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A Systemic Approach to better Health

Systemic Calls for Tender in the healthcare sector

July 2015

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Systemic Calls for Tender in the healthcare sector from
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Dialog on systemic tender generation in the healthcare sector
German Healthcare Partnership

Content

An Initiative of the Federation of German Industries (BDI)
for the German export-oriented healthcare industry.
www. germanhealthcarepartnership.de

Preface

Infrastructure investments in the health sector often face manifold problems, ranging from incompatible equipment, lack of knowledge to operate it and insufficient maintenance. As a result, adequate medical treatment is hampered and scarce funds are used inefficiently.

A systemic call for tender offers an alternative approach. It comprises an integrated view starting from the planning phase and provides a holistic solution by one party. While a systemic call for tender is not a one-size-fits-all solution for every investment situation, in appropriate cases it offers significant advantages. It can help to ensure greater sustainability (e.g. by including life-cycle costs), avoid breaks between planning and execution and reduce the coordination between otherwise separate construction and equipment suppliers.

This is the conclusion of two studies you find in this document. While the first study concentrates on questions related to technical cooperation issues, the second one analyses the potential of systemic calls for tender from a financial/investment point of view.

Both studies have been financed by the Federal German Ministry for Economic Cooperation and Development (BMZ) through the Gesellschaft für Internationale Zusammenarbeit (GIZ) and KfW Development Bank. On behalf of the German Healthcare Partnership, I would like to express my sincere gratitude to these institutions for the generous support and the excellent cooperation.

Finally, we hope these studies encourage you to stronger take into account a systemic call for tender for your next investment decision. Therefore this publication also includes a guideline to provide you a practical tool to develop standardized tender methods for reliable and comparable results.

The German Healthcare Partnership (GHP) with its member firms offers a highly competent platform for supporting such a systemic call for tender. We would be very pleased to team up with you with the aim to build a reliable partnership for top-quality healthcare solutions.

Roland Göhde
Chairman of the Board
German Healthcare Partnership (GHP)

Part 1:
Guideline for systemic tender generation

Guideline for systemic tender generation

To ensure efficient investments eliciting a sustainable impact on the quality of healthcare provision the tender is well- advised to shift away from focusing solely on investment costs. Placing life-cycle costs in the center of the procurement procedure could considerably contribute to an improvement in both quality and total life-cycle costs. Therefore criteria that reflect quality, safety standards as well as life-cycle considerations must be accounted for. Systemic procurements secure a level playing field in international tenders and enable the contracting authority to perceive the economically most advantageous bid. The check- list below is a practical tool to develop standardized tender methods for reliable and comparable results.

A.	Contract types	
A.1	Investment	☐
A.2	Maintenance	☐
A.3	Uptime (in combination with a service contract)	☐
A.4	Pay Per Use (if available, eg. reduction of maintenance costs)	☐
A.5	Life-cycle contracts (investment and full-service-contract)	☐

B	Planning	
B.1	Checking the installed base at customer site	☐
B.2	Workflow	☐
B.2.1	Patient throughput	☐
B.2.2	Consumables and other materials	☐
B.2.3	Personnel fluctuation (new employees)	☐
B.2.4	Data transfer and data storage	☐
B.3	Room fitting	☐

C	Technical systems	
C.1	Product history	☐
C.1.1	Market introduction of the system	☐
C.1.2	Updates und Upgrades (safety and application widening, spare parts availability	☐
C.2	Certificates and Approvals	☐
C.2.1	Declaration of conformity (CE-certificate)	☐
C.2.2	FDA approval (512k approval)	☐
C.3	Sustainability	☐
C.3.1	Product compatibility (connectivity, data and image transfer) with installed base and also future investments	☐
C.3.2	Updates: free-of-charge safety updates - including hardware and software (during whole life-time-cycle)	☐
C.3.3	Upgrades availability (on-site upgradeability of software and as well hardware components)	☐
C.3.4	DICOM-3 data and image transfer between Hospital Information System (HIS) and PACS system based on DICOM-3, HL7	☐

D	Commissioning/ Start-Up	
D.1	Installation	☐
D.2	Technical documentation	☐
D.3	Application training (basic and advanced application services)	☐
D.4	Documentation of application trainings (certified)	☐

E	Customer training (at manufacturer site)	
E.1	Application training	☐
E.1.1	Physicians	☐
E.1.2	Operators	☐
E.1.3	Hospital technicians (first-line-service to reduce service costs and down-time of the system)	☐
E.1.4	Training materials (presentation, hands-on training, etc.)	☐
E.2	Educational trainings for customers (new applications, user communities for knowledge transfer)	☐

F	Warranty	
F.1	Start of warranty	☐
F.2	End of warranty	☐
F.3	Conditions (a description has to be provided)	☐
F.4	What is included AND what is excluded	☐

G	Service (on call)	
G.1	Use of original spare parts (NO third-party parts)	☐
G.2	Personnel	☐
G.2.1	Service engineers - no call center agents	☐
G.2.2	Response time for on-site visits	☐
G.3	Contact availability (operating times, via e-mail, telephone)	☐
G.4	Safety-updates	☐

H	Maintenance (recommended)	
H.1	Use of original spare parts (NO third-party parts)	☐
H.2	Personnel	☐
H.2.1	Certified technicians (from manufacturer)	☐
H.2.2	Response time for on-site visits	☐
H.3	Maintenance intervals	☐
H.4	Maintenance contracts (from manufacturer)	☐
H.5	Contact availability (operating times, via e-mail, telephone)	☐

G	References	
G.1	Regional	☐
G.1.1	Number of installed systems	☐
G.1.2	Trainings	☐
G.1.3	Service	☐
G.1.4	Maintenance	☐
G.2	International (world-wide)	☐
G.2.1	Number of installed systems	☐
G.2.2	Trainings	☐
G.2.3	Service	☐
G.2.4	Maintenance	☐
G.3	Publications and customer responses	☐

Part 2:
A Systemic Approach to better Health

Systemic Calls for Tender in the healthcare sector from a Technical Cooperation perspective

Reviewed by:
Ms. Katharina Rogalla von Bieberstein
on behalf of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

April 2013

List of abbreviations

BMZ	Federal Ministry for Economic Cooperation and Development
EIB	European Investment Bank
EZ	Development Cooperation
FZ	Financial Cooperation
GHP	German Healthcare Partnership
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
GIZ IS	GIZ International Services
GWB	Gesetz gegen Wettbewerbsbeschränkungen (Restriction of Competition Act)
HMIS	Health Management Information System
KfW	Kreditanstalt für Wiederaufbau / KfW Entwicklungsbank / Development Bank)
KIS	Krankenhausinformationssystem (Hospital Information System)
NGO	Non-government organization
EPW	Entwicklungspartnerschaften mit der Wirtschaft (Public Private Partnerships)
TZ	Technical Cooperation
WB	World Bank

Zusammenfassung

(Deutsch)

Es ist eine altbekannte und weitverbreitete Herausforderung: Infrastrukturinvestitionen im Gesundheitssektor von Entwicklungs- und Schwellenländern können oftmals nicht ihr volles Potenzial entfalten und Neuanschaffungen sogar teilweise überhaupt nicht verwendet werden. Gründe sind z. B. bei Neuanschaffungen eine mangelhafte Berücksichtigung der Kompatibilität mit den Gegebenheiten vor Ort. Hinzu kommen unzureichende Betriebs- und Wartungskonzepte sowie nicht ausreichende Anwenderschulungen.

Durch „systemische Ausschreibungen" kann hier erhebliches Verbesserungspotenzial genutzt werden, denn damit wird schon im Vergabeverfahren ein systemischer Projektansatz bzw. eine ganzheitliche Betrachtungsweise fest im Vorhaben verankert. Bei einer systemischen Ausschreibung – und damit einer Ausschreibung funktionaler Einheiten oder Systeme nach funktionalen Kriterien oder Leistungskriterien – steht die für den Erfolg einer komplexen Infrastrukturinvestition erforderliche Systemumstellung im Vordergrund. Das heißt, dass der gesamte Betriebsablauf der betroffenen Einheit oder Einrichtung in den Blick genommen wird. Das Augenmerk liegt dabei darauf, inwieweit der Betriebsablauf für eine optimale Nutzung der technischen Neuanschaffung sowie für einen reibungslosen Betrieb insgesamt umgestellt werden kann, welche personellen und finanziellen Ressourcen dafür erforderlich sind und wie diese dauerhaft generiert werden können. Ein solches Vorgehen schärft das Bewusstsein für das Ausmaß und die Bedeutung der nötigen Reformen und hat damit erhebliches Potenzial, eine bestehende Arbeitskultur nachhaltig zu beeinflussen. Im Ergebnis führt dies zu Qualitätssteigerungen in der Behandlungspraxis und dazu, dass der Nutzen der Neuanschaffung auf Ebene der Patienten optimiert wird.

Zur Erschließung des Potenzials systemischer Ausschreibungen in der deutschen Entwicklungszