The Balanced Scorecard as a Framework for Measuring International Joint Ventures Performance
The Case of the Chinese-German Joint Venture Ameco
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Abstract: International joint ventures present a factor that becomes more and more important in the commercial activities of companies. However, the development of systems for performance measurement of joint ventures remains largely unsolved. In this article, the Balanced Scorecard is adjusted to the requirements of joint ventures. This concept is especially appealing for joint ventures, because mere financial performance measurement is absolutely inadequate, if non-financial goals are pursued by the joint venture-partners. It reduces the complexity of the decision-making process by its focus on critical success factors and their clustering into four perspectives. As the utilization of synergies and soft factors like mutual trust and harmony are crucial for the success of joint ventures, the authors suggest the addition of a cooperation perspective to incorporate these issues. The concrete application and the design of the different perspectives of a Balanced Scorecard are illustrated by the example of the Chinese-German joint venture Ameco.

Key words: international joint venture; balanced scorecard; performance measurement, case study
1 Introduction

A joint venture is a contractual long-term cooperation between two or more companies in the form of a legally independent unit with equity capital. The partner firms usually not only invest capital in the cooperation but also provide other resources (like management and know-how) and they share management responsibilities as well as entrepreneurial risk. The whole of the joint venture, partner firms and the relationship between them is referred to as joint venture-system (Büchel et al., 1997, p.15). A joint venture is to be called international joint venture if at least one of the participating partner firms originates from a different country than the country of incorporation of the joint venture-unit.

The existence of joint ventures can often be attributed to their encouragement by the government and/or restrictions of other forms of ownership. Excluding these cases, the goals of joint ventures can be subdivided into two groups. The first group includes goals which can already be achieved simply by *taking in a (local) partner*, e.g. the reduction of the absolute risk of a project (Porter and Fuller, 1989, p.375f.), the restriction or elimination of competition (Porter and Fuller, 1989, p.376) or the reduction of xenophobic reactions of the population (Hennart, 1987, p.363). The second group contains goals which could be accomplished by the partners in the joint venture. These include the realization of financial returns in the parent company by dividends, license-, management- and consultancy fees as well as by designing internal transfer prices (*financial goal*) (Hatsfield and Pearce, 1994, p.423). Another important goal is the acquisition and transfer of know-how regarding technologies, markets, abilities and management techniques into the parent company (*learning goal*) (Büchel et al., 1997, p.17; Hatsfield and Pearce, 1994, p.423). For protection of the survival of the parent company it could be important to secure permanent access to resources such as raw materials, human resources and distribution channels by a joint venture (*resource protection goal*) (Porter and Fuller, 1989, p.375). In relation to these goals, the *synergy goal* is more a means, rather than an ultimate goal itself. Specifically positive synergistic effects should be created and utilized by centralization of activities as well as scale- and learning curve effects (Porter and Fuller, 1989, p.375).

2. Measuring Performance in International Joint Ventures

2.1 Requirements for a Performance Measurement in International Joint Ventures

2.1.1 Goals and Functions of Performance Measurement in International Joint Ventures
The term performance measurement describes an integrated system for performance planning and control. The aim of this system is the creation of performance transparency which is supposed to lead to continuous improvement of the joint ventures performance by improved planning- and controlling sequences (Gleich, 1997, p.115). Therefore, performance measurement generally performs coordination-, observation-, control- and diagnosis functions.

Performance measurement systems (and the incentive systems linked to them) are supposed to ensure that all decisions and actions are consistent with the joint ventures strategy and goals. This is described as the co-ordination function of performance measurement (Atkinson et al., 1997, p.31). Besides this performance measurement is meant to observe and control to what extent the results match the targets, which have been set in the planning process. In order to fulfil these two functions, the performance measurement system must be adjusted to the changing environment on a regular basis. Therefore, the third important function of performance measurement is to examine the assumptions regarding the connection between the individual processes and the strategy of the company as well as identifying new cause-and-effect relationships between processes, critical success factors and goals. By this revision and adjustment of the performance measurement system (diagnosis function), the assumptions regarding the causal links are to be improved step by step and to be continuously adjusted to the ever-changing conditions of the environment (Atkinson et al., 1997, p.33; Vokurka and Fliedner, 1995, p.38).

