

Prevent Corruption – Measures to increase integrity in organizations

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ABSTRACT: Each national or international enterprise should have an increased awareness of possible negative influences out of intentional crime, corruption, bribes or other influences. Therefore the aim is to give not only an overview of the complex interactions between corruption and integrity, but provide examples of effective measures to prevent corruption, identify corrupt behavior and undertake enforcement action against corruption. Furthermore the article will present a toolkit that includes the measures mentioned above but also realistic measures to promote integrity within the organization itself and also in organizations in their supply chain. The article summarizes the results of the international research of PIARC (World Road Association) in the road sector.

1 INTRODUCTION

The results exposed in this article are the findings of different international studies ASFINAG BMG realized together with FH JOANNEUM, Graz, Stempkowski Baumanagement & Bauwirtschaft Consulting GmbH and PIARC.

- Technical Report “Institutional Integrity” by Technical Committee B.1 – Working Group 1, World Road Association, Cycle 2008-2001 (Spear, J., et al. 201)
- “Developing an Institutional Integrity Toolkit for the Road Sector” ROUTES/ROADS Number 349, 1st Quarter 2011 (Walcher, A. et al. 2011)
- Institutional Integrity – A Survey of Current Practice in the Road Sector. ROUTES/ROADS Number 347, 3rd Quarter 2010. (Walcher, A. et al. 2010)
- International comparison of CSR-Systems (Stempkowski, R. et al. 2008)
- Integrity – Research Project (Stempkowski, R. et al. 2010)

All of these surveys revealed that there are a range of approaches already in use across road administrations and partners in their supply chains to prevent and combat corruption. However, the perceived effectiveness and efficiency of different measures appears to vary quite widely. It should be emphasized that on a global level, corruption is often a symptom of an ineffective governance framework for the wider public sector and society as a whole. The measures thus will be most effective when they are backed up with an explicit commitment from the

roads sector, government and representatives of civil society at the highest level to a governance framework which promotes transparency, integrity, accountability and the rule of law. In particular, it was demonstrated that the development of effective management systems, a positive corporate culture, initiatives to raise employee satisfaction and improvements to procurement processes are important measures for reducing the likelihood of corrupt behavior occurring, or in the event that it does, for that behavior being detected and dealt with.

Above all, the results have shown that in order to reduce or prevent corruption on a long-term basis, organizations in the road sector must above all focus on the development and implementation of coherent and comprehensive anti-corruption measures on a systematic and multi-tiered basis. These findings were developed further within the PIARC workgroup in 2010 and the main results form the basis of this article.

2 CYCLE OF CORRUPTION AND INTEGRITY

Building on the findings of the survey a cyclical model was developed, which describes the procedure for preventing or tackling corruption on various levels and stages. This “cycle of integrity” comprises several stages whose reciprocal interactions and induced effects can be depicted in two opposing directions. The following diagram (Figure 1) shows the individual elements in this model.

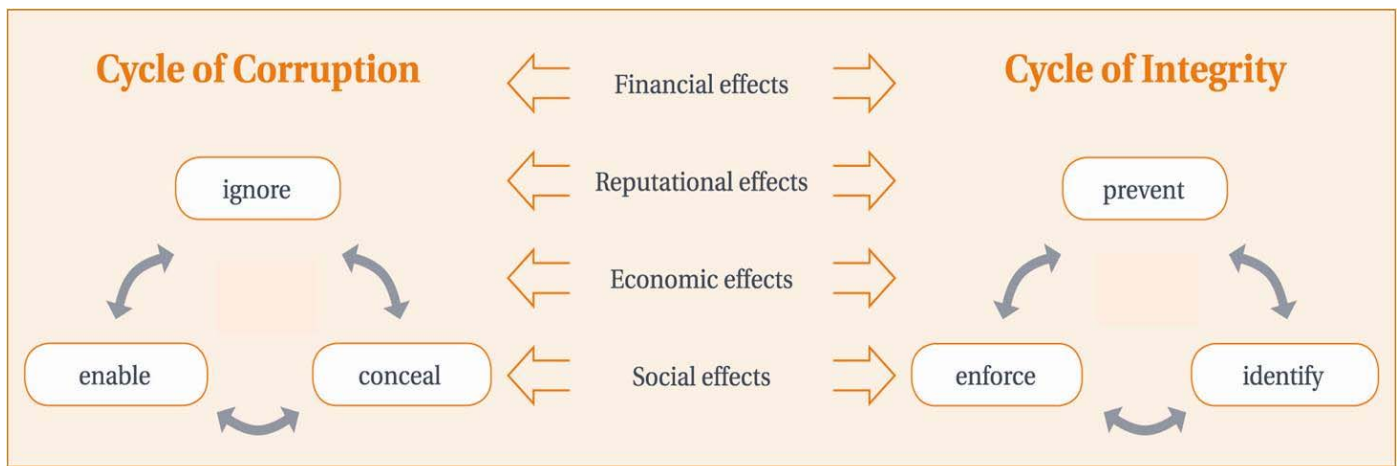


Figure 1. Cycle of Corruption - Cycle of Integrity, © PIARC Technical Committee B.1 Working Group1 (Spear, J., et al. 2011)

2.1 Cycle of Corruption

The cycle of corruption starts with the topic per se being ignored. The organization does not implement any countermeasures. There is no reaction to incidents of corruption and the organization does not generally recognize the topic as an issue. In many cases the subject of corruption is trivialized or it is asserted that there is most certainly no corruption in the organization; there is therefore no need to implement measures. By "actively" ignoring the subject the first steps towards corruption have been consciously facilitated.

The second stage is conscious concealment of corrupt activities. Although corrupt activities in the organization are known, no countermeasures are taken. On the contrary, results are consciously falsified, for example, to deceive (external) monitoring bodies and thus conceal corrupt activities. The failure to introduce effective counter measures can also be instrumental in concealment.

The third and final stage is the intentional planning and execution of corrupt activities. Conditions are consciously created that enable systematic implementation of corruption. These include tendering systems that restrict competition or promote collusion, exclusion of monitoring bodies, conscious creation of "problems" to compel payments (e.g. bribes) from organizations and the use of corrupt activities across several management levels (a system of distribution to accessories and participants). Such systems enable various employees to act in a corrupt manner without having to particularly fear the consequences.

2.2 Cycle of Integrity

The cycle of integrity offers the opposite paradigm to the cycle of corruption. In this case the subject of corruption is recognized as an issue by the organization and appropriate measures are taken. The positive, self-reinforcing cycle starts with active preven-

tion of corruption. These preventative measures include, inter alia, developing employee education and awareness at all levels, development of transparent, inclusive and accountable management systems, specification of open procurement and order processing processes, effective project management arrangements, and measures to improve employee identification with the organization and its values.

The second stage is concerned with creation of appropriate framework conditions, which enable and promote timely detection of any cases of corruption. The most important measure is the development and application of active monitoring systems as part of management systems. These must be implemented at all levels of the organization (project, departmental and corporate). Furthermore, systems for notifying suspicious cases, for example so-called "whistle blowing" processes, are developed.

The third stage deals with rigorous enforcement of specific sanctions against cases of corruption that have occurred within the organization. Clear measures for dealing directly with cases of corruption are to be defined as part of corporate policy, and rigorously implemented in the case in question. For individual staff, depending on the nature and seriousness of the offence, these may include verbal warnings, internal disciplinary action, termination of contract, or notification of the authorities for civil proceedings or criminal prosecution.

3 INTERACTIONS IN THE SYSTEM

The model that was just described is characterized by various intrinsic system interactions. On the one hand these occur within the cycle itself, and the two directions of the cycle also interact with each other as a result of the effects induced.

3.1 Interactions within the Cycles

The model of the interacting cycle is characterized by the respective features or stages reciprocally de-

termining integrity, especially within the cycle and having an enabling or a constraining effect. In order to achieve a positive strengthening of integrity in the system, it is necessary for individual measures to be interlinked and coordinated at the respective stages. Furthermore equal investment at all stages is essential, in order to create a comprehensive and effective system. Conversely, it is not productive if an organization concentrates exclusively on prevention, but the accompanying identification or enforcement measures are not equally mature. The system can only be as efficient and effective as its weakest part, according to the cycle's nature.

It is also worth emphasizing that the system in question is a dynamic one, which is to be regularly adapted to current knowledge. This means knowledge gained in the course of revealing a case of corruption, for example, can be used to inform ways of tackling similar cases in future and in developing wider corporate systems and processes.

3.2 *Interactions between the Corruption and Integrity Cycles*

In practice the corruption and integrity cycles interact in numerous ways, which are analyzed below. The effects in question will be stronger or weaker depending on which direction of the cycle is more marked. However, it can generally be said that quantification of the impact of corruption is extremely complex and only possible with substantial uncertainty.

3.2.1 *Financial Effects*

The effect that can be quantified most clearly is the effect of corruption or active integrity on the organization's financial performance. In every case of corruption, it is the organization that is damaged, to the benefit of the people who are involved in the corruption on the part of the principals and contractors. This often results in an unjustified increase in project costs and restriction of competition at project and organizational level. Active corporate integrity enables a corporate structure, based on economic and efficient project implementation, which is more competitive and sustainable in the long term.

3.2.2 *Reputational Effects*

The damage caused by corruption to the organization's reputation must also be considered in addition to the immediate economic damage. Reputational damage is difficult to quantify, but it is known from various past cases that cases of corruption that come to light and are discussed in public have entailed substantial, lasting damage to the organization and its management. In severe cases, individual incidents may be sufficient to bring the entire organization and its employees into disrepute. It must furthermore be stressed that a damaged reputation can lead to

loss of trust and thus to a worse competitive situation, which in turn feeds back to the financial effects.

3.2.3 *Social Effects*

Corruption also has a considerable impact at the level of society and state. How big (even, to a certain extent, quasi-public) organizations handle corruption and enforcement action against them acts as an example to the whole of society in the country concerned. When it is known that corruption is tolerated at top government level, or by organizations, or is even commonplace, then the threshold at which people are inhibited from also being corrupt is much lower. Politicians and senior executives must actively live out the integrity cycle in order to promote this ideal to society as a whole.

A greater degree of integrity is also reflected in a higher level of service and greater customer satisfaction where infrastructure organizations are concerned. A high-quality and safe infrastructure system can be made available to society as part of economic and efficient corporate management. In this context it is again important that this corporate attitude is also communicated within the organization, which in turn highlights interactions with reputation.

3.2.4 *Economic Effects*

The economic damage caused to the state and thus, in turn, to society as a whole by corrupt corporate behavior can be immense. Above all, this affects efficiency of general deployment of resources, the structure and competitiveness of markets and the pricing framework. The multiplier effects that infrastructure organizations, especially quasi-public organizations, have on the macro-economy with their large, multi-layered contracts, can be regarded as decisive. Through active integrity, every organization can therefore contribute to a long-term stable, socially just and competitive national economy, from which the organization itself profits.

4 TOOLKIT OF ANTI-CORRUPTION MEASURES

Based on the corruption and integrity cycle, findings from international studies and work by bodies such as Transparency International, a comprehensive toolkit of anti-corruption measures has been devised, in order to effectively and efficiently implement the cycle of integrity within an organization. Division of the essential anti-corruption measures into the relevant fields of prevention, identification and enforcement is characteristic of this overview.

The toolkit (Table 1) can be used as a checklist for an organization intending to implement active, coordinated measures as part of the cycle of integrity. It must be stressed that it is not always necessary

or sensible to implement all measures depending on specific local conditions. Organization-specific priorities and development and implementation plans must be developed instead.

The individual measures have been specified in greater detail as the toolkit, including comprehensive descriptions of the measures and mini case studies of examples of their application, has been developed.

Table 1. Abstract of Toolkit of Anti-Corruption Measures, ©: PIARC Technical Committee B.1 Working Group1 (Spear, J., et al. 2011)

Sub-ject Areas	Measures	Description of Measures	Fully Imple-mented	Partially Imple-mented	Not Imple-mented	To be intro-duced	To be developed further
PART A – MEASURES for the PREVENTION of CORRUPTION							
1	Development of business ethics and anti-corruption strategy - awareness-raising and educational measures Theory: In many cases there is a lack of awareness about the definition, nature and consequences of corrupt behavior ("trivial offence"). Awareness-raising measures therefore need to be provided as a priority for all employees and if possible for all contractors.						
	Ethics guide-lines	Ethics guidelines with summary of the organization's mandatory (and legal) policies and practices in the areas of business ethics and anti-corruption applicable to all departments and all employees Clear definition of what constitutes corruption and rules of conduct in the context of encountering perceived or actual corrupt behavior Basic understanding of the organization's ethics philosophy Sources of further advice, information and support					
	Ethics work-shops and other dissemination events	Regular completion of ethics workshops and other dissemination events for the training of employees and for the internal discussion of current issues, overview of the current regulatory framework and consequences (e.g. accepting gifts, damage to the organization, damage to other market participants)					
	Internal and external corporate publica-tions	Explicit coverage of issues relating to business integrity and tackling corruption in corporate literature, including publicizing specific examples of corruption within the sector, country or discipline and clear "zero tolerance" message to employees, suppliers and other stakeholders					
	IT self-test for employ-ees	Introduction of (voluntary or mandatory) IT-based (e.g. intranet) self-test to learn about the current regulatory framework and enhance awareness raising					
	Signature of an anti-corruption agree-ment	Signature of a formal agreement to ensure that employees comply with anti-corruption conditions and regulations; periodic refresh of signature to ensure issue remains uppermost in employees' minds and "ignorance is no excuse." Nature of agreement may be tailored to employees' level of seniority and position. Consequences and sanctions in event of breaking agreement must be made clear.					
	Anti-corruption report	Regular completion (with potential for random audit) of an anti-corruption report by employees on project award, inception, implementation, commissioning and close-out (based on clearly defined stage gates around the project cycle)					
	Integrity declara-tion by tenderers	During tender procedures, all tenderers must sign and submit an integrity declaration including a stated clear understanding of the sanctions arising from the discovery of corrupt behavior or inducements as part of their tender.					

5 CORRUPTION PREVENTION MEASURES

5.1 *Development of Business Ethics and Anti-Corruption Strategy - Awareness-Raising and Educational Measures*

Theory: In many cases there is a lack of awareness about the definition, nature and consequences of corrupt behavior. Awareness-raising measures therefore need to be provided as a priority for all employees and, if possible, for all contractors.

Measures included within the toolkit under this category include:

- Ethics guidelines
- Ethics workshops and other dissemination events
- Internal and external corporate publications
- Self-tests for employees
- Signature of an anti-corruption agreement
- Anti-corruption report
- Integrity declaration by tenderers.

5.2 *Organizational Measures (at Organization Level and Project Level)*

Theory: Creating an appropriate organizational framework enables many opportunities for corrupt behavior to be prevented, since a number of people need to be involved in all relevant decisions.

- Two (or more) person control principle
 - Esp. for tendering and financial transactions
 - E.g. “originator” and “approver” arrangement
- Signature regulations
 - Project level and hierarchical structure to be taken into consideration
- Substitution arrangement
 - To ensure that knowledge is not bunched at one person
- Job rotation
 - Esp. within “high risk” areas
- Disclosure of secondary employment or other commercial links
- Disclosure of close personal relationships
- Involvement of service departments
 - E.g. procurement, building and construction, etc. during the planning and tendering process.

5.3 *Development or Further Development of Management Systems*

Theory: The better developed the management and control systems of an organization; the easier it is to implement effective anti-corruption measures, the higher the likelihood of uncovering cases of corruption and the lower the readiness of employees to act in a corrupt manner.

Measures included in the toolkit under this category include:

- Project plan and information system

- Improve management of projects by senior management and enable improved analysis of discrepancies
- Risk management system
 - Specific risk checklists for areas at risk of corruption
- Cost management system
 - Increase transparency in cost developments
- Project management
 - Improve documentation
- Project sign-off
 - Clear procedures for project and transaction sign-off.

5.4 *Specification of Procurement Processes*

Theory: Being at risk of corruption, the procurement process in particular needs to be developed and regulated in an unambiguous way, using clear and comprehensive processes. Clear regulations must prevent “misinterpretations” by employees with clear “gate-way” arrangements on key decisions.

Measures included in the toolkit are:

- Standardization of the invitation to tender
- Procurement - deviation from the standard
 - Definition who should be involved and when in the event of deviations from standard procedures
- Notification requirement and duty to obtain consent
- Evaluation process of tenders
 - Detailed description in QM as a procurement process
- In-depth tender evaluation of prices
 - Compulsory (e.g. in terms of appropriateness and plausibility of prices)
 - Analysis of a detailed price comparison list
- In-depth internal tender evaluation of large projects
 - Solely by employees under strict supervision
- Opening of tenders by committee
 - Definition and notification of tender opening process
 - All tenderers must be entitled to participate
- Documentation and potential publication of all tender award decisions
- Variety of tenderers to promote competition
 - e.g. for invitation-only award procedures, targeted invitation of new tenderers, relaxation of excessively restrictive references as suitability criteria
 - Two-person control principle when approving list of those to be invited to tender

5.5 *Development in the Area of Order Processing*

Theory: All areas in order processing where corruption may occur must be defined sufficiently clearly so that misunderstandings can be avoided and so that

all employees are aware of areas that are at risk of corruption.

Measures included in the toolkit are:

- Development of guidelines for the settlement of services
 - type and scope of settlement
 - type and level of detail of the audit
 - procedure in the event of discrepancies in the settlement compared with the contract
- Development of guidelines for additional orders.

5.6 *Corporate Culture Organization Identification with the Organization*

Theory: The more developed the corporate culture, and the higher the degree of employee identification with the values of the organization, the less willing employees will be to engage in corrupt activities.

Measures include:

- Corporate culture
 - Interaction between employees (open criticism and open and respectful communication)
 - Behavior of employees towards those outside the organization
- Stronger identification with the organization
 - Increase involvement of employees in strategic issues relating to the further development of the organization
 - Joint development of values, visions etc.
- Role model effect of senior management
- Positive mistake culture
 - Mistakes are an opportunity to learn in the continuous improvement process (CIP)

5.7 *Increasing Employee Satisfaction*

Theory: The higher the level of employee satisfaction within the organization, the less willing employees are to engage in corrupt activities. Among dissatisfied employees, the likelihood is much higher.

Measures included in the toolkit are:

- Basic salary levels, terms and conditions
 - Basic pay and conditions reflect costs of living
 - Competitive with equivalent organizations in public and private sector
- Personal recognition and respectful feedback
- Clear job and personal objectives
- Dealing with suggestions for improvement
 - implement the suggestions (including notification to the employee) or explanation as to why the suggestions cannot be implemented
- Employee appraisals
- Improving the working environment and conditions
- Team building
 - Effective teamwork increases the chance of corrupt activities by individuals being noticed and reported by other members of the team

- Anti-bullying measures
- Preventing burn-out syndrome
- Employee counseling and access to assistance
 - Informal channels (outside of line management) for employees to raise and discuss personal issues and problems - including those which may leave them vulnerable to corruption, extortion, blackmail etc.
- Performance-oriented pay.

6 CORRUPTION IDENTIFICATION MEASURES

6.1 *Development of Management Control and Monitoring Systems*

Theory: One of the most important conditions to identify corruption is a "total" (comprehensive) - control system as a part of the management system in the organization. The system to take enforcement action against corrupt behavior can only be as good as the system to identify corruptive behavior.

- Further development of systems of control
- Internal control at project level
 - key figures, checklists and deviation analysis
- Internal control at department level
- Internal control at organization level
 - Checking compliance of processes with quality management standards by, e.g. internal specialist departments, service departments or legal department
- Internal Audit
- External Audit and Control.

7 SYSTEMS TO REPORT SUSPECTED CASES OF CORRUPTION

Theory: To encourage employees to announce suspected cases it is necessary to install reliable reporting systems. Each system to enforce/prosecute corruption can only be as good as the system to identify corrupt behavior. Systems to announce corrupt behavior is not immune against abuse.

Measures within the toolkit include:

- Contact for suspected cases of corruption
- "Ombudsman/Ethical person of trust"
- Anonymous reporting systems ("whistle blowing")
- Other internal reporting systems
- External reporting systems
- Notification of price fixing, cartel behavior or anti-competitive practices.

8 MEASURES FOR ENFORCEMENT ACTION AGAINST PROVEN CASES OF CORRUPTION

8.1 *Definition of Clear Guidelines*

Theory: Very clear regulations do not just deter employees from becoming involved in corrupt activities; they also provide senior management with a clear framework and support them in proceeding with dealing with proven cases of corrupt activity by employees or representatives of suppliers and other stakeholders correctly and consistently.

The toolkit therefore includes measures for:

- Clear and transparent regulations for dealing with suspected cases of corruption
- Standardized procedure, systems and processes.

8.2 *Assignment of Responsibility for Handling Cases of Corruption*

Theory: Where corruption is discovered instigated by, or affecting, individuals within the organization, investigation and decisions on resulting action must be independent, transparent and clear. The organization should therefore assign specific responsibility for taking final action, whether within management structure or independent of it.

The toolkit therefore includes provision for:

- Appointment of independent investigator and decision maker on sanctions.

8.3 *Consistent Implementation of Measures (Internal)*

Theory: If consequences set by the organization, and defined within guidelines, are not executed in practice, employees or suppliers may lose their fear of individual consequences if they engage in corrupt behavior.

The toolkit therefore advocates the following options for enforcement action against corruption should it be discovered:

- Informal warning
- Formal warning (left on record)
- Formal disciplinary procedure
- Request for employee to leave post/consider position
- Dismissal with or without notice
- Penalties or termination of contract
 - Where a supplier or tendering organization has been found complicit in corrupt activities, option of suspending, enacting penalty clauses or terminating contract for work
 - In serious cases, the supplier concerned may be barred from bidding for future contracts for a set period of time or permanently
- Disciplinary procedures against senior managers
 - In the event of failure to implement or enforce corporate guidelines, systems and processes for

the prevention and identification of corrupt activities, even if they had no knowledge of the activities themselves.

- This action may also be appropriate if once aware of the corruption, managers did not follow corporate guidelines in tackling it (e.g. dealing informally when formal disciplinary action may have been more appropriate).
- Reference to the authorities for civil proceedings or criminal prosecution, including fines and imprisonment.

9 CONCLUSIONS

Corruption and integrity exhibit important reciprocal influences and interactions. Identification and exploitation of these actions as a dynamic system is a prerequisite for the implementation of efficient and effective corporate anti-corruption measures. Numerous discussions during the international analyses show that organizations must take active measures to prevent corruption on the one hand, and on the other to identify specific cases and then also undertake rigorous enforcement activity.

It is important, however, for measures in the different areas to be coordinated depending on the respective framework conditions, and developed in a balanced relationship. Corruption and integrity must be recognized as separate, but inter-related, issues and promoted equally within road administrations and partners within their supply chains. Based on earlier surveys, the most important measures to achieve this include development of management systems, development of a positive corporate culture and specific anti-corruption measures linked to the procurement process.

The Toolkit of Anti-Corruption Measures could be used for every organization in the road sector and beyond that is wishing to take active measures in terms of improved integrity.

9.1 *Implementation within ASFINAG BMG*

Based on these findings within ASFINAG BMG the anti-corruption system has been optimized and reorganized in 2011.

To ensure the appropriate importance within the company the anti-corruption system has been implemented within the compliance management. The definition of clear responsibilities within the system and the assurance of transparent processes was the main focus. In course of this “anti-corruption-agents” have been assigned, to coordinate and develop all anti-corruption-activities & measures within the company. Furthermore special “persons of confidence” have been nominated in order to im-

prove the whistleblowing-system for employees as well as suppliers and other external persons / institutions. To assure a consistent and transparent handling of suspected cases of corruption special guidelines and investigation boards have been installed. The communication and training of these innovations in the anti-corruption system to the employees was another key aspect in 2011 and is part of the ongoing awareness-raising process within ASFINAG.

REFERENCES

- Bostijancic, K. 2010. Internationale Analyse der aktuellen Umsetzung von Anti Korruptionsmaßnahmen in der Praxis. Graz: FH JOANNEUM.
- Hinteregger, F. 2007. Die Verantwortung des Bauherrn im Verkehrswegebau, Internationale Analyse der CSR – Themen Community Impact Assessment und Korruption. Graz: FH JOANNEUM.
- Hirschmugl, M. 2007. Die ökonomische Verantwortung von Bauherrn im Verkehrswegebau: Ansätze ausgewählter CSR-Themen anhand der ASFINAG und der Highways Agency aus England. Graz: FH JOANNEUM.
- Krainz, J. 2007. Nachhaltigkeit im Verkehrsinfrastrukturbau. Graz: FH JOANNEUM.
- Longin, T. 2007. CSR-Systeme im internationalen Vergleich. Graz: FH JOANNEUM.
- Spear, J., et al. 2011. Technical Report “Institutional Integrity” by Technical Committee B.1 – Working Group 1, World Road Association, Cycle 2008-2011.
- Stempkowski, R. et al. 2008. CSR im Bauwesen (R&D - International comparison of CSR-Systems). Graz: FH JOANNEUM.
- Stempkowski, R. et al. 2010. Integrity (R&D-project). Graz: FH JOANNEUM.
- Tod, E. 2007. CSR - Management für Bauherrn: Überblick und Schnittstellen zu Managementsystemen im Bauwesen am Fallbeispiel ASFINAG. Graz: FH JOANNEUM.
- Walcher, A. et al. 2010, Institutional Integrity – A Survey of Current Practice in the Road Sector. ROUTES/ROADS Number 347.
- Walcher, A. et al. 2011. Developing an Institutional Integrity Toolkit for the Road Sector. ROUTES/ROADS Number 349.
- Zötsch, M. 2009. „Integrity“ - Grundlagen und Rahmenbedingungen für die Prävention und Bekämpfung von Korruption. Graz: FH JOANNEUM.

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