal shared services and which services shall be entirely outsourced, as the current paper only gives a snapshot of the most obvious changes).</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>The set-up of the unit itself does not imply any cash-out, as it will be set-up out of the existing VARIG employees.</p> <p>The introduction of lean organization principles will lead to lasting savings due to the consolidation of currently separate units. Nevertheless, we refrain from any quantification of this effort at this point of time and see this as additional future potential.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>There is no direct cash-outflow due to the implementation of a corporate strategy unit. Nevertheless, this unit and the evolving plans will have significant impact on the future cash-outflow and cash-inflow of the company.</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>A new "Strategy and Corporate Structure" unit can be implemented within a few weeks time. It should be possible for the new unit to develop the very</p>

<p>first concepts and proposals for the management within short time. This has to be supported by external assistance and is dependent on the qualification of the newly appointed staff.</p>
<p><b>Required Manpower input for the project:</b> A strategy and corporate structure unit will commence business with just a single digit amount of members. External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b> Agreement with VARIG Top Management and Human Resource directorate regarding the corporate structure processes.</p>
<p><b>Opportunities / Risks:</b> Huge potential is seen in the better preparation of VARIG to cope with external influences and in the faster action / re-action of VARIG to new developments.</p>

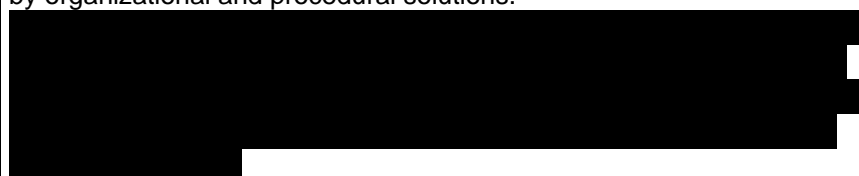
#### 4.2.6 STRUCTURE 06: Commercial – Staff position of VP Commercial and Planning and create balance between sales and revenue management

##### **Current Status:**

Sales Directorate, Marketing Directorate and Planning Directorate currently report to the Executive Vice President Commercial and Planning (CCO). This distribution of functions under the EVP Commercial and Planning is adequate for the efficient management of a modern airline. The Planning Directorate includes all the functions of a modern Network Management organization, while the Sales Directorate oversees the domestic and international sales activities.



The natural conflict arising from these two different tasks must be managed by organizational and procedural solutions.



See also the section Revenue Management below.

##### **Measure Description:**



##### **Future Status:**

Balance of power between sales and revenue management function by allocating them on the same organizational level and staffing functions.

##### **Cost Saving/Revenue Generation Potential:**

Included in measures on revenue management and sales

<b>Required investment (Cash-Outflow):</b> No investment necessary, as only an organizational change will be implemented
<b>Required time for implementation / Required time for first results:</b> Immediately
<b>Required Manpower input for the project:</b>
<b>Preconditions / Dependencies:</b> None
<b>Opportunities / Risks:</b> None

#### 4.2.7 STRUCTURE 07: Centralization of Sales Directorate in São Paulo

<b>Current Status:</b> Out of 540 employees in 4 units reporting to the Sales Directorate, 415 are already based in São Paulo. E-commerce management, sales administration management and commercial system management are currently based in Rio.
<b>Measure Description:</b> <div style="background-color: black; width: 100%; height: 60px;"></div>
<b>Future Status:</b> <div style="background-color: black; width: 100%; height: 30px;"></div> Fast and Coordinated sales decisions will be more important in the future, to gain market shares.
<b>Cost Saving/Revenue Generation Potential:</b> Cost savings by reducing personnel costs through synergies and more efficiency. 80 positions less will <b>save about 0,65m US\$ per year</b> (including employers contribution)
<b>Required investment (Cash-Outflow):</b> The employers obligations amount to approximately <b>0,2m US\$</b> (one time payment)
<b>Required time for implementation / Required time for first results:</b> 8 months
<b>Required Manpower input for the project:</b> 3 man months
<b>Preconditions / Dependencies:</b> <div style="background-color: black; width: 100%; height: 20px;"></div>
<b>Opportunities / Risks:</b> ...

STRUCTURE 08:

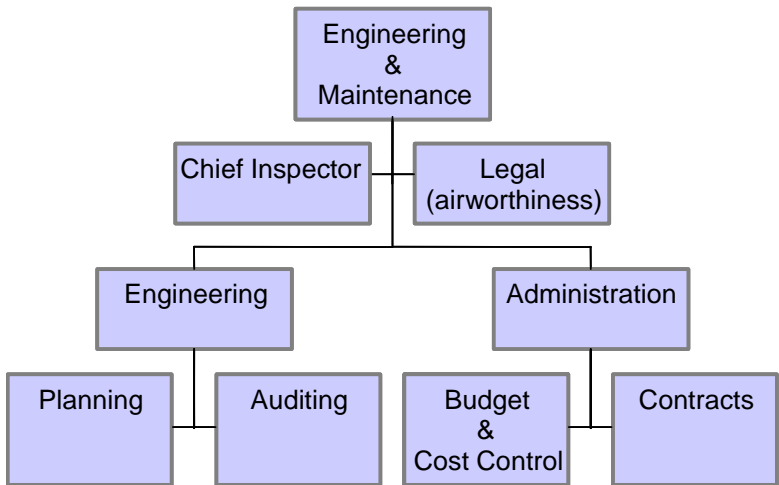
<b>Current Status:</b> <div></div> <p>Coordination of international sales is not centralized due to the regional organization.</p>
<b>Measure Description:</b> <div></div>
<b>Future Status:</b> <p>Better coordination and adherence to company sales policy, reduction of cost</p>
<b>Cost Saving/Revenue Generation Potential:</b> <p>Cost Saving: 0,7m US\$ per year; represents 10 layoffs</p>
<b>Required investment (Cash-Outflow):</b> <p>None</p>
<b>Required time for implementation / Required time for first results:</b> <p>6 months</p>
<b>Required Manpower input for the project:</b> <p>...</p>
<b>Preconditions / Dependencies:</b> <p>...</p>
<b>Opportunities / Risks:</b>

#### 4.2.9 STRUCTURE 09: Shift the organizational unit of Customer Relations Management from EVP Operations to VP Commercial and Planning

<b>Current Status:</b> Customer Relations Management is organized under the VP Operations who has a supporting function for the commercial units.
<b>Measure Description:</b> Shift Customer Relations Management to VP Commercial and Planning in order to have all customer related activities under one roof, increasing customer orientation and speeding up communication between the airline and its customers.
<b>Future Status:</b> Improved customer orientation and more direct communication between VARIG and its customers
<b>Cost Saving/Revenue Generation Potential:</b> No cash out necessary
<b>Required investment (Cash-Outflow):</b> No investment necessary,
<b>Required time for implementation / Required time for first results:</b> Immediately
<b>Required Manpower input for the project:</b>
<b>Preconditions / Dependencies:</b> ...
<b>Opportunities / Risks:</b>



#### 4.2.10 STRUCTURE 10: Maintenance, Ensure adequate structure of VARIG maintenance function

<p><b>Current Status:</b></p> <p>The Engineering &amp; Maintenance function is by design unable to fulfill its obligations on behalf of management. The below described measure abstains from a potential sale of VEM.</p>
<p><b>Measure Description:</b></p> <p>Provide structure of organization to support the legal requirements. Ensure centralization of the organization in possibly one location (São Paulo) and not combined with VEM Engineering to generate a high level of identity with operator.</p>
<p><b>Future Status:</b></p> <p>An adequately staffed Engineering &amp; Maintenance function will support the operator's intentions and thereby ensure an optimal fulfillment of its aircraft maintenance requirements. It will be staffed with approximately 20 employees. Please find below our proposal for the organizational structure.</p> <div style="text-align: center;">  <pre> graph TD     EM[Engineering &amp; Maintenance] --- CI[Chief Inspector]     EM --- Legal[Legal (airworthiness)]     CI --- Eng[Engineering]     CI --- Admin[Administration]     Eng --- Planning[Planning]     Eng --- Auditing[Auditing]     Admin --- Budget[Budget &amp; Cost Control]     Admin --- Contracts[Contracts] </pre> </div>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>Cost savings are incorporated in the overall projected reduction in Maintenance expenses anticipated for VARIG within the Engineering and Maintenance section of this report.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>No investment required. Everything needed is available; it has to be placed correctly to produce a quality product in the spirit of the decisions made in 2001. Staffing should be limited to internal available staff.</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>Expected timeframe is 6 months. First results to be expected thereafter.</p>

<b>Required Manpower input for the project:</b> No additional manpower required. Selection of qualified personnel from the present staff assigned to VEM with knowledge of company history and development.
<b>Preconditions / Dependencies:</b> Commitment to improve present situation.
<b>Opportunities / Risks:</b> As an intermediary between operator and MRO the Maintenance Division will have a catalytic effect in the cost reducing efforts of the operator. It will be instrumental in controlling and evaluating VARIG's standard- and quality-expectations based on free market criteria.

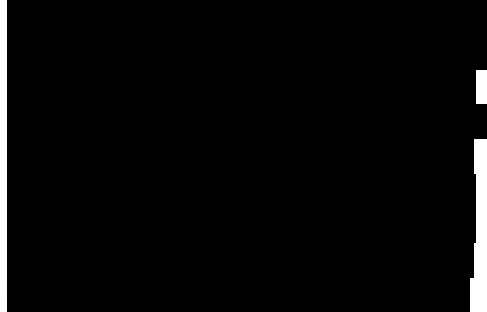
#### 4.2.11 STRUCTURE 11: Flight Operations, Centralization of Dispatch

**Current Status:**

**Manpower and Relocation:**

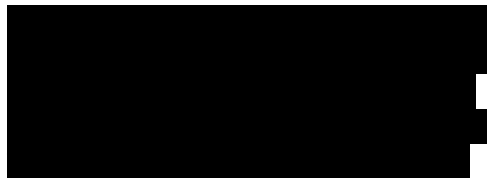
Before Phase 1:

VARIG currently operates 6 Flight Dispatch Centers with a total of 87 employees with the following locations:



Before Phase 2:

Flight Dispatch duties and responsibilities are decentralized in the following offices with the following man-power:



**Shift-pattern:**

Current shift duties of 6 hours per shift and not more than 36 hours a week and at least one Sunday off within 4 weeks. This applies to almost all shifts in all different areas in CCO with only one or two exceptions. As a consequence 4 shifts are needed per day, and no shift over-lapping times are given in order to brief next shift about any irregularity. This pattern is not only time consuming and of no advantage to the employees in the Centro de Controle Operacional (CCO), it is also of no advantage for the company since no briefing about necessary actions is provided. Thus leading to double work and possible misunderstandings.

**Measure Description:**

**Manpower and Relocation:**

Phase 1:

Dispatch duties and responsibility including Flight Watch and In-Flight- Assistance shall be integrated in phase 1 from abroad into the existing CCO (GIGCA) as the only one unit, in order to improve effectiveness of the duties concerned and in order to save costs.

This must be done step by step in order to assure that GIGCA is fully aware about possible differences and existing deviations in practical workload from

procedures established within Brazil.

E.g. [REDACTED]

#### Phase 2:

Dispatch duties and responsibility including Flight Watch and In-Flight Assistance shall be integrated in phase 2 from one Centro de Controle Operacional, as the only one unit, in order to improve effectiveness of the duties concerned and in order to save costs. Special attention is also necessary to identify possible existing differences between RIO and SAO. Most important is the availability of automated interfaces between RIO and SAO.

Process reconstruction with:

- centralization in [REDACTED]
  - IT dispatch solution
  - integration of flight planning
  - flight watch
  - in-flight assistance and
  - operation control
  - clear functional separation of planning and control for a/c, crew, maintenance, dispatch, flight planning etc.

#### Shift-pattern:

A new shift pattern for all employees in the CCO (Dispatch, Crew-Control, Maintenance-Control, Weight and Balance, DCS) shall be introduced and the following example may be used for introduction:

	MO	TU	WE	TH	FR	SA	SU
week1	E	E	L	L	L	N	off
week2	off	off	E	E	L	N	N
week3	off	off	off	off	E	E	L
week4	L	L	N	off	off	off	E
week5	E	L	L	L	N	off	off
week6	off	E	E	L	L	L	off
week7	off	off	off	E	E	L	N
week8	N	off	off	off	E	E	L
week9	L	N	off	off	off	E	E
week10	L	L	N	N	off	off	off

E = Early shift from 0600 – 1525 LT = 0925/0850 (decimal)

L = Late shift from 1400 – 2325 LT = 0925/0850 (decimal)

N = Night shift from 2200 – 0725LT = 0925/0850 (decimal)

Each shift has a total endurance of 0925 hrs minus 0075 for break that comes to 0850 hours (decimal) net working time. This ensures that for each shift an over lapping time of 0050 minutes exists. If for any reason more dispatchers/controllers are needed e.g. in the morning then in the late shift, simply the shift pattern will turn from L to E, but still the same amount of working times exists.

This new shift pattern will allow more flexibility, ensures over-lapping times and gives the employees in the CCO a better opportunity in terms of regular OFF-days for recovery.

For dispatch following the new pattern including a calculation about times needed for flight preparation plus a new flight planning system would lead to the figures as shown below. An analysis has been made based on the flight schedule data as of 22 July 2005, with the following regulations / assumptions:

For flights with up to 2hrs block time = [REDACTED]  
 for flights 0200 – 0600 block time = [REDACTED]  
 for flights of more then 6hrs block time = [REDACTED]

Following number of dispatchers must be available per shift:

Early shift: [REDACTED]  
 Late shift: [REDACTED]  
 Night shift: [REDACTED]

Plus 1 Dispatcher per shift for flight watch/in flight assistance plus [REDACTED].

Plus an additional of 30% for off-days, vacation, training a.s.o. gives a total of [REDACTED].

Without the implementation of an automated flight-planning system for all short-range flights (flights up to 2 hours block time) [REDACTED]. With the introduction of the AOS-Module (AOS = Airline Operations Support) that would allow the automated calculation of all short haul flights [REDACTED].

#### **Future Status:**

Phase 1:

Only two offices in Rio and SAO will exists with full responsibility for Flight Planning, Flight Watch, In-Flight-Assistance and for all VARIG/VARIGLOG flights/flight operation worldwide.

Phase 2:

After phase two is finished **only one centralized** office will exists with full responsibility for Flight Planning, Flight Watch, In-Flight-Assistance and Operational Control for all VARIG/VARIGLOG flights/flight operation worldwide.

#### **Cost Saving / Revenue Generation Potential:**

##### **Manpower and Relocation:**

Estimated **cost savings for wages are of approximately 0,6 - 0,9m US\$**

<p><b>per year</b> due to less manpower</p> <p><b>Shift-pattern:</b></p> <p>The new pattern will save some personnel in dispatch and also in ops control, crew control, WAB and DCS. So for example for Crew-Control a potential saving of at least 20% in manpower would exist, if an workable IT-system would assist in crew tracking/crew control activities. Due to time shortage possible savings could not be identified, but in general a change from 4 shifts per day to 3 shifts per day must save same manpower.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>Only a new flight plan system with automated interfaces to WAB-it-system, OPS-it-system and crew-it-system, including the possibility of data transmission using better communication links e.g. INTERNET.</p> <p>Investment in the reduction of workforce needs further investigation, as the employees are contracted in various countries. [REDACTED]</p>
<p><b>Required time for implementation:</b></p> <p>12 months</p> <p><b>Required time for first results:</b></p> <p>6 – 12 months</p>
<p><b>Required Manpower input for the project:</b></p> <p>VARIG: 150 man days</p> <p>Update of documents, information to Cockpit crews, changing of remote flight planning procedures</p> <p>Training for member CCO: 3 days per dispatcher. Training for handling message exchange with the CFMU shall be done with CBT, Internet- training and for the supervisor, training should be done in Brussels. This training will last 2 days.</p> <p>External assistance is recommended</p>
<p><b>Preconditions / Dependencies</b></p> <p>HR Management, contracts</p> <p>Legal conditions for Dispatch in [REDACTED]: Approval from local regulators will be required to terminate Flight Dispatch in [REDACTED]. Centralization of [REDACTED] handling in Rio de Janeiro is directly associated with cause of the Japan routes closure.</p> <p>Flight Planning Tool with automated interfaces to WAB-it-system, OPS-it-system and crew-it-system, including the possibility of data transmission using better communication links e.g. INTERNET.</p> <p>Connection of GIGZA (CCO) to the Eurocontrol information system via</p> <ul style="list-style-type: none"> <li>a) Remote Client Access (RCA) or</li> <li>b) Remote Internet Access (RIA)</li> </ul> <p>Availability of printer facilities for print out of briefing documents in station offices concerned.</p> <p>Acceptance of local authorities for new shifts.</p>
<p><b>Opportunities:</b></p> <p>The higher potential of failure cost avoidance than HR</p>

**Risks:**

[REDACTED]

If at one station a dispatcher is still required to file the ATC-flight-plan which is doubtful since LH has no more dispatchers worldwide except FRA and HKG, regulations shall be made with local authorities to introduce a procedure to file the ATC-flight-plan without presence of a dispatcher. This task could be fulfilled by station personnel if required.

#### 4.2.12 STRUCTURE 12: Flight Operations, Investigation into the potential transfer of the Flight Training Center into a profit center

##### Current Status:

VARIG's "Flight Training Center" is headed by a General Manager, who is directly reporting to the Chief Operating Officer. The locations for flight training are in Porto Alegre, São Paulo and Rio de Janeiro. The unit operates with total costs of approximately [REDACTED] and generates third party revenues of approximately [REDACTED]. The ratio between VARIG and third party customers ranges at approximately 60 : 40. Please find below the available "Full Flight simulators" and the "Flight Training devices" with the respective utilization.

##### VARIG Flight Training Center

##### Full Flight simulators

FFS	Slots		Hours		% Utilization		
	Total *	Availables **	Availables	Used	VARIG	Cong	Total
ERJ 145	1155	1113	4452	664	0	15	15
B707-300	1155	1070	4280	200	5	0	5
B737-200	1155	1061	4244	1580	0	37	37
B747-300	1155	1111	4444	672	0	15	15
B767-200	1155	1070	4280	1696	26	14	40
B737-300	1155	1072	4288	4620	70	38	108

##### Flight Training Devices

FFS	Slots		Hours		% Utilization		
	Total *	Availables **	Availables	Used	VARIG	Cong	Total
DC10-30	990	907	3628	120	3	0	3
B727-100	990	932	3728	220	6	0	6
B737-300	990	932	3728	300	8	0	8

\* Total Slots : Maximum slot time possible

\*\* Available slots: Maximum slot time reduced by maintenance slots

Only the utilization of the B737-300 simulator is satisfying. All other simulators and devices do not reach satisfying utilization rates and especially the low utilization of the ERJ 145, B747-300 and B707-300 equipment are a cause of concern, as they are not even flown by VARIG and do not show sufficient third party demand.

##### Measure Description:

Investigation into the possible change of the Flight Training Center from a cost center into a profit center. In a second step, a sale of the unit should be envisioned. Independent of the sale, the Flight Training Center must investigate the locations where VARIG as well as third parties would like to have a flight training provider. [REDACTED].

##### Future Status:

The Flight Training Center will be relocated into one location and offer competitive services for VARIG and third parties.



<p>The Flight Training Center will be transformed into a profit center, responsible for its costs and revenues (generated by third party business and VARIG internal flight training charged to the Director Operations).</p> <p>The sale of VARIG should not take place earlier than 12 months of experience with the Flight Training Center as a profit center.</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>The centralization of VARIG Flight Training Center in one location will lead to savings due to reduced need for hotels and duty travel.</p> <p>More improvements will be reached in two areas:</p> <ul style="list-style-type: none"> <li>▪ Enhanced third party ratios, based on the independent research for market demands of the Flight Training Center, leading to higher revenues and thus to lower unit costs.</li> <li>▪ Operations will be charged for the Flight Training capacities and a customer-supplier relationship will develop between the two units. Trainings reliability will significantly raise.</li> </ul> <p>A potential future sale will be accompanied with a cash-inflow.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>For the transfer into a profit center, no cash-outflow is required. Based on market investigations and board approval, invest into new equipment might be necessary. Nevertheless, such invest and the related costs are subject to a careful financial analysis and have to be justified by the return on investment.</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>The pure transfer into a profit center will take less than 6 months. A future sale should not be envisioned earlier than 12 months of experience with Flight Training Center as a profit center.</p>
<p><b>Required Manpower input for the project:</b></p> <ul style="list-style-type: none"> <li>▪ A working group must be formed</li> <li>▪ Staffing should rely on current employees</li> <li>▪ External support is not necessary</li> </ul>
<p><b>Preconditions / Dependencies:</b></p> <p>Full commitment of the Management of VARIG</p> <p>Staff and unions might be involved (latest as soon as a sale is in discussions). Based on the lessons learned, a clear assignment of personnel needs to be guaranteed.</p>
<p><b>Opportunities / Risks:</b></p> <p>The Flight Training Center has to prove itself as an important player in the Brazilian market and beyond and must be treated as one potential supplier of flight training services to VARIG. Outsourcing in general saves money within the areas of implementation costs, operational costs and personnel costs. To a certain degree, fixed costs can be turned into variable ones. Specification of experts will lead to higher expertise and higher efficiency of staff. A shared-services function for back-office activities can be imple-</p>

mented. Tax regulations might have a positive impact also. The second step has to be accompanied by a carefully developed contract in order to secure VARIG's interests.

Risks are to be seen in the danger of losing control over management and quality (seen from the perspective of VARIG). Decentralized budgets are a continuous challenge. There is also a danger of losing the knowledge, latest when the profit center is sold to the market. Regulatory issues have to be investigated.

#### 4.2.13 STRUCTURE 13: IT, Review IT Strategic Position and Governance

<p><b>Current Status:</b> Presently VARIG corporate Information Technology (IT) mixes up IT governance and IT service provisioning such as system support, applications development etc. VARIG IT has the typical problems of an internal IT provider: unbalanced overload, lack of commercial model, and lack of ability to carry upfront investments by its own. There is no well-defined interface between client and supplier. Clear relation between total cost and service level is missing.</p>
<p><b>Measure Description:</b> Reposition corporate IT to separate IT governance and IT provider functions. Governance functions are IT Strategy, Budgeting, Business Liaison, Portfolio Management, Architecture, Project Management and Vendor Management. Operational and service functions should be transferred according to one of the following models:</p> <ul style="list-style-type: none"> <li>▪ Model I: transfer to a separate legal entity acting as a business unit within the VARIG group with its own profit and loss numbers</li> <li>▪ Model II: transfer into a partnership model with one dedicated and stable IT industry partner</li> <li>▪ Model III: buy best of breed</li> </ul> <p>Start neutral evaluation of future IT structure by fourth quarter of 2005. In order to mediate between Senior Management, Business Line Management and IT, an external project manager should be appointed. Decide about future role of provider functions (Business Unit / Partnering / Outsourcing) by first quarter 2006</p>
<p><b>Future Status:</b> Only IT governance functions remain within VARIG organization. Necessary staff: Optimistic scenario: 30 – 40 Full Time Equivalents (FTE) (based on VARIG IT estimate). Industry benchmark: approx. 70 FTE</p>
<p><b>Cost Saving/Revenue Generation Potential:</b> <b>Reduction of fixed IT staff cost to [REDACTED] US\$ per year.</b> Any project effort will not be part of fixed cost any longer, but be financed via project proposals (see IT 01)</p>
<p><b>Required investment (Cash-Outflow):</b> Result of proposed analysis</p>
<p><b>Required time for implementation / Required time for first results:</b> Fourth quarter 2005 Fourth quarter 2005</p>
<p><b>Required Manpower input for the project:</b> VARIG man days 60; external assistance is recommended</p>

**Preconditions / Dependencies:**

Readiness of VARIG Management to free 3 fulltime members for project team for 1 month

**Opportunities / Risks:**

For Model I type solutions it has to be investigated if VARIG IT has the critical mass for generating business of its own. M III models have to ensure transfer of crucial skills, e.g. about legacy architecture and mission critical systems.

#### 4.2.14 STRUCTURE 14: H.R., Adjustments in the Human Resource Management organization

##### Current Status:

The department of "Human Resources" is currently linked to the directorate "Administration and Human Resources" (which is a direct report to the CFO & President and currently not staffed) and comprises the following entities: HR Administration, Training and Development, Remuneration, Recruiting and Selection, Industrial Relations and ID Travel Management. Consequently the current structure of Human Resources comprises all necessary functions (organizational-wise). However, the performance of the department of Human Resources is generally perceived as weak and seems to be mainly focused on generic HR functions such as administration and recruiting.

##### Measure Description:

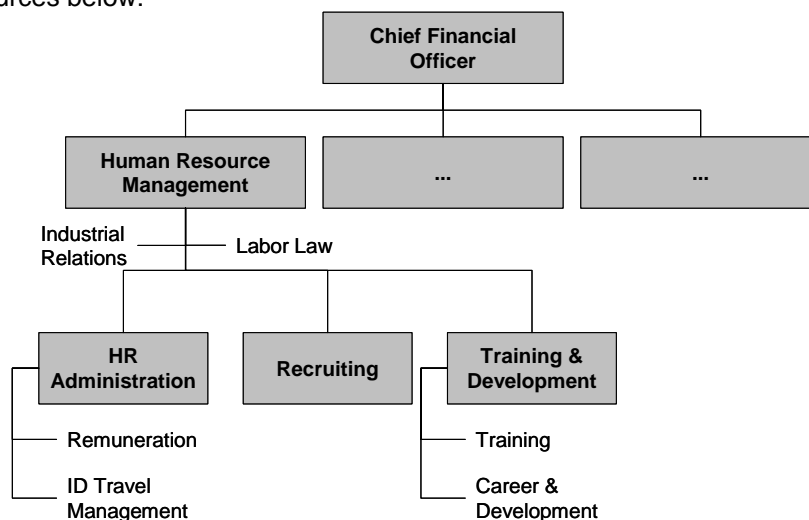
As HR Management is a crucial function in regards to the corporate development and success, the following actions are recommended:

- HR should be directly linked as a line function to the position of the CFO or linked as staff function to the CEO.
- The current sub-structure of the department of Human Resources should be streamlined and some entities to be merged.
- The functions of the HR entities have to be redefined in order to enlarge the range and to improve the quality of HR services.

Please note: General Service should either be linked as a line function to the Human Resource Director or directly to the Chief Financial Officer.

##### Future Status:

Please find our proposal for the organizational structure of Human Resources below:



##### Cost Saving / Revenue Generation Potential:

The change in the organizational structure of Human Resource Management aims at direct cost savings. Instead, the new structure is aiming for a lean structure, which ensures a comprehensive coverage all necessary HR functions.
<b>Required investment (Cash-Outflow):</b> There is no direct cash-outflow due to the implementation of the adjusted organizational structure.
<b>Required time for implementation / Required time for first results:</b> As most of the entities are already in place, the implementation of the organizational change will not take much time (approximately 4 weeks). The major challenge will be to increase the quality and comprehensiveness of HR services to a satisfying level. For this reason VARIG has to ensure that people are sufficiently qualified for the defined positions in HR.
<b>Required Manpower input for the project:</b> The organizational changes can be realized by the department of Human Resources only. No external support necessary.
<b>Preconditions / Dependencies:</b> Job descriptions have to be adjusted, Agreement with VARIG Top Management
<b>Opportunities / Risks:</b> None

## 5. Network Management

Network management, together with Sales, Distribution and Marketing, represent the central commercial functions of an airline driving the company's overall business and profit line. In traditional airlines, operative functions such as operations and maintenance have driven the airline's processes, while commercial functions were performed within the framework of production set by these supporting functions.

Coming under increasing competitive pressure, in the 1980s and 1990s airlines were forced to become more productive and efficient in order to survive this competitive pressure. Therefore, the industry shifted from operationally driven to commercially driven companies. Network management organizations controlling the airlines' production, pricing and revenue, and centrally controlled sales and distribution organizations, were formed that were driven by maximizing overall profit instead of departmental optima.

For the efficient organization and control of a modern network carrier with a high share of connecting traffic, a centralized network management structure comprising the functions of marketing planning/data support, network planning, schedule planning, revenue management with pricing and yield management is essential for planning and controlling the company's revenue generation and maximizing profitability by optimising cost allocation.

In today's increasingly competitive environment, VARIG has in practice many elements of a traditional company. This is documented, for example, in the fact that network planning has been performed based on maintenance planning restrictions instead of setting the schedule and maintenance adjusting their planning accordingly. The current organizational framework, which includes the classic network management functions of network planning, schedule planning and revenue management with the functions of pricing and yield management under the Vice President Commercial and Planning is considered adequate for achieving profit maximization in a dynamic competitive environment. However processes, data, tools, etc., must be adapted to become more effective and efficient. This performance of this optimization task is one of the preconditions for a successful implementation of the company's business plan.

As far as network management issues are concerned, in the context of this business plan, Lufthansa Consulting has focused on the benefits VARIG can achieve from restructuring its route network which is explained in detail in the chapter concerning network planning, and on the benefits related to further optimising its revenue management procedures, systems, and tools, which is further elaborated in the chapter concerning revenue management.

## 6. Network Planning

### 6.1 Status Quo

Lufthansa Consulting sees that the major strengths of VARIG's network are threefold:

- The international network that no other Brazilian carrier offers. Nevertheless VARIG faces competition from international carriers such as American Airlines to the US market (where VARIG captures only ■■■ of the total O&D traffic) or TAP Portugal who is the leader from Europe to destinations in Brazil (more than 40 weekly frequencies). Also TAM is expanding into international markets (e.g. New York from October 2005 adding to its twice daily frequencies to Paris and Miami) and has ordered 15 wide-body Airbus A350 aircraft to further expand its international operations. Also GOL started recently international services by flying to Argentina and code-sharing with COPA to Panama.
- The highly profitable shuttle market from CGH airport, which faces capacity limitations due to slot-restrictions. Also this is threatened by TAM and GOL as CGH is one of their major bases. VARIG has to keep its share in order to safeguard its market presence and profitability.
- The membership into Star Alliance, should be better exploited from a VARIG perspective to gain additional passengers and revenue to VARIG's own network.

The domestic market with its 190 million people represents a massive demand base, where VARIG has lost its leadership to TAM and GOL. The last years have seen fare wars and overcapacity that led to a period of forced cooperation between TAM and VARIG. As that cooperation ended and due to the constant fleet shortage problems, VARIG has been progressively shrinking its domestic network into what it is today. Carriers such as TAM, GOL have used the opportunity to enter these markets with low fares and newcomers such as WebJet and OceanAir will underpin competition by introducing high capacity at low fares. All of these are rapidly expanding their domestic networks and fleets.

The joint VARIG and Lufthansa Consulting team analyzed the network focused on the performance of:

- Each individual route (e.g. POA-EZE; POA-GRU-CDG-AMS; GIG-GRU-LAX-NRT),
  - Market or route bundles (e.g. Brazil-Argentina; Domestic; Shuttle Service), and
  - The entire network,
- based on data provided by VARIG from their own route profitability studies.



While the market evaluation data exist for the past 3 years, the individual route data (by flight number only, not including information by Origin & Destination) existed only for the period January 2004 – June 2005, when Lufthansa Consulting made the cutover for this analysis.

It has to be noted that while the international network could be analyzed in some detail, since it has been historically stable and homogeneous, the domestic network could only be evaluated from a high-level perspective. The operational situation at VARIG forced to frequent [REDACTED] network changes reflected by changing non-stop flights with individual flight numbers into multi-leg flights with one single aircraft while keeping one flight number previously used for another flight with a completely different routing. The route profitability does not provide information for each of these legs but for the entire flight only, being therefore a biased source, induced by the instability of the network.

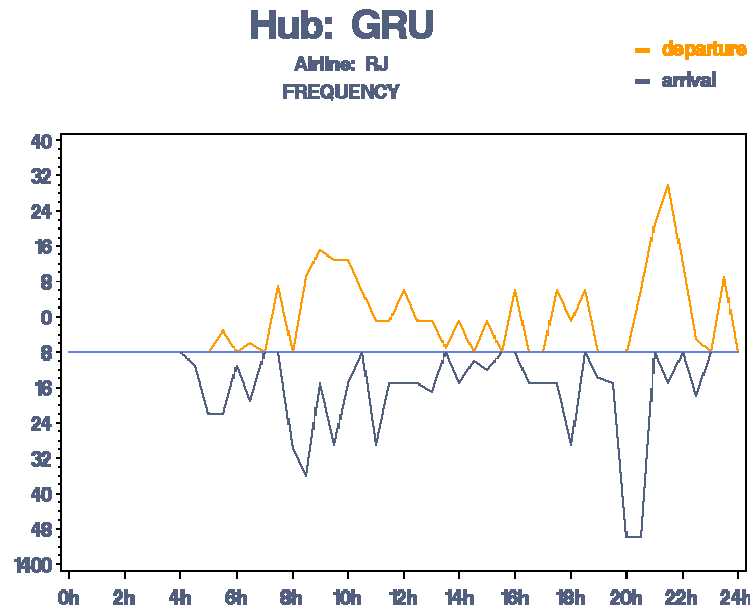
The above-mentioned “performance” has been viewed as a combination of paid seat load-factor, break-even seat load factor, operational results, yields and total passenger numbers for all the routes where these data were available.

Major findings relate to network strategy, partnering, international and domestic networks and their connectivities, and aircraft allocation. Below please find the details for each:

- VARIG is not operating a consistent network concept, due to a missing network strategy and fleet shortage. Many network decisions have been taken for tactical reasons (e.g. transformation of non-stop flights into multi-legs), rather than the pursuit of a consistent concept. VARIG is at the same time a network carrier with no clearly structured hub operations where the network is based; and a point-to-point carrier competing with local and international carriers.
- VARIG is a member of Star Alliance, but from a network perspective the benefits it takes from this membership are limited. So far, VARIG's network strategy has been based on late night departures from Brazil, and early morning arrivals in GRU. While this strategy does create connectivity, it does not maximize aircraft utilization. The connectivity of VARIG's network with that of Star Alliance member airlines via their hubs to capture major ongoing traffic flows is limited, or VARIG is not flying into member airlines' hub airports (e.g. ORD for United Airlines) or not even sharing same terminals (e.g. LAX for United Airlines) allowing for quicker connections.
- VARIG has withdrawn from markets where other alliance partners have entered (e.g. South Africa as soon as SAA started to fly to Brazil, or Portugal where VARIG [REDACTED]). This is mainly due to aircraft shortage.

- VARIG does not cooperate to full extent with Star Alliance members or partner airlines using code-shares beyond gateways. VARIG offers limited connectivity from GRU to domestic and South American destinations to alliance partners arriving in GRU.
- The entire VARIG network produced a positive operating result of 76m US\$, but the year-on-year comparison with 2003 shows a fall of 41% induced by a decline of 66% in the operating result of the international network (27mUS\$ in 2004 vs. 82m US\$ in 2003). As mentioned above, the 13% rise in yield did not offset the increase in cost. The January-June 2005 period showed a similar falling trend of 69% in the operating result against the same period in 2004.
- The operating result from the domestic network was positive ( ) but grew by just 3% when compared to 2003, not compensating the fall from the international network. The distribution of passenger revenue between national and international networks was 43% and 57% respectively; the 2003 share was similar to this one.
- of the international routes showed negative full-year operating results in 2004, keeping the same trend in the 6 months of 2005 for which data were available .
- The overall paid load factor in the international network rose 0,5 percentage points to ca. 75,5% in January-June 2005 when compared to January-June 2004. The full-year load-factor results for 2004 were 76%.
- the paid load factor on the SDU-CGH shuttle services dropped to ca. 56% in the January-June 2005 period from ca. 66% in the same period in 2004.
- In 2004, 12 of the international routes had break-even seat load factors of more than 80% (3 are even above 100%) making it virtually impossible to operate these profitably with the current yield and cost structures. Nevertheless, the BELF figures improved for some of these routes from January-June 2005.
- VARIG offers only limited connectivity in its main airport (GRU); VARIG is therefore not able to utilize the full potential of passengers that might choose GRU as a connecting point on their true O&D itinerary. This affects the load-factors on all VARIG routes to/from GRU. This statement can be underpinned by the graph below, which is based on a sample schedule from August 2005. Due to the fact that only 64 of the 78 aircraft are serviceable, compromises concerning connectivity and hub structure had to be taken.

Figure 4: VARIG Hub Structure in GRU, based on Aug05 Network



Source: COMPASS by Lufthansa Consulting GmbH, August 2005

- VARIG operates wide-body aircraft (e.g. B777 and MD11) on short sectors (e.g. GIG-GRU with B777 and MD11), mainly due to fleet restrictions. These aircraft have higher operating costs, making the rotation not as profitable as it could be.
- The current network has domestic flights using international flight numbers. This has been done to have more direct flights to international destinations (e.g. POA-GRU-CDG-AMS; GIG-GRU-LAX) or to reduce connecting times in the reservation systems while using different aircraft types (e.g. RG8740 CNF-GRU with a B737 connecting to RG8740 GRU-FRA with a MD11/B777): in GRU, domestic-international=90minutes, international-international=60minutes; the systems thereby show a smaller elapsed time than if the first leg had another flight number. By doing this, each domestic flight pays international landing and overflight charges, but has lower fuel costs since international flights are not taxed.
- The current network has ca. 23 domestic stations where aircraft are staying overnight, adding costs from the maintenance side and restricting the use for an outgoing morning bank from the GRU hub.

The detailed optimization of the network structure requires a thorough analysis of individual flights and connections in GRU and at arrival airports. This analysis cannot be implemented in a single step, therefore as next steps the fine-tuning of the winter schedule 2005/2006 and summer schedule 2006 will be conducted from October 2005 (see Measure NETWORK 01-03 below).

## 6.2 Recommended improvement measures

In order to be successful, VARIG must capitalize on its strongest asset: its network. Only by truly capitalizing on its network can VARIG expect to reverse the current down trend and remain competitive on its domestic and international markets.

The main improvement measure in the area of network planning is to proceed to a complete restructuring of VARIG's network.

The precondition of the network restructuring is the full operational availability of VARIG's fleet. According to VARIG's calculation, these measures have lead time of three to six months and require costs of around 60m US\$. This cost is included in the calculation of the operating result for 2006.

In the **first step**, the network restructuring will aim at streamlining VARIG's network. Canceling loss-making routes is an essential step to ensure the right focus (i.e. on profitable routes) and to quickly improve overall profitability.

In the **second step**, network restructuring will focus on strengthening the position of GRU as the main hub of VARIG's network. The objective is to transform GRU into an effective and competitive hub. On the international front, GRU will position VARIG as the gateway between Lower South America and North America and Europe. On the domestic front, GRU will allow VARIG to improve its network coverage and connectivity.

The complete network restructuring including a true optimization of the hub is an extensive and time-consuming task. In order for VARIG to take advantage from an improved network as soon as possible, a phased approach and breakdown of the network restructuring process into three phases is necessary:

1. Quick-wins for the season winter 2005-2006
2. High-level optimization of the season summer 2006 in preparation for the IATA Slot Conference (November 2005)
3. Full network re-structuring and hub optimization of winter 2006-2007 and summer 2007

The network restructuring of VARIG will also lead to additional improvement measures regarding the fleet, the code share strategy as well as the monitoring and controlling of the performance of the network.

Ideally, the fleet must be able to provide the correct capacity for each and every flight in the new network structure. The new fleet plan must take into consideration the new routes, hub structure, timings, connection, traffic flow. To ensure maximum profitability, a new fleet plan must be designed support-

ing the new network structure of VARIG. The details related to this subject are discussed in section 1.6 Fleet.

The new network structure will also command a review of the code share strategy. Until now, VARIG has been limited to get the most out of its membership in Star Alliance. The new network structure will focus on increasing the connectivity VARIG's network to other Star Alliance members. The development of a new code share strategy with partner airlines, especially Star Alliance members, becomes vital. Such an approach will guarantee additional revenue and an increased load factors for the new network structure.

In a **final step**, it is necessary and crucial to have in place the process and all the relevant information to actively monitor the profitability and the performance of VARIG's network. This becomes possible with the introduction of an advanced network monitoring and controlling approach providing critical performance indicators such as detailed and accurate route profitability (with network contribution data), actual passenger itineraries and up-line-down-line traffic. Only such an approach can guarantee appropriate management of the VARIG's network.

## 6.2.1 NETWORK 01: Streamlining of the network

### Current Status:

- The currently available data at VARIG does not provide the accurate and transparent information necessary for the network planning department to make the right decisions.
- The only available data source reporting the performance of VARIG's network is the route profitability report.
- The route profitability report, in its current format, is not suitable and reliable to support network planning decision.
- The current route profitability is not detailed enough. The analysis of the performance of a specific leg of a multiple leg flight is not possible. The lowest level of aggregation is by flight number without leg origin and destination information.
- The current route profitability leads to wrong comparison. There is no consistency in using a specific flight number for a determined leg origin and destination. In many cases, the route profitability report is then comparing results of flight numbers operating different number of legs and different leg origin and destination. It is almost impossible to compare the detailed results over a short or long time period.
- The data quality of the mentioned report is preoccupying. High-level data analysis by Lufthansa Consulting indicates the possibility of incorrect revenue and cost accounting assignments.
- The network planning department is left blind on the true performance and network contribution of its routes, making prompt detection of the gap or performance deficiencies difficult.
- The streamlining of the network based on accurate leg based data is not possible.

### Measure Description:

- Investigation on the current cost and revenue accounting methods
- Development of accurate and appropriate route profitability at the leg level (Flight number, Leg origin, leg destination):
  - o This report should use what is currently available from the cost and revenue accounting database
  - o The report should, if possible, correct major deficiencies in the cost and revenue calculation
- Streamlining of the network based on the route profitability at the leg level
  - o Identify loss makers and cut route when possible [REDACTED]
  - o Allow to re-deploy the capacity on profitable or potential new markets [REDACTED]

<b>Future Status:</b> <ul style="list-style-type: none"> <li>- Network Planning will have access to the <i>minimum</i> data requirement to support network planning decisions.</li> <li>- Network Planning will be able to monitor the profitability of the network at the leg level, however other important information used in network planning decision will be missing (e.g. true contribution of each leg to the network)</li> <li>- Network Planning will be able to proceed with short-term schedule adjustments</li> </ul>
<b>Cost Saving/Revenue Generation Potential:</b> <ul style="list-style-type: none"> <li>- Network streamlining and short-term schedule adjustment is estimated to <b>generate an additional [REDACTED] operating result improvement [REDACTED]</b></li> </ul>
<b>Required investment (Cash-Outflow):</b> <ul style="list-style-type: none"> <li>- Included in other measures described below</li> </ul>
<b>Required time for implementation / Required time for first results:</b> <ul style="list-style-type: none"> <li>- 3 weeks / 3 weeks</li> </ul>
<b>Required Manpower input for the project:</b> <ul style="list-style-type: none"> <li>- 1 internal specialist from revenue accounting</li> <li>- 1 internal specialist from cost accounting</li> <li>- 1 internal IT specialist responsible for current route profitability</li> <li>- External assistance is recommended</li> </ul>
<b>Preconditions / Dependencies:</b> <ul style="list-style-type: none"> <li>- The outcome of this measure will serve as the base to implement "Measure NETWORK 06: Network Monitoring &amp; Controlling"</li> </ul>
<b>Opportunities / Risks:</b> <ul style="list-style-type: none"> <li>- Risk: Content of the current cost and revenue accounting database do not allow leg level reporting</li> </ul>

## 6.2.2 NETWORK 02: Network Restructuring – Quick wins for the season winter 2005-2006

<b>Current Status:</b> <ul style="list-style-type: none"> <li>- During the analysis of the current network structure at VARIG, Lufthansa Consulting focused on the summer schedule 2006.</li> <li>- Due to the urgency of the financial situation, quick improvement needs to be identified for the coming season of winter 2005-2006.</li> <li>- It will not be possible to modify the core structure of the schedule before the start of the season winter 2005-2006 (end of October 2005), however quick wins can be identified and implemented.</li> </ul>
<b>Measure Description:</b> <ul style="list-style-type: none"> <li>- Simulation of the network for the winter season</li> <li>- Identification of the most important and promising markets</li> <li>- The focus is likely to be in the schedule operations area <ul style="list-style-type: none"> <li>o Improvement of the connectivity</li> <li>o Improvement of the capacity allocation</li> <li>o Increase of the aircraft utilization</li> </ul> </li> </ul>
<b>Future Status:</b> <ul style="list-style-type: none"> <li>- Network Planning will have in place a schedule for the winter season generating better results.</li> <li>- Network Planning will be able to evaluate the measure put in place for the winter season and use it as guidelines for the summer season.</li> </ul>
<b>Cost Saving/Revenue Generation Potential:</b> <ul style="list-style-type: none"> <li>- The quick wins for the winter season are estimated to lead to a <b>operating profit increase of █████ US\$ per week, i.e. █████ US\$ for the whole season of winter 2005-2006</b></li> </ul>
<b>Required investment (Cash-Outflow):</b> <ul style="list-style-type: none"> <li>- None</li> </ul>
<b>Required time for implementation / Required time for first results:</b> <ul style="list-style-type: none"> <li>- 3 weeks / 5 weeks</li> </ul>
<b>Required Manpower input for the project:</b> <ul style="list-style-type: none"> <li>- 1 internal specialist from scheduling</li> <li>- 1 internal specialist from network planning</li> <li>- External assistance is recommended</li> </ul>
<b>Preconditions / Dependencies:</b>
<b>Opportunities / Risks:</b> <ul style="list-style-type: none"> <li>- Required to change the winter schedule, which is already sold.</li> <li>- Impact on customers as rebookings would become necessary</li> </ul>



### 6.2.3 NETWORK 03: Network Restructuring – High-level optimization of summer 2006

#### Current Status:

- An overall network concept that guides the domestic and international network planning and development efforts cannot be fulfilled due to aircraft shortage.
- Corroded hub structure that offers connecting passengers limited connectivity to any destination on VARIG's network
- Strong competition from domestic and international carriers
- Further exploitable Star Alliance membership

#### Measure Description:

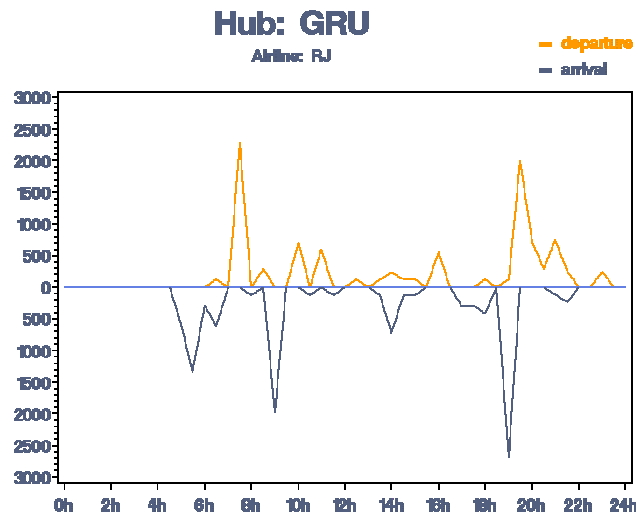
- During the analysis of the current network structure at VARIG, the joint VARIG and Lufthansa Consulting team developed a high-level concept of a new network structure for VARIG.
- Design of the hub with clear bank structures aiming at increasing the connectivity, network coverage and aircraft utilization. The intrinsic objective to become the gateway of lower South America to Europe and North America.
- Optimization and fine-tuning of the new concept for the slot "constrained" airports impacted by the planned changes:

- The new concept includes the following measures (to be fine tuned):

#### Future Status:

- Network Planning will have an improved summer 2006 taking into consideration slot constraints.
- In the case that the required slot was not awarded to VARIG, Network Planning will be in a position to adjust the network structure accordingly.

An approximation of the new network structure is illustrated in the graph below. As opposed to the current hub structure, two clear connecting banks are visible:



**Cost Saving/Revenue Generation Potential:**

The optimization of summer 2006 is expected to lead to an **operating profit increase of [REDACTED]** of summer 2006.

**Required investment (Cash-Outflow):**

None for the measure itself

**Required time for implementation / Required time for first results:**

2 months / 6 months

**Required Manpower input for the project:**

- 1 internal specialist from scheduling
- 1 internal specialist from network planning
- External assistance is recommended

**Preconditions / Dependencies:**

- Aircraft availability. This concept foresees the use of 79 aircraft, nevertheless with a different structure: less wide-body and more narrow-body aircraft. It is the same number as available today at VARIG, but 13 aircraft are grounded due to maintenance problems. To make these 13 aircraft operational, VARIG estimates a lead time of six months and a total **cost of [REDACTED]**. This cost is included in the business plan for the year of 2006. If this is not achieved and the total number of aircraft is less than the required, the summer schedule 2006 will have to be reduced accordingly.
- This concept involves the introduction of new international routes and retiming of multiple flights potentially leading to new slot requirements
- VARIG must negotiate the new required slots for summer 2006 at the next IATA Slot Conference to be held in November 2005.

Due to the limited time prior to the IATA Slot Conference and the introduction of the summer 2006 on the market, a high-level optimization limited to summer 2006 as first step is required.

- The result of this measure will serve as a based for "Measure NETWORK 04: Network Restructuring – Full network restructuring and hub optimization of winter 2006-2007 and summer 2007"

**Opportunities / Risks:**

#### 6.2.4 NETWORK 04: Network Restructuring – Full network restructuring and hub optimization of winter 2006-2007 and summer 2007

<b>Current Status:</b> <ul style="list-style-type: none"> <li>- The same issues related to the network structure identified for the summer season apply for the winter season.</li> <li>- However, due to particular daylight saving times between Europe and Brazil, the winter and summer schedules differ significantly.</li> <li>- The optimal network structure for VARIG needs to take into consideration the specifics of both summer and winter seasons.</li> <li>- Further structural changes to VARIG's network are required by conducting a full network restructuring and hub optimization considering both the winter and summer seasons.</li> </ul>
<b>Measure Description:</b> <ul style="list-style-type: none"> <li>- Integration of winter's specifics into the new network structure</li> <li>- Optimization of GRU ("peaking" Vs "de-peaking")</li> <li>- Optimization of the role of GIG in the new network structure (second hub to support GRU)</li> <li>- Alignment network concept with Star Alliance partner airlines</li> <li>- Evaluation of further expansion in 2007 into new markets</li> </ul>
<b>Future Status:</b> <ul style="list-style-type: none"> <li>- GRU will be an effective and competitive hub</li> <li>- On the international front, GRU will position VARIG as the gateway between Lower South America to North America and Europe.</li> <li>- VARIG will expand its international network, underpinning GRU as connecting hub</li> <li>- On the domestic front, GRU will allow VARIG to improve its network coverage and connectivity</li> </ul>
<b>Cost Saving/Revenue Generation Potential:</b> The full optimization of the network structure is expected to lead to an additional <b>operating profit increase of █████ per week, i.e. █████ for the seasons of winter 2006-2007 and summer 2007</b>
<b>Required investment (Cash-Outflow):</b> none
<b>Required time for implementation / Required time for first results:</b> 2 months / 6 months
<b>Required Manpower input for the project:</b> <ul style="list-style-type: none"> <li>- 1 internal specialist from scheduling</li> <li>- 1 internal specialist from network planning</li> <li>- External assistance is recommended</li> </ul>

**Preconditions / Dependencies:**

- Network concept has to be in line with overall vision for VARIG
- Adequate Fleet plan must be designed based on the outcome of the Network concept
- Schedule coordination with Star Alliance carriers to assure maximum connectivity between respective networks

**Opportunities / Risks:**

- GRU infrastructure might required adjustment/expansion to support the hub operation
- Slot restrictions, Minimum turn time, Minimum connecting time
- Traffic right restrictions, not allowing for expansion of services
- Opportunities to further develop domestic and international network, exploiting potential from Star Alliance member airlines

## 6.2.5 NETWORK 05: Extend code sharing with partner airlines

<b>Current Status:</b> <ul style="list-style-type: none"> <li>- VARIG's current code share strategy has historically developed. The main code share partners from Star Alliance are LH, UA, TP, and AC. However, there is no consistent overall code share strategy at VARIG</li> <li>- VARIG has mainly code share only on its trunk routes</li> <li>- The handling of code share flights lacks a consistent attention and development and more dynamic addition/removal of marketing flights</li> <li>- VARIG does limited code share beyond its gateways</li> <li>- VARIG has been unable to capitalize on its membership in Star Alliance to a full extent</li> <li>- VARIG is not in a position to measure precisely the performance of its code-share and SPA agreements, although Star Alliance has been evaluating a code share evaluation tool that is under consideration for implementation in a few weeks</li> </ul>
<b>Measure Description:</b> <ul style="list-style-type: none"> <li>- Revision of the current code share and SPA agreements</li> <li>- Elaboration of a market potential analysis to identify options for additional code share or SPA agreements</li> <li>- Simulation and evaluation of the impact of new code share agreements on the new network structure</li> <li>- Recommendation on which of the existing agreements should be re-negotiated and which airlines should be approached</li> <li>- Contract content support (type of code share, tariff conditions, booking classes, etc.)</li> <li>- Negotiation support</li> </ul>
<b>Future Status:</b> <ul style="list-style-type: none"> <li>- Clear code share strategy</li> <li>- Increased cooperation and benefit from Star Alliance</li> <li>- Increased revenues and load factors; better network coverage</li> <li>- Additional sales opportunities without investment</li> </ul>
<b>Cost Saving/Revenue Generation Potential:</b> To be evaluated
<b>Required investment (Cash-Outflow):</b> To be defined (cost for Star Alliance's code share evaluator tool)
<b>Required time for implementation / Required time for first results:</b> 2 weeks / 3 months
<b>Required Manpower input for the project:</b> <ul style="list-style-type: none"> <li>- 1 internal specialist responsible for code share and alliance</li> <li>- External assistance is recommended</li> </ul>
<b>Preconditions / Dependencies:</b> <ul style="list-style-type: none"> <li>- none</li> </ul>
<b>Opportunities / Risks:</b> <ul style="list-style-type: none"> <li>- Take advantage of Star Alliance network</li> </ul>

## 6.2.6 NETWORK 06: Network monitoring and controlling

<p><b>Current Status:</b></p> <p>The currently available data at VARIG does not provide the accurate and transparent information that is necessary for the network planning department to make the right decisions</p>
<p><b>Measure Description:</b></p> <ul style="list-style-type: none"> <li>- Revision of the input data and allocation methods from cost and revenue accounting systems</li> <li>- Definition of the management information required to support the Network Monitoring &amp; Controlling processes</li> <li>- Design of Network Controlling processes and interfaces between the various departments of the commercial division (e.g. Network planning, Revenue Management and Sales &amp; Distribution departments)</li> <li>- Implementation of Network Monitoring &amp; Controlling, i.e. the management information and the controlling processes</li> </ul>
<p><b>Future Status:</b></p> <ul style="list-style-type: none"> <li>- Ability to ensure prompt detection of gaps or performance deficiencies in the network</li> <li>- Ability to take the right decisions based on accurate and transparent information</li> <li>- Ability to apply short-term schedule adjustments leading to profit increase</li> <li>- Ability to identify loss makers or low value routes leading to a cost reduction</li> <li>- With an enhanced view of the profitability and the contribution of the routes, VARIG will be in a better position to develop appropriate network planning strategies</li> <li>- Network monitoring will provide all the necessary elements to steer the development, the evolution and the success of the complete commercial strategy of VARIG <ul style="list-style-type: none"> <li>o Identification of new market potential leading to the expansion of the network</li> <li>o Identification of connecting traffic potential leading to the development of new interline agreements and airline partnerships</li> <li>o Assessment of the yield performance through the network triggering new pricing policies</li> <li>o Analysis of the booking patterns and load factors leading to revenue management initiatives</li> <li>o A close follow-up on schedule performance instigating schedule optimization initiatives such as hub restructuring, fleet &amp; capacity planning, connectivity improvement, aircraft utilization maximization</li> <li>o Review of the passenger segmentation requiring an improved marketing, sales and distribution strategy</li> </ul> </li> </ul>

<b>Cost Saving/Revenue Generation Potential:</b> <ul style="list-style-type: none"> <li>- The benefit of network monitoring and controlling is estimated to lead to <b>yearly operating profit increases of 45m US\$</b></li> <li>- The benefit of network monitoring and controlling is a yearly recurring benefit</li> </ul>
<b>Required investment (Cash-Outflow):</b> To be determined. A Tactical Profitability Model or a Fleet Assignment Model would require an investments of around ■■■ US\$ (very rough estimate) in the first year of implementation. This has been considered in the business plan.
<b>Required time for implementation / Required time for first results:</b> 3 months / 6 months
<b>Required Manpower input for the project:</b> <ul style="list-style-type: none"> <li>- 1 internal specialist representing scheduling</li> <li>- 1 internal specialist representing network planning</li> <li>- 1 internal specialist representing marketing &amp; sales</li> <li>- 1 internal specialist representing revenue management</li> <li>- External assistance is recommended</li> </ul>
<b>Preconditions / Dependencies:</b> <ul style="list-style-type: none"> <li>- This measure complements "Measure NETWORK 01: Streamlining the network". This measure will build on the findings and the improvements provided by "Measure NETWORK 01".</li> </ul>
<b>Opportunities / Risks:</b> <ul style="list-style-type: none"> <li>-</li> </ul>



## 6.2.7 NETWORK 07: Optimize schedule change decisions

<p><b>Current Status:</b> Schedule optimization cannot be based on revenue forecasts and fleet information. The information for profitability evaluations is not available in the Scheduling system. So the decisions have to be made based on estimations and selective information.</p>
<p><b>Measure Description:</b> Import revenue forecast information from PROS and operational cost data into the scheduling system NetLine/Sched to enable decisions based on actual and expected demand. Add additional functionality to the system in order to do a profitability evaluation and to allocate the right aircraft for specific flights considering demand and costs.</p>
<p><b>Future Status:</b> The operational costs can be reduced by [REDACTED] when revenue forecast information and fleet information is used for the optimization of the schedule. Based on a cost and revenue analysis, an optimization tool identifies the candidates for capacity adjustments and takes the necessary actions. The result is a re-fleeted schedule scenario with increased profitability. The appropriate equipment can be used for the flights according to the demand. The usage of less efficient equipment can be reduced.</p>
<p><b>Cost Saving/Revenue Generation Potential:</b> [REDACTED] US\$ additional revenue ([REDACTED] increase / according to Sabre [REDACTED]) [REDACTED] US\$ reduced operational costs ([REDACTED] reduction / according to Sabre 0.68%) as per Sabre's benchmark calculation for tactical fleet assignment for VARIG.</p>
<p><b>Required investment (Cash-Outflow):</b> [REDACTED] US\$ per year regular costs for fleet assignment system and software maintenance</p>
<p><b>Required time for implementation / Required time for first results:</b> 2 Months</p>
<p><b>Required Manpower input for the project:</b> Man days customer 120, external assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b> Overlap with Network measures: - The amount of cost reduction and revenue increase depends on the number of aircrafts and different aircraft types in use. - Revenue forecast data extract from PROS is necessary (see REVENUE 05).</p>
<p><b>Opportunities / Risks:</b> The decision support is only as valuable as the cost information it is based upon: solid decisions can only be made based on a thorough cost model.</p>

### 6.3 Interfaces to Human Resources and Organization

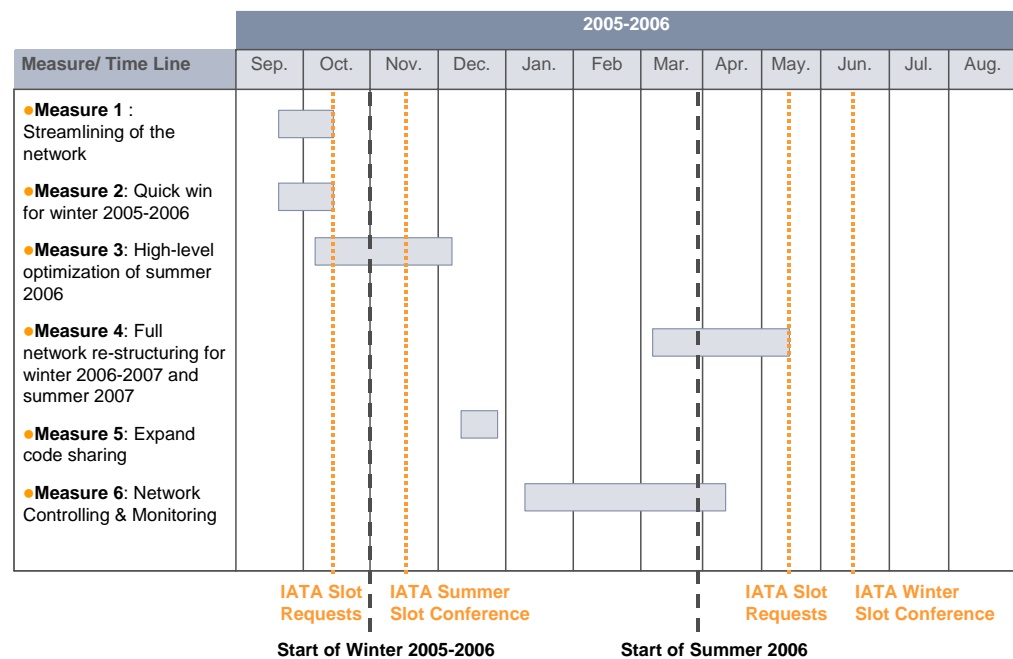
The changes introduced to the network put a strong focus of VARIG's operations at GRU airport. In the future, not only aircraft but also cockpit crew, cabin crew, ground operations and maintenance personnel have to be based here, instead of being spread throughout several stations.

The reduction of international or domestic destinations (e.g. [REDACTED]) does not significantly change the sales or operations organizations, but brings some reductions in ground and maintenance support staff.

### 6.4 Additional information

The following graph illustrates the anticipated timeline for the implementation of the proposed measures in the area of network planning.

Figure 5: Tentative timeline for Network Planning decisions



Source: Lufthansa Consulting

## 7. Fleet

### 7.1 Status Quo

VARIG's diversified fleet is the result of a historical lack of long-term fleet planning and short-term financial restrictions, disabling any renewal efforts. In 1998, VARIG ordered about 50 Boeing aircraft of various types for fleet renewal and expansion purposes, for which it paid [REDACTED] a deposit. This order was reduced to ca. 30 in 1999 due to cash flow issues (VARIG was not able to fulfill the pre-delivery payments) and in 2001, after the Sep. 11<sup>th</sup> attacks and the consequent slump in the worldwide aviation market, VARIG cancelled the order, committing itself to a lease rate and term restructuring with Boeing that binds VARIG to Boeing aircraft until 2011 (see the Memorandum of Understanding section below), regardless of the adequacy of these to the airline's long term needs. At the same time, VARIG renegotiated the lease rates with all lessors and achieved a reduction [REDACTED]

During the 2001-2005 period, VARIG introduced aircraft based on short-term requests, contradicting any long term planning efforts [REDACTED] aircraft introduced during this period were leased for [REDACTED] periods. This allows, on one hand, for flexibility, but is on the other hand an expensive exercise as short term lease rates are typically higher than those contracted for longer periods. Therefore, the fleet structure is not the result of a consistent process, but the result of specific market situations in which VARIG introduced aircraft according to current market availability, not considering fleet harmonization goals (e.g. 2 B737-700 and 2 B737-800 aircraft, while the rest of the B737 fleet are B737 classic).