2.1.2. Special Features and Problems Regarding Performance Measurement in International Joint Ventures

Three special features must be considered when designing a performance measurement system in international joint ventures. In particular, these are the possibility to assess a joint venture from alternative perspectives, the influence of different national cultures on information processing and the emphasized significance of non-financial measures in an international cooperation. The cooperation of several companies in a joint venture complicates goal-related performance measurement as it can be performed generally from three different perspectives: (1) assessment of the joint venture as an independent unit, (2) performance measurement from the viewpoint of the individual partner and (3) examination of the entire joint venture-system. An evaluation of the joint venture as an independent unit is favored as the autonomy from the concrete goals of the partners increases the chances of the joint venture of survival and growth (Anderson, 1990, p.23). However, there are situations in which it seems
imaginable that the cooperation partners wish to keep the autonomy of the joint venture deliberately low. In those cases the goals from the viewpoint of the individual partner should be in the focus of performance measurement (Hatfield and Pierce, 1994, pp.424f.). This perspective is generally very important because the individual degree of goal-reaching is essential for the decision whether the joint venture will be continued or not (Büchel et al., 1997, p.202). However, in this case the relationship between the goals of the individual partners is neglected. The third perspective which assesses the entire joint venture-system is orientated especially towards that relationship. The utilization of synergies, solution of goal conflicts, the harmony between the partners and the mutual trust in the joint venture-system are in focus of the attention (Büchel et al., 1997, pp.206ff.).

In addition, the management of joint ventures is complicated due to the different national cultures (Meschi and Roger, 1994, pp.198f.; Peil-Schoeller, 1994, pp.6ff.) of the partners. Cultural differences are reflected in various areas, e.g. management conduct, planning conduct, quality assurance and incentive design (Peil-Schoeller, 1994, pp.45ff, pp.70ff, pp.79ff). The collection, processing and interpretation of the information which is of particular significance for performance measurement, may lead to culture-related distortions. As an example, unrealistic target-values may endanger the ability to perform the observation- and control task. Without taking into account cultural factors, the revealed deviations are not comparable and therefore only have little meaning (Pausenberger and Roth, 1997, p.593).

Another problem is the relevance of non-financial goals for the performance measurement in international joint ventures. Contrary to other companies, joint ventures have only method character regarding the financial figures in partner companies. The aims pursued by incorporation of joint ventures are often of non-financial nature.

2.2. Concepts of Performance Measurement in International Joint Ventures
The stability-orientated approach and the "classical" performance measurement on the basis of financial criteria are often used for performance measurement in International joint ventures. Some articles on joint venture performance measurement use the criterion of stability as indicator for the level of joint venture-success (Oesterle, 1995, p.992). Following this criterion, the stability (and the success) is greater, the longer the period until liquidation, until considerable changes in the participation quota of the partner companies occur or until a renegotiation of the joint venture-contract. However, the termination
or reorganization of a joint venture does not necessarily describe a failure. Additionally this approach is unsuitable for the control of joint ventures, as stability may (if at all) only be considered as a subsequent indicator for the joint venture's success.

Following empirical results, the measuring of financial success is widespread when evaluating joint venture-performance (Anderson, 1990, p.20). Core element of the co-ordination function is conduct guidance by provision of information that allow strategy-based decisions on all levels of the company. Particularly in blue-collar areas, financial measures have proven to be unsuitable for comprehensive and operational description of the company strategy and strategy-based control of the conduct (Nanni et al., 1990, p.41). Additionally, financial measures are usually short-term success figures (Wisner and Fawcett, 1991, p.5). A concentration on these figures may lead to neglection of the long-term goals and performance drivers (Kaplan, 1994, p.15). On the other hand financial performance measurement has the advantage that deviation analysis and plan progress control can be performed easily, because the data already exists on a monetary basis and therefore in a standardized dimension. However, it can only perform the observation- and control task in a limited way as financial deviations can often not support the decision-making process due to its high level of aggregation (Fisher, 1992, p.33; Globerson, 1985, p.643). Since non-financial factors are essential elements of cause-and-effect relationships between processes, critical success factors and final goals, it is impossible to perform the diagnosis function without additional information. Relying merely on financial information, neither no longer valid cause-and-effect relationships could be identified, nor new relationships could be developed.