From a fleet size perspective, VARIG achieved its maximum in 2001 with 118 aircraft, after the integration of the Rio Sul and Nordeste fleets. Since then, due to the financial difficulties mentioned, VARIG has gradually reduced its fleet to achieve the current 78 aircraft, with an average age of 11,5 years. If no contract extension is agreed, the airline will return [REDACTED] wide-bodies (B777, B767 and MD11) and [REDACTED] narrow-bodies (B737) until the end of 2006, shrinking its fleet to [REDACTED]. The constant aircraft shortage has gradually provoked network cuts and market share losses. Therefore, a fleet rollover program must start in 2006 in order to achieve a fleet structure that accommodates the company's market, network and fleet efficiency targets.

From a fleet structure perspective, VARIG's fleet currently consists of 9 different aircraft types (B737-300, -400, -500, -600, -700, -800; B757; B767; B777; MD11), representing 6 different families (B737Classic; B737New Generation; B757; B767; B777; MD11) with different engine types and seat

configurations even within one family, necessitating a wide range of qualifications, material and spare parts. A harmonization of the fleet to just three types could produce, from a maintenance perspective only, a cost reduction of about 10m US\$ (see the Maintenance section). In addition, further high efficiencies can be achieved in the operations sector by cockpit commonality, reducing the number of cockpit crew required to operate the fleet.

Figure 6: Fleet Structure as of August 2005

Aircraft Type	Aug 05	Comments
MD11	13	with three different seating configurations
B777-200	8	with four different seating configurations
B767-300	3	with two different seating configurations
<i>B767-300 Euroatlantic</i>	2	see comments below
B757-200	4	
B737-800	2	with two different seating configurations
B737-700	2	
B737-500	10	
B737-400	4	with two different seating configurations
B737-300	30	with two different seating configurations
<b>Total Fleet</b>	<b>78</b>	

Source: VARIG

Nevertheless, in September 2005, only 64 of the 78 aircraft were operating: 8 B737-300, 1 B737-800, 2 B777 and 1 MD11 where grounded due to lack of spare parts. As stated above, these missing aircraft provoke network disruptions that disable VARIG to have a stable production output.

Fixed costs, such as leasing costs, fixed maintenance costs, etc. remain stable for the entire fleet independent of its utilization. The lease cost of the grounded aircraft add up to 3,8m US\$ per month, as of August 2005. Therefore, these reductions of the operating fleet not only lead to an increase in unit cost and reduction in operational reliability, but also to reduced revenue due to passenger spill caused by the decreased supply.

The fleet plan is intrinsically linked to and dependent on the short and long-term network planning efforts at VARIG. As soon as a network plan is designed, a plan for a fleet size and structure can be formulated. The information contained in this business plan is preliminary and has to be adjusted accordingly as soon as in-depth long-term network development plans, and thereby fleet planning plans, are available.

#### **Operational Agreement with EuroAtlantic Airways**

VARIG has introduced 2 Boeing 767-300 aircraft under a sub-lease agreement with EuroAtlantic Airways, a Portuguese charter operator. The aircraft have been brought in to respond to specific charter needs that the available VARIG fleet could not comply with, such as one-weekly MUC-GIG-MUC

services from October 2005 to April 2006 for a German tour operator or GIG-SSA ad-hoc services for an American multinational company.

In fact, as VARIG has had reliability problems with its own fleet, these B767 have also been operating as stand-by capacity for the regular VARIG network. VARIG has never considered these aircraft to be part of their fleet (not including them in the aircraft count), but since these work as true stand-by aircraft they should be included.

### **Memorandum of Understanding with Boeing**

Practically the entire fleet is operated under operating lease contracts. On December 7<sup>th</sup>, 2001, 11 MD-11 aircraft formerly owned by VARIG were converted into operating leases in a Memorandum of Understanding with The Boeing Company (Boeing), in the context of a restructuring of existing leases and financings related to these aircraft. In the same Memorandum of Understanding an agreement for sale and lease back of two B737 aircraft was made, with a lease period of five years.

The Memorandum of Understanding stipulates that VARIG issues a promissory note in the principal amount of [REDACTED] US\$ in favor of Boeing. In the meantime, taking into account the accumulated interests, this amount has increased to around [REDACTED] US\$ by September 2005. The Memorandum also stipulates that, in the event that VARIG accepts, leases, or otherwise acquires any aircraft not acceptable to Boeing during the note period, Boeing will have the right to immediately accelerate the obligation of VARIG to then pay all principal and accrued interest on the Note. In addition, according to the note, VARIG is obligated to accept, lease (for a minimum period of 5 years) or otherwise acquire a minimum of [REDACTED] New Boeing airplanes during the Note period.

A production platform with an efficient fleet structure which is adapted to the network demands, minimizes production cost and maximizes productivity is one of the key elements for reaching a long term sustainable profit. Therefore, harmonization of the currently diversified fleet is essential for the long-term survival and profitability of VARIG. In order to achieve this operating platform, the necessary fleet harmonization has to be based on an in-depth, unbiased study taking into account all options available. Since the current Memorandum of Understanding between VARIG and The Boeing Company would limit this necessary flexibility for achieving a harmonized and optimized fleet structure, which corresponds to VARIG's needs, it is strongly recommended to renegotiate this Memorandum.

## 7.2 Recommended improvement measures

For the purpose of this business plan, the following measures have been identified:

### 7.2.1 FLEET 01: Review of Memorandum of Understanding with Boeing

<b>Current Status:</b> VARIG is bound to an unfavorable contract with Boeing, requiring VARIG to introduce ■ Boeing “new or almost-new” (up to 2 years old) aircraft in a 10-year period ending 2011. A penalty ■ US\$ + interests is due in case VARIG breaks this agreement (this amounts to about ■ US\$ as of August 2005). This blocks the entry of potentially more adequate aircraft from other suppliers and ultimately reduces the financial flexibility of VARIG. At the same time Boeing is withholding the 21m US\$ it received as deposit for the VARIG order placed in 1998; deposit which is usable only for the placement of a new aircraft order.
<b>Measure Description:</b> Review details of the Memorandum of Understanding aiming at creating more favorable conditions for VARIG. This renegotiation should be tied up with the presentation of a short- and long-term fleet plan (see measure FLEET 03)
<b>Future Status:</b> Assuming that a renegotiation is possible and more favorable conditions achieved, VARIG would be able to: <ul style="list-style-type: none"> <li>- make fleet strategy decisions free from any constraints</li> <li>- alleviate financial obligations, giving room for improved cash-flow and liability projections</li> </ul>
<b>Cost Saving/Revenue Generation Potential:</b> To be defined
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> 4-6 weeks
<b>Required Manpower input for the project:</b> <ul style="list-style-type: none"> <li>- 1 VARIG representative for aircraft lease contracts</li> <li>- 1 VARIG lawyer</li> <li>- External assistance is recommended</li> </ul>
<b>Preconditions / Dependencies:</b> Develop a consistent fleet plan based on short and long-term network planning efforts that convinces Boeing of VARIG’s sustainability and potential as long-term customer
<b>Opportunities / Risks:</b>

## 7.2.2 FLEET 02: Renegotiation of current lease rates

<p><b>Current Status:</b>  VARIG renegotiated the lease rates of all its aircraft in 2001 and achieved a reduction of 30% (representing 100m US\$ per year). Nevertheless, the current market situation has evolved so that for some leased aircraft VARIG is paying more than current market average.</p> <p>As mentioned above, VARIG's fleet planning has been driven by short-term decisions. VARIG has therefore been subject to market availability of needed aircraft. The result is a list of more than 15 different lessors. It is positive not to be bound to one leasing company, but the variety of lessors VARIG deals with increases complexity and transaction cost and reduces bargaining power.</p> <p>The total amount paid in excess of current market values is ■■■ US\$ per month, as of market value data of August 2005.</p> <p>It has to be noted that some of the aircraft contracted with these lessor are nearing the termination of the lease period so that no further lease rate negotiations are possible. Furthermore, the aircraft market is volatile and highly dependent on global economic and political variables. The aircraft values itself reflect projections made by the lessors and risk levels of the potential customer and its home region.</p>
<p><b>Measure Description:</b>  Renegotiate lease contracts (rates and terms) linked to the fleet development plan (see Measure FLEET 03).</p>
<p><b>Future Status:</b>  Achieve lease conditions in line with market values.</p>
<p><b>Cost Saving/Revenue Generation Potential:</b>  For the purpose of this business plan, it is assumed that an agreement between VARIG and the current lessors will be reached concerning financial and contractual issues, bringing lease rates down to market values. The estimated <b>cost reduction of ■■■ US\$ per month (■■■ US\$ per year)</b> would be achieved.</p>
<p><b>Required investment (Cash-Outflow):</b>  None</p>
<p><b>Required time for implementation / Required time for first results:</b>  4-6 weeks</p>
<p><b>Required Manpower input for the project:</b>  - 1 VARIG representative for aircraft lease contracts  - 1 VARIG lawyer  - External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b>  Develop a consistent fleet plan based on short and long-term network plan-</p>

ning efforts that convinces the selected lessors of VARIG's sustainability and potential as long-term customer

**Opportunities / Risks:**

- Volatility of the market
- Solution of VARIG's debt situation



### 7.2.3 FLEET 03: Integrated short- and long-term fleet development

#### **Current Status:**

Beyond having 9 different aircraft types (corresponding to 6 different families, meaning specific requirements for pilots, spare parts, engines, etc) VARIG's fleet will be shortened by 38 aircraft due to the expiration of current lease contracts. To keep the production level of the current winter schedule 2005/2006 and fulfill plans for the summer schedule 2006, a short-term fleet development plan, based on extension of current lease contracts, or replacement with additional lease contracts is required. The total number of required aircraft is based on the concept network schedule as defined by Measure NETWORK 03. This short-term fleet development should be targeting first steps towards fleet harmonization, when possible.

This fleet structure leads to a reduction in unit cost and improvement in fleet and personnel efficiency, as well as a reduction in maintenance cost. However, further optimization potential will be identified by an in-depth and detailed study of fleet optimization within the next months (see Measure FLEET 04).

#### **Measure Description:**

The short-term fleet development plan has to include a solution for the ■ wide-body aircraft and ■ narrow body aircraft that will leave the VARIG fleet from September 2005 until December 2006.

For the long-term, VARIG will undertake a fleet strategy process that builds the bridge between the current situations, the short-term fleet development plans and the long-term goals of fleet size and structure, based on the requirements as expressed by the network-planning department.

As detailed above, first harmonization efforts can be done by replacing the leaving MD11 by B777 or other more adequate aircraft (if available in the market) and the leaving B737-300/400/500 by B737-300. This involves an agreement with Boeing to rollover the MD11 to the aircraft type identified for VARIG's long haul fleet. The time frame for this short-term development is tied to the long-term decisions VARIG has to take concerning its fleet (see Measure FLEET 04). The end of this plan is depending on the outcomes of that long-term study and the delivery capabilities of the airframe manufacturers.

#### **Future Status:**

For the purpose of this business plan, a plan for a harmonized fleet with only three types of aircraft has been identified which consists of the following aircraft:

Long haul wide body	for long haul intercontinental flights
Medium to long haul narrow body	for long haul South American and high volume domestic flights
Short to medium haul for	domestic and regional flights
<p>For cost and revenue calculation of this business plan, a fleet of B737-300 is considered as short/medium range solution, a fleet of B777 for the long range and a fleet of B757 for the medium range.</p> <p>However, due to the lead-time for disposing the currently leased aircraft, the business plan assumes a time schedule for phase in / phase out of aircraft.</p>	
<p><b>Cost Saving/Revenue Generation Potential:</b> Cost savings and revenue generations mentioned in the Network section and in this chapter are interdependent.</p>	
<p><b>Required investment (Cash-Outflow):</b> None (replacement by same aircraft at market prices)</p>	
<p><b>Required time for implementation / Required time for first results:</b> 6-8 months</p>	
<p><b>Required Manpower input for the project:</b></p> <ul style="list-style-type: none"> <li>- 1 VARIG representative for aircraft lease contracts</li> <li>- 1 VARIG lawyer</li> <li>- External assistance is recommended</li> </ul>	
<p><b>Preconditions / Dependencies:</b></p> <ul style="list-style-type: none"> <li>- Established short-term aircraft requirements based on summer schedule 2006</li> <li>- Repair grounded aircraft (estimated cost at 60m US\$)</li> <li>- Aircraft availability in the market</li> <li>- Long-term vision for fleet requirements</li> </ul>	
<p><b>Opportunities / Risks:</b></p> <ul style="list-style-type: none"> <li>- Unwillingness of lessors to extend contracts, due to VARIG's historical bad payment situation</li> </ul>	

## 8. Revenue Management

### 8.1 Status Quo

Revenue management is an integral part of the central function of network management. In an airline environment, sales and distribution on the one hand and revenue management on the other hand must follow conflicting targets: while sales and distribution strives to maximize sales, revenue management strives to maximize the revenue for the entire route network by maximizing revenue per flight. Due to this natural conflict of targets, it is essential to clearly separate the functions of revenue management and sales.

Due to organizational and personnel changes in 2005, this clear separation is not the case in VARIG at present.

In 2004 and 2005, VARIG's seat load factor on intercontinental services was slightly below that of its international competitors. VARIG's yields, however, are currently about 30% below that of international carriers serving routes to Brazil. The average net yield in 2004 was 7.3 US cents, 10.2 cents on domestic services and 6 cents on international services. The revenue management system applied (PROS5) is considered an adequate base for revenue optimization. However, system instability is causing an estimated revenue loss of around 1m US\$ per year (cross check with IT figures). An investment of [REDACTED] US\$ needed for stabilizing the system is included in the business plan for 2006, counteracting this revenue loss.

A budgeting and controlling process for the sales force concerning booking guidelines for certain booking classes of the flight inventory of each flight, respecting the framework set by revenue management, is in place. However, if this procedure is not strictly followed, yield erosion can lead to a loss of revenue.

As an example for the possible effects of not following the correct procedures: If, contrary to existing procedures, sales contracts with travel partners (corporate clients, agencies) for guaranteed seats in a certain booking class are made without prior information or coordination with revenue management, this can lead to blocking capacities with lower revenue potential which could otherwise have been taken up by higher revenue passengers, counteracting revenue optimization.

Currently spot checks are carried out in different sales regions to verify the adherence of sales to the appropriate booking classes. The lost revenue detected by these spot checks and debited to the travel agencies is around [REDACTED] US\$ per month.

## 8.2 Recommended improvement measures

In 2005, VARIG has already started to adopt a more stringent revenue management policy, including yield management and pricing. Targets concerning revenue per ASK, yield and seat load factor were introduced for the revenue management controllers in July 2005.

The further strengthening of these measures, organizational and procedural changes as well as the introduction of specific tools to improve VARIG's overall revenue is described as follows.

### 8.2.1 REVENUE 01: Targets for Revenue Management Controllers

<b>Current Status:</b>
Up to 2005, the targets for maximizing revenue per flight were not specific. Optimization was done solely via the revenue management system.
<b>Measure Description:</b>
Targets for all revenue management controllers concerning revenue per available seat kilometer, yield, and seat load factor were introduced in June 2005.
<b>Future Status:</b>
The measure that was introduced in June 2005 will increase the awareness of revenue management controllers for maximization of revenue by setting specific targets.
<b>Cost Saving/Revenue Generation Potential:</b>
Net revenue generating potential of ■■■ US\$ per year (=0.2% of total net revenue)
<b>Required investment (Cash-Outflow):</b>
0
<b>Required time for implementation / Required time for first results:</b>
Immediate
<b>Required Manpower input for the project:</b>
1 day
<b>Preconditions / Dependencies:</b>
None, introduced since June 2005
<b>Opportunities / Risks:</b>

## 8.2.2 REVENUE 02: Enforce spot checks of booking discipline

<b>Current Status:</b> Currently spot checks are carried out in different sales regions to verify the adherence of sales to the appropriate booking classes. The lost revenue detected by these spot checks and debited to the travel agencies is around <span style="background-color: black; color: black;">XXXXXX</span> US\$ per month.
<b>Measure Description:</b> An increase of these spot checks by around 25% is planned.
<b>Future Status:</b> The fact of repeated and unannounced spot checks will make the travel partners more aware of existing rules and regulations concerning revenue management measures, and therefore increase adherence to company procedures.
<b>Cost Saving/Revenue Generation Potential:</b> Estimated net revenue increase of 0,5m US\$ per year.
<b>Required investment (Cash-Outflow):</b> none
<b>Required time for implementation / Required time for first results:</b> immediate
<b>Required Manpower input for the project:</b> 1 day
<b>Preconditions / Dependencies:</b>
<b>Opportunities / Risks:</b>

### 8.2.3 REVENUE 03: Interface schedule changes

<p><b>Current Status:</b> Currently, schedule changes have to be entered into the IRIS inventory system manually. Reservations that were already made for these flights need to be transferred one-by-one. Eleven employees are occupied in doing this manual work. Due to this manual procedure, schedule changes need one week time to be published in the GDS, resulting in a competitive disadvantage, especially for domestic and short haul flights that tend to be booked on short notice.</p>
<p><b>Measure Description:</b> Implement an interface to transfer schedule changes from the Netline/Sched system to the IRIS system. An automatic rebooking functionality needs to be implemented in IRIS in order to eliminate most of the manual work (see IT2.1.).</p>
<p><b>Future Status:</b> Schedule changes can be published in the GDS with a one-day delay. The fact that schedule changes done by VARIG are available with a one day instead of a one week delay will lead to a higher degree of publication of VARIG's actual offer and can induce a passenger increase of 5% of domestic passengers.</p>
<p><b>Cost Saving/Revenue Generation Potential:</b> Revenue Generation: Additional <b>net revenue potential through availability of schedule changes to sales force and passengers is</b> ■■■■ US\$ per year (■■■ of domestic passenger revenue) <b>Cost saving: salary package for 11 employees</b> ■■■■ US\$ per year</p>
<p><b>Required investment (Cash-Outflow):</b> Internal project, already started, no investment</p>
<p><b>Required time for implementation / Required time for first results:</b> Going live in December 2005, immediate results</p>
<p><b>Required Manpower input for the project:</b> Man days VARIG 20 External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b> Automatic rebooking functionality in the inventory system is necessary to eliminate manual effort and to increase speed for schedule publication. Because the measure has a considerable effect on the revenue an intermediate modification of the IRIS system is required (see IT2.1.).</p>
<p><b>Opportunities / Risks:</b> The modification of IRIS can only be an intermediate solution, since an integrated and systematic solution should be followed for the inventory system and its interfaces with other systems and functions.</p>

#### 8.2.4 REVENUE 04: Implement Bid Pricing

<p><b>Current Status:</b> Currently, there is no bid pricing for VARIG in place. Prioritization of reservation requests is done considering only the yield of a specific leg. Therefore, the revenue for a passenger with connecting long-haul flights might be lost because of a passenger with a higher yield, but only for the single short-haul leg.</p>
<p><b>Measure Description:</b> Implement a bid pricing system, which maximizes not only the passenger revenue for each individual flight, but also the company's overall passenger revenue. Modify the current inventory system to enable the bid pricing functionality or deploy a bid pricing-compliant inventory system.</p>
<p><b>Future Status:</b> With bid pricing, the overall passenger revenue of the total network, taking into account the network structure including connecting passengers and their entire itinerary, will be maximized instead of maximizing the revenue of each individual flight.</p>
<p><b>Cost Saving/Revenue Generation Potential:</b> ■ US\$ additional revenue through network considerations (■ of passenger revenue, experience with other airlines)</p>
<p><b>Required investment (Cash-Outflow):</b> ■ US\$ Invest one-time for bid pricing system and inventory modifications ■ US\$ regular costs for additional request traffic on the GDS systems (■)</p>
<p><b>Required time for implementation / Required time for first results:</b> 12 Months</p>
<p><b>Required Manpower input for the project:</b> Man days VARIG 960 External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b> Bid Pricing is only useful when the connection traffic is more than 40% of the total traffic and when the average load factor is at least 65%.</p>
<p><b>Opportunities / Risks:</b> Invest can be reduced dramatically (about 3-4m) when changing to a bid pricing compliant inventory system first.</p>

## 8.2.5 REVENUE 05: Ensure PROS System Stability

<b>Current Status:</b> The system stability of the PROS revenue management is not satisfying. In 2005, it was disrupted by three outages in only two months. On those three days, no revenue management optimization could be performed. It was only done the day after.
<b>Measure Description:</b> Set-up a hot stand-by system with a mirrored database. For 100% availability and performance of the PROS systems an additional server is needed, which is normally idle and can take over the role of any of the other servers in case of an emergency.
<b>Future Status:</b> Since problems in revenue management optimization cause extremely high opportunity costs, the optimization run must have a higher priority than the system availability for the analysts.
<b>Cost Saving/Revenue Generation Potential:</b> Revenue Generation: ■ US\$ additional revenue (Avoid lost revenue because optimization cannot be performed due to outages of the Revenue Management system, ■ US\$ opportunity cost per outage of PROS Group, ■ US\$ opportunity cost per outage of PROS V, Opportunity cost is ■ of total revenue maximization potential per day, At least 3 outages in 2005 already)
<b>Required investment (Cash-Outflow):</b> ■ US\$ one-time invest for MS cluster server and new idle server, no additional regular costs
<b>Required time for implementation / Required time for first results:</b> 1 Month
<b>Required Manpower input for the project:</b> Man days VARIG 5 External assistance is recommended
<b>Preconditions / Dependencies:</b> Service level agreements have to be analyzed and adjusted, outages and causes have to be tracked and followed-up by a vendor management
<b>Opportunities / Risks:</b> The system support and the service level have to be reevaluated for the PROS system. The IBM hosting contract is responsible only for the servers, operating systems and basic software (like databases). Neither IBM covers the availability of end services and VARIG applications nor does the VARIG IT staff a follow-up of application problems. A vendor and quality management has to be installed for business-critical applications.



## 8.2.6 REVENUE 06: Implement Revenue Management Forecast Reporting

<b>Current Status:</b> Revenue forecast can be reported per single flight only. Currently, forecast reports are compiled manually only for the international market.
<b>Measure Description:</b> Development of an automatic and flexible reporting of PROS information to deliver revenue and load factor forecasts on specific markets for the commercial department, cargo, catering and airport shift planning.
<b>Future Status:</b> Break-even load factor analysis can be done not only for the international, but also for the domestic market. This way the yield management and commercial departments are able to base sales and promotional initiatives on the flight forecast and load factor information in order to fill up the flights to achieve at least the break-even load factor.  The cargo sales department will receive information about possible cargo payload for the domestic market based on the booking forecast. By this, they are able to sell additional payload for flights with excess capacity.
<b>Cost Saving/Revenue Generation Potential:</b> <b>■ US\$ potential increase of domestic passenger revenue.</b> (Projected from International revenue increase of ■ on markets with load factor below break-even load factor / domestic passenger market in 2004 with 4 months with load factor ■ below break-even load factor and revenue of ■ US\$)  <b>■ US\$ potential increase of domestic cargo revenue</b> (Projected from International revenue increase of ■ US \$ / revenue share for cargo is International ■ - Domestic ■)
<b>Required investment (Cash-Outflow):</b> Internal project, no invest
<b>Required time for implementation / Required time for first results:</b> 2 Months
<b>Required Manpower input for the project:</b> Man days VARIG 80 External assistance is recommended

**Preconditions / Dependencies:**

The reporting enables sales initiatives to achieve break-even load factor for domestic markets. The achievable revenue strongly depends on sales initiatives and customer behavior.

Forecast reporting will also be delivered to catering and airport shift planning for optimization of their plans.

**Opportunities / Risks:**

When designing and developing a reporting system for PROS one should consider to create a tool as flexible as possible. Revenue management information is an important source for business intelligence and is essential for decision support in all operational and strategic areas. Therefore, revenue management information should not only be available for single defined reports but for immediate queries as well.

## 9. Sales, Distribution and Marketing

### 9.1 Status Quo

As shown in the chapter dealing with Network Management, Sales, Distribution and Marketing, together with network management, are the central commercial functions of an airline driving the company's overall business and profit line.

In VARIG's current organization, the Sales Directorate, the Planning Directorate and the Marketing Directorate report to the Executive Vice President Commercial and Planning. According to the principles of result maximization, clear responsibilities and decision structures, this distribution of functions under the EVP Commercial and Planning is adequate for the efficient management of a modern airline. The Planning Directorate includes all the functions of a modern Network Management organization, while the Sales Directorate oversees the domestic and international sales activities.

#### **Sales and Distribution status quo**

In the organization, sales and network management responsibilities (network planning and revenue management) are clearly separated. This structure implies all the essentials for achieving the goal of revenue maximization by creating a constructive natural conflict between sales and revenue management units.

The main objective of the sales force is maximization of the sales within their region of responsibility. Since sales maximization is based on the totality of sales, some of which does not translate into revenue for VARIG (for example prorated sales on other airlines, etc), sales maximization of each sales unit does not lead to maximization of the company's overall revenue.

Therefore, revenue management has the task of maximizing the company's overall revenue by maximizing the combination of yield and seat load factor for the totality of flights.

The natural conflict arising from these two different tasks must be managed by organizational and procedural solutions.



Customer Relations Management is currently allocated to the Operations organization. Since the key functions for defining the product as well as the sales function, which not only involves customer acquisition but also customer retention, are performed by the VP Commercial and Planning, the function of Customer Relations Management should also be allocated to the VP Commercial and Planning.

Possible optimization measures are included in this business plan as far as they are quantifiable at this stage.

### **Marketing status quo**

VARIG's marketing policy is currently focused on marketing communication. A clearly defined, consistent overall product, service, and marketing strategy does not exist.

Since VARIG's does not have a systematic overall planning and budgeting process that is derived from a clearly defined corporate strategy and embedded in a systematic and revolving company planning process, the same goes true for VARIG's marketing plan.

Even though there have been certain marketing initiatives with subsequent benefits for VARIG, ranging from a conjoint analysis by market research to the definition of catering concepts for specific parts of the network, an overall marketing plan which should serve as an important base for the sales organization's decentralized marketing and sales plans, is not in place. Therefore, marketing actions are derived rather from short term, on the spot considerations.

A marketing planning and controlling system including the basic elements of a systematic and target oriented approach, such as

- customer segmentation
- market segmentation
- identification of target groups
- formulation of strategic marketing objectives
- formulation of short to medium term marketing objectives
- establishment of coordinated measures for reaching these objectives
- establishment of coordinated marketing action plans with measures, actions, cost and benefit calculations
- marketing controlling

should be established as soon as possible.

The definition of VARIG's product and service policy is currently not concentrated in one organizational unit, but spread out throughout the entire com-

pany. Decisions concerning customer service and product are made in various departments in the Commercial and the Operations Vice Presidency.

This deficit has, amongst other reasons, been one of the reasons for the greatly diversified product, which does not represent a clear and positive image of VARIG, its products and services.

It is therefore recommended to centralize all issues concerning the definition of product and service in one organizational unit in the Commercial organization. This unit's responsibility is to define VARIG's product and service strategy and policy, taking into account the company's strategic objectives as well as the profitability of any product and service related measure. They should also be responsible for coordinating and controlling all product and service related projects. For example, decisions concerning cabin configurations, service concept on the ground and in the air, in-flight entertainment and communication concepts, lounge policy, etc. should be concentrated under this unit.

As another example, currently, in general, decisions concerning catering concepts are taken by marketing, but in some cases the catering department decides on conceptual issues as well. In future, there should be a clear separation of concept (commercial) and implementation (operations).

## 9.2 Recommended improvement measures

### **Sales and Distribution measures**

In order to avoid conflicts of interest, which could have a negative effect on the company's result, it is recommended to staff the position of Vice President Commercial and Planning as soon as possible.

All customer related functions should be concentrated in this Organizational unit, including the Customer Relations function currently located under the Vice President Operations.

Implementation of the measure with the highest immediate improvement potential on net revenue, the modification of commission policy, has started in September 2005. Further continuous optimization of commission policy will remain of high relevance for the company's net revenue and its result in future.

Additional measures that are at this stage not included in the analysis and consequently in the business plan are the revision of the structure of General Sales Agents world wide, creation of synergies by merging functions of sales and stations personnel in less frequented stations, the implementation of a new variable remuneration scheme for the sales force, etc. These will have to be the subject of in depth analysis within the next months.

### **Marketing measures**

In order to recover the damage done to VARIG by its deteriorating image, a clearly defined marketing strategy, which is derived from, the overall corporate strategy, has to be defined.

Based on the principles of a systematic marketing planning addressed above, this strategy has to systematically address the following principal issues:

- Product definition intercontinental
- Product definition South America
- Product definition domestic
- Definition of the overall service chain (pre-flight, in-flight, post-flight)

The marketing principles derived from the definition of the marketing strategy are the base for all product and service decisions, which are to be integrated in the company's planning and budgeting process.

In this context, the decision taken in August 2005 to eliminate Business Class on domestic services must be seen as a short-term cash maximization measure. Due to the current crisis and the fact that the share of Business

Class passengers on domestic services is very low, VARIG has decided to immediately eliminate Business Class on domestic services.

Since domestic services and services to South American destinations - with a higher share of Business Class passengers - are served with the same aircraft types, a physical change of the aircraft configuration at this point of time is not recommended.

It is recommended not to physically change the seat configuration on board of all aircraft, which operate domestic services at this point in time. Instead, in the short term it is recommended to sell the entire seating capacity of the domestic flights as Economy Class and to assign the former Business Class seats to special customers, such as participants in VARIG's Frequent Flyer Program Smiles.

However, a strategic evaluation of VARIG's class concept has to be made within the next two to three months. This evaluation and the following decision concerning VARIG's class concept has to take into account the overall marketing strategy, production issues (domestic aircraft also serve international destinations such as Buenos Aires with a relatively high Business Class share), and the hub concept linking international and domestic routes to attract more international passengers beyond São Paulo or Rio de Janeiro. In this context, a solution with convertible seats for domestic and South American flights which can be changed for each flight according to demand can be considered.

Any issues concerning VARIG's product and service concept – on the ground and in the air – should be developed by the marketing organization - in coordination with all other departments involved, such as catering, ground operations (for service on ground, lounges, etc.), cabin crew (for service concepts), maintenance (for aircraft configurations), etc.

## 9.2.1 SALES 01: Revision of commission policy for the Brazilian market

<b>Current Status:</b> Currently, commission cost of at least ■■■ are paid for all sales via travel partners within Brazil. Since ■■■ of VARIG's gross passenger revenue is generating from sales within Brazil, commission cost in Brazil is a very important cost driver. A renewal of the commission concept in Brazil, which implies the introduction of a more net revenue oriented commission cost structure, will greatly improve VARIG's net revenue. The concept has already been agreed by the major airlines serving Brazil in order to streamline the relations between airlines and travel partners, improve net revenue and increase transparency.
<b>Measure Description:</b> Change the current gross based commission concept to a net based concept for sales from Brazil, thus improving net revenue. The implementation is planned to start in 2005.
<b>Future Status:</b> Shift from gross revenue policy and calculation to net revenue, which is relevant for VARIG's bottom line, increase of net revenue.
<b>Cost Saving/Revenue Generation Potential:</b> Net revenue Generation: plus ■■■ US\$ per year by agencies, plus ■■■ US\$ by own sales
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> 6 months
<b>Required Manpower input for the project:</b> Internal project already decided.
<b>Preconditions / Dependencies:</b> Agreement and implementation by other airlines in Brazil
<b>Opportunities / Risks:</b>



## 9.2.2 SALES 02: Reduction of personnel in the sales management organization in Brazil and abroad (Project ICARO)

<b>Current Status:</b> Currently, sales management personnel in Brazil consists of ■ sales people including ticket sales at the airports. Down-sizing the sales force to a level necessary for the market requirements has been identified as necessary, and the implementation of this project under the name of "ICARO" has already started.
<b>Measure Description:</b> Within the project of ICARO, the reduction of sales force has already begun, starting in Brazil. In Brazil, the work force has been reduced by ■, and by restructuring sales locations and organizational optimization measures, the efficiency of the sales organization in Brazil is being improved.
<b>Future Status:</b> The ongoing "Icaro" process has already had an important impact on the Cost reduction in Sales Brazil .
<b>Cost Saving/Revenue Generation Potential:</b> Cost Saving: Brazil ■ US\$ per year, abroad ■ US\$ per year ; represents ■ lay-offs.
<b>Required investment (Cash-Outflow):</b> Included in the net value of ■ US\$
<b>Required time for implementation / Required time for first results:</b> 6 months
<b>Required Manpower input for the project:</b> ...
<b>Preconditions / Dependencies:</b> ...
<b>Opportunities / Risks:</b>

### 9.2.3 SALES 03: Decision about future sales platform

#### **Current Status:**

Presently VARIG employs an in house inventory called IRIS, which is an enhanced copy of Atraxis 7. The system kernel is based on IBM TPF technology, around which various satellites, adaptors and enhancements have been implemented in the past using various technologies.

Development team consisting of 10 VARIG staff members maintains the system. Due to the obsolescent architecture additional knowledge is not easily available on the market.

Operation and Management are outsourced to IBM (see IT 04).

Distribution is managed by the 1A system user platform. However, almost the same number of revenue is generated via SABRE, other GDS being of minor importance. Internet bookings only account for 2% of the total booking volume (see SALES 04).

1A system user agreement is valid until 2007. However, VARIG sees itself bound by the contractual agreement giving it an effective 2% share in Amadeus Brazil.

In 2005, VARIG evaluated alternatives for the future of its reservation system. It was recommended to stick with the current solution plus additional enhancements. Neither strategic implications nor setup of the business case are very transparent.

Current situation and the decision to continue with the legacy platform imposes major risks and restrictions to VARIG

- Inability to reduce system cost substantially (except for pure purchasing initiatives, (see IT 04).
- Inability to follow future trends due to lack of development resources
- Necessity for funding any project 100% instead of sharing cost
- Risk of rising maintenance cost and slow time to market due to system architecture reaching end of life cycle

#### **Measure Description:**

Decision for IRIS+ has to be reviewed based on clear alignment with business strategy proper commercial numbers and optimized project plan (incl. Tactical measures to cut host system load). Start unbiased analysis taking into account all possible configurations (VARIG / GDS / GNE / Third party providers) by fourth quarter of 2005. Freeze IRIS enhancement planning and projects immediately except for vital maintenance. Prepare intermediary action plan with very small number of projects having a sound business case and a high probability of success (see REVENUE 03). Apply strict project management and review procedures to these projects.

Due do complexity of the situation it is strongly recommended that the analysis is lead by an external neutral project manager and consulting staff.

<b>Future Status:</b> As a result, senior management can decide about future system by the first quarter of 2006. Depending on that, VARIG can have a flexible and cost effective system platform for sales and distribution fully implemented by end of 2007 - 2009, depending on legal scenario of GDS contracts (see SALES 04).
<b>Cost Saving/Revenue Generation Potential:</b> Direct impact on IT cost: █████ US\$ per year based on first estimate of VARIG IT in order to verify past analysis. The validity of this number is very soft. It has to be inspected thoroughly in the proposed analysis. Enabling GDS bypass (see SALES 04) with █████ US\$ and bid pricing (see REVENUE 04) with around █████ US\$ per year.
<b>Required investment (Cash-Outflow):</b> Estimate will be result of analysis
<b>Required time for implementation / Required time for first results:</b> Results of analysis by end of 2005 (if properly staffed and managed). Implementation 2007 – 2009, depending on legal scenario
<b>Required Manpower input for the project:</b> Analysis only: Man days VARIG: 180 – 300 External assistance is recommended Implementation effort will be result of analysis.
<b>Preconditions / Dependencies:</b> Legal assessment of contracts with Amadeus is essential. Analysis must include all information about future business strategy and corporate portfolio of VARIG, including transfer of domestic traffic to dormant or new legal entities not bound by 1A agreements, sale of shares of Amadeus Brazil to third party, etc.
<b>Opportunities / Risks:</b> If business strategy is not well defined, analysis will not lead to meaningful results.

#### 9.2.4 SALES 04: Internet Bookings / GDS bypass for domestic flights

<b>Current Status:</b> Only approx. ■■■ of VARIG Booking volume is generated via direct bookings via internet. VARIG being 1A system user, also internet bookings have to be transferred to 1A. The full booking fee for airline offices (ATO/CTO) applies. ■■■ of total booking volume of ■■■ US\$ per year is unconnected local traffic, for which the 1A platform generates no major value. Present cost for these bookings is ■■■ US\$ per year.
<b>Measure Description:</b> Setup up Internet booking platform and bypass GDS. Redirect domestic bookings to internet sites as far as possible. Internet booking must be accessible by customer by B2C website as well as via transparent platform by agents.
<b>Future Status:</b> New VARIG platform will be primary. GDS will only be involved when necessary.
<b>Cost Saving/Revenue Generation Potential:</b> ■■■ US\$ reduction of booking fees. Additional cost reduction possible by freeing call center capacity ...
<b>Required investment (Cash-Outflow):</b> To be analyzed in SALES 03
<b>Required time for implementation / Required time for first results:</b> 2007 if only technically restricted
<b>Required Manpower input for the project:</b> Man days VARIG see SALES 03. External assistance is recommended.
<b>Preconditions / Dependencies:</b> See SALES 03.
<b>Opportunities / Risks:</b> See SALES 03.

## 9.2.5 SALES 05: Change trainings partially to online trainings

<b>Current Status:</b> Currently all trainings in the sales area are done in training centers or similarly. Basic sales trainings of three weeks for each employee in commercial require a high amount of personnel capacity.
<b>Measure Description:</b> Basic trainings as well as other selected trainings will be partly changed to online trainings, increasing personnel efficiency and reducing cost
<b>Future Status:</b> Reduction of training cost, higher personnel efficiency
<b>Cost Saving/Revenue Generation Potential:</b> <b>Cost saving:</b> ■ US\$ per year
<b>Required investment (Cash-Outflow):</b> ■ US\$ for preparation of online training
<b>Required time for implementation / Required time for first results:</b> 2 months
<b>Required Manpower input for the project:</b>
<b>Preconditions / Dependencies:</b>
<b>Opportunities / Risks:</b>

## 9.2.6 SALES 06: Optimization of Direct sales structure and organization

<b>Current Status:</b>
Currently several call centers in various countries are used for direct sales. Online sales are not possible in certain cases due to problems on the IT side and because of VARIG not fully using the capabilities of its web site.
<b>Measure Description:</b>
An optimization of the call center structure, as well as the entire issue of direct sales, has started and will be further investigated within the next months, with external assistance. An optimized structure is estimated to be identified and evaluated by the end of 2005 and implemented in 2006.
<b>Future Status:</b>
Reduction of distribution cost, higher efficiency, higher revenue
<b>Cost Saving/Revenue Generation Potential:</b>
The possible cost savings and revenue generating potential will only be quantified within the next months and is therefore not included in the result projection of this business plan
<b>Required investment (Cash-Outflow):</b>
See above
<b>Required time for implementation / Required time for first results:</b>
2 months
<b>Required Manpower input for the project:</b>
3 months
<b>Preconditions / Dependencies:</b>
<b>Opportunities / Risks:</b>

9.2.7 MARKETING 01: Define a company marketing strategy within the framework of the corporate strategy

<b>Current Status:</b> No overall marketing strategy and integrated marketing concept exists
<b>Measure Description:</b> Develop an overall integrated marketing concept and define the product and service strategy for VARIG
<b>Future Status:</b> Clearly defined and implemented product and service chain, clear VARIG identity, improvement of VARIG's image
<b>Cost Saving/Revenue Generation Potential:</b> Revenue improvement potential by attracting more passengers, not quantified for the business plan
<b>Required investment (Cash-Outflow):</b>
<b>Required time for implementation / Required time for first results:</b>
<b>Required Manpower input for the project:</b>
<b>Preconditions / Dependencies</b>
<b>Opportunities / Risks:</b>

## 9.2.8 MARKETING 02: Systematic analysis of VARIG's strategic class concept on international and domestic services

<b>Current Status:</b> Due to the current crisis and the fact that the share of Business Class passengers on domestic services is very low, VARIG has decided to eliminate Business Class on domestic services. Domestic services and services to South American destinations - with a higher share of Business Class passengers - are served with the same aircraft type, a physical change of the aircraft configuration at this point of time is not recommended.
<b>Measure Description:</b> <ol style="list-style-type: none"> <li>1. No physical change of seat configuration on domestic services at this point</li> <li>2. Systematic evaluation of VARIG's class concept in the next months</li> </ol>
<b>Future Status:</b> Clearly defined class concept, additional revenue
<b>Cost Saving/Revenue Generation Potential:</b> Net revenue Generation: Assumption in the business plan: Streamlined product by 2007, yield increase by █
<b>Required investment (Cash-Outflow):</b> TBD – assumption for the business plan █ US\$ in 2007, █ US\$ in 2008
<b>Required time for implementation / Required time for first results:</b> █
<b>Required Manpower input for the project:</b> ...
<b>Preconditions / Dependencies:</b>
<b>Opportunities / Risks:</b>



## 9.2.9 MARKETING 03: Lounges Re-evaluation

<b>Current Status:</b> VARIG offers several Lounges in Brazil and abroad to their customers. Some of them are hired (paid per guest) and some of them are own lounges. The lounge in JFK (New York) is of particular concern. VARIG pays approximately █ US\$ per own guest for the lounge (and even cross-subsidizes third parties with this fee), although competitors offer lounge entry for a fixed fee of approx. █ US\$ / passenger
<b>Measure Description:</b> Investigation into the existing contract for the lounge in NYC and continuous comparison of all lounge contracts around the world.
<b>Future Status:</b> VARIG will ensure that the Marketing concept regarding lounge services is fulfilled, while controlling the costs.
<b>Cost Saving / Revenue Generation Potential:</b> With an average of approximately 1343 guests per month and 16116 guests per year multiplied with the difference of the costs for the lounge to a substitute (other lounge provider) of █ US\$, a total <b>yearly saving of approximately █ US\$</b> is feasible. Re-negotiations of other lounge contracts are seen as additional potential.
<b>Required investment (Cash-Outflow):</b> TBD (contract penalty)
<b>Required time for implementation / Required time for first results:</b> TBD (contract)
<b>Required Manpower input for the project:</b> One legal from VARIG and the local station manager. No external assistance required.
<b>Preconditions / Dependencies:</b> <ul style="list-style-type: none"> <li>Continuation of flights to JFK (currently there are 7/7 flights to JFK. Changes to either 0/7 due to a move to █ enhancement to 14/7 in JFK are possible).</li> <li>Contract with the airport authorities must be re-negotiated and lounge must be separated from the other facilities. The contract for the lounge must be cancelled.</li> </ul>
<b>Opportunities / Risks:</b> <ul style="list-style-type: none"> <li>There might be an opportunity for a Star Alliance lounge in JFK T4.</li> <li>Changes in the flight program bear a risk, as they have a high impact on the profitability analysis of an own versus a third party lounge</li> <li>An additional risk is seen as VARIG has to find a lounge contract at peak hours</li> </ul>

## *10. Maintenance & Engineering*

### 10.1 Status Quo

While searching for improvements and/or changes for the sole purpose of recovery in the area of Aircraft Maintenance, we have to take in consideration the maintenance responsibilities of the operator VARIG as well as those of its present aircraft maintenance provider VARIG Engineering & Maintenance (VEM). The separation of the Aircraft Maintenance Division (VEM) from the Aircraft Operator (VARIG) in 2001 was intended to create an independent Aircraft Maintenance Organization (MRO) to be operated as a Profit Center under the name of VARIG Engineering & Maintenance (VEM).

From the start, the fledgling MRO was depending on VARIG at a ratio of 80/20 with a minimal change to a ratio of 70/30 at present. The goal set at the start-up phase to reach a midterm ratio of 50/50 does not seem realistic at this point. The operational conditions of the airline overall did not allow an independent development of the MRO during the past 3 ½ years.

With all legal requirements considered on paper, the Aircraft Maintenance Division of VARIG, organized under the VP Operation & Maintenance merely presents itself as a box in the organization chart with no substantial manpower and authority to fulfill its responsibilities.

### 10.2 Recommended Improvement Measures

The following recommendations are all cost reduction related and do not depend on recommendations to be introduced in other organizations. However, all recommendations introduced to the aircraft operation will further improve the anticipated benefits in Aircraft Maintenance with additional cost reductions for the operator. The overall cost reductions for the operator (maintenance related) are estimated at 25% to 30%.

The cost reductions generated for the operator VARIG will benefit VEM as well. Freed capacity in almost all areas and aggressive marketing of their products will help reaching the desired independence and beyond.

Some recommendations will have immediate measurable (financial) effects, for others preparations are necessary to accomplish the intended results. The success in general must be a team-effort of the Aircraft Maintenance Division of the operator VARIG and the MRO (VEM) based on clearly defined goals by management.

The key to success however, will be the change from the model of “Power by the Month” to a very detailed calculated VEM-budget with a reimbursement structure following the principle of “Power by the Hour”<sup>4</sup>. A formula must be adopted to deal with aircraft maintenance related services provided by the MRO but solely controlled by operator.

To meet future expectations it is of utmost importance for the MRO to move from the present functional structure of organization to a process orientated organization. Providing customers with the highest quality of service on a daily basis, it is necessary to have an organizational structure that generates positive conflicts between the leading units resulting in optimal benefits to the operator/customer.

#### 10.2.1 MAINTENANCE 01: Development of a customized maintenance program

<p><b>Current Status:</b></p> <p>The Aircraft Maintenance Program in place is based on Manufacturers recommendations with little VARIG/VEM experience incorporated. This fact contributes to an expensive maintenance operation.</p>
<p><b>Measure Description:</b></p> <p>VARIG has to develop a Maintenance Program (customized Maintenance Schedule {MS}) tailored to the needs of the operator VARIG under the premises of Safety, Reliability and Economics. For reasons of personnel capacity this task has to be shared with the Engineering Division of VEM especially as it concerns the program details for the different fleets and aircraft configurations. Especially in the area of the biggest fleet (737) the letter-check intervals will have to be escalated. In a very first step, VEM will have to inform VARIG about the amounts for (1) routine work, (2) non-routine work, (3) special items for phase-in and (4) return conditions for phase out.</p>
<p><b>Future Status:</b></p> <p>With a state-of-the-art Maintenance Program in place inspection intervals can be escalated, aircraft ground time for maintenance reduced and the quality of the product Maintenance improved.</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>Escalation of letter checks (B737-300, -400, -500)</p>

<sup>4</sup> The current “power by the month” concept of maintenance cost does not make the maintenance cost transparent to the customer (VARIG). As opposed to the “power by the hour” concept, which incorporates a maintenance price per flight hour, this concept would give the company more control over maintenance cost, since the hourly rate is comparable with that of other maintenance suppliers.

<p>(Average FH/day taken from data provided).</p> <p><math>9.89 \text{ Fh} \times 365 \text{ days} \times 43 \text{ A/C}</math> [redacted] -Checks with [redacted] Fh intervals</p> <p><math>9.89 \text{ Fh} \times 365 \text{ days} \times 43 \text{ A/C}</math> = [redacted] -Checks with [redacted] Fh intervals</p> <p>Difference: [redacted] fewer A-Checks [redacted] to be preformed per year</p> <p>Estimated cost reductions per year = [redacted] <b>US\$</b></p> <p>(Even more savings are possible with the planned enlargement of the B737 fleet, but not incorporated into the Business Plan yet). Nevertheless, further investigations will take place in the coming weeks.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>There is no investment necessary to accomplish the task. The engineering qualifications available will take on the challenge.</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>With a working group established (VARIG-Maintenance and VEM) the task should be accomplished in 6 month, considering the approval process by government agencies (DAC).</p>
<p><b>Required Manpower input for the project:</b></p> <ul style="list-style-type: none"> <li>■ 1 working-group leader (VARIG-Maintenance)</li> <li>■ 4 planning engineers of System Engineering (VEM)</li> <li>■ External expertise is recommended</li> </ul>
<p><b>Preconditions / Dependencies:</b></p> <p>Installation of a working-group</p>
<p><b>Opportunities / Risks:</b></p> <p>Improvement of product quality based on internationally excepted standards and optimization of manpower and ground-time used to maintain the fleets.</p> <p>As a risk have to be considered some of the specific rules in force through Leasing Contracts. Risks and opportunities have to be weighed and decisions made to the benefit of VARIG and VEM.</p>

## 10.2.2 MAINTENANCE 02: Parameters to measure performance of aircraft maintenance in all sectors

<b>Current Status:</b> At present only sporadic attempts are made to use tools available to measure the quality of performance either as evidence or justification.
<b>Measure Description:</b> Parameters to measure quality performance in all areas of aircraft maintenance must be evaluated routinely. They include manpower requirements, calculated hours vs. hours used, interaction of different work classifications and maintaining of allowed ground-times. Each of the parameters must show a management desired standard of quality. Listing must be based on local requirements.
<b>Future Status:</b> Plan and result are compared for every task/check. Deviations (+/-) are evaluated and corrective measures initiated as warranted.
<b>Cost Saving / Revenue Generation Potential:</b> Recalculation of Letter Checks: Standard values A-Check, Lufthansa Technik: B737 fleets = ■ Mhr ground time ■ hrs. Wide body = ■ Mhr ground time ■ hrs. VEM calculation: ■ Mhr for A-Check (this A-Check currently contains parts of the C-Check). We estimate at least ■ reduction in man-hours as feasible (especially in the C- and D-Checks. Re-calculation of manpower requirements for all letter checks is a prerequisite for future improvement measures. All possible measures considered, estimated cost reduction ■ <b>US\$ per year</b> Although this assumption is understood to be conservative, further investigation in this measure will take place in the future.
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> Up to 6 month
<b>Required Manpower input for the project:</b> External assistance is recommended
<b>Preconditions / Dependencies:</b> Job description for Planners
<b>Opportunities / Risks:</b> Using the tools to there full potential, the maintenance production, production planning, system engineering and management have control over the total spectrum of their responsibilities and can react to deviations in a timely manner to prevent negative (financial) consequences.

### 10.2.3 MAINTENANCE 03: Introduce "Non Maintenance Stations"

<p><b>Current Status:</b></p> <p>There are 32 domestic station of a total of 35 staffed with 244 technicians. In addition own personnel support 18 foreign stations with a total of 56 technicians. Their workload in many cases does not warrant staffing by own personnel. There is no technical reason for continuing with Transit Inspections performed by technical staff.</p>
<p><b>Measure Description:</b></p> <p>Abolish Transit Inspection requirements on domestic and foreign stations. It is not a requirement set by the manufacturer to have technicians / mechanics perform this service. Instead have the "pilot not flying" perform the "Walk-around" (Transit Inspection), a task that is already part of his duties. This practice is introduced around the world with great success for many years now. This measure is strongly linked to the measure "MAINTENANCE 01, Development of a customized maintenance program".</p>
<p><b>Future Status:</b></p> <p>Maintain technical personnel on those stations with multiple transits and overnights only as well as stations with geographic and other service related constraints. All other stations are to be protected with "on-call"-service agreements through 3<sup>rd</sup>-parties in cases of technical discrepancies and rectification of snacks. Use Star Alliance in support.</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>The cost savings are seen in the area of personnel cost, station allowances, space rental, tools and equipment etc. It is estimated that a total of ■■■ Technicians/Mechanics can be returned to home base. This has a total cost saving of <b>approx. ■■■ US\$ per year (including employers contribution)</b>. The measure will start with stations, where more than one stop occurs. In a step-wise approach also the one-stop stations will be integrated, to ensure internal as well as authority acceptance.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>None, as the freed workforce will be utilized for additional third party work (following the explanation, that VEM had to turn down approximately ■■■ US\$ of external requests. (In case, that layoffs are necessary, VEM is obliged for payment of approximately ■■■ US\$)</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>Approximately 3 to 9 months with first results following parallel to the introduction ■■■ of the reduction potential should be reached after 6 month</p>
<p><b>Required Manpower input for the project:</b></p> <p>None</p>
<p><b>Preconditions / Dependencies:</b></p> <ul style="list-style-type: none"> <li>■ Entering into an agreement with flight crew division to change traditional practice</li> <li>■ Adaptation of the Maintenance Program in place</li> <li>■ Negotiating changes and achieve acceptance by DAC</li> </ul>

**Opportunities / Risks:**

The risk involved is statistically under 5%\* involvement of 3<sup>rd</sup>-party help. Response to assist may be slower than own personnel. All risk factors must be weighed in view of cost reductions.\* Lufthansa Technik experience. Working conditions are to be included into the investigation, as cockpit crew is not expected to work close to fuel.

#### 10.2.4 MAINTENANCE 04: Control compliance with Aircraft Maintenance Program

<b>Current Status:</b> VARIG does not adequately control the activities of the aircraft maintenance provider (MRO) as required.
<b>Measure Description:</b> The controlling function is guaranteed by a qualified representation of VARIG present at all decision-making meetings of the MRO concerning the aircraft maintenance of the VARIG fleet(s).
<b>Future Status:</b> The presence of VARIG will not only fulfill a controlling requirement, but also through its close proximity to maintenance actions planned, he will have a good understanding of maintenance constraints. It will play a pivotal role in arriving at final decisions.
<b>Cost Saving / Revenue Generation Potential:</b> There will be indirect cost savings by assuring decisions considering VARIG interests.  This savings are to be seen as future additional savings.
<b>Required investment (Cash-Outflow):</b> No investment required
<b>Required time for implementation / Required time for first results:</b> Implementation immediately
<b>Required Manpower input for the project:</b> Assignment to participate in meetings concerning maintenance planning must be part of Job description of leading personnel of VARIG-Maintenance No extra manpower required
<b>Preconditions / Dependencies:</b> Requirement already in place
<b>Opportunities / Risks:</b> No risks involved but optimization of the services provided by the MRO with focus on economics. Safety and Reliability is never in question.



#### 10.2.5 MAINTENANCE 05: Establish Mid- and Long-Term Planning (3 - 5 years)

<p><b>Current Status:</b></p> <p>Mid- and long-term planning in reference to fleet composition and operation, as it is known in the industry, must be made available. Without, it is practically impossible for the MRO to establish a mid- and long-term planning in their areas of responsibility such as:</p> <ul style="list-style-type: none"> <li>■ Principle strategy and development of the MRO</li> <li>■ Production Planning</li> <li>■ Manpower capacity</li> <li>■ Training</li> <li>■ Investments for technical equipment and facilities</li> <li>■ Marketing</li> <li>■ (Listing incomplete, does not consider specific local requirements)</li> </ul>
<p><b>Measure Description:</b></p> <p>A mid- and long-term strategy for fleet composition and operation, translating into mid- to long-term plans, in support of the planning requirements of the MRO and the operator must be made available.</p>
<p><b>Future Status:</b></p> <p>Periodically updated mid- and long-term plans provided by the operator are crucial to the economical well being of the MRO. It will put the MRO in a position to react timely to changes effecting their own operation with subsequent marketing efforts.</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>Already included in the other estimations regarding fleet homogenization and general reduction of maintenance costs.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>No investment required</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>A timeframe of 6 months is estimated for implementation. Within 12 month results will show.</p>
<p><b>Required Manpower input for the project:</b></p> <p>Qualified staff is available External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b></p> <p>No preconditions or dependencies known other than establishing mid- and long-term plans.</p>
<p><b>Opportunities / Risks:</b></p> <p>Planning stability will be in support of the cost reducing efforts of operator and MRO.</p>

#### 10.2.6 MAINTENANCE 06: Aggressive marketing of product(s)

<b>Current Status:</b> The ratio between maintenance work performed for VARIG and other customers was 80/20 in 2001 and has improved to 70/30 at present. This is by far not a well-balanced ratio for an independent MRO; the dependency on work through VARIG remains an overwhelming necessity.
<b>Measure Description:</b> Introduce an aggressive marketing program for VEM, intended to gain a greater share of the domestic and international aircraft maintenance market with the mid-term goal of a 50/50 ratio viewing a 40/60 ratio.
<b>Future Status:</b> With lesser dependency on work through VARIG the chances improve to overcome fluctuations in work volume created by the prime customer. The status as an independent MRO will strengthen.
<b>Cost Saving / Revenue Generation Potential:</b> A revenue generation potential is very real and important to the MRO. The cost saving measures introduced to benefit VARIG will free capacity, which in turn will allow accepting customers before additional personnel has to be considered.  These potentials are to be seen as future additional savings or future additional revenue generation potentials.
<b>Required investment (Cash-Outflow):</b> Travel expenses of approximately █████ - US\$ per year
<b>Required time for implementation / Required time for first results:</b> 3 months to modify the present marketing plan. First results to be expected within 6 months.
<b>Required Manpower input for the project:</b> Marketing group (sales people on the road) of 6 to 8 members. No external assistance necessary
<b>Preconditions / Dependencies:</b> None
<b>Opportunities / Risks:</b> Group will become the backbone of the independent operation as a MRO.

## 10.2.7 MAINTENANCE 07: Personnel allotments for all tasks

<b>Current Status:</b> Required manpower is assigned to tasks based on past experience and fair judgment by leading personnel.
<b>Measure Description:</b> Repetitive inspections, standard tasks and extra work (such as Component changes) are carefully calculated in terms of technical qualifications required, time and number of personnel needed. Planners will call upon the assistance of leading production personnel to recalculate the present structure (Manpower/man-hours) applying logic and common sense. Newly established targets will be tested real time and introduced. With conditions varying from aircraft to aircraft, permanent monitoring is required to recognize developing "roadblocks" and enable the planner to initiate corrective actions. It is not advisable to publish these changes since they are planning parameters only and not related to payment structures. However, it will be the responsibility of supervisory staff of production to assign qualifications and manpower according to the newly established targets.
<b>Future Status:</b> Personnel assignments to tasks will be by qualification and calculated time requirements for routine work. Time requirements to rectify findings are a percentage of the routine work. Both factors signify 100% of the workload. After each event planned data will be compared with actual data and adjustments are initiated as warranted.
<b>Cost Saving / Revenue Generation Potential:</b> This measure is strongly linked to measure "Parameters to measure performance of aircraft maintenance in all sectors", where the savings are already incorporated.
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> Approximately 6 to 9 months considering external support.
<b>Required Manpower input for the project:</b> External assistance is recommended
<b>Preconditions / Dependencies:</b> Management decision to go ahead with project
<b>Opportunities / Risks:</b> Savings in general and improved supervision over personnel requirements as well as utilization. No risk just improvements.

#### 10.2.8 MAINTENANCE 08: Utilization of extended operational Ground-time for maintenance work

<b>Current Status:</b> The use of operational ground-time for aircraft maintenance is somewhat rigid based on principle decisions made with parties concerned at the beginning of a flight-plan period. Considering the permanent changes of an ongoing flight-operation a greater flexibility is needed to accommodate maintenance requirements.
<b>Measure Description:</b> Enhance the flexible approach of using extended ground-times for operational reasons at any station as time available to perform maintenance including extra work. This philosophy must include the acceptance of aircraft and/or equipment changes (on the part of operation control) affecting stations, other than the base-stations, where capacity is available and material/components can be provided.
<b>Future Status:</b> Only under rare circumstances will it be necessary to ferry or re-route an aircraft back to a base-station. The norm must be that aircraft with technical issues is repaired wherever ground-time is available.
<b>Cost Saving / Revenue Generation Potential:</b> With less time wasted to bring an aircraft back to base but instead using ground-time available at stops along the scheduled route additional expenses will be kept low, translating into cost savings.  These savings are to be seen as future additional savings.
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> Immediate implementation is possible. Result to follow immediately.
<b>Required Manpower input for the project:</b> External assistance recommended
<b>Preconditions / Dependencies:</b> Negotiating program with Flight Operation Department. Investigate viewpoint of DAC and initiate approval proceedings as required. Train planners in new practice.
<b>Opportunities / Risks:</b> Additional improvement of efficiency of operation including cost savings.

#### 10.2.9 MAINTENANCE 09: New maintenance philosophy to complement new rotation plans

<p><b>Current Status:</b></p> <p>The maintenance philosophy applied today has all marks of an obedient behavior towards manufacturers recommendations. The manufacturers recommendations are to be taken for what they are, <b>recommendations only</b>. It is the operators freedom to introduce his experience under consideration of safety, reliability and economy to the extent provided by the authority and under consideration of leasing requirements.</p>
<p><b>Measure Description:</b></p> <p>Market opportunities are the driving force of the aircraft rotation plans of the future. The extremely competitive airline market requires the MRO to assist its customer with cost reducing measures such as:</p> <ul style="list-style-type: none"> <li>■ Eliminating Transit Inspections.</li> <li>■ Escalating Check Intervals based on own evaluations and internationally accepted experiences.</li> <li>■ Rethinking the composition of maintenance checks with the intention of minimizing the amount of extra out of service days for maintenance reasons.</li> <li>■ Performing routine checks and extra work at stations with extended ground-time for operational reasons.</li> </ul>
<p><b>Future Status:</b></p> <p>Greatly improved efficiency in Maintenance and Line Maintenance performance domestically and abroad.</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>Already incorporated within measures MAINTENANCE 01 – 03</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>No investment necessary</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>The implementation period for the proposal is estimated to take 12 months. First results will be experienced immediately with the introduction of each segment of the proposal.</p>
<p><b>Required Manpower input for the project:</b></p> <p>No additional internal manpower required. External expertise is recommended</p>
<p><b>Preconditions / Dependencies:</b></p> <p>Negotiate program with Flight Crew Department(s). Investigate viewpoint of DAC and initiate approval process where applicable.</p>
<p><b>Opportunities / Risks:</b></p> <p>Achieving international standards in aircraft maintenance. Becoming an important player in the highly competitive aircraft maintenance market.</p>

#### 10.2.10 MAINTENANCE 10: Maintenance organizations at stations of terminating flights

<b>Current Status:</b> All aircraft receive daily overnight inspections at terminating stations.
<b>Measure Description:</b> Change overnight inspection requirements for Narrow Body Fleet from 24-hour calendar time to 48-hour calendar time. Manufacturers propose this modernized concept to “low cost carriers” for modern fleets.
<b>Future Status:</b> Incorporate change in existing customized Maintenance Program (MS).
<b>Cost Saving / Revenue Generation Potential:</b> Reduction of Night-Stop routine maintenance events by 50%.  This savings are to be seen as future additional savings.
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> Approval proceedings by DAC estimated at 6 month
<b>Required Manpower input for the project:</b> Locally none External support recommended
<b>Preconditions / Dependencies:</b> Acceptance of proposal by DAC
<b>Opportunities / Risks:</b> Cost reduction, no risk.

### 10.2.11 MAINTENANCE 11: Management Information System (MIS)

<b>Current Status:</b> The Management Information System (MIS) in place, in a statistical format, is presented to the accountable management periodically. Goals, as quality standards set by management in each category are the measuring sticks by which management can/must react to targets missed. Only few quality indicators are providing targets by which quality can be measured.
<b>Measure Description:</b> The information provided in the MIS are not meant to be a statistical mass of production data only. The production data are giving management feedback on accomplishments relative to annual workload programs, training requirements, personnel turnover, statistics on performances including scheduled/unscheduled out-of-service-days, duration of events, cabin standard data, incident and accidents etc. Careful analysis and critical judgment is necessary to identify areas of possible improvements and to initiate actions. The listing is incomplete; it may have to include in addition data only relevant to the VARIG operation.
<b>Future Status:</b> The MIS provides management with a tool to recognize deviations to the current company policies and standards, allowing changes and adjustments at an early stage minimizing the chances for costly corrections in the future.
<b>Cost Saving / Revenue Generation Potential:</b> The cost saving potential is undisputable. However, it is problematic to estimate any amount because the effects of the tool depend on circumstances which cannot be predicted in advance.  This savings are to be seen as future additional savings.
<b>Required investment (Cash-Outflow):</b> Not evident at this point
<b>Required time for implementation / Required time for first results:</b> 6 month are estimated for implementation
<b>Required Manpower input for the project:</b> Task already established. Next level of utilization must be reached. External assistance is recommended
<b>Preconditions / Dependencies:</b> None
<b>Opportunities / Risks:</b> The operation will become transparent. No risks

## 10.2.12 MAINTENANCE 12: Introduce tool in Aircraft Maintenance to create Job-Cards

### Current Status:

Job-Cards used in Line Maintenance (Transit Inspection – ETOPS, Monthly Check B777 etc.) are created as a Word-document. The layout in principle leaves some room for improvement, but represents a workable solution. Job-Cards in use for all events performed as so-called Hangar Maintenance (Letter Checks) including A-Checks performed on Line Stations are starting with a VEM designed coversheet. It includes relevant data about the job in question. Attached to the coversheet are the relevant **task cards of the manufacturer**. This is in many ways a very inefficient and expensive way of providing work instructions to mechanics on the floor. The manufacturer is building aircraft he is not maintaining aircraft! It is self-explaining that the manufacturer has no maintenance experience and is not considering economic factors important to the MRO and or operator nor can he consider local circumstances. Task cards provided by the manufacturer contain irrelevant information and references which make them **user-unfriendly** resulting in additional time requirements leading to unnecessary expenses.

### Measure Description:

Introduction of a graphic and text tool specially design for job-card development such as GATE (**G**raphic **A**nd **T**ext **E**nvironment). There are a variety of similar tools offered on the IT-market. All these tools enable the development of **user-friendly** job-cards based on MPD's and customized Maintenance Schedules (MS) considering airline experiences and local constraints to optimize workflows and to reduce time for performance.

### Future Status:

With the introduction of a graphic and text tool the average time required for "Letter Checks" can be reduced significantly. With factors, such as aircraft ground-time, Mh/skill, special tools and consumables known this will allow an exact calculation.

After completion of event a re-calculation is done and adjustments are made if warranted. There are tools available to measure productivity in all areas of maintenance. At the same time the quality of work will improve.

### Cost Saving / Revenue Generation Potential:

Cost savings can only be estimated based on previous experience in similar situations (reduction in time for inspection tasks, improved Work-documentation) They become part of the overall cost reductions and ensure that the expectations (goals) are met and exceeded.



<b>Required investment (Cash-Outflow):</b> Graphic and text tools are available on the market for <b>approximately [REDACTED] US\$</b>
<b>Required time for implementation / Required time for first results:</b> 12 months for introduction of the system with first results evident as system is being used.
<b>Required Manpower input for the project:</b> The responsible planning department as a whole will be involved. External support during the introduction is recommended
<b>Preconditions / Dependencies:</b> Selection of best suited IT-solution
<b>Opportunities / Risks:</b> Significant cost reduction, improved quality of product and shorter down-time of aircraft.

### 10.2.13 MAINTENANCE 13: Manifestation of VARIG image

<b>Current Status:</b> Specific standards for the cabin interior and passenger convenience are not in place. An aircraft-wash schedule for the purpose of external appearance is not established.
<b>Measure Description:</b> Management must establish cabin standards; they are part of the sales tools and a trademark of the company. The appearance of the exterior is a significant part of the company's image and must be of great concern.
<b>Future Status:</b> Management must establish minimum cabin standards based on high quality industry standards. Job-card planning must provide job cards accordingly and start educating the staff. An aircraft-wash schedule has to be developed (VEM Planning) based on industry standards and local requirements. The wash-schedule must be introduced as integral part of the maintenance program.
<b>Cost Saving / Revenue Generation Potential:</b> Cost savings are unquestionable. Clean exterior surfaces save fuel. An above average cabin standard and a clean exterior have positive sales effects.  This savings are to be seen as future additional savings.
<b>Required investment (Cash-Outflow):</b> Designation of aircraft wash station(s) according to local rules (environment). A detailed investigation is necessary to determine investment that includes equipment. Aircraft wash crews have to be established at designated locations. Farm-out of task has to be weighed against constraints using own personnel.
<b>Required time for implementation / Required time for first results:</b> 12 months. Results are gradually visible beginning with the program.
<b>Required Manpower input for the project:</b> No extra manpower required investigating project. Job card planning will be in charge of developing relevant job-cards. External assistance with experience in the field is recommended
<b>Preconditions / Dependencies:</b> Guidelines for cabin standards provided by management. Aircraft-wash destinations are investigated and environmental feasibilities assured. Aircraft wash schedules must be established.
<b>Opportunities / Risks:</b> Improvement of company image

#### 10.2.14 MAINTENANCE 14: Additional external profit due to normalization of maintenance operation

The additional workload for VEM originated by the grounded aircraft is estimated by VEM with [REDACTED] of the total workload (considering productive & non-productive personnel), also representing the effects of limited spare part availability.

**Estimation:** Use of annual budget at a ratio of 62:38 (manpower:material) suggests: [REDACTED] US\$ at a ratio [REDACTED] US\$ for labor expenses. [REDACTED] of labor expenses are [REDACTED] US\$. As VEM has stated, they had to turn down requests worth approximately [REDACTED] US\$ in 2005. If we assume, that the same workload "invested" into VARIG due to the cash flow position, would have been used for third party work, this amount -or even more (due to a third party markup)- would have been feasible and entirely considered as profit. **Additional profit<sup>5</sup> in the range of minimum [REDACTED] US\$.**

#### 10.3 Additional information

Aircraft Maintenance related cost reductions are explained in 3 major categories:

1. indirect cost reductions by improving internal structures, new strategies between operator and MRO and organization(s) through:
  - o Development of customized Maintenance Program
  - o Parameters to measure performance
  - o Introduction of Non-Maintenance Stations
  - o Enhanced Management Information System (MIS)
  - o Introduction of IT-tool to create Job-cards
  - o Reorganization of VARIG Maintenance
  - o Process orientated organization for VEM.
2. direct cost reductions of 25 to 30% directly benefiting the operator, due to structural adjustments on the part of operator (VARIG) and MRO (VEM) with immediate budgetary consequences through:
  - o Control compliance with aircraft maintenance program
  - o Establish Mid- & Long-Term Planning
  - o Aggressive marketing of VEM products
  - o Calculation of personnel allotments for all tasks
  - o New maintenance philosophy to complement new rotation plan
3. Cost reductions based on new flexibilities of the restructured operator (only estimation of cost reductions possible) through:
  - o New maintenance philosophy to complement new rotation plan

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<sup>5</sup> This additional profit is only of direct interest for VARIG, as long as VEM is a 100% affiliate and if VARIG fully benefits of the VEM profits. It is not taken into consideration for the operational result of VARIG.

- Manifestation of VARIG image

## 11. *Flight Operations and Catering*

### 11.1 Status Quo

As seen in the fleet section, VARIG operates a diversified fleet with various configurations. Some systems used are outdated (Crew Pairing, Flight Planning) or not existent (e.g. Flight Watch, ACARS). Implemented procedures and their appliance are neither investigated nor controlled. International best practices are not fully incorporated into VARIG's flight operations area. The interface for Catering between In-flight provisioning and Marketing are not entirely clear and synergy losses occur.

The lack of a company strategy leads to a "silo" optimization in all decisions within the area.

The investigations into the area of Flight Operations and Catering reveal significant improvement potential related to personnel costs, fuel costs and other cost factors, as for instance Catering or Air Traffic Control (ATC) charges.

### 11.2 Recommended Improvement Measures

Generally in the aviation business, Flight Operations is - similar to Engineering & Maintenance - responsible for significant cost positions of an airline allowing for corresponding improvements on the cost side.

As pre-condition, some supportive measures such as for instance the installation and use of ACARS, a reliable Flight Watch and a state of the art tool for crew pairing as well as Flight Planning are indispensable. Also the close interaction with the civil aviation authorities is indispensable.

These pre-conditions - combined with an integrated fuel management, streamlined processes and reduced manpower - will enable VARIG to gain significant savings with regards to fuel and personnel costs. Process investigation and streamlining, as for instance in the area of catering, allow for additional savings without compromising quality.

In parallel to the described savings measures, VARIG has to overcome the silo-mentality and to ensure company-wide uniform decision-making-processes. The future developments within VARIG will start from the top with

- a new company strategy (please refer to section Corporate Strategy),
- business unit strategy,

- business process definition,
- definition of the suiting organization & management of production,
- investigation into the mandatory working tools for production,
- definition of the manpower qualification,
- adjustment of the mandatory manpower
- one Flight Base Concept and
- one Training Base Concept

All these measures will lead to a streamlined, more efficient and effective production process. Please find below the respective measures for improvement.

### 11.2.1 OPERATIONS 01: IFM, Integrated Fuel Management (complete package)

<b>Current Status:</b> There is no integrated fuel management process in place at VARIG. <ul style="list-style-type: none"> <li>Various business and/or operation departments engaged with fuel related management task</li> <li>no integrated coordination</li> <li>no integrated coordinated fuel conservation activities</li> </ul>
<b>Measure Description:</b> We suggest at first a conceptual project design of Integrated Fuel Management in VARIG: <ul style="list-style-type: none"> <li>Fuel supply</li> <li>Operation</li> <li>Business System Administration</li> </ul> Assessment of fuel related business/operation task identification of redesign of business processes and operational procedures implementation of fuel conservation measures rules and regulation Please observe detailed activity measures in the single following measures related to IFM
<b>Future Status:</b> Fuel management will be coordinated by a centralized Fuel Management Center, fuel conservation activities will be initiated and coordinated by a fuel conservation group
<b>Cost Saving / Revenue Generation Potential:</b> Please refer to the various following measures relating to IFM, where the cost savings and revenue generation potentials are listed and described.
<b>Required investment (Cash-Outflow):</b> TBD (LIDO Flight Planning, etc.)
<b>Required time for implementation:</b> 2 – 24 months(part/full program)
<b>Required time for first results:</b> 2 – 12 months
<b>Required Manpower input for the project:</b> VARIG: 300 man days External assistance is recommended
<b>Preconditions/Dependencies:</b> LIDO Flight Planning Tool ACARS
<b>Opportunities:</b> Considerable fuel cost saving potential
<b>Risks:</b> None

## 11.2.2 OPERATIONS 02: Fuel Conservation, Destination Alternate

<p><b>Current Status:</b></p> <p>Alternate Aerodromes are not selected on basis of most economical fuel criteria.</p> <p>According to VARIG/VARIGLOG fuel policy the selection of an alternate airport distinguishes between airports with an alternate distance less than 100 NM (Nautical Miles) and above 100NM. For alternates with an alternate distance less than 100 NM following airport weather minima must exist: for the Destination: ceiling and visibility 100% above the published minima (e.g. ILS Minima). For the alternate, the airport forecast must be VMC.</p> <p>An examination of approximately 80 actual flight plans in June 2005 showed that no flight plan was calculated with an alternate distance less than 100 NM but all alternates were chosen with an alternate distance above 100 NM. For example: all flights into São Paulo Guarulhos ( GRU ) showed the alternate RIO de Janeiro International Airport ( GIG ) instead of choosing the alternate São Paulo Campinas/Viracopos ( VCP ). It seems that longer alternate distances are taken into consideration after crew request in order to increase the minimum take-off-fuel.</p>
<p><b>Measure Description:</b></p> <p>(part of measure OPERATIONS 01)</p> <ul style="list-style-type: none"> <li>Most economical destination alternates will be traced.</li> <li>Different destination alternates will be determined and offered on flight plan</li> </ul> <p>Change the procedure of selection of alternate airports in order not to distinguish between alternates distances less or above 100 NM but choose in general ( airport weather forecast, Notam, aircraft performance a.s.o. permitting ) the alternate with the closest distance from the destination.</p> <p>Example:</p> <ul style="list-style-type: none"> <li>a) CPQ for GRU</li> <li>b) EWR for JFK</li> <li>c) CDG for LHR</li> </ul> <p>All destinations which are used by VARIG/VARIGLOG shall be checked in order to identify closer alternates.</p>
<p><b>Future Status:</b></p> <p>After introduction and implementation by Director Flight Ops some operational flight plan will show an alternate which is closer to the destination thus showing lower trip-fuel/minimum fuel required.</p> <ul style="list-style-type: none"> <li>Minimum take-off fuel will be reduced by reduced alternate fuel</li> <li>Occasional payload increase</li> <li>Reduced alternate fuel and reduced fuel consumption</li> </ul>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>■ of total fuel cost</p>

Since there was no time to check all destinations for better alternate selection, only spot-checks had been performed.

Savings will be available for all flights inbound São Paulo / GRU except for flights from Rio de Janeiro, since on that leg econ-fueling is required.

The selection of Campinas instead of Rio den Janeiro will result in an mileage saving of approximately 150 NM per flight.

Since the reduction in mileage will result in a reduction in Alternate fuel and thus in lower trip fuel consumption, following savings can be obtained, even when assuming that the selection of a shorter alternate will only be practicable in 50% of all the cases as in other cases weather and/or Notam does not allow this selection:

The number of flights is based on flight schedule data as of 22.07.2005

#### Destination São Paulo / GRU

Type of aircraft	number of flights	savings/flight	savings total
B737	27		
B757	6		
B767	3		
B777	5		
MD11	9		
Total	50		

Savings for flights to GRU will result in approximately [REDACTED] US\$ per year

#### Destination JFK

Flight GIG – JFK with alternate EWR instead of PHL will result in a mileage saving of approximately 40 NM thus giving a saving in fuel consumption of approximately 180KG/DAY for B777 flight.

Type of aircraft	number of flights	savings/flight	savings total
B777	1		

Savings for flights to JFK will already result in [REDACTED] US\$ per year

#### Destination LHR

Flight GIG – LHR with alternate LGW instead of CDG will result in a mileage saving of approximately 156 NM thus giving a saving in fuel consumption of approximately 1000KG/DAY for B777 flight.

Type of aircraft	number of flights	savings/flight	savings total
B777	1		

Savings for flights to LHR will already result in [REDACTED] YEAR

It is estimated that this procedure can be extended to other destinations:



<p>e.g. alternate SDU for GIG for allowed B737 aircraft which are flying regular to SDU, e.g. shuttle SDU-CGH vv. GRU for CGH, as first alternate, other combinations have to be identified.</p> <p>Cost saving of approximately <span style="background-color: black; color: black;">          </span> per year</p>
<p><b>Required investment (Cash-Outflow):</b> None Update of documents, crew training, airport analysis has to be performed by internal staff.</p>
<p><b>Required time for implementation:</b> 14 days After coordination with Director Flight Operation and Fleet manager and checking documentation, implementation may start immediately Results are available immediately.</p> <p><b>Required time for first results:</b> As soon as possible</p>
<p><b>Required Manpower input for the project:</b> VARIG: 10 days External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b> Director Flight Operation of VARIG/VARIGLOG must support the decision. Control functions must be performed by Fleet Management to check the amount of extra-fuel taken by individual cockpit-crews after the introduction, in order to avoid contra productivity. e.g. the lower minimum fuel figures shown in the flight plan shall not be equalized by taking more extra fuel into consideration.</p>
<p><b>Opportunities:</b></p> <ul style="list-style-type: none"> <li>▪ Fuel conservation</li> <li>▪ Marginal additional revenue generation potential</li> </ul> <p><b>Risks:</b> None</p>

### 11.2.3 OPERATIONS 03: Fuel Conservation, Contingency Fuel Calculation

**Current Status:**

Contingency fuel is based on 10% of trip fuel.  
 Reserve-FUEL for all VARIG and VARIGLOG flights is calculated as follows:  
 10% of the trip-flight-time with a fuel flow according to the last route-segment of the flight before reaching the top-of-descent.  
 This calculation is based on rules and regulations imposed by the Brazilian Civil Aviation Authority  
 The amount of RES-FUEL will be decreased for all  
 -narrow body aircraft with a flight time of exceeding 3 hours and  
 -wide body aircraft with a flight time exceeding 6 hours flight time by applying the fuel-reclearance-procedure.  
 Load-reclearance is applied in all cases of a load penalty.

**Measure Description:**

(part of measure OPERATIONS 01)  
 Contingency fuel should be based on the higher of 5% of trip fuel or 20 min. cruise fuel  
 Approval must be obtained from the CAA in order to change the procedure of calculating the RES – FUEL within VARIG and VARIGLOG fuel policy according to standard used by other international airlines also belonging to the Star Alliance.  
 Following procedure shall be introduced:  
 RES-FUEL is an amount of fuel, which must be carried to “Unexpected Deviations” from planned operating conditions.  
 RES-FUEL is the lesser of 5% of the trip-fuel or fuel sufficient for 20 minutes flying time based upon the planned trip fuel consumption. It shall never be less than an amount to fly for 5 minutes at holding speed at 1500 feet above the destination aerodrome in standard conditions. The amount of RES-FUEL is converted into endurance by application of the formula:  

$$\text{RES-TIME} = \text{RES-FUEL(KG)} : \text{TRIP-FUEL(KG)} \times \text{TRIP-Time(min)}$$
  
 The procedure of applying the reclearance calculation remains unchanged.

**Future Status:**

Minimum take-off fuel will be reduced, occasional payload increase, reduced trip-fuel  
 After approval, implementation and adoption by flight crew all operational flight plan will show the reduced RES-FUEL amount

**Cost Saving / Revenue Generation Potential:**

Based on the number of actual flights as from 22/07/2005 following amount of flights had been performed:  
 VARIG B733 336 flights

VARIG B757 [REDACTED] flights  
 VARIG B767 [REDACTED] flights  
 VARIG B777 [REDACTED] flights and  
 VARIG M11 [REDACTED] flights

Total [REDACTED] flights (obviously the number given by CCO does not include the daily shuttle services SDU-CGH vv since they operate on a standard flight plan and are not calculated individually )

Therefore these flights are not included in my estimates.

VARIGLOG B722 [REDACTED] flights  
 VARIGLOG B72F [REDACTED] flights  
 VARIGLOG D1F [REDACTED] flights  
 VARIGLOG M1F [REDACTED] flights

Total [REDACTED] flights

Since the reduction in the calculation of RES-FUEL results in a reduction in aircraft weight and thus in lower TRIP-FUEL consumption following savings can be obtained:

*Data indicate savings in fuel and costs for VARIG Airline*

Aircraft type	amount of flights	saving per flight	total savings
B733	[REDACTED]	[REDACTED]	[REDACTED]
B757	[REDACTED]	[REDACTED]	[REDACTED]
B767	[REDACTED]	[REDACTED]	[REDACTED]
B777	[REDACTED]	[REDACTED]	[REDACTED]
M11	[REDACTED]	[REDACTED]	[REDACTED]

Savings/day [REDACTED]

*Data indicate savings in fuel and costs for VARIGLOG*

B722	13flights	[REDACTED]
B72 F	4flights	[REDACTED]
D1F	3flights	[REDACTED]
M1F	4flights	[REDACTED]

**Savings/day** [REDACTED]

**Savings per year =** [REDACTED]  
 Cost savings of approximately [REDACTED] US\$ per year

<p><b>Required investment (Cash-Outflow):</b>  shall be included in new flight planning System e.g. LIDO  SITA: ■■■■ US\$  Crew Training, update of documents, training in CCO: ■■■■ US\$</p>
<p><b>Required time for implementation:</b>  2 – 4months  After approval has been received from CAA Brazil and after coordination with Director Flight Operation and Fleet manager and after necessary training has been completed a maximum of 4 weeks for implementation. Results are available immediately.</p>
<p><b>Required Manpower input for the project:</b>  VARIG: 20 man days  Within Director Flight Operation ( RIO OZ ) 10 man days.  Within General Manager CCO ( GIG CA ) 10 man days for preparation of documents.  Within CCO 1 hour training per dispatcher. This training could be done during shift duties, provided training material has been made available in due time</p>
<p><b>Preconditions / Dependencies:</b>  Approval from Director Civil Aviation Authorities must be obtained.  Director Flight Operation of VARIG/VARIGLOG must support the decision.  Control functions must be performed by Fleet Management to check the amount of extra-fuel taken by individual cockpit-crews after the introduction, in order to avoid contra productivity.  E.g. the lower minimum fuel figures shown in the flight plan shall not be equalized by taking more extra fuel into consideration.  Faultless flight briefing and in-flight watch condition</p>
<p><b>Opportunities:</b></p> <ul style="list-style-type: none"> <li>▪ Fuel conservation</li> <li>▪ Marginal additional revenue generation potential</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>▪ Rejection of Brazilian CAA</li> <li>▪ Non compliance of Flight Crews to new procedure</li> </ul>

#### 11.2.4 OPERATIONS 04: Fuel Conservation, Cruise Speed Calculation

<b>Current Status:</b> Cruise speed based on fixed speed regime / fixed index speed regime
<b>Measure Description:</b> (part of measure OPERATIONS 01) <ul style="list-style-type: none"> <li>Development and installation of VARIG cost index</li> <li>Development and introduction of variable cruise speed regime based on VARIG cost index</li> </ul>
<b>Future Status:</b> <ul style="list-style-type: none"> <li>most fuel / cost effective cruise speed procedure</li> <li>fuel conservation</li> <li>minimum takeoff fuel reduction</li> <li>occasional payload increase</li> </ul>
<b>Cost Saving / Revenue Generation Potential:</b> 1,5% fuel cost assessment Cost savings of approximately <span style="background-color: black; color: black;">XXXX</span> US\$ This amount is based on the investigations in VARIG, that a optimized cruise speed appliance is not checked. Nevertheless, a thorough investigation will take place in the future.
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation:</b> 3 – 5 months <b>Required time for first results:</b> 3 – 5 months
<b>Required Manpower input for the project:</b> VARIG: 50 man days
<b>Preconditions / Dependencies:</b> <ul style="list-style-type: none"> <li>Flight Planning System</li> <li>Flight planning procedure implementation</li> <li>precise investigation on Rules &amp; Regulations</li> <li>dispatch training</li> <li>pilot training</li> </ul>
<b>Opportunities:</b> <ul style="list-style-type: none"> <li>Fuel conservation</li> <li>Marginal additional revenue generation potential</li> </ul> <b>Risks:</b> None

### 11.2.5 OPERATIONS 05: Fuel Conservation, Precision of Zero Fuel Weight

<b>Current Status:</b> Precision of EZFW > 1,5 t at T-75 minutes As one example may serve the cargo figures: Whenever no actual cargo load data are made available a standard amount of : <ul style="list-style-type: none"> <li>- 200 KG for narrow body aircraft and</li> <li>- 500 KG for wide body aircraft</li> </ul> are assumed to be on board.
<b>Measure Description:</b> (part of measure OPERATIONS 01) Introduction of weight management for precision of EZFW < [REDACTED] minutes
<b>Future Status:</b> Precise EZFW (Estimated Zero Fuel Weight) will contribute considerably in decreasing trip fuel calculation on basis of AZFW (Actual Zero Fuel Weight).
<b>Cost Saving / Revenue Generation Potential:</b> Trip fuel reduction of [REDACTED] short range, [REDACTED] long range flights [REDACTED] short / long range flights / day) <b>US\$ m [REDACTED] per year</b>
<b>Required investment (Cash-Outflow):</b> [REDACTED] US\$ for weight manager program introduction
<b>Required time for implementation:</b> 2 – 4 months <b>Required time for first results:</b> 2 – 4 months
<b>Required Manpower input for the project:</b> VARIG: 25 man days
<b>Preconditions / Dependencies:</b> Production process redesign
<b>Opportunities:</b> <ul style="list-style-type: none"> <li>▪ Fuel conservation</li> <li>▪ Marginal additional revenue generation potential</li> </ul>
<b>Risks:</b> None

#### 11.2.6 OPERATIONS 06: Fuel Conservation, Cockpit crew cruise procedure & performance enhancement

<b>Current Status:</b> No standard cruise procedure application
<b>Measure Description:</b> (part of measure OPERATIONS 01) <ul style="list-style-type: none"> <li>▪ Cockpit crew cruise procedure and performance enhancement by introduction of index based variable cruise speed procedure</li> <li>▪ block-time reconsideration and other means</li> </ul>
<b>Future Status:</b> Performance increase: fuel conservation, OTP, passenger connectivity and others
<b>Cost Saving / Revenue Generation Potential:</b> US \$ 5,0m This amount is based on the investigations in VARIG, that a optimized crew cruise procedure & performance enhancement is not adequately checked (if applied by the crew). Nevertheless, a thorough investigation will take place in the future.
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation:</b> 2 – 4 months
<b>Required time for first results:</b> 2 – 4 months
<b>Required Manpower input for the project:</b> VARIG 100 man days
<b>Preconditions / Dependencies:</b> None
<b>Opportunities:</b> Performance enhancement
<b>Risks:</b> None

## 11.2.7 OPERATIONS 07: Fuel Conservation, Weight Watching

<b>Current Status:</b> Lack of focus on aircraft weight related catering material
<b>Measure Description:</b> (part of measure OPERATIONS 01) Installation of catering weight watcher group “Weight Watchers Working Group Installation”. First investigation into overall weight optimization of the operational weight of VARIG aircraft are starting. In average, a reduction of [REDACTED] of operational weight saves approx. [REDACTED] US\$ per one way long haul flight. Some samples: <ul style="list-style-type: none"> <li>▪ The already initiated approach to verify the true need for beverages on the long haul shows an average overload of min. [REDACTED] / flight.</li> <li>▪ Reduction in newspapers amounts up to more than [REDACTED] / year</li> <li>▪ Investigation into optimization of Sony devices load is under way</li> </ul> Dozens of additional / potential activities will have to be identified by this new “Weight Watchers Working Group”, as for instance investigations into the work pad instead of manuals (OPERATIONS 18), seats, trolleys, galleys, containers, flight entertainment, ...
<b>Future Status:</b> <ul style="list-style-type: none"> <li>▪ Continuous service chain assessment</li> <li>▪ weight reduced o/b service</li> </ul>
<b>Cost Saving / Revenue Generation Potential:</b> fuel conservation Cost savings of approximately [REDACTED] US\$ per year
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation:</b> 2 – 4 months
<b>Required time for first results:</b> 2 – 4 months
<b>Required Manpower input for the project:</b> VARIG 25 man days
<b>Preconditions / Dependencies:</b> None
<b>Opportunities:</b> Fuel conservation
<b>Risks:</b> None



### 11.2.8 OPERATIONS 08: Fuel Conservation, Aircraft aerodynamical cleanliness improvement

<b>Current Status:</b> Unscheduled aircraft aerodynamical cleanliness checks
<b>Measure Description:</b> (part of measure OPERATIONS 01) Scheduled aircraft aerodynamical cleanliness checks on i.e. seals, doors, airframe and engine washing
<b>Future Status:</b> Positive impact and enhancement of aircraft tail-sign performance factor
<b>Cost Saving / Revenue Generation Potential:</b> 0,5 % increase of aircraft performance factor, fuel conservation Cost saving of approximately ■■■ US\$ per year
<b>Required investment (Cash-Outflow):</b> <b>Operating Cost:</b> ■■■ US\$ per year for engine wash & inspection/year
<b>Required time for implementation:</b> 2 – 4 months <b>Required time for first results:</b> 2 – 4 months
<b>Required Manpower input for the project:</b> VARIG: 30 man days
<b>Preconditions / Dependencies:</b> None
<b>Opportunities:</b> <ul style="list-style-type: none"> <li>▪ Fuel conservation</li> <li>▪ engine life</li> </ul> <b>Risks:</b> None

## 11.2.9 OPERATIONS 09: Fuel Conservation, Water uplift procedure

<p><b>Current Status:</b></p> <p>Full water supply is given to all flights within VARIG ops independent from any other factor involved. There is no check on length of flight in terms of block time nor in terms of booked passengers. For the time being the following amount of water is always carried on board of each flight:</p> <p>B737 = █ KG  B757 = █ KG  B767 = █ KG  B777 = █ KG  MD11 = █ KG</p>
<p><b>Measure Description:</b></p> <p>(part of measure OPERATIONS 01)</p> <p>Introduction of a simple decision list which must be made available to station personnel as well maintenance as well as crew member identifying the necessary amount of water to be carried on board in regard to:</p> <ul style="list-style-type: none"> <li>a) Length of flight and</li> <li>b) Number of booked passenger</li> <li>c) Availability of water supply at next destination</li> </ul> <p>E.g.:</p> <ul style="list-style-type: none"> <li>- For short range flights B737 a reduction of █ % of water supply</li> <li>- For B757 same procedure.</li> <li>- For B767 reduction on short range flights should be higher than for long range. A general reduction is to be foreseen</li> <li>- For B777 the amount of water will be definitively to high, even on long range sector flights, a reduction is to be foreseen.</li> </ul> <p>The same procedure applies for the MD11 where even 4 tanks for water are installed with a total weight of █ KG.</p>
<p><b>Future Status:</b></p> <p>Aircraft weight reduction by simple water uplift procedure</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>Cost saving of minimum █ US\$ per year</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>None</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>For necessary checks to identify the amount of used water quantity a few weeks. Could be easily implemented, just check the amount of water used during several flights and introduce a decision making lists, that will take into consideration the number if booked passengers and length of flight  Could be introduced within 1 – 2 months</p>

<b>Required Manpower input for the project:</b> VARIG: 15 man days
<b>Preconditions / Dependencies:</b> All aircraft must be equipped with a water selection switch.
<b>Opportunities:</b> Fuel conservation <b>Risks:</b> None

### 11.2.10 OPERATIONS 10: Fuel Conservation, Block time reconsideration

<b>Current Status:</b> Coordination between commercial and flight operation is currently insufficient in terms of economical block time coordination
<b>Measure Description:</b> (part of measure OPERATIONS 01) Establishment of coordinated planning procedures
<b>Future Status:</b> Block time planning procedures taking economical flight procedures into account
<b>Cost Saving / Revenue Generation Potential:</b> Goal setting: ■■■ of direct flight operation production cost Cost saving of approximately ■■■ US\$ per year
<b>Required investment (Cash-Outflow):</b> TBD
<b>Required time for implementation:</b> 2 – 4 months
<b>Required time for first results:</b> 2 – 4 months
<b>Required Manpower input for the project:</b> VARIG 100 man days
<b>Preconditions / Dependencies:</b> Slot time allocation
<b>Opportunities:</b> Considerable reduction of system immanent failure cost
<b>Risks:</b> None

### 11.2.11 OPERATIONS 11: Fuel Conservation, Aircraft Loading, Mean Aerodynamical Chord (MAC)

<b>Current Status:</b> Insufficient recognition of economical aircraft loading
<b>Measure Description:</b> (part of measure OPERATIONS 01) Development and implementation of loading and boarding system with co-ordinated optimization of aircraft center of gravity (CG)
<b>Future Status:</b> 30% of all flights in improved aft CG situation
<b>Cost Saving / Revenue Generation Potential:</b> 0,1% of total fuel consumption Cost saving of approximately █████ US\$ per year
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation:</b> 2 – 6 months
<b>Required time for first results:</b> 3 months
<b>Required Manpower input for the project:</b> VARIG: 30 man days
<b>Preconditions / Dependencies:</b> None
<b>Opportunities:</b> Fuel savings
<b>Risks:</b> None

### 11.2.12 OPERATIONS 12: Installation of Aircraft Communication Addressing and Reporting System (ACARS) on long range aircraft

<b>Current Status:</b> No ACARS facility
<b>Measure Description:</b> Installation of ACARS on long range aircraft
<b>Future Status:</b> <ul style="list-style-type: none"> <li>Improvement of operational control by ACARS</li> <li>Flight watch enabled</li> <li>Communication improvement for operational decision making</li> <li>Ops control =&gt; a/c vv.</li> </ul>
<b>Cost Saving / Revenue Generation Potential:</b> Cost saving of approximately ■■■ US\$ per year and Additional revenue generation of approximately ■■■ US\$ per year
<b>Required investment (Cash-Outflow):</b> The installation of the ACARS system on the entire long-haul VARIG fleet would cost ■■■ US\$. Assuming that in the near future some MD11 and Boeing 767 aircraft will leave VARIG's fleet and be replaced by other wide-body aircraft (e.g. B777) <b>we assume a total necessary invest of approximately ■■■ US\$</b> (as most of the aircraft to be replaced do not have the required but expensive ACARS hardware).
<b>Required time for implementation:</b> TBD
<b>Required time for first results:</b> TBD
<b>Required Manpower input for the project:</b> VARIG: 50 man days External assistance is recommended
<b>Preconditions:</b> Technical feasibility
<b>Dependencies:</b> This tool is a precondition for various improvement / cost saving measures within Flight Operations
<b>Opportunities:</b> Considerable improvement of operational control
<b>Risks:</b> None

### 11.2.13 OPERATIONS 13: Change current Flight Planning Solution

**Current Status:**

VARIG uses the SITA flight planning system for dispatch. Altogether there are 6 different systems in use at the Operations Control Center (OCC) without any integration. This leads to immense manual effort for gathering information from different sources and redundant data input.

As one cost factor impacted by the Flight Planning Tool, ATC charges are an increasing factor in flight operation and are of great influence to the results for each airline. The present flight planning system does not allow optimization in terms of the minimum ATC charges nor does the system show any amount of money that will come into effectiveness when flying this route.

**Measure Description:**

Decide on the already proposed and evaluated flight planning solution with guaranteed minimum yearly savings of ca. ■■■ US\$ against the current flight preparation system. For design and implementation take the recommended organizational changes into account.

**Future Status:**

A new flight planning solution will provide the dispatcher with a powerful tool to better control aircraft operating costs (time), fuel costs and ATC charges. On a particular day it might make more sense to decide on a Minimum Time Track calculation. This could be the case for delayed flights, which need to make up lost time. Other days it might be more economical to decide for a Minimum Cost Track calculation or a Minimum Fuel Track if tank capacity is a limiting factor. All of this information is available to the dispatcher. A new flight planning solution includes all of the information in a way that the dispatcher is able to make the right decision based on daily operational needs and for the convenience to the airline.

A Flight Watch system links aeronautical information such as weather and airspace conditions with other data direct from the aircraft and radar stations on the ground to calculate the exact position, altitude, speed and direction of an airplane. Fuel reserves and other flight-related data can also be measured. The results are displayed geographically on the screen directly from the new Flight Watch system, allowing dispatchers to select suitable routes or alternate airports without having to carry out a complex search.

**Cost Saving/Revenue Generation Potential:**

There are several offers available to VARIG, which include ATC charges, e.g. avoiding Canary airspace for flights between RIO/GRU and FRA vv will result in ■■■ US\$ savings per flight. It is in the interest of VARIG to decide which system should be made available for introduction. But special attention should be drawn to the fact that automated interfaces between Flight-Planning and other system like Ops-Control (Net-Line-Ops), Crew Control,

<p>WAB, DCS and others are made available.</p> <p>Annual savings are expected at a minimum of ■■■ US\$ per year in ATC charges and fuel</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>Costs of approximately ■■■ US\$ per year for flight planning system (while the current provider charges of approx. ■■■ US\$ are not applicable any more.)</p> <p>Costs of approximately ■■■ US\$ per year for flight watch system,</p> <p>Costs of approximately ■■■ US\$ per year (ACARS costs for data transfer of position reports)</p> <p>Investment of approximately ■■■ US\$ one-time invest for renewal of ■■■ dispatcher desktops</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>6 months</p>
<p><b>Required Manpower input for the project:</b></p> <p>Man days VARIG 240</p> <p>External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b></p> <ul style="list-style-type: none"> <li>▪ Overlap with improvement measures for operations.</li> <li>▪ The system is prerequisite for the centralization and improvement of dispatch.</li> <li>▪ For using Flight Watch the installation of ACARS in the cockpit is required, this investment is not included in this measure, please refer to OPERATIONS 12</li> </ul>
<p><b>Opportunities / Risks:</b></p> <p>A modular solution provides a flexible structure for future optimization and integration for processing and administration of all aeronautical information. A Flight Watch tool is mandatory for a proactive Dispatch Center, which will help achieving other savings, like optimizing destination-alternate and in-flight re-clearance.</p>



#### 11.2.14 OPERATIONS 14: IT-Solution Crew Management

<p><b>Current Status:</b></p> <p>Around ■■■ of the crewmembers work fewer hours than minimum payment guarantee and therefore receive compensation payments while around ■■■ of the crew works more than the optimum number of hours and get extra compensation. So the crew planning is not optimized. Please find some samples:</p> <ul style="list-style-type: none"> <li>▪ Manual production of flight scheduling</li> <li>▪ No IT-assist. on economic development of monthly crew rostering</li> <li>▪ No automated integration of duty limitation</li> <li>▪ No automated integration of request features</li> </ul> <p>VARIG's employment policies for the shuttle service and for flights between different time zones lead to unproductive pairing solutions.</p>
<p><b>Measure Description:</b></p> <p>Investigate in personnel (Rules &amp; Regulations / working conditions) first and analyze requirements for an IT solution based on the business and process needs. Evaluate system alternatives for their functional capabilities, business support, risk to implement and costs to maintain and run. Consider integration benefits for the complete crew management process and the operational cost center in order to fully support the business processes.</p>
<p><b>Future Status:</b></p> <p>With a crew pairing system pairings can be optimized to save costs for compensation payments, standby and deadhead hours as well as travel costs and expenses. An integrated system can reduce workload in the rostering and tracking and eliminate manual re-planning effort.</p>
<p><b>Cost Saving/Revenue Generation Potential:</b></p> <p>■■■ US\$ savings in crew salaries, hotel and expenses through optimized and more productive pairings. (estimated on a 1% reduction of annual crew travel expenses 41.6m US\$ and annual Crew salaries: 294,5m US\$). This estimation is very conservative. Industry benchmark assumes optimization potential of approximately 2-5%)</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>Investment of ■■■ US\$ one-time for crew management system and implementation</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>6 months</p>
<p><b>Required Manpower input for the project:</b></p> <p>Man days VARIG 480 External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b></p> <p>Overlap with crew reduction measure is possible. Unbiased tool evaluation has to be done prior to trial or implementation of a</p>

specific system. In the evaluation one has to consider investments to be made but also effort and risk for implementation and most of all the benefit of the solution.

Result-oriented crew employment Rules & Regulations / working conditions are necessary to enable pairing for different time-zones, merge crews for shuttle and longer flights to personnel and additional costs.

**Opportunities / Risks:**

Before implementing or even installing a trial of a new Sabre release it is crucial to assess problems of the failed implementation, requirements that could not be achieved and improvements of the new release. Otherwise the risk is too high to fail again with the system implementation because expectations cannot be met.

### 11.2.15 OPERATIONS 15: Cockpit Crew Capacity Planning




<p><b>Current Status:</b> Due to historic developments, the number of active cockpit crew shows a considerable surplus. In 2001 VARIG operated about 118 aircraft, today only 78 without adjusting the respective personnel structure accordingly.</p>
<p><b>Measure Description:</b></p> <ul style="list-style-type: none"> <li>▪ Identification of true demand of line cockpit crew members in terms of cockpit crews needed for support duties</li> <li>▪ Identification of necessary organizational structure</li> <li>▪ Identification of necessary training structure</li> <li>▪ Identification of necessary support functions</li> <li>▪ New organizational production process orientated structure of flight operations</li> </ul>
<p><b>Future Status:</b> Lean, production process orientated structure of flight operation. Future promotions are associated to the station of GRU. It has to be ensured, that cockpit crew numbers is in line with future fleet and network structure (avoidance of unnecessary indemnity / training costs).</p>
<p><b>Cost Saving / Revenue Generation Potential:</b> VARIG currently employs 1677 pilots for its 78 aircraft, out of which only 64 are operating. This translates to a ratio of 21,5 pilots/aircraft. In a benchmark study of 6 major global airlines and 10 Latin-American airlines, Lufthansa Consulting concluded that the number of pilots per aircraft exceed by 43% that of comparable carriers. Since structural issues (e.g. current network and fleet structures as well conventions with unions) affect these figures we estimate for the purpose of this business plan a reduction of [REDACTED] of pilots/aircraft was assumed. A renegotiation of the collective agreement is highly recommended.</p> <p>By this measure a <b>saving of [REDACTED] US\$ per year</b> (including employers contribution) can be achieved. According to current regulations additional [REDACTED] US\$ would be necessary to proceed with the layoffs. However, Lufthansa Consulting recommends renegotiating this value as well.</p> <p>This figure has been taken as a base for the cost planning in the Business Plan for 2006; from 2007 further productivity achievements will be achieved by concentrating all operations in São Paulo.</p>
<p><b>Required investment (Cash-Outflow):</b> TBD</p>
<p><b>Required time for implementation:</b> 3- 8 months</p>

<b>Required time for first results:</b> 3 – 12 months
<b>Required Manpower input for the project:</b> VARIG: 50 man days External assistance is recommended
<b>Preconditions / Dependencies:</b> The most important precondition/dependency is to be seen with the fleet and network development.
<b>Opportunities:</b> Considerable chances of: <ul style="list-style-type: none"> <li>▪ New working contracts line ops</li> <li>▪ New working rules &amp; regulations line ops</li> <li>▪ Redesign spectrum of flight operation management</li> <li>▪ Redesigned working processes in flight operation and adjacent departments</li> </ul> <b>Risks:</b> Employee dissatisfaction Union agreement negotiations

## 11.2.16 OPERATIONS 16: Cabin Crew Capacity Planning

<b>Current Status:</b> This measure has to be further analyzed to identify exact saving potentials.
<b>Measure Description:</b> Identification of true demand of line cabin crew members, incl. training, management and support. Investigation into the need of a segregation of continental / intercontinental crews. Optimization of crew quantity (legal minimum as base and service related extra cabin crews only after verification of need and agreement between Operations and Commercial.
<b>Future Status:</b> Lean, production process orientated structure, quality and quantity of cabin service department. Future promotions are associated to the station of GRU. It has to be ensured, that cabin crew numbers is in line with future fleet and network structure.
<b>Cost Saving / Revenue Generation Potential:</b> This measure has to be further analyzed to identify accurately saving potentials.
<b>Required investment (Cash-Outflow):</b> TBD
<b>Required time for implementation:</b> 3 –8 months <b>Required time for first results:</b> 3 –12 months
<b>Required Manpower input for the project:</b> VARIG: 30 man days External assistance is recommended
<b>Preconditions / Dependencies:</b> The most important precondition/dependency is connected to the fleet and network development.
<b>Opportunities:</b> Considerable chances of: <ul style="list-style-type: none"> <li>▪ New working contracts line ops</li> <li>▪ New working rules &amp; regulations line ops</li> <li>▪ Redesign spectrum of flight operation management</li> <li>▪ Redesigned working processes in flight operation and adjacent departments</li> </ul> <b>Risks:</b> Employee dissatisfaction Union agreement negotiation

### 11.2.17 OPERATIONS 17: Improvement of Operational Performance by Pilot work pad

<b>Current Status:</b> The Dispatching department calculates all Weight-Charts for the different aircraft and engine types. The pilot uses these tables to interpolate the best engine thrust depending on aircraft weight, weather conditions, runway limitations and obstacles.
<b>Measure Description:</b> Evaluate the business case for installing an automatic take-off performance calculation. Benchmark the system results with actual calculations, if a more accurate calculation allows a cost reduction for maintenance due to reduced engine thrust and a revenue increase for the possibility of additional payload.
<b>Future Status:</b> An automatic Take-Off Performance Calculation allows cockpit crews or dispatchers to run instant single point take-off performance calculations. This is possible on mobile computing devices for onboard use as well as on normal PCs for dispatchers. Calculations will be based on the systems' Airport/Obstacle database. A full optimization concerning thrust reduction and take-off weight is possible.
<b>Cost Saving/Revenue Generation Potential:</b> A cost reduction cannot be calculated yet, but through a more accurate calculation of engine thrust more payload and less maintenance costs will be expected. Experience shows a seven digit savings potential. Additional savings are to be expected due to the availability of Computer Based Training
<b>Required investment (Cash-Outflow):</b>  US\$ one-time for airport data  US\$ per year regular costs for software license, software maintenance and airport data (60 months contract) Eventually investment for work pads in the range of  US\$
<b>Required time for implementation / Required time for first results:</b> 6 months
<b>Required Manpower input for the project:</b> Man days VARIG 240; External assistance is recommended
<b>Preconditions / Dependencies:</b> Depending on the chosen solution pilot work pads could be necessary to do calculations on board. Local obstacle information has to be obtained for the calculation.
<b>Opportunities / Risks:</b> For other airlines an automated Take-Off Performance Calculation led to enough savings in order to justify investments in pilot work pads. Additional benefits of a work pad regarding adequate self training means and adequate communication without touching base are to be expected.

## 11.2.18 OPERATIONS 18: Inflight-Catering Optimization

<p><b>Current Status:</b> VARIG in the past mostly worked on the content of the inflight-catering product. In other words, meals were reduced or changes in the products were established.</p>
<p><b>Measure Description:</b> Investigation in all inflight contents. Questioning of all possibilities for re-use, substitutes of same quality but lower price, new contract partners, etc. Fuel and cash flow savings due to optimized / reduced operational weight will be included in the Weight Watchers Group measure.</p>
<p><b>Future Status:</b> The inflight-catering content will continuously be checked and controlled in order to ensure that within the given framework of a catering concept (which is developed within Marketing and is based on competition and strategic parameters) all savings potential is identified and relevant improvements are implemented.</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <ul style="list-style-type: none"> <li>VARIG passenger use approximately [REDACTED] earphones / month. The earphones can either be purchased or overhauled. Currently approx. 26% of the earphones are collected and overhauled for [REDACTED] US\$/each. The rest is purchased new with a price of [REDACTED] US\$/each. VARIG will re-collect and overhaul approx. 65–75% of used earphones.</li> <li>Cease snackbar and sandwich catering on night flights. Utilization statistics show a minimum in utilization of the catered snackbar and sandwich available for the time between services. Due to this, the above mentioned services is cancelled with immediate effect.</li> <li>Revise laundry services at stations abroad. Currently the laundry for pillows and sheets in FRA is at approximately [REDACTED] US\$ / month with 14/7 frequencies. In other stations in Europe, as for instance MIL or MAD, the costs for 7/7 are approx. [REDACTED] TUS\$ / month. FRA and other stations will be investigated and re-negotiated. (This savings are to be seen as future additional savings)</li> <li>First revision of newspapers and Journals in domestic service. Cancellation of some journals, a reduction of used amounts of some journals and a new concept for newspapers for the shuttle service (after 02:00 pm VARIG will serve the "ICARO Express" instead of other newspapers.</li> <li>Substitution of costly catering items by less expensive ones. Through Lufthansa Consulting support in procedure definition, an additional [REDACTED] US\$ per year were already identified</li> </ul> <p>All above measures, have an estimated yearly cost reduction [REDACTED] US\$, that is already implemented within 3<sup>rd</sup> quarter 2005. All other savings are to be seen as future additional savings.</p>

<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> Already implemented in August 2005
<b>Required Manpower input for the project:</b> No additional external manpower necessary
<b>Preconditions / Dependencies:</b> A controlling concept for all proposed measures has to be developed and must be consequently checked in order to ensure that the forecasted savings are materialized. This measure is closely linked to the OPERATIONS Measure of Weight Watching.
<b>Opportunities / Risks:</b> The savings potential mentioned in this measure is limited to optimization in the defined marketing catering concept. Due to this fact, all investigations have to be agreed with Marketing and Cabin Crew in order to guarantee a smooth introduction without compromising quality.



### 11.2.19 OPERATIONS 19: Selection of arrival runway

<p><b>Current Status:</b></p> <p>The present SITA system used in VARIG Flight Dispatch does not show nor select the arrival runway in the destination airport / reclearance airport. in regard to</p> <ul style="list-style-type: none"> <li>- forecasted wind/weather conditions</li> <li>- runway availability according performance data</li> <li>- runway availability according current Notam</li> <li>- a.s.o.</li> </ul> <p>Therefore always the longest possible distance from the last checkpoint to the airport is taken into consideration and fuel necessary is calculated but not to that specific runway that will be selected/being in use upon arrival</p>
<p><b>Measure Description:</b></p> <p>All Operational Flight Plans should be based on the arrival runway taking into considerations like</p> <ul style="list-style-type: none"> <li>- forecasted wind/velocity at arrival airport</li> <li>- runway availability according valid Notam</li> <li>- runway availability according aircraft landing performance data.</li> <li>- runway strength, single wheel load, published all-up-weights</li> <li>- published approach procedures.</li> </ul> <p>This selected runway shall be shown to the operating crew on the operational-flight-plan and be monitored during flight in order to identify possible changes to the planned data.</p>
<p><b>Future Status:</b></p> <p>All operational-flight-plan will show and be based on departure and arrival runway. This will lead to less inbound distances in approximately 20% of all cases</p>
<p><b>Cost Saving/Revenue Generation Potential:</b></p> <p><b>Savings per year will be = ■■■ m US\$</b></p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>Should be part of the new flight-planning-system</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>See measure OPERATIONS 13</p>
<p><b>Required Manpower input for the project:</b></p> <p>See measure OPERATIONS 13</p>
<p><b>Preconditions / Dependencies:</b></p> <p>See measure OPERATIONS 13</p>
<p><b>Opportunities / Risks:</b></p> <p>None</p>

## 11.2.20 OPERATIONS 20: Shuttle services SDU – CGH and vice versa

<b>Current Status:</b> Take-off-fuel figures for the flights between SDU and CGH and vice versa are standardized for B737 aircraft. e.g. For B737-300 from SDU to CGH = 7.700 KG and from CGH to SDU = 5.500 KG
<b>Measure Description:</b> Standard take off fuel figures shall be deleted. The amount of take-off-fuel shall be based on actual figures e.g. <ul style="list-style-type: none"> <li>▪ aircraft weight,</li> <li>▪ flight time,</li> <li>▪ alternate selected</li> <li>▪ aircraft performance including deviation factor</li> <li>▪ a.s.o.</li> </ul>
<b>Future Status:</b> Individual take-off-fuel data will be used and standard values be cancelled.
<b>Cost Saving/Revenue Generation Potential:</b> Since for the time being economic fueling is required for the sector SDU - CGH only the sector CGH – SDU will really save costs. <b>Savings per year will be = 0,1 US\$</b>
<b>Required investment (Cash-Outflow):</b> See measure OPERATIONS 13
<b>Required time for implementation / Required time for first results:</b> See measure OPERATIONS 13
<b>Required Manpower input for the project:</b> See measure OPERATIONS 13
<b>Preconditions / Dependencies:</b> See measure OPERATIONS 13
<b>Opportunities / Risks:</b> See measure OPERATIONS 13

#### 11.2.21 OPERATIONS 21: Reduction in Repetitive Flight Plan (RPL) usage

<p><b>Current Status:</b></p> <p>Repetitive flight-plans ( RPL ) are used for all flights within Brazil and flights to/from Argentina, Paraguay, and Uruguay. They always refer to one standard routing and one standard flight level. There is no optimization possible neither horizontal nor vertical, since routing and flight level are already stored and may not allow a better solution.</p> <p>Although the operational flight plan is calculated individually, it will in almost all cases follow the data and information as stored in the RPL.</p>	
<p><b>Measure Description:</b></p> <p>The usage of RPL shall be restricted to the absolute minimum.</p> <p>It shall strictly be limited to flights, where definitively no horizontal nor vertical deviation will be expected.</p>	
<p><b>Future Status:</b></p> <p>After implementation more flights as of today have to be calculated individually, but will bring fuel-reductions to the company.</p>	
<p><b>Cost Saving/Revenue Generation Potential:</b></p> <p>Based on the amount of:</p> <ul style="list-style-type: none"> <li>■ flights with a flight time up to one hour</li> <li>■ flights with a flight time 0100 – 0200 hours</li> <li>■ flights with a flight time exceeding 0200 hours</li> </ul> <p>for ■ flight savings might be eligible.</p> <p>For ■ flights a saving of ■ trip fuel per flight for ■ of the flights is assumed and for ■ flights a saving in trip fuel of ■ per flight for ■ is assumed.</p> <p>■</p>	
<p><b>Approximately savings per year =</b> ■</p>	
<p><b>Required investment (Cash-Outflow):</b></p> <p>New flight planning system</p>	
<p><b>Required time for implementation / Required time for first results:</b></p> <p>After coordination with Director Flight Operation and Fleet manager and Station Management individual flight-planning and filing of ATS flight plan can start immediately. Results are available immediately.</p>	
<p><b>Required Manpower input for the project:</b></p> <p>See requirements for installation of a new flight-planning-system.</p>	
<p><b>Preconditions / Dependencies:</b></p> <p>Director Flight Operation of VARIG/VARIGLOG must support the decision.</p>	
<p><b>Opportunities / Risks:</b></p> <p>None</p>	

## *12. Information Technology and MIS*

### 12.1 Status Quo

Analysis of VARIG IT reveals the typical problems of an internal IT organization not well aligned with business strategy. Project portfolio is not derived from strategic business goals. Neither project proposals nor running projects are decided upon in a proper manner. Professional project management is not implemented sufficiently. Substantial part of IT cost is not correctly accounted for or is taken for free as being part of administration overhead cost, e.g. effort of own IT personal or of contractors not being hired for particular projects. The relation of staffing and value contribution is in no way obvious.

In addition, IT support for various business processes can be optimized. Immediate cost reduction is possible for several infrastructure areas, whereas implementation of up to date solutions in well defined project scenarios can help either to cut transaction cost for business processes or even to generate substantial additional revenue.

### 12.2 Recommended improvement measures

Please find in the following sub-chapters the various improvement measures.

## 12.2.1 IT 01: Establish IT Strategy and Budgeting Process

<p><b>Current Status:</b></p> <p>Presently no dedicated IT budget exists which covers all activities. Projects are defined by gathering user requests and wishes for IT activities without clear procedure to define priorities and portfolio. Neither total cost of ownership nor return of investment is normally known. Most projects are rather small and corresponding to that the number of projects is huge. Much of work is done more in a day-to-day manner based on single activities that in a project management environment.</p>
<p><b>Measure Description:</b></p> <p>Establish IT budgeting and portfolio mechanism based on strategic principles. Any project proposal must provide complete business case including information about business alignment, total cost of ownership and predicted return of investment.</p> <p>Any IT cost incl. internal effort, maintenance, services etc. has to be budgeted in the IT budgeting process, and be controlled appropriately. Cost and effort have to be based on an IT architecture planning. In that, IT architecture has to be based on application architecture which has to reflect business needs.</p> <p>Until this framework is established, stop all projects except maintenance for vital functions and compliance with legal regulations. Require valid business case for any new project or restart of existing project by fourth quarter 2005.</p>
<p><b>Future Status:</b></p> <p>Structured planning of IT cost and benefits, complemented with transparent IT Controlling.</p>
<p><b>Cost Saving / Revenue Generation Potential:</b></p> <p>No direct impact on IT cost, but absolutely necessary in order to discuss IT cost in some reasonable manner.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>None</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>Implementation can take place in 2005 First results will show in 2006</p>
<p><b>Required Manpower input for the project:</b></p> <p>Man days VARIG 50 External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b></p> <p>Decision to stop projects enables contingency plan for short-term reduction of IT staff cost (see IT 02/STRUCTURE 13).</p>
<p><b>Opportunities / Risks:</b></p>

## 12.2.2 IT 02: Contingency Plan IT Organization & Staffing

<p><b>Current Status:</b> Corporate IT of VARIG presently has 138 functionaries and 104 contractors, generating personnel cost of approximately 9,6m US\$ including tax and benefits. Allocation of personnel and HR budget to the functional teams within HR is not very clear. The relation of support staff for business critical vs. uncritical functions is not balanced.</p>
<p><b>Measure Description:</b> Based on project freeze (see IT 01), Corporate IT focus on vital processes and applications, terminate contracts of vendors and allow for fluctuation of functionaries. Reduction target should be at least 1/3 of present cost of third quarter 2005. This can be obtained by termination of 80% of vendors contracts and by reduction of number of functionaries by approx. ■ or equivalent reduction of working time for all functionaries.</p>
<p><b>Future Status:</b> After implementation of contingency plan. IT staffing will have to be reviewed based on new definition of IT strategic position and governance. This will further reduce internal IT staff (see STRUCTURE 13).</p>
<p><b>Cost Saving/Revenue Generation Potential:</b> Reduction of <b>80% of vendor volume:</b> ■ US\$ per year. Layoff of ■ functionaries or equiv. reduction of working time: ■ US\$ per year</p>
<p><b>Required investment (Cash-Outflow):</b> Vendor termination: 0 Layoff of functionaries: ■ US\$ / Reduction of working time: none.</p>
<p><b>Required time for implementation / Required time for first results:</b> Third quarter 2005 First results will show in fourth quarter 2005</p>
<p><b>Required Manpower input for the project:</b> Man days VARIG 20 External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b> First step to long term repositioning (see STRUCTURE 13). Requires appropriate HR framework.</p>
<p><b>Opportunities / Risks:</b></p>

### 12.2.3 IT 03: WAN Communication Links, Shift to DSL

<b>Current Status:</b> As many airlines do, VARIG relies on SITA lines to connect to her remote locations.
<b>Measure Description:</b> Shift Communication Links from present SITA lines to DSL, either again provided by SITA or by third party provider.
<b>Future Status:</b> Remote locations are connected via DSL
<b>Cost Saving/Revenue Generation Potential:</b> ■■■■ US\$ per year.
<b>Required investment (Cash-Outflow):</b> ■■■■ US\$
<b>Required time for implementation / Required time for first results:</b> Business plan and project plan by third quarter 2005. Decide and start project by fourth quarter 2005. Implementation and results in 2006
<b>Required Manpower input for the project:</b> Man days VARIG 200 No external assistance required.
<b>Preconditions / Dependencies:</b> Due diligence of existing SITA contracts. Effort to be verified in project plan.
<b>Opportunities / Risks:</b> Investment is deduced from benchmark, not from detailed planning. SITA penalties might cause a problem. Is to be clarified in setup of business plan.

#### 12.2.4 IT 04: Mainframe Data Center, Renegotiate outsourcing contract

<p><b>Current Status:</b> Presently IBM operates Mainframe Data Center. Present contract volume is approx. 1,2m US\$ per month. Contract expired by June 2005. Present operation is based on intermediate agreement. For contract renewal, VARIG negotiates exclusively with IBM.</p>
<p><b>Measure Description:</b> Put IBM contract renewal under competitive pressure. This will enhance the ability of VARIG to negotiate appropriate prices. Set up joint purchasing and IT initiative. Approach selected vendors directly and invite them to make proposal based on the framework of VARIG rehabilitation plan.</p>
<p><b>Future Status:</b> Mainframe Data Center is operated by IBM under new contract or by competitor. No functional difference in relation to today.</p>
<p><b>Cost Saving/Revenue Generation Potential:</b>  <b>Cost Saving Target:</b> █████ US\$  <b>Optimistic Estimate:</b> █████ US\$</p>
<p><b>Required investment (Cash-Outflow):</b>  Option IBM: 0  Option Competitor: to be evaluated in set up of business case</p>
<p><b>Required time for implementation / Required time for first results:</b>  Tender and decision in fourth quarter 2005.  Impact on cash flow from second quarter 2006.</p>
<p><b>Required Manpower input for the project:</b>  Man days VARIG 80  External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b>  Direct contact with possible IBM competitors before inviting proposals. Bundling of IT and purchasing experience.</p>
<p><b>Opportunities / Risks:</b>  If substantial price reduction is not feasible, contract only for shorter period (e.g. 2 years) to enable migration on different platform according to result of SALES 03.</p>



## 12.2.5 IT 05: Mainframe Data Center Downsizing

<b>Current Status:</b> Besides IRIS reservation system and related applications, several other systems, e.g. passenger Revenue Accounting, run on the IBM host. Present cost is 2,9m US\$ per year.
<b>Measure Description:</b> Set up analysis of possible migration to new technology platform. Findings should be verified by pilot project migrating a small, non business critical application.
<b>Future Status:</b> Result of study will define realistic savings, necessary investment and effort.
<b>Cost Saving/Revenue Generation Potential:</b> Cost reduction by downsizing can result in savings from 0 to approx. 2,2m US\$ per year, depending on particular VARIG situation. No rule of thumb exists.
<b>Required investment (Cash-Outflow):</b> Result of analysis.
<b>Required time for implementation / Required time for first results:</b> Result of analysis.
<b>Required Manpower input for the project:</b> Man days VARIG: TBD External assistance is recommended
<b>Preconditions / Dependencies:</b> No migration project should be done without preparation as described above.
<b>Opportunities / Risks:</b> <b>If not properly prepared, downsizing applications is an extreme commercial and operational risk.</b> It is not just a technical migration, but for complex applications comes very close to the implementation of a new system. Applications have to be frozen for the entire duration of the migration project. For business critical applications, a error proof fallback scenario is necessary. In particular, <b>passenger Revenue Accounting should not be touched without a successful pilot project, and without the experience coming out of the migration of a medium sized application in the same environment.</b>

#### 12.2.6 IT 06: Desktop Infrastructure, Substitute CUTE Terminals

<b>Current Status:</b> At the airports VARIG presently relies on a SITA Cute Environment, as most airlines. In 13 domestic locations, the installations are not really shared, but used exclusively by VARIG. Technically, it is possible to substitute Cute Infrastructure by dedicated VARIG terminals, printers and networks or to switch to other.
<b>Measure Description:</b> Switch from Cute to dedicated environment. In a first step, set up proper analysis of possible future scenarios. That has to include inspection of present SITA contracts with respect to termination penalties, Airport regulations about access to their environment, and functional and technical requirements for the new solution. Based on that, issue a Request for Proposal (RFP) to relevant providers.
<b>Future Status:</b> Airport infrastructure is run by VARIG in defined domestic locations or by alternate provider.
<b>Cost Saving/Revenue Generation Potential:</b> Estimated cost savings ████████ US\$ per year.
<b>Required investment (Cash-Outflow):</b> Result of proposal evaluation.
<b>Required time for implementation / Required time for first results:</b> Result of proposed evaluation.
<b>Required Manpower input for the project:</b> Man days VARIG 80 – 130 External assistance is recommended
<b>Preconditions / Dependencies:</b> Legal situation with SITA and Airports has to be clarified.
<b>Opportunities / Risks:</b> Proposal seems to be more robust and value generating if included in overall measure to cut desktop and associated LAN cost (see IT 07).

## 12.2.7 IT 07: Desktop Infrastructure, Full Service Model

<p><b>Current Status:</b></p> <p>VARIG presently delivers desktop PCs and related services to the company in a non integrated manner. E.g. in new project proposals, calculation is mainly based on hardware cost and related capital cost, with a rather small amount of effort taken into account for engineering, implementation, services, etc. Industry experience shows that hidden cost related to PCs can lead to total cost of ownership (TCO) being more than two or three times the initial investment.</p> <p>Present investment proposals (renewal program, Iris+ proposal, substitution of CUTE) sum up to investment needs of approx. █████ US\$, hence potentially generating TCO much higher.</p>
<p><b>Measure Description:</b></p> <p>Set up an integrated service model to package all PC related services, delivering only highly standardized configurations, including all types of cost in the pricing model, and transferring all necessary investment and capital cost to the provider.</p> <p>In a first step, a scoping study has to be initiated to analyze all desktop related cost and define complete scope of the model.</p>
<p><b>Future Status:</b></p> <p>VARIG will have an integrated service model, making all PC related cost transparent and opening up relevant savings potential.</p>
<p><b>Cost Saving/Revenue Generation Potential:</b></p> <p>Lufthansa Benchmark: █████ US\$ (in one renewal cycle). To be verified in scoping study.</p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>To be defined in scoping study</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>Scoping study 2006 / start of implementation 2006 / first savings 2007</p>
<p><b>Required Manpower input for the project:</b></p> <p>Man days VARIG 100 (scoping study only)</p> <p>External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b></p> <p>None</p>
<p><b>Opportunities / Risks:</b></p> <p>None</p>

## 13. Human Resource Management

### 13.1 Status Quo

In the framework of preparing a business plan for VARIG, the goal of this assessment was the identification of cost cutting potential in regards to Human Resources. For this reason the analysis of Human Resource Management was primarily focused on the number and costs of employees instead of the performance of the department of Human Resources Management (i.e. processes, instruments).

Nevertheless Lufthansa Consulting observed that the department of Human Resources Management focuses mainly on administrative work. This focus causes a lack of complementary HR services, such as training and development, performance measurement, reward and recognition. As these HR services have only an indirect impact on cost cutting effects, these areas have not been observed in detail. However, in case of performance improvement, these HR processes and instruments have to be tackled.

In regards to the identification of cost cutting potentials, Lufthansa Consulting assessed the following aspects:

- Workforce
- Overtime
- Vacation
- Absenteeism
- Working Conditions / Remuneration / Legal and Corporate Regulations
- Current Actions of VARIG's Crisis Management

Based on the information provided by VARIG (status end of May 2005) the current status can be described as follows:

#### **Workforce**

Generally VARIG seems to be overstaffed in many areas. This becomes particularly obvious in flight operations, where VARIG employs about 1677 pilots and 3081 flight attendants for 78 aircraft. This translates to a ratio of 21.5 pilots and 39.5 flight attendants per aircraft. Taking into account that VARIG used to have 118 aircraft and has now reduced its fleet to 78 out of which only 64 are currently operating, the current situation of overstaffing is obvious.

In a benchmark study comparing VARIG's crew situation with that of six (6) major international airlines as well as ten (10) Latin American airlines, Lufthansa Consulting compared the number of cockpit and cabin crew per aircraft.

Based on this comparison, VARIG's number of cockpit crew per aircraft is around 45% higher than that of major global carriers and 55% higher than Latin American carriers. For cabin crew, the number of crew per aircraft is comparable to that of major global carriers and [REDACTED] higher than that of the selected Latin American carriers.

VARIG's situation concerning the number of flight crew is partly due to VARIG's heterogeneous fleet and the fact that the operational base is not located in São Paulo, causing highly inefficient crew patterns, but also to legal and corporate regulations, such as the corporate collective agreement currently in place.

With the efficiency enhancing measures VARIG is currently planning, especially with the project of moving the company's flight operations base to São Paulo - an essential part of this business plan – the number of crew necessary to staff the fleet will be gradually reduced. Another important factor is the move towards fleet homogenization, which greatly increases crew efficiency and reduces the number of flight crew required per aircraft.

Even though benchmarking studies show a further reduction potential, [REDACTED], and as working assumption for 2007 a further reduction is planned. At the same time, the number of cabin crew is considered to stay constant as further calculations are required. Since the number of cabin crew depends to a great extent on the airline's service concept, which has to be reviewed within the next months, this conservative approach is used at this point of time.

In other technical areas, such as maintenance, IT, sales and outstations the number of employees has to be evaluated in detail (see technical reports).

VARIG pays about 0,9m US\$ the 475 trainees who are working at 25 different Brazilian locations. This situation should be reviewed

Although VARIG, VARIGLOG and VEM are individual and independent entities, a proper reallocation of staff has not happened. Consequently part of VARIG's employees is still working for VARIG's subsidiaries. In total 297 of VARIG's employees are working for VARIGLOG. The corresponding costs of 11,1m US\$ per year (excluding employer's contribution) are forwarded to and reimbursed by VARIGLOG. 150 employees of VARIG are currently working for VEM in Brazil and abroad. The yearly costs of about 0,9m US\$ (excluding employer's contribution) out of a total of 2,7m US\$ (excluding employer's contribution) are reimbursed by VEM. The rest of 1,9m US\$ (excluding employer's contribution) is not charged to VEM.

**Overtime**

Despite the apparent overstaffing, VARIG's employees are still working a high level of overtime. Although some of the overtime is not paid immediately and therefore does not cause an immediate cash out, employees keep the right to claim the money, at the latest when they leave the company. In the first 6 months of 2005, VARIG paid about 0,8m US\$ (excluding employer's contribution) and still has a backlog of about 1,7m US\$ (excluding employer's contribution) for performed overtime.

**Vacation**

The average backlog of vacation is about 13 days per employee.

**Absenteeism**

Although the existing IT system offers the possibility to administer short term absenteeism (under 15 days), VARIG is not monitoring short term absenteeism. However, VARIG could provide statistics about long-term absenteeism. During the first 6 months 458 have been absent for at least 180 days (22 pilots, 207 flight attendants and 227 other employees). In average they were absent about 932 days. Moreover another 582 employees were absent more than 15 and less than 180 during the same period (22 pilots, 280 flight attendants and 280 other employees).

**Working Conditions / Remuneration / Legal and Corporate Regulations**

4 different legal regulations (labor law, aviation chapter in the labor law, industrial collective agreement, and corporate collective agreement) determine the working conditions at VARIG. The industrial as well as the corporate collective agreement will expire in December respectively November 2005 and have to be renegotiated.

Currently the working time / flight time is not used in an efficient way due to the legal regulations and corporate practice. An example for this are all the employees who are commuting between the place they live and the place they work. As the working place of employees were not transferred to the place of the actual work the time spent on commuting is credited to the working time / flight time account. Another example how working time is inefficiently used are the stand-by duties. These duties are counted as flight time, which causes the significant reduction of real flight hours.

VARIG does not have instruments to evaluate performance (neither for managers nor for employees). Salaries are paid on a 100% fixed basis. VARIG had in the past as well as in the present problems in financing employee-related contributions to the social security (INSS) as well to the FGTS. Currently payments of about 27m US\$ are pending. To solve the financing problem and to pay the debts of the past, financing schemes were negotiated and established for FGTS and INSS.

### Current Actions of VARIG's Crisis Management

VARIG has initiated already a number of crisis management measures, such as stop of recruitments, stop of replacements, stop of salary increases, stop of external trainings without required trainings (i.e. recurrent trainings for pilots), establishment of an early retirement scheme.

## 13.2 Recommended improvement measures

Please find in the following sub-chapters the various improvement measures.

### 13.2.1 HR 01: Reallocation of VARIG's employees to VARIGLOG and VEM

#### Current Status:

Although VARIG, VARIGLOG and VEM are individual and independent entities, a proper reallocation of staff has not happened. Consequently a part of VARIG's employees is still working for VARIG's subsidiaries. In total 297 of VARIG's employees are working for VARIGLOG. The corresponding costs of 11,1m US\$ per year (excluding employer's contribution) are forwarded to and reimbursed by VARIGLOG. 150 employees of VARIG are currently working for VEM in Brazil and abroad. The yearly costs of about 0,846m US\$ (excluding employer's contribution) out of 2,724m US\$ (excluding employer's contribution) are reimbursed by VEM. The rest of 1,86m US\$ per year (excluding employer's contribution) is not charged to VEM.

#### Measure Description:

Costs that are currently not reimbursed have to be charged immediately to the respective subsidiary.  
As early as possible all employees, being identified to work for the subsidiaries only, should be transferred to these companies.

#### Future Status:

In order to avoid future overlaps of employees amongst the companies of VARIG Group, every company will employ the staff that it needs and actually uses.

#### Cost Saving/Revenue Generation Potential:

297 employees of VARIG are currently working for VARIGLOG (Brazil and abroad). The yearly costs of 11,1m US\$ excluding the employer's contribution are currently reimbursed by VARIGLOG. In case that these employees are no longer needed by VARIGLOG, VARIG is facing additional costs.

**Risk for VARIG of additional costs of [REDACTED] US\$ per year including national employer's contribution plus employer's contribution for salaries paid abroad**

<p>Another 150 employees of VARIG are working for VEM. The yearly costs of about [REDACTED] US\$ (excluding employer's contribution) for 72 employees are reimbursed by VEM.</p> <p><b>Risk for VARIG of additional costs of [REDACTED] US\$ per year including employer's contribution</b></p> <p>VEM is not reimbursing the costs for the other 78 employees. The current yearly costs for these employees are [REDACTED] US\$ (excluding employer's contribution). These costs should be forwarded to VEM.</p> <p><b>Cost reduction for VARIG of [REDACTED] US\$ per year including national employer's contribution plus employer's contribution for salaries paid abroad</b></p>
<p><b>Required investment (Cash-Outflow):</b> None</p>
<p><b>Required time for implementation / Required time for first results:</b> 3 months</p>
<p><b>Required Manpower input for the project:</b> VARIG: TBD No external assistance required.</p>
<p><b>Preconditions / Dependencies:</b> Identification of staff, clarification of legal conditions, determination of additional costs for transfers and negotiations with unions</p>
<p><b>Opportunities / Risks:</b> Employees are not willing to be transferred to one of the subsidiaries, resistance by the unions</p>



### 13.2.2 HR 02: Layoff of trainees

<b>Current Status:</b> VARIG pays every year about ■■■ US\$ for the 475 trainees, who are working at 25 different Brazilian locations.
<b>Measure Description:</b> Laying off trainees as soon as possible as far as an immediate lay off is possible. Replacement of trainees should not be allowed. In the case that trainees are working for VARIG free of charge, trainees can still be re-cruited.
<b>Future Status:</b> The daily work has to be streamlined, processes optimized and tasks eventually reallocated, so that no more trainees are employed in the future.
<b>Cost Saving/Revenue Generation Potential:</b> Currently 425 trainees are working for VARIG and are costing 75.000 US\$ per month (excluding employer's contribution) <b>Cost reduction of ■■■ US\$ per year plus employer's contribution</b>
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> 1 month
<b>Required Manpower input for the project:</b> VARIG: TBD No external assistance required
<b>Preconditions / Dependencies:</b> Affected departments have to be informed and must prepare for the upcoming loss of workforce
<b>Opportunities / Risks:</b> Technical areas are depending on trainees as trainees are misused as cheap workforce, Resistance by technical areas has to be expected, as work has to be reallocated.

### 13.2.3 HR 03: Reduction of workforce and labor costs

<b>Current Status:</b> Generally VARIG seems to be overstaffed in many areas. This becomes particularly obvious in regards to cockpit crews, where VARIG employs 1677 pilots for 78 aircraft. But also in other technical areas, such as maintenance, IT, sales and outstations the number of employees has to be evaluated. (see various other technical reports).
<b>Measure Description:</b> See various other technical reports. Renegotiate the corporate collective agreement, introduce optimized crew scheduling and reduce work force accordingly (see text).
<b>Future Status:</b> See various other technical reports
<b>Cost Saving/Revenue Generation Potential:</b> For the purpose of this business plan, a reduction of ■■■ of the cockpit crew (See OPERATIONS 15) and of ■■■ of the non flying personnel in 2006 is assumed.
<b>Required investment (Cash-Outflow):</b> <ul style="list-style-type: none"> <li>■ Employer's obligation from the labor contract, like claim for vacation, overtime</li> <li>■ Pending payments for FGTS and INSS</li> <li>■ Payments due to layoffs (i.e. additional 40% of FGTS)</li> </ul>
<b>Required time for implementation / Required time for first results:</b> See various other technical reports
<b>Required Manpower input for the project:</b> See various other technical reports
<b>Preconditions / Dependencies:</b> To reduce workforce the current legal and corporate regulations have to be taken into consideration, Number of employees to be reduced have to be discussed with technical areas, Procedure for laying off people has to be developed, Layoffs should be discussed with the unions upfront
<b>Opportunities / Risks:</b> Resistance of unions and employees, Cash out for compensation payments

#### 13.2.4 HR 04: Elimination of overtime

<b>Current Status:</b> Despite the apparent overstaffing, VARIG's employees are still working a high amount of overtime. Although some of the overtime is not paid immediately and therefore does not cause immediate cash out, employees keep the right to claim for the money, latest when they leave the company. In the first 6 months of 2005 VARIG paid about █████ US\$ (excluding employer's contribution) and still has a backlog of about █████ (excluding employer's contribution) for performed overtime.
<b>Measure Description:</b> Minimizing the amount of overtime by asking managers to prevent overtime (i.e. reallocation of tasks, performance enhancement)
<b>Future Status:</b> Generally overtime should be approved by the Managing Board upfront. In urgent cases overtime can be executed without approval. Management is responsible to minimize overtime.
<b>Cost Saving/Revenue Generation Potential:</b> Currently VARIG is paying its employees about █████ US\$ per year (excluding employer's contribution) due to performed overtime. The Managing Board should approve paid overtime in order to evaluate its necessity. The calculation is based on the assumption that 80% of the overtime can be eliminated.
<b>Cost reduction of █████ US\$ per year including employer's contribution</b>
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> None
<b>Required Manpower input for the project:</b> VARIG: TBD No external assistance required.
<b>Preconditions / Dependencies:</b> A quick and smooth running process for approval of overtime has to be established
<b>Opportunities / Risks:</b> Management does not impose the elimination of overtime, Employees will not support this measure due to salary losses

### 13.2.5 HR 05: Reduction of vacation

<b>Current Status:</b> The average backlog of vacation is about 13 days per employee.
<b>Measure Description:</b> Managers have to enforce employees to go on holidays in time of overcapacities in order to allocate capacities more efficiently (i.e. pilots that are currently not needed due to grounded aircrafts)
<b>Future Status:</b> In future managers are asked to manage vacation of their employees more pro-actively depending on the workload and capacities available
<b>Cost Saving/Revenue Generation Potential:</b> As currently the existing workforce of VARIG is not fully needed (i.e. grounded aircrafts cause a lower need in pilots and flight attendants), managers should enforce their employees to go on vacation. <b>Efficient allocation of workforce according to the workload and decrease of the current claim for vacation</b>
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> None
<b>Required Manpower input for the project:</b> VARIG: TBD No external assistance required.
<b>Preconditions / Dependencies:</b> Legal regulations and possibilities have to be evaluated, Managers have to be informed
<b>Opportunities / Risks:</b> Resistance of employee to be enforced by the company to go on holiday

### 13.2.6 HR 06: Monitoring and Controlling of short term absenteeism

<p><b>Current Status:</b></p> <p>Although the existing IT system offers the possibility of administering short-term absenteeism (under 15 days), VARIG is not monitoring short-term absenteeism. However, VARIG could provide statistics about long-term absenteeism. During the first 6 months 458 employees have been absent for at least 180 days (22 pilots, 207 flight attendants and 227 other employees). In average they were absent about 932 days. Moreover another 582 employees were absent more than 15 and less than 180 during the same period (22 pilots, 280 flight attendants and 280 other employees).</p>
<p><b>Measure Description:</b></p> <p>Registration of short term absenteeism Development and implementation of procedures to monitor and reduce absenteeism</p>
<p><b>Future Status:</b></p> <p>VARIG is informed about short term as well as long-term absenteeism and has implemented procedures to reduce the absenteeism rate.</p>
<p><b>Cost Saving/Revenue Generation Potential:</b></p> <p>Currently short-term absenteeism is neither monitored nor controlled. Consequently no figures are currently available. Taking into consideration that VARIG had 1040 long-term absentees in 2005, it is very much likely that there is also a certain degree of short-term absenteeism. Based on the average monthly salary of 1.350 US\$, a decrease of the short-term absenteeism by 1% will save about 1,8m US\$ per year (excluding employer's contribution).</p> <p><b>Cost reduction per [REDACTED] decrease of [REDACTED] US\$ per year including employer's contribution</b></p> <p>The 458 long-term absentees have to be evaluated and the options to lay these people off have to be taken into consideration. As most of these people have been replaced in the meanwhile, there is a risk of redundancies when long-term absentees will return. ([REDACTED])</p> <p><b>Risk of additional costs of [REDACTED] US\$ per year including employer's contribution, when 10% long term absentees return.</b></p>
<p><b>Required investment (Cash-Outflow):</b></p> <p>None</p>
<p><b>Required time for implementation / Required time for first results:</b></p> <p>Short term absenteeism: none Long term absenteeism: minimum 1 months</p>
<p><b>Required Manpower input for the project:</b></p> <p>VARIG: TBD External assistance is recommended</p>
<p><b>Preconditions / Dependencies:</b></p>

To record the working time, it has to be reinsured that existing facilities are used. A procedures how to monitor, control and manage absenteeism has to be established. Managers have to be trained.
<b>Opportunities / Risks:</b> None

### 13.2.7 HR 07: Renegotiation of the corporate collective agreements

<b>Current Status:</b> 4 different legal regulations (labor law, aviation chapter in the labor law, industrial collective agreement, and corporate collective agreement) determine the working conditions at VARIG. The industrial as well as the corporate collective agreement will expire in December 2005 respectively November 2005 and have to be renegotiated.
<b>Measure Description:</b> Identification of critical components of the current collective agreements, definition of goals, elaboration of necessary adjustments and development of applicable negotiation strategies
<b>Future Status:</b> Existence of collective agreements, which are comparable with industrial standards and enable VARIG to be more efficient and flexible in managing the company
<b>Cost Saving/Revenue Generation Potential:</b> The current corporate collective agreements have to be renegotiated and disadvantages to be eliminated: i.e. Remuneration, Seniority-related surcharge, Working time/Flight hours, Rules for layoffs. The new corporate collective agreement has to offer VARIG more efficiency and flexibility, especially in times of crisis. Depending on the determined parameters, substantial cost savings can be realized. However, before starting the negotiations, a clear HR strategy should be developed and all relevant topics to be discussed and converted in applicable concepts (i.e. remuneration).
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> 3 - 5 months
<b>Required Manpower input for the project:</b> VARIG: TBD External assistance is recommended
<b>Preconditions / Dependencies:</b> Although VARIG is in a critical situation and times are favorable for changing corporate rules, unions will try to defend their members' status quos. For this reason it is of utmost importance to define the goal of the negotiations and to prepare strategies with different options for the negotiations.
<b>Opportunities / Risks:</b> Improvement of rules in favor of VARIG, although unions may fight strongly for maintaining the current status quo.

### 13.2.8 HR 08: Establishment of a performance related remuneration scheme

<b>Current Status:</b> VARIG does not have any instruments to evaluate performance (neither for managers nor for employees). Salaries are paid on a 100% fixed basis.
<b>Measure Description:</b> Determination of indicators, which will decide on the bonus to be paid, Development of a target setting system in order to evaluate performance, Negotiation with the unions (if necessary), Implementation of performance based remuneration
<b>Future Status:</b> Existence and application of collective agreements that ensures VARIG's national and international competitiveness
<b>Cost Saving/Revenue Generation Potential:</b> In order to establish an interdependency between personal salary and the personal / corporate performance, parts of the fixed salary should be transferred into a performance related salary component. This might be particularly valid for employees with high salaries (i.e. management, pilots) and high influence on the corporate success. This means that VARIG will only pay the bonus, if determined goals are achieved. The potential for saving money depends on the parameters of the defined remuneration scheme.  Example: 15% of the fixed salaries will be transformed into a performance related component of all employees with a monthly salary of more than 10.000 R\$ <b>Potential savings of █████ US\$ per year including employer's contribution (in case that no goal is fulfilled / reached)</b>
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> Depending on the complexity of the underlying target setting system
<b>Required Manpower input for the project:</b> VARIG: TBD; External assistance is recommended
<b>Preconditions / Dependencies:</b> For the development of the remuneration scheme aspects such as fairness, motivation and target orientation have to taken into consideration. The transformation of salary components might be a complementary alternative for salary decreases. Strong link to Measure HR 07
<b>Opportunities / Risks:</b> Resistance from affected employees and unions, A performance related remuneration system can be seen as an alternative to definite salary reductions





### 13.2.9 HR 09: Establishment of a "suggestion box program"

<b>Current Status:</b> Currently employees are neither systematically asked nor motivated to identify cost reduction / revenue generation potential due to a lack of leadership, reward and recognition. Consequently the experience and expertise of employees is not used to full extent.
<b>Measure Description:</b> Management should initiate a suggestion box program, to motivate employees to provide suggestions to improve efficiency and quality.
<b>Future Status:</b> Establishment of continuous improvement processes in order to reduce costs and to improve quality, efficiency and safety.
<b>Cost Saving/Revenue Generation Potential:</b> Employees of VARIG have to be motivated to identify and realize improvement potential. To ensure this on a continuous base it is recommended to establish a Suggestions Box Program.
<b>The achieved savings depend on the employees' suggestions</b>
<b>Required investment (Cash-Outflow):</b> None
<b>Required time for implementation / Required time for first results:</b> 3 months
<b>Required Manpower input for the project:</b> VARIG: TBD External assistance is recommended
<b>Preconditions / Dependencies:</b> In contrast to corporate-wide cost reduction projects the suggestion box program should motivate employees by rewarding valuable suggestions.
<b>Opportunities / Risks:</b> People will not be motivated to identify and suggest improvements due to an inconsistent suggestion box program.

### 13.2.10 HR 10: Re-establishment of an early retirement scheme

<b>Current Status:</b> VARIG has established early retirement schemes, which are offered to certain target groups. Due to the financially difficult situation, the retirement scheme was temporarily suspended.
<b>Measure Description:</b> Redefinition of the early retirement scheme and information of the employees concerned by the scheme by direct communication
<b>Future Status:</b> Reduction of workforce
<b>Cost Saving/Revenue Generation Potential:</b> The current early retirement schemes should be adjusted and be offered to all employees equal and older than 55 years (93 employees). All other restrictions of the current early retirement schemes should be neglected. <b>Potential savings of ■■■ US\$ per year including employer's contribution</b>
<b>Required investment (Cash-Outflow):</b> ■■■ US\$ corporate obligations towards the employee including 140% FGTS
<b>Required time for implementation / Required time for first results:</b> 1 month
<b>Required Manpower input for the project:</b> VARIG: TBD External assistance is recommended
<b>Preconditions / Dependencies:</b> The early retirement scheme has to be actively communicated to addressed employees, the scheme has to be attractive to make for people leave VARIG
<b>Opportunities / Risks:</b> Non communication of early retirement scheme, Employees do not accept the conditions of the early retirement scheme

### 13.2.11 HR 11: Cockpit-, Cabin- and Ground support crew selection process

<b>Current Status:</b> <ul style="list-style-type: none"> <li>No professional selection of cockpit &amp; cabin crew members</li> <li>Unidentified failure rate</li> <li>Unidentified failure cost</li> <li>Quality impact</li> </ul>
<b>Measure Description:</b> Determination of anticipated level of assistance of professionals in any flight / ground crew selection process
<b>Future Status:</b> <ul style="list-style-type: none"> <li>Considerable reduction of failure rates</li> <li>Considerable reduction of failure cost</li> <li>Considerable increase of Quality level</li> </ul>
<b>Cost Saving / Revenue Generation Potential:</b>  US\$ failure cost reduction An even higher potential on quality improvement can be expected.
<b>Required investment (Cash-Outflow):</b>  US\$ one time costs for professional selection assistance, i.e. DLR
<b>Required time for implementation:</b> 2 – 4 months <b>Required time for first results:</b> 6 months
<b>Required Manpower input for the project:</b> VARIG: 50 man days External assistance is recommended
<b>Preconditions / Dependencies:</b> None
<b>Opportunities:</b> <ul style="list-style-type: none"> <li>cost savings</li> <li>quality improvement</li> </ul> <b>Risks:</b> None

### 13.2.12 HR 12: Training Staff Selection Process

<b>Current Status:</b> Identification of improvement potential regarding professional selection of training staff
<b>Measure Description:</b> Tailored selection process for training staff in cockpit-, cabin- and ground staff trainers
<b>Future Status:</b> <ul style="list-style-type: none"> <li>▪ Undisturbed multiplication of standards in operation</li> <li>▪ Improvement of quality in various operation departments</li> <li>▪ Reduction of failure cost</li> </ul>
<b>Cost Saving / Revenue Generation Potential:</b> TBD
<b>Required investment (Cash-Outflow):</b> ■ US\$ for professional selection assistance; i.e. DLR.
<b>Required time for implementation:</b> 3 – 6 months
<b>Required time for first results:</b> 6 months
<b>Required Manpower input for the project:</b> VARIG: 30 man days External assistance is recommended
<b>Preconditions / Dependencies:</b> None
<b>Opportunities:</b> <ul style="list-style-type: none"> <li>▪ failure cost reduction</li> <li>▪ quality improvement</li> </ul>
<b>Risks:</b> None

### 13.3 Additional Information

The backlog of payments to the INSS (social security) has not been considered in the calculations of all HR related measures. This backlog is not communicated up to now.

## *14. Operating Profit & Loss Projection*

### 14.1 Methodology

During the seven weeks following the publication of the Court's acceptance of VARIG's request for protection under the Brazilian recovery law until the date of submittal of the recovery plan, Lufthansa Consulting carried out a high level analysis of VARIG's current performance and identified optimization potentials for the areas mentioned above.

For establishing the recovery plan and the projected operating results covering the five years of this business plan, the following information was used:

- VARIG's past annual reports
- VARIG's route profitability analysis for the years of 2004
- VARIG's route profitability analysis for January to June 2005
- VARIG's budget 2005
- VARIG's updated budget 2005 (as of August 2005)
- Lufthansa Consulting's high level analysis conducted between July 13<sup>th</sup> and August 26<sup>th</sup>, 2005

On this base, several measures for improving VARIG's operating result and achieving a sustainable positive operating income were identified. The identification and quantification of these measures was conducted on a high level in order to demonstrate VARIG's future viability.

The estimated impact of these improvement measures deemed necessary for VARIG on VARIG's operating result have also been calculated based on high-level analysis and industry comparisons.

Following this high level analysis, further detailed and in-depth studies for each of the subjects identified as essential for VARIG's sustained viability have to be carried out. The measures identified have to be integrated into an overall company strategic plan, which defines the general goals and objectives that are linked to the measures identified. In this context, the necessary action plans have to be systematically developed and implemented.

Several of the measures identified on a high level as necessary for the survival and viability of VARIG necessitate a complete change of the company's current policies, structure and processes.

Therefore, for the further detailed evaluation of the necessary measures, development of subsequent action plans, and implementation of the optimization measures, Lufthansa Consulting strongly recommends continued external assistance.

## 14.2 Assumptions and critical issues

For projecting VARIG's operating result for the years 2006 to 2010, the main assumptions are described below. Further details concerning the underlying assumptions, the methodology used and the results of the calculations are presented in the annexes.

In order to achieve the results projected, the implementation of the following measures is critical:

- Repair of the aircraft currently grounded due to lack of spare parts etc.
- Restructuring of VARIG's route network from March 2006
- Establishment of a clear hub structure in São Paulo (GRU)
- Move of the operational base to São Paulo
- Re-location of about 320 cabin crew and 60 cockpit crew to São Paulo
- Reduction of work force to match fleet size and achieve a competitive level of efficiency
- Re-negotiation of lease rates in 2005/2006
- No increase of cost in 2006
- Introduction of fuel conservation measures
- Fleet harmonization and modernization

The financial projections for VARIG have been developed under the assumption of a continued high growth of domestic traffic within Brazil, although with declining growth rates compared to 2004 and 2003, and of modest economic growth in the countries to which VARIG is operating within the next five years. VARIG's market share in the dynamic Brazilian market is assumed to decrease slightly due to the intensifying local competition, whereas in international markets it will increase due to increased capacity and aggressive positioning. The effect of the improvement measures included in the operating and financial result is calculated on conservative assumptions.

Main underlying assumptions for the calculation of the operating result are:

- All improvement measures identified by Lufthansa Consulting are implemented during the period of the business plan
- Personnel reduction starts in 2005/2006
- ██████ of current cockpit crew is reduced in 2006 to accommodate for the size of the fleet and the efficiency improvement by the GRU hub and flight operations base
- The average jet fuel price increases by 2% per year on 2005 levels, from an average (domestic and international) of 0,60US\$ per liter in 2005 to 0,66US\$ per liter in 2010.

- The net passenger yield in US cents for the Brazilian market develops according to Brazilian GDP development, inflation rate, currency exchange rate and a yield erosion of 2% in 2006 and 2007 and of 3% from 2008 to 2010 due to rising competitive pressure.
- The net passenger yield in US cents for the international market develops according to the inflation rate development and a 1% annual increase due to improved product and competitive position.
- The point of sales structure shifts from currently 60% of all revenue originating in Brazil and 40% abroad to 56% originating in Brazil and 44% abroad

With these assumptions incorporated in the business plan and after the implementation of all measures identified, VARIG's operating margin has the potential to increase from currently 0,7% (January-June 2005) to 5,2% after the first full year of operation of the new structure (assumed to be 2006), and to about 12% after five years. In order to achieve these results, however, a systematic planning, budgeting, and controlling system with strict revenue and cost control has to be implemented.

### 14.3 Operating Result Projection

After implementation of all improvement measures identified, within the time frame covered in this business plan, VARIG's operating result has the potential to develop as shown in the following table.

Table 2: VARIG operating result projection by Lufthansa Consulting

[illegible]

Source: Lufthansa Consulting

Depending on the outcome of the subsequent discussion with creditors, potential investors and banks, this business plan should be updated in 2006.

The successful achievement of the targets described above depends on the systematic and professional implementation of the measures identified. The next steps include:

- Analyze further details of proposed measures,
- Set-up action plans, time frames and responsibilities,
- Implement improvement measures.

This requires a systematic and integrated approach, which is recommended to go hand-in-hand with external professional support.




## 15. Annexes

### 15.1 Annex 1 – VARIG Route Profitability Analysis 2004 per area


### 15.2


## Annex 2 – VARIG Route Profitability Analysis January to June 2005 per area

Area	Jan	Feb	Mar	Apr	May	Jun	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	Q41	Q42	Q43	Q44	Q45	Q46	Q47	Q48	Q49	Q50	Q51	Q52	Q53	Q54	Q55	Q56	Q57	Q58	Q59	Q60	Q61	Q62	Q63	Q64	Q65	Q66	Q67	Q68	Q69	Q70	Q71	Q72	Q73	Q74	Q75	Q76	Q77	Q78	Q79	Q80	Q81	Q82	Q83	Q84	Q85	Q86	Q87	Q88	Q89	Q90	Q91	Q92	Q93	Q94	Q95	Q96	Q97	Q98	Q99	Q100	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q108	Q109	Q110	Q111	Q112	Q113	Q114	Q115	Q116	Q117	Q118	Q119	Q120	Q121	Q122	Q123	Q124	Q125	Q126	Q127	Q128	Q129	Q130	Q131	Q132	Q133	Q134	Q135	Q136	Q137	Q138	Q139	Q140	Q141	Q142	Q143	Q144	Q145	Q146	Q147	Q148	Q149	Q150	Q151	Q152	Q153	Q154	Q155	Q156	Q157	Q158	Q159	Q160	Q161	Q162	Q163	Q164	Q165	Q166	Q167	Q168	Q169	Q170	Q171	Q172	Q173	Q174	Q175	Q176	Q177	Q178	Q179	Q180	Q181	Q182	Q183	Q184	Q185	Q186	Q187	Q188	Q189	Q190	Q191	Q192	Q193	Q194	Q195	Q196	Q197	Q198	Q199	Q200	Q201	Q202	Q203	Q204	Q205	Q206	Q207	Q208	Q209	Q210	Q211	Q212	Q213	Q214	Q215	Q216	Q217	Q218	Q219	Q220	Q221	Q222	Q223	Q224	Q225	Q226	Q227	Q228	Q229	Q230	Q231	Q232	Q233	Q234	Q235	Q236	Q237	Q238	Q239	Q240	Q241	Q242	Q243	Q244	Q245	Q246	Q247	Q248	Q249	Q250	Q251	Q252	Q253	Q254	Q255	Q256	Q257	Q258	Q259	Q260	Q261	Q262	Q263	Q264	Q265	Q266	Q267	Q268	Q269	Q270	Q271	Q272	Q273	Q274	Q275	Q276	Q277	Q278	Q279	Q280	Q281	Q282	Q283	Q284	Q285	Q286	Q287	Q288	Q289	Q290	Q291	Q292	Q293	Q294	Q295	Q296	Q297	Q298	Q299	Q300	Q301	Q302	Q303	Q304	Q305	Q306	Q307	Q308	Q309	Q310	Q311	Q312	Q313	Q314	Q315	Q316	Q317	Q318	Q319	Q320	Q321	Q322	Q323	Q324	Q325	Q326	Q327	Q328	Q329	Q330	Q331	Q332	Q333	Q334	Q335	Q336	Q337	Q338	Q339	Q340	Q341	Q342	Q343	Q344	Q345	Q346	Q347	Q348	Q349	Q350	Q351	Q352	Q353	Q354	Q355	Q356	Q357	Q358	Q359	Q360	Q361	Q362	Q363	Q364	Q365	Q366	Q367	Q368	Q369	Q370	Q371	Q372	Q373	Q374	Q375	Q376	Q377	Q378	Q379	Q380	Q381	Q382	Q383	Q384	Q385	Q386	Q387	Q388	Q389	Q390	Q391	Q392	Q393	Q394	Q395	Q396	Q397	Q398	Q399	Q400	Q401	Q402	Q403	Q404	Q405	Q406	Q407	Q408	Q409	Q410	Q411	Q412	Q413	Q414	Q415	Q416	Q417	Q418	Q419	Q420	Q421	Q422	Q423	Q424	Q425	Q426	Q427	Q428	Q429	Q430	Q431	Q432	Q433	Q434	Q435	Q436	Q437	Q438	Q439	Q440	Q441	Q442	Q443	Q444	Q445	Q446	Q447	Q448	Q449	Q450	Q451	Q452	Q453	Q454	Q455	Q456	Q457	Q458	Q459	Q460	Q461	Q462	Q463	Q464	Q465	Q466	Q467	Q468	Q469	Q470	Q471	Q472	Q473	Q474	Q475	Q476	Q477	Q478	Q479	Q480	Q481	Q482	Q483	Q484	Q485	Q486	Q487	Q488	Q489	Q490	Q491	Q492	Q493	Q494	Q495	Q496	Q497	Q498	Q499	Q500	Q501	Q502	Q503	Q504	Q505	Q506	Q507	Q508	Q509	Q510	Q511	Q512	Q513	Q514	Q515	Q516	Q517	Q518	Q519	Q520	Q521	Q522	Q523	Q524	Q525	Q526	Q527	Q528	Q529	Q530	Q531	Q532	Q533	Q534	Q535	Q536	Q537	Q538	Q539	Q540	Q541	Q542	Q543	Q544	Q545	Q546	Q547	Q548	Q549	Q550	Q551	Q552	Q553	Q554	Q555	Q556	Q557	Q558	Q559	Q560	Q561	Q562	Q563	Q564	Q565	Q566	Q567	Q568	Q569	Q570	Q571	Q572	Q573	Q574	Q575	Q576	Q577	Q578	Q579	Q580	Q581	Q582	Q583	Q584	Q585	Q586	Q587	Q588	Q589	Q590	Q591	Q592	Q593	Q594	Q595	Q596	Q597	Q598	Q599	Q600	Q601	Q602	Q603	Q604	Q605	Q606	Q607	Q608	Q609	Q610	Q611	Q612	Q613	Q614	Q615	Q616	Q617	Q618	Q619	Q620	Q621	Q622	Q623	Q624	Q625	Q626	Q627	Q628	Q629	Q630	Q631	Q632	Q633	Q634	Q635	Q636	Q637	Q638	Q639	Q640	Q641	Q642	Q643	Q644	Q645	Q646	Q647	Q648	Q649	Q650	Q651	Q652	Q653	Q654	Q655	Q656	Q657	Q658	Q659	Q660	Q661	Q662	Q663	Q664	Q665	Q666	Q667	Q668	Q669	Q670	Q671	Q672	Q673	Q674	Q675	Q676	Q677	Q678	Q679	Q680	Q681	Q682	Q683	Q684	Q685	Q686	Q687	Q688	Q689	Q690	Q691	Q692	Q693	Q694	Q695	Q696	Q697	Q698	Q699	Q700	Q701	Q702	Q703	Q704	Q705	Q706	Q707	Q708	Q709	Q710	Q711	Q712	Q713	Q714	Q715	Q716	Q717	Q718	Q719	Q720	Q721	Q722	Q723	Q724	Q725	Q726	Q727	Q728	Q729	Q730	Q731	Q732	Q733	Q734	Q735	Q736	Q737	Q738	Q739	Q740	Q741	Q742	Q743	Q744	Q745	Q746	Q747	Q748	Q749	Q750	Q751	Q752	Q753	Q754	Q755	Q756	Q757	Q758	Q759	Q760	Q761	Q762	Q763	Q764	Q765	Q766	Q767	Q768	Q769	Q770	Q771	Q772	Q773	Q774	Q775	Q776	Q777	Q778	Q779	Q780	Q781	Q782	Q783	Q784	Q785	Q786	Q787	Q788	Q789	Q790	Q791	Q792	Q793	Q794	Q795	Q796	Q797	Q798	Q799	Q800	Q801	Q802	Q803	Q804	Q805	Q806	Q807	Q808	Q809	Q810	Q811	Q812	Q813	Q814	Q815	Q816	Q817	Q818	Q819	Q820	Q821	Q822	Q823	Q824	Q825	Q826	Q827	Q828	Q829	Q830	Q831	Q832	Q833	Q834	Q835	Q836	Q837	Q838	Q839	Q840	Q841	Q842	Q843	Q844	Q845	Q846	Q847	Q848	Q849	Q850	Q851	Q852	Q853	Q854	Q855	Q856	Q857	Q858	Q859	Q860	Q861	Q862	Q863	Q864	Q865	Q866	Q867	Q868	Q869	Q870	Q871	Q872	Q873	Q874	Q875	Q876	Q877	Q878	Q879	Q880	Q881	Q882	Q883	Q884	Q885	Q886	Q887	Q888	Q889	Q890	Q891	Q892	Q893	Q894	Q895	Q896	Q897	Q898	Q899	Q900	Q901	Q902	Q903	Q904	Q905	Q906	Q907	Q908	Q909	Q910	Q911	Q912	Q913	Q914	Q915	Q916	Q917	Q918	Q919	Q920	Q921	Q922	Q923	Q924	Q925	Q926	Q927	Q928	Q929	Q930	Q931	Q932	Q933	Q934	Q935	Q936	Q937	Q938	Q939	Q940	Q941	Q942	Q943	Q944	Q945	Q946	Q947	Q948	Q949	Q950	Q951	Q952	Q953	Q954	Q955	Q956	Q957	Q958	Q959	Q960	Q961	Q962	Q963	Q964	Q965	Q966	Q967	Q968	Q969	Q970	Q971	Q972	Q973	Q974	Q975	Q976	Q977	Q978	Q979	Q980	Q981	Q982	Q983	Q984	Q985	Q986	Q987	Q988	Q989	Q990	Q991	Q992	Q993	Q994	Q995	Q996	Q997	Q998	Q999	Q1000	Q1001	Q1002	Q1003	Q1004	Q1005	Q1006	Q1007	Q1008	Q1009	Q1010	Q1011	Q1012	Q1013	Q1014	Q1015	Q1016	Q1017	Q1018	Q1019	Q1020	Q1021	Q1022	Q1023	Q1024	Q1025	Q1026	Q1027	Q1028	Q1029	Q1030	Q1031	Q1032	Q1033	Q1034	Q1035	Q1036	Q1037	Q1038	Q1039	Q1040	Q1041	Q1042	Q1043	Q1044	Q1045	Q1046	Q1047	Q1048	Q1049	Q1050	Q1051	Q1052	Q1053	Q1054	Q1055	Q1056	Q1057	Q1058	Q1059	Q1060	Q1061	Q1062	Q1063	Q1064	Q1065	Q1066	Q1067	Q1068	Q1069	Q1070	Q1071	Q1072	Q1073	Q1074	Q1075	Q1076	Q1077	Q1078	Q1079	Q1080	Q1081	Q1082	Q1083	Q1084	Q1085	Q1086	Q1087	Q1088	Q1089	Q1090	Q1091	Q1092	Q1093	Q1094	Q1095	Q1096	Q1097	Q1098	Q1099	Q1100	Q1101	Q1102	Q1103	Q1104	Q1105	Q1106	Q1107	Q1108	Q1109	Q1110	Q1111	Q1112	Q1113	Q1114	Q1115	Q1116	Q1117	Q1118	Q1119	Q1120	Q1121	Q1122	Q1123	Q1124	Q1125	Q1126	Q1127	Q1128	Q1129	Q1130	Q1131	Q1132	Q1133	Q1134	Q1135	Q1136	Q1137	Q1138	Q1139	Q1140	Q1141	Q1142	Q1143	Q1144	Q1145	Q1146	Q1147	Q1148	Q1149	Q1150	Q1151	Q1152	Q1153	Q1154	Q1155	Q1156	Q1157	Q1158	Q1159	Q1160	Q1161	Q1162	Q1163	Q1164	Q1165	Q1166	Q1167	Q1168	Q1169	Q1170	Q1171	Q1172	Q1173	Q1174	Q1175	Q1176	Q1177	Q1178	Q1179	Q1180	Q1181	Q1182	Q1183	Q1184	Q1185	Q1186	Q1187	Q1188	Q1189	Q1190	Q1191	Q1192	Q1193	Q1194	Q1195	Q1196	Q1197	Q1198	Q1199	Q1200	Q1201	Q1202	Q1203	Q1204	Q1205	Q1206	Q1207	Q1208	Q1209	Q1210	Q1211	Q1212	Q1213	Q1214	Q1215	Q1216	Q1217	Q1218	Q1219	Q1220	Q1221	Q1222	Q1223	Q1224	Q1225	Q1226	Q1227	Q1228	Q1229	Q1230	Q1231	Q1232	Q1233	Q1234	Q1235	Q1236	Q1237	Q1238	Q1239	Q1240	Q1241	Q1242	Q1243	Q1244	Q1245	Q1246	Q1247	Q1248	Q1249	Q1250	Q1251	Q1252	Q1253	Q1254	Q1255	Q1256	Q1257	Q1258	Q1259	Q1260	Q1261	Q1262	Q1263	Q1264	Q1265	Q1266	Q1267	Q1268	Q1269	Q1270	Q1271	Q1272	Q1273	Q1274	Q1275	Q1276	Q1277	Q1278	Q1279	Q1280	Q1281	Q1282	Q1283	Q1284	Q1285	Q1286	Q1287	Q1288	Q1289	Q1290	Q1291	Q1292	Q1293	Q1294	Q1295	Q1296	Q1297	Q1298	Q1299	Q1300	Q1301	Q1302	Q1303	Q1304	Q1305	Q1306	Q1307	Q1308	Q1309	Q1310	Q1311	Q1312	Q1313	Q1314	Q1315	Q1316	Q1317	Q1318	Q1319	Q1320	Q1321	Q1322	Q1323	Q1324	Q1325	Q1326	Q1327	Q1328	Q1329
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[illegible]

### 15.3 Annex 3 – VARIG Route Profitability Analysis Jan to June 2005 and LCG projection July to December 2005

[illegible]

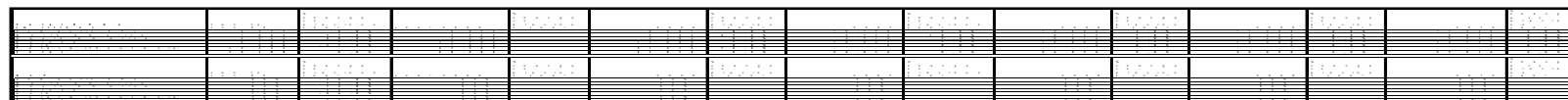
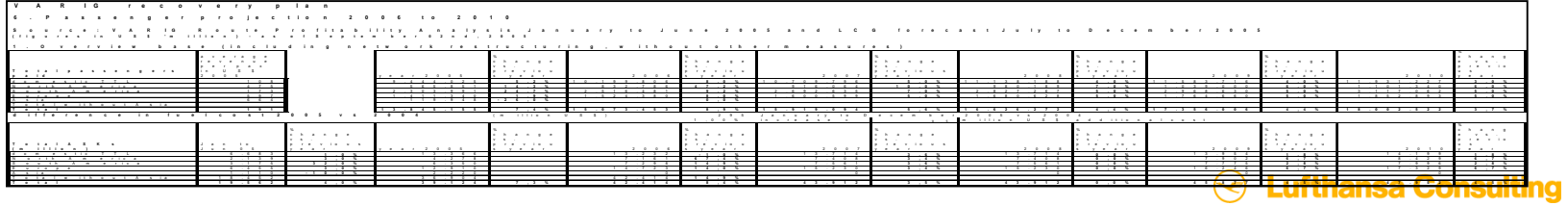
#### 15.4 Annex 4 – VARIG Route Profitability Analysis Jan to June 2005 and LCG projection July to December 2005

[illegible]

[illegible]

## 15.5 Annex 5 – Assumptions for operating result projection 2006 to 2010

[illegible]

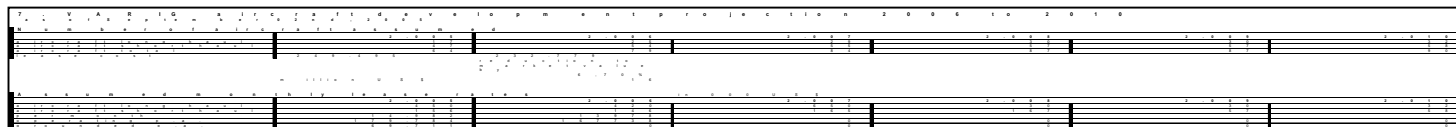


15.6 Annex 6 – Passenger projection 2006 to 2010





## 15.7 Annex 7 – VARIG aircraft development projection 2006 to 2010



## 15.8 Annex 8 – Summary of Measures, as of report delivered September 5th, 2005

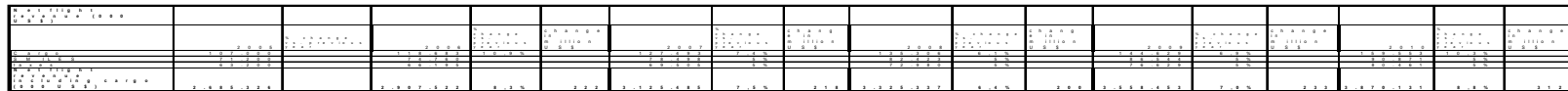
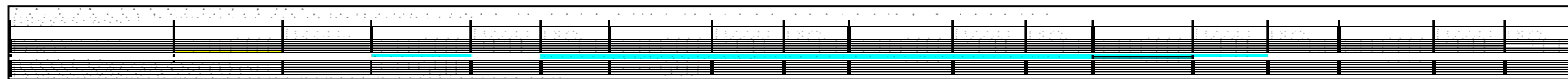
T. 1. V. A. R. I. G. – U. S. I. C. – U. S. I. T. I. O. N. – P. R. O. J. E. C. T. I. O. N. – 2. 0. 0. 5. 1. 0. 2. 0. 1. 0.	
M. I. T. T. I. O. N. – U. S. I. T. I. O. N. – P. R. O. J. E. C. T. I. O. N. – 2. 0. 0. 5. 1. 0. 2. 0. 1. 0.	

### 15.9 Annex 9 – Passenger revenue projection 2006 to 2010 before revenue enhancing measures

Table 1: Summary of data for various countries and years.										
Country	Year	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Value 8	Value 9
USA	2010	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6
Canada	2010	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4
Mexico	2010	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3
Brazil	2010	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Argentina	2010	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Colombia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Germany	2010	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9
France	2010	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6
UK	2010	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6
Italy	2010	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4
Spain	2010	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2
Netherlands	2010	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0
Belgium	2010	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Austria	2010	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Sweden	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Denmark	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Finland	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Ireland	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Portugal	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Greece	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Cyprus	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Malta	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Slovakia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Czechia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Slovenia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Hungary	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Poland	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Romania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Bulgaria	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Croatia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Serbia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Bosnia and Herzegovina	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Montenegro	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Albania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Moldova	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Ukraine	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Belarus	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Lithuania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Latvia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Estonia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Finland	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
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France	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
UK	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Italy	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Spain	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Portugal	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Greece	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Cyprus	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Malta	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Slovakia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
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Slovenia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Hungary	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Poland	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Romania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Bulgaria	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Croatia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Serbia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Bosnia and Herzegovina	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Montenegro	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Albania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Moldova	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Ukraine	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Belarus	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Lithuania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Latvia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Estonia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Finland	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
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Denmark	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Netherlands	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
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Germany	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
France	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
UK	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Italy	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Spain	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Portugal	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Greece	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
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Bulgaria	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
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Albania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
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Ukraine	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Belarus	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Lithuania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Latvia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Estonia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Finland	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Sweden	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Denmark	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Netherlands	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Belgium	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
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Germany	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
France	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
UK	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Italy	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Spain	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Portugal	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Greece	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Cyprus	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Malta	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Slovakia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Czechia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Slovenia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Hungary	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Poland	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Romania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Bulgaria	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Croatia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Serbia	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Bosnia and Herzegovina	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Montenegro	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Albania	2010	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Moldova	2010	0.1	0.2	0.3	0.4					



# 15.10 Annex 10 – Passenger revenue projection 2006 to 2010 after revenue enhancing measures



## 15.11 Annex 11 – Operating Result Projection 2006 to 2010, as of September 9th, 2005

VARIG recovery plan 11. Business Plan 2006 to 2010 OPERATING RESULTS PROJECTIONS as of September 9th, 2005		DOMESTIC + INTERNATIONAL					IN US\$(000)
cargo calculated according to VARIG route profitability model AND aliguel with belly lease rates		2005	2006	2007	2008	2009	2010
passengers paid		13.845.155	15.073.453	15.919.094	16.626.272	17.356.006	18.002.522
% change vs previous year			8,9%	5,6%	4,4%	4,4%	3,7%
SLF		75%	73%	75%	79%	79%	79%
FLIGHT REVENUE		2.685.326	2.907.522	3.125.485	3.325.337	3.558.453	3.870.131
Net PASSENGER		2.570.326	2.788.839	2.997.991	3.190.031	3.413.825	3.710.578
Net CARGO		107.000	118.683	127.493	135.306	144.629	159.553
TAXES		63.200	66.195	69.505	72.980	76.629	80.461
SMILES		71.200	74.760	78.498	82.423	86.544	90.871
NET FLIGHT REVENUE		2.685.326	2.916.087	3.134.478	3.334.780	3.568.368	3.880.542
% change vs previous year		25,3%	8,6%	7,5%	6,4%	7,0%	8,7%
FLIGHT DIRECT COST		1.709.078	1.812.894	1.932.823	1.980.954	2.098.396	2.237.817
AIRCRAFTS		1.447.252	1.525.403	1.612.849	1.635.375	1.730.612	1.839.004
FUEL		947.308	984.931	1.024.571	1.036.063	1.104.060	1.177.086
MAINTENANCE		259.956	282.568	311.548	311.548	325.486	340.210
MAINTENANCE RESERVE	hours flown	77.737	87.700	95.605	98.985	98.985	105.584
TEMPORARY LEASE		0	0				
LANDING FEES	number of landings, 2007 ff. weighted average inflation	49.383	51.804	55.219	57.553	61.608	65.890
FACILITIES IN ROUTES	number of landings, 2007 ff. weighted average inflation	112.867	118.400	125.905	131.226	140.473	150.235
AIRCRAFT OPERATION		84.585	95.425	108.078	117.382	123.251	137.778
TECHNICAL CREW	hours flown, 2007 ff inflation Brazil	30.618	34.542	38.189	41.477	43.551	48.684
FLIGHT ATTENDANTS	hours flown, 2007 ff inflation Brazil	53.967	60.883	69.889	75.905	79.700	89.094
FLIGHT SERVICE		177.242	192.066	211.895	228.197	244.532	261.035
PASSENGER SERVICE	passenger number, 2007 ff weighted average inflation	111.148	120.108	132.555	144.294	157.051	169.638
HANDLING		66.094	71.958	79.340	83.903	87.481	91.397
PASSENGER AND BAGGAGE	passenger number, 2007 ff weighted average inflation	66.094	71.958	79.340	83.903	87.481	91.397
CARGO		0	0				
CONTRIBUTION MARGIN (DIRECT COST)		976.248	1.103.193	1.201.655	1.353.826	1.469.972	1.642.724
% OVER NET FLIGHT REVENUE		36%	38%	38%	41%	41%	42%

<b>FLIGHT STRUCTURAL COSTS</b>		<b>697.310</b>	<b>715.627</b>	<b>752.443</b>	<b>850.654</b>	<b>876.288</b>	<b>925.666</b>
<b>AIRCRAFTS</b>		<b>355.380</b>	<b>389.830</b>	<b>410.211</b>	<b>495.241</b>	<b>499.980</b>	<b>521.924</b>
DEPRECIATION	aircraft development	10.982	10.982	11.677	12.094	12.094	12.511
MAINTENANCE	aircraft development, 2007 ff. weighted average inflation	88.515	139.765	95.299	102.874	107.261	115.548
OPERATIONAL LEASES		249.495	232.695	296.528	373.230	373.230	386.100
INSURANCE		6.389	6.389	6.708	7.044	7.396	7.765
<b>AIRCRAFT STRUCTURAL OPERATION</b>		<b>190.950</b>	<b>161.950</b>	<b>169.207</b>	<b>179.681</b>	<b>192.831</b>	<b>213.374</b>
TECHNICAL CREW	aircraft development, 2007 ff. inflation Brazil	101.082	74.882	83.841	90.982	95.531	106.791
FLIGHT ATTENDANTS	2006 stable, 2007 ff ASK, inflation Brazil	89.868	87.068	85.366	88.699	97.300	106.583
<b>FLIGHT STRUCTURAL SERVICE</b>		<b>150.980</b>	<b>163.847</b>	<b>173.025</b>	<b>175.733</b>	<b>183.476</b>	<b>190.367</b>
PASSENGER DISPATCHED	passenger number	65.690	71.517	75.530	78.885	82.347	85.415
CARGO DISPATCHED		0	0	0	0	0	0
PASSENGER SERVICE	passenger number	13.967	15.206	16.059	16.772	17.508	18.161
DISTRIBUTION SYSTEM	passenger number	67.075	72.633	76.708	75.115	78.412	81.333
OTHER COST		4.249	4.491	4.729	4.961	5.209	5.459
<b>CONTRIBUTION MARGIN</b>		<b>278.938</b>	<b>387.566</b>	<b>449.212</b>	<b>503.172</b>	<b>593.685</b>	<b>717.059</b>
<b>% OVER NET FLIGHT REVENUE</b>		<b>10,4%</b>	<b>13,3%</b>	<b>14,3%</b>	<b>15,1%</b>	<b>16,6%</b>	<b>18,5%</b>
<b>CENTRALIZED STRUCTURAL COST + BRANCHES</b>		<b>241.262</b>	<b>236.605</b>	<b>228.284</b>	<b>228.999</b>	<b>238.625</b>	<b>256.209</b>
<b>BRANCHES</b>		<b>69.841</b>	<b>62.258</b>	<b>68.402</b>	<b>70.736</b>	<b>76.857</b>	<b>82.997</b>
PASSENGER	2006 s.q., 2007ff: passengers, inflation NAFTA	59.863	52.921	58.541	60.438	66.106	71.846
CARGO		0	0	0	0	0	0
ADMINISTRATION	2006 s.q., 2007ff: passengers	9.978	9.337	9.861	10.299	10.751	11.151
<b>CENTRALIZED</b>		<b>171.421</b>	<b>174.347</b>	<b>159.882</b>	<b>158.263</b>	<b>161.768</b>	<b>173.211</b>
FLIGHT OPERATION	2006 s.q., 2007ff: ASK	21.759	33.668	24.157	24.157	25.238	26.379
AIRPORTS	2006 s.q., 2007ff: number flights, weighted average inflation	5.056	5.056	5.390	5.617	6.013	6.431
MARKETING	2006 s.q., 2007ff: passengers, inflation Brazil	32.857	30.216	29.506	28.412	29.659	30.763
ADMINISTRATION	2006 s.q., 2007ff: passengers, inflation Brazil	81.898	76.457	72.721	70.281	69.690	75.756
COMMERCIAL	2006 s.q., 2007ff: passengers, inflation Brazil	29.850	28.950	28.109	29.796	31.169	33.882
PASSENGER	2006 s.q., 2007ff: passengers, inflation Brazil	29.850	28.950	28.109	29.796	31.169	33.882
CARGO		0	0	0	0	0	0
OTHER COST		0	0	0	0	0	0
<b>TOTAL COST</b>		<b>2.647.650</b>	<b>2.765.126</b>	<b>2.913.550</b>	<b>3.060.607</b>	<b>3.213.309</b>	<b>3.419.692</b>
<b>% change vs previous year</b>		<b>28,0%</b>	<b>4,4%</b>	<b>5,4%</b>	<b>5,0%</b>	<b>5,0%</b>	<b>6,4%</b>
<b>net operating income</b>		<b>37.676</b>	<b>150.961</b>	<b>220.928</b>	<b>274.173</b>	<b>355.060</b>	<b>460.850</b>
<b>% NET INCOME / TOTAL NET FLIGHT REVENUE</b>		<b>1,4%</b>	<b>5,2%</b>	<b>7,0%</b>	<b>8,2%</b>	<b>10,0%</b>	<b>11,9%</b>

Business Plan 2006 to 2010 ROUTES OPERATING RESULT PROJECTION								
			2005	2006	2007	2008	2009	2010
STATISTIC DATA								
HOURS FLOWN			273.196,04	308.207,24	335.988,99	347.866,36	347.866,36	371.057,45
HOURS			317.872,76					
KILOMETRES FLOWN (000)			197.935	214.198	221.816	221.816	230.316	239.261
NUMBER LANDINGS			150.720	158.110	161.274	161.274	165.577	170.051
FUEL CONSUMED (LITRE) (000)			1.576.105	1.662.966	1.687.301	1.687.301	1.761.967	1.840.828
SEAT/KM OFFERED ASK (000)			39.124.000	42.414.158	43.912.295	43.912.295	45.876.749	47.952.133
PASS/KM CARRIED PAID RPK (000)			29.205.750	31.013.863	32.913.891	34.572.266	36.256.277	37.913.870
SEAT LOAD FACTOR PAID (%)			74,6%	73,1%	75,0%	78,7%	79,0%	79,1%
TON/KM OFFERED (000)			5.350.874	5.800.860	6.005.755	6.005.755	6.274.428	6.558.272
TON/KM CARRIED PAID (000)			3.196.219	3.394.095	3.602.030	3.783.519	3.967.814	4.149.218
LOAD FACTOR PAID (%)			59,7%	58,5%	60,0%	63,0%	63,2%	63,3%
COSTS PER HOUR FLOWN (000)			9,69	8,97	8,67	8,80	9,24	9,22
FLIGHT OPERATIONAL ANALYSIS								
AVERAGE COST per ASK		cost per ASK in US cents	6,77	6,52	6,63	6,97	7,00	7,13
AVERAGE REVENUE per ASK		net flight revenue per ASK in US cents	6,86	6,88	7,14	7,59	7,78	8,09
Net passenger Yield		passenger revenue/RPK in US cents	8,80	8,99	9,11	9,23	9,42	9,79
		net flight revenue/RPK in US cents	9,19	8,59	8,70	8,81	8,99	9,35
BREAK EVEN SLF %		CASK/net flight yield	73,6%	75,9%	76,2%	79,1%	77,9%	76,3%
INDICATORS	CARGO REVENUE / NET FLIGHT REVENUE		4,0%	4,1%	4,1%	4,1%	4,1%	4,1%
	PASS. REVENUE / NET FLIGHT REVENUE		95,7%	95,9%	95,9%	95,9%	95,9%	95,9%
	FLIGHT DIRECT COSTS / NET TOTAL REVENUE		64%	62%	62%	59%	59%	58%
	FLIGHT STRUCTURAL COSTS / NET TOTAL REV.		26%	25%	24%	26%	25%	24%
	CENTRAL. STRUCT. + BRANCHES / NET TOTAL REV.		9%	8%	7%	7%	7%	7%
	OPERATING MARGIN		1,4%	5,2%	7,0%	8,2%	10,0%	11,9%
	FLIGHT DIRECT COSTS / TOTAL COST		65%	66%	66%	65%	65%	65%
	FLIGHT STRUCTURAL COSTS / TOTAL COST		26%	26%	26%	28%	27%	27%
	CENTRAL. STRUCT. + BRANCHES / TOTAL COST		9%	9%	8%	7%	7%	7%
	AVERAGE PRICE FUEL - US\$ per LITRE		0,60	0,61	0,63	0,64	0,65	0,66
COSTS ANALYSIS - IN US\$								
UNIT COST								
HOURS FLOWN	TECHNICAL CREW		112,07	112,07	113,66	119,23	125,19	131,20
	FLIGHT ATTENDANTS		197,54	197,54	208,01	218,20	229,11	240,11
	FUEL		3.467,50	3.195,68	3.049,42	2.978,34	3.173,81	3.172,25
	DEPRECIATION		40,20	35,63	34,75	34,77	34,77	33,72
	MAINTENANCE		1.259,47	1.222,09	1.231,77	1.200,39	1.241,47	1.222,34
	OPERATING LEASES		913,25	755,00	882,55	1.072,91	1.072,91	1.040,54
	INSURANCE		23,38	20,73	19,97	20,25	21,26	20,93
ASK	FUEL		24,21	23,22	23,33	23,59	24,07	24,55



## 15.12 Glossary

ASK	Available Seat Kilometer
AITAL	Asociacion Internacional de Transporte Aereo Latinoamericano
AOC	Air Operator Certificate
BELF	Break-Even Load Factor
BESLF	Break-Even Seat Load Factor
CASK	Cost per ASK
FRB	Fundação Ruben Berta
IATA	International Air Transport Association
LF	Load Factor
m US\$	Million US Dollar
RASK	Revenue per ASK
RPK	Revenue Passenger Kilometer
SLF	Seat Load Factor
VARIG	VARIG S.A. Viação Aérea Rio-Grandense
VARIGLOG	VARIG Logística S.A.
VEM	VARIG Engenharia e Manutenção S.A.