The concepts based on financials are only capable to fulfil the requirements of joint venture-performance measurement in a very limited way. Additionally, it is not possible to assess joint venture-success from different perspectives, leaving the cooperative context unconsidered. At last, these instruments work with output figures that follow the input- and process figures with a significant time-lag. Therefore, not the present but the past performance is measured (Gleich, 1994, p.114; McWilliams, 1996, p.17). It is therefore necessary to look for alternative performance measurement procedures in international joint ventures.

3. Using the Balanced Scorecard Concept in International Joint Ventures

3.1. The Balanced Scorecard Concept

The Balanced Scorecard may be characterized as economical statistical data system for performance measurement and steering. It does not only contain
financial measures, but also non-financial measures. The Balanced Scorecard provides valuable performance measures (referred to as Key Performance Indicators (KPIs)). These are divided into four perspectives, of which only the financial perspective contains monetary indicators. It is supplemented by a customer perspective, a perspective of internal business processes and the learning and growth perspective (Kaplan and Norton, 1992, pp.71ff.). The financial perspective keeps its outstanding position on the level of the entire company. However, by introduction of the customer perspective and the internal business process perspective, it is emphasized, that consistent customer orientation and business processes are critical success factors (CSFs) regarding future financial performance. The perspective of the abilities of learning and growth contains measures which should indicate the company's ability to generate and utilize success potentials in the future. In Illustration 1 the connection between the individual perspectives is outlined.

Illustration 1: Typical Structure of the Balanced Scorecard

The crucial advantages of the Balanced Scorecard framework are its balance and consequent strategic orientation (Sink, 1986, p.86). With the Balanced Scorecard, performance measurement receives a fourfold balance. First of all, the financial measures are supplemented by non-financial performance indicators. Secondly, the Balanced Scorecard overcomes the purely internal focus of performance measurement, as customer- and shareholder-orientated measures are included (Karlowitsch, 1997, p.1131; Horváth and Kaufmann,
1998, p.41). Thirdly, beneath “hard” objective indicators, measures are incorporated, which base on “soft” subjective assessments (Karlowitsch, 1997, p.1131). Finally, the Balanced Scorecard integrates leading and lagging indicators, in order to create a balance of indicators for past performance and measures for the drivers of future performance (Karlowitsch, 1997, p.1131; Horváth and Kaufmann, 1998, pp.41f.). Its strategy-orientation results from the requirement to derive the individual success factors and performance indicators from the strategy and to thereby reveal cause-and-effect relationships, e.g. between leading and lagging indicators.

3.2 Adjustment of the Balanced Scorecard for Application in International Joint Ventures

In order to provide a holistic approach to performance measurement in International joint ventures, a cooperation perspective should be incorporated as an additional element of Balanced Scorecards in international joint ventures. The synergies pursued by a joint venture and basic factors like harmony of the partners (Oesterle, 1995, p.999) and mutual trust, which are critical for the success of the joint venture, are summarized in this perspective. The high strategic relevance of the cooperative context for the stability and the performance of joint ventures justifies the addition of this perspective. The basic factor harmony can be put into operational terms, for example by the number of disputes in a particular area. The complex phenomenon of trust can be registered by an index much better than by individual indicators. Besides the immediate assessments of the staff regarding their trust in the employees of the other parent company, such a trust index may contain indicators that have an influence on trust, such as openness of communication (Büchel et al., 1997, p.170): The introduction of the cooperation perspective causes a sensitization regarding the cooperative elements of joint ventures and also forces the partners to reveal the positive synergies expected from the cooperation and to put them in operational terms by using indicators. On one hand, this may contribute to prevent unrealistic expectations of individual partners regarding the expected synergistic potential. On the other hand, it may support the consistent utilization of these synergies. The other perspectives shall remain largely unchanged. However, the perspective of learning and growth should be renamed into learning- and employee perspective in order to emphasize the significance of human resources in a cooperative environment (Büchel, 1997, pp.163ff.) (see illustration 2).
3.3 Analysis of the Balanced Scorecard as Instrument for Performance Measurement in International Joint Ventures

During the *initiation phase* of a joint venture it is the main goal to find a partner who is suitable for the solution of problems or for utilization of chances. A Balanced Scorecard used in the parent company may perform a *reference function*. It is able to identify the strengths and weaknesses and thereby reveal starting-points for possible cooperations. In the *negotiation phase* it must at first be discussed if the Balanced Scorecard-concept should be used for performance measurement in the (planned) joint venture. If this has been agreed upon, the potential partners must agree on a common goal system. All success factors and performance indicators will be derived from the Balanced Scorecard-system. In this phase, the Balanced Scorecard has a *catalyst function* and ensures that the crucial goal development process receives the necessary attention (Kaplan and Norton, 1997b, p.10). In the *development phase* not only production capacities and organization are set up, at the same time performance measurement systems like the Balanced Scorecard should be designed and introduced. In this phase, the Balanced Scorecard fulfils a *communication*
function. It translates the joint venture-strategy on the top-management-level and lower hierarchy levels and makes it intelligible. During the operating phase of the joint venture, performance planning is performed by fixing target values for the individual measures, on the basis of the Balanced Scorecards. They are reference values for sub-periodical observation and control by analysis of deviation and plan progress. In order to adjust the Balanced Scorecard to the changing environmental conditions, strategic learning processes will be initiated (see illustration 3).

Illustration 3: The Performance measurement Process by a Balanced Scorecard in International Joint Ventures
The co-ordination with the Balanced Scorecard is mainly performed by the development and the communication of the Balanced Scorecard(s) on the different levels, by setting targets for the chosen indicators from the different perspectives and by linking the Balanced Scorecard with the incentive system (Kaplan and Norton, 1996a, p.80). Central prerequisite for co-ordination of the individual decisions on all levels is the connection of the indicators of the performance measurement system with the goals and the strategy of the joint ventures (Gleich, 1997, p.115; Atkinson et al., 1997, p.26). This is ensured by derivation of the joint venture-scorecard from the strategy and derivation of area-specific scorecards from the joint venture-scorecard. Particularly at the beginning of the operational phase of a joint venture, financial losses are often accepted (Oesterle, 1995, p.991) as the establishment of the middle- and long-term success potentials is emphasized in the beginning. Therefore, the financial perspective is less important in this phase. Finally, the dimension of the overall joint venture-system is incorporated and communicated to the joint venture-bearers by this newly designed cooperation perspective.

In a second step, targets value will be fixed for the individual indicators and, in case of long-term goals, they will be supplemented by milestones (Kaplan and Norton, 1996a, p.33). These target-values are the standard for measuring if each individual goal has been reached and are therefore the basis for observation and control as well as offering incentives.

In order to match the individual goals of each task-bearer with the joint venture-goals and strategy the incentive-system is integrated in the performance measurement (Gleich, 1997, p.115; Fortuin, 1998, p.6). The observation-and control task is simply a pure performance control. Through the integration of non-financial indicators into the Balanced Scorecard, problem areas may be identified easier and possibilities for corrective measures may be identified much better. As soon as the root of the problem is recognized, operative correction measures can be developed and their success can then be monitored by the Balanced Scorecard. With the help of such adjustment processes it is tried to eliminate existing differences between target- and actual performance values. This simple cybernetic feedback mechanism is referred to as single-loop-learning (Vahs, 1997, p.77). By initiating strategic feedback- and learning processes (Kaplan and Norton, 1997a, pp. 15ff.), the Balanced Scorecard performs its diagnosis function. For the lasting ability to fulfil the coordination-and control function it is important to periodically review the premises which are the basis of the Balanced Scorecard, in order to identify new cause-and-effect relationships as well as new performance indicators and to adjust the Balanced Scorecard accordingly. This learning process is called double-loop
learning (Kaplan and Norton, 1997a, pp.16f.; Kaplan and Norton, 1996b; Vahs, 1997, pp.77f.). In the Balanced Scorecard-context it can be subdivided into three phases: the examination of the premises, development of new premises and adjustment of the Balanced Scorecard.

The examination of the premises and the identification of non-conclusive cause-and-effect relationships is largely performed during observation and control by the Balanced Scorecard. Not or no longer valid respectively incomplete relationships always exist if deviations cannot be attributed to their causes on the basis of the causal connections. However, Balanced Scorecard-external information (e.g. general customer interviews, results of market research) should be included to supplement the Balanced Scorecard-internal information. An identification of new relations will hardly be practicable with the Balanced Scorecard alone, as one is forced to act outside the former premises framework. In this context it seems advisable to perform a strategic monitoring of relevant environmental factors which are independent of the Balanced Scorecard.

Due to the high degree of flexibility of the Balanced Scorecard the actual adjustment can be performed easily. However, there are re-adjustment costs associated with adequately adjusting the Balanced Scorecard. Basically, the adjustment is executed by implementation of the identified new relations and/or by utilization of new, more suitable indicators in the new, elaborated Balanced Scorecard.

Even in the termination phase each partner should perform a detailed assessment of the joint venture-success. Even though the assessed joint venture is already terminated, it is possible to gain important information for future cooperations. The data of the Balanced Scorecard can provide an essential part of the basic information for assessment and analysis. In this respect the Balanced Scorecard offers an opportunity for organizational learning.

4 Case Study Ameco

4.1 Introduction of the Chinese-German Joint Venture Ameco

The various aspects of this performance measurement framework shall now be applied to the Chinese-German joint venture Ameco. After Volkswagen in Shanghai, Ameco (Aircraft Maintenance and Engineering Corp.) is the second largest joint venture of a German group in the People's Republic of China (Kowalewsky, 1996, p.48). In August 1989, Lufthansa signed the foundation agreement of this joint venture with the country's flag-carrier Air China. Air China is involved in this joint venture with 60% and Lufthansa with 40%. At first, the lifetime of the company was set out until the year 2004. The initial
equity in the amount of US$ 88 million was invested by Air China in the form of fixed assets and by the German partner in the form of liquid funds. It is set forth in the joint venture-contract that the Board consists of an even number of board members from both sides, that the majority shareholder can not outvote the participating partner by a "multi-voting" and that Lufthansa provides the director of the company. Each important department is lead mutually by a Chinese and a German according to the so-called counterpart principle. Ameco is responsible for service and maintenance of all 55 aircrafts of the Air China fleet. A total of 42 Chinese and 25 international airlines fly to Beijing and have part of their aircrafts serviced by Ameco. The servicing includes the overhaul of the aircrafts (cell, wings and cabins), engines (complete engines or single modules) as well as equipment (undercarriage- and landing instruments).

In regular intervals, which are either statutory or have been laid down by the aircraft manufacturers, servicing and maintenance of an aircraft must be executed. Those checks are subdivided into short daily checks (Z-check), weekly servicing of the engine (service-check), different function tests according to hours flying time, which can last up to two days (A-:, B-:, C-check) and detailed controls of the complete aircraft lasting several weeks (D-Check). Like a car inspection, the annual C-check involves a list of special tasks, e.g. oil-check, check of hydraulics liquid, water- and wheel pressure. In the Z-check and service-check the problems that have occurred during the flying time will be repaired over night or between flights. For all other inspections, the airplanes must be taken out of the normal circulation. With this business, Ameco acts in a very sensitive area, the security of aviation. Until the late eighties, severe accidents have occurred regularly with Chinese airlines. Since the older aircrafts have been exchanged by a modern fleet of the manufacturers Boeing and Airbus there are considerably less crashes. Nevertheless, Air China has to suffer from this bad image for a long time.

Following an investment of DM 1.5 billion for the repair of the buildings, Ameco was able to make a profit of nearly DM 11 million in 1996 (Kowalewsky, 1996, pp.48ff.), with a profit margin of 14%. These numbers are quite impressive, especially when considering existing overcapacities. Meanwhile, Ameco accommodates the largest aircraft hangar in Asia, a building of the size of a soccer field. Currently, more than 3,800 employees among them 30 Germans work on the premises of the joint venture near the Beijing Airport. Meanwhile, the company offers the complete range of technical services for commercial aviation. Work is carried out on all common types of aircraft from Boeing to Airbus and the engine manufacturers Pratt & Whitney and Rolls-Royce. The technical staff is trained in the company's own technical training. A
university for aircraft construction has also been established together with a Chinese partner. Therefore, a completely independent system of training has been created. This is supposed not only to reduce dependencies but also to guarantee a high degree of loyalty of the employees.

Many employees from the formerly state-owned company had to be kept on the payroll. Due to lack of qualification and insufficient preparedness for risk-taking and decision-making, most employees were unable to perform demanding management tasks. The rejuvenation of the staff was supported by employing older and underqualified staff in special associated companies, e.g. a market garden. This procedure corresponds to the social-political responsibility of Ameco. Additionally, more than 2,500 company-owned flats, the establishment of nursery schools, care-taking of pensioners, canteens and a hospital are provided for the welfare of the employees (Kowalewsky, 1996, p.50).

The Chinese side had linked three conditions to the establishment of this international joint venture. The foreign partner had to invest his share in the form of liquid funds, to provide technology transfer and his management-know-how. Regarding the permission of a joint venture, the Chinese government expects an internal interest rate of 15% for the invested capital. With the joint venture, Lufthansa primarily pursued the aim of entering and developing a new market. In detail, the collection of experience in China, better assessment of the actual market potential (Trommsdorff et al., 1995, p.14) (learning goal) and the access to favorable production factors (resource protection goal) which became more and more important for the company, were pursued due to the increasing competition from low-wage-countries. With regards to this, the establishment of joint ventures may be characterized as a strategic market entry which serves the establishment of a lasting market position. The expansion of the cooperation with other Lufthansa-subsidiaries is a positive side-effect, which supports the market position of Lufthansa in China.

The on-board-meals of Air China are prepared by the Lufthansa-subsidiary LSG. Prospective Chinese pilots are trained on a flight simulator in Frankfurt. But the successful cooperation is not only limited to the flag-carrier Air China, it also has positive effects on the business with other Chinese airlines. Lufthansa pursues an extension of the cooperation beyond the agreed 15-year-duration of the contract, as actual market prognosis make the possible alternative of being paid off in the amount of its equity share unattractive. Due to large domestic distances and the growing importance of international connections, China is a very important market. For the aviation business, an average annual growth rate of 12% is expected. The increasing passenger load
implies the expected doubling of Chinese aircrafts to 1,000 within five years.

4.2 Development of a Balanced Scorecard for Ameco

4.2.1 Survey

The recommendation for the developed Balanced Scorecard is related to the entire joint venture-system which is composed of partner companies, the joint venture-unit Ameco and the relationship between the partners and the joint venture-unit. Illustration 4 provides an overview of the five dimensions of the suggested Balanced Scorecard.

Illustration 4: Balanced Scorecard for the Joint Venture-system

![Balanced Scorecard Diagram]

4.2.2 Financial Perspective

The financial perspective clarifies the monetary result expected by pursuance of the strategy. The central guideline for the goals and dimensions of the perspectives is the minimum return of 15% required for Chinese joint ventures. In this regard, the Cash Flow Return of Investment (CFROI) is recommended as standard of success: The content of the CFROI corresponds to the internal rate of return of the cash-flow profile. Due to the fact, that the Chinese Yuan has a fixed exchange rate against the US$, exchange rate problems are insignificant in this case.

The provision of a strategically favorable cost position is essential for the targeted profitability. Repeated wage and salary increases endanger the price competitiveness, while current prices are more than a third lower than in Europe. The competitive significance of the price-advantage results from the fact that
servicing- and maintenance cost of an airline with a medium fleet-size is 28% of their immediate overhead. In order to maintain this competitive advantage in comparison with European competitors, a permanently favorable cost structure is required. Therefore, the indicator "total cost per servicing hour" should be incorporated in the Balanced Scorecard. This provides equally ongoing incentives for reduction of the overhead, utilization of the capacities and increase of productivity.

Besides the cost advantage, net investments may contribute to a positive financial result in the future. The previous successful course of Ameco forbids a skimming-off of the liquid funds. On the contrary, the strong market position should be used for an expansion to related business areas, e.g. establishment of a mutual flight training center on the Chinese continent. On this matter, the investment quota as relation between net investment in fixed assets and book-value of the material assets at the beginning of the fiscal year is suggested as standard figure. Together with the indicator "total cost per servicing hour" this relation may be a possible catalyst for future profitability.

4.2.3 Customer perspective
The customer perspective is related to the relevant market- or customer segments in the area servicing and overhaul of aircrafts. It is crucial for the assertion of Ameco's market position not to be overly dependent on orders of its Chinese parent company. On this matter the proportion of external sales, i.e., the turnover realized with similar customer groups of other airlines is of particular interest. A higher proportion of orders from other airlines increases the total turnover, leads to a higher utilization of the own capacities, reduces the cost position by progressive reduction of overheads and therefore improves the financial perspective. Only if external orders are gained, the market share can be maintained lastingly, as other Chinese airlines have a higher growth of passenger numbers than Air China. In 1999, 25% of the orders were received from international customers outside Air China/Lufthansa. The proportion of foreign orders which becomes more and more important also falls within the category external sales. A more even regional distribution of the orders is an advantage regarding the risk-structure. It reduces the dependence of the Chinese aviation market. In order to reach this goal it is required that, first of all, new customers are gained. A diversification is not only advisable regarding the customer structure but also regarding the order structure. Therefore, the turnover volume from new machine types which have been included in the servicing program should be measured. The order-volume, that has been received as a result of product- and market-expansion could be covered by the
standard figure "proportion of turnover resulting from new business". As a
driver for the customer-related indicators mentioned before, the company image
of Ameco with the customers should be measured continuously. With regard to
the distinctive safety-consciousness of the passengers, it is crucial that airlines take
care of their image. If the aircrafts have been serviced by an extremely reliable
company, there are chances for a positive image transfer. This means that a
pronounced quality image of the servicing company may create additional
customer benefit for the carrier. Objective figures such as development of crash
statistics of the airlines serviced as well as subjective figures like satisfaction of
previous customers, especially external lead customers, are blended to provide
balanced information about the company image of Ameco. Another reliable
indicator for the value of the company image, is the price realized for second-
hand aircraft serviced by Ameco compared with similar aircraft serviced by
other companies.

4.2.4 Perspective of Internal Business Processes
The perspective of internal business processes requires a concentration of the
intercompany efforts on those critical processes which provide the highest
contribution to customer satisfaction and financial goals. In particular
customers expect a minimization of lay-time and workshop time. A D-check
may take 4 to 8 weeks, according to type and condition of the aircraft. As the
price for a new Boeing 747-400 is up to US$ 150 million, this causes a
considerable tying of capital. A jumbo jet that is out of operation due to a
technical failure costs the operating company more than US$ 30,000 interest
daily revenue losses not included. Aircrafts earn money in the air, not on the
ground. Therefore, performance standards regarding the time have to be
incorporated in the Balanced Scorecard, e.g. the indicators average lay-time and
rate of delays. However, the reduction of repair times requires a substantial
stock of spare parts. Ameco maintains an inventory of some 0.16m different
spares worth a total value of approximately US$ 106m. The resulting tying of
capital puts a burden on the cost structure. Therefore, the indicator "value of
spare parts in comparison to the value of the entire fleet" should be ascertained
continuously.

With regard to the cost structure the realization of productivity
progress must be monitored as well. Especially learning curve effects should
lead to savings of cost of time and cost of labor per aircraft respectively engine
serviced. On top of that comes the increasingly better trained personnel which is
able to make use of new technologies. Performance increases can be measured
by the indicator "labor days per servicing" for a particular machine- or turbine
type. Then it is possible to calculate the medium number of labor days required for a typical order structure. The reduction of the required working time also improves the financial success figure total cost per servicing hour.

Besides these performance targets, higher quality standards must be enforced to reach the goals covered by the customer perspective. Internal efforts are made, e.g. introduction of a quality management system, often with the aim of external certification, such as DIN ISO 9002. The admission by European respectively American aviation authorities is equally important. The servicing and repair of aircrafts of that origin would then be possible. Quality should be measured by the number of new licenses, admissions and certificates and perhaps weighted with the market potential behind it. Successful certifications must be added by continuously monitoring quality standards. For accuracy of the inspection, the standard figure "checking errors in parts per million (EPM)" is suitable. The determination of tears, corrosion or material fatigue belongs to the major tasks of a general overhaul. In case the miss is not determined in the following quality control by independent quality inspectors, such negligence could have serious consequences that may have a detrimental effect on the company image.

4.2.5 Learning- and Employee Perspective
With the present technologies and abilities the business units cannot reach their long-term goals. The learning- and employee perspective tries to identify the enablers for future survival, growth and performance. Constant improvements require especially the establishment of appropriate employee skills. The own training center, the university for aircraft construction and various other offers for continuous education for the employees can serve this purpose. The success of it can be measured by the proportion of skilled manpower. With the qualification of employees, further increases of profitability may be expected. At the same time it is important to reduce the dependence on German employees, e.g. by local instructors. It is pursued to reduce the number of German employees from currently 30 to ten by the year 2004. This goal could be described by the figure "proportion of Chinese instructors". Specific investments into the qualification of Chinese employees only make sense if there is a high stability of employment. Therefore, the "rate of fluctuation of qualified junior staff" should be considered as a standard figure in the Balanced Scorecard. The expected identification with the company is often the result of a high employee satisfaction. The fulfillment of social-political tasks is also directed at that. This makes clear that the extent of individual satisfaction depends on the fulfillment of wishes of private nature, e.g. the high interest to
own a car. Information which has already been collected in the assessment of the management could provide information about the satisfaction of the employees. On this occasion, the manager assesses himself and his staff while at the same time the subordinates assess their superiors. This procedure may contribute to the revelation of weaknesses of the superior. The assessment of the managers could also be integrated as component for more extensive employee interviews. By means of a scoring-method an indicator for employee satisfaction must be established from the following components: satisfaction with the own work, the working conditions and immediate environment, salary, the offer of internal social security benefits, the organization of the company, opportunities for career and further education, recognition and self-realization by the own work, the relationship with colleagues and with the immediate superior. This standard of satisfaction must be incorporated into the Balanced Scorecard because it may help to explain the change of employees and loss of valuable know-how.

4.2.6 Cooperation Perspective
An exact distinction between learning- and employee perspective and cooperation perspective is not easy. Both dimensions have a strong personnel-political relation. The basic factors mutual trust within the joint venture-system, harmony between the partners and the solution of goal-conflicts are in the focus of the cooperation perspective. More than in the Western world, mutual trust is based on personal relationships in the Eastern-Asian world. Accordingly, this requires continuity of personnel. Therefore, the "duration of stay of the deployed" could be a standard for the possible establishment of trust. Stability of personnel promotes the transfer of commercial and technical know-how. It is therefore a guarantee for high servicing quality and professional engagement. Even more important for both partners is the construction of several key contacts with the partner (Shenkar, 1990, p.88). This is explained in an example for the German side: the Western employees have only little communication opportunities in the company due to the language barrier. Therefore, they need a partner more are even better - in order not to lose important contacts due to transfer or fluctuation. In China, a lot depends on the strength and resilience of personal relationships. Therefore, the "number of key contacts established" should be covered. They can help to solve internal problems or to acquire new customers. The long-term success on the Chinese market urgently requires the support of external organizations. Only in case of cooperation, the Chinese aviation authority will support the extension of the cooperation. According to this the "integration of staff of the relevant interest groups" must be
incorporated as success figure. Those relationship-networks are the critical success factors on the Chinese market. With the right contacts it is often possible to solve difficulties in the license procedure and therefore make the establishment of a new business area possible.

The quality of such relationship-networks becomes evident especially in dealing with goal conflicts. Good contacts make it easier to find a solution that suits the Asian striving for harmony, e.g. in case of reduction of access personnel capacities. While the Western side pushes to quick reduction of personnel, the Chinese partner feels obliged to his older employees. It must be covered as a criteria of success to which extent the reduction of personnel was executed in a socially concurring way and voluntarily. The reliability of the Western partner will lead to a higher degree of satisfaction of all employees and thereby also increase the loyalty towards the employer. Generally speaking, if disputes occur, the “proportion of conjointly found solutions” should serve as criterion of success. However, altogether it must be pointed out that in this case the cooperation perspective is less difficult than in many other Asian-Western joint ventures. Taking care of contacts is much easier as Ameco is involved in politics at a critical interface: the preparation of government flights. In addition, some of the typical problems of joint ventures do not occur in the production of services. In other international joint ventures just a part of the production is sold while the rest vanishes in shady channels.

5. Discussion
In any case, the suitability of the Balanced Scorecard must be examined critically before the background of the large cultural distance between the Asian and the Western world. Extensive decision delegation is a prerequisite for its application. Due to the traditionally large power distance in China, a management style that contains a high degree of responsibility is deemed inappropriate. The goal targets which are applied in the Balanced Scorecard are usually very demanding. Therefore, the results sometimes differ from the targets. This leads to the fears of the Asian employees that they will be punished if the goals are not achieved. In order to reduce these fears and in order to suit the collective mentality in Asia better, the incentive system linked to the Balanced Scorecard should be designed for groups rather than for individuals (Peill-Schoeller 1994, p.70). Above all, the Balanced Scorecard must be introduced in a careful way in order to avoid culture-related acceptance problems.
References
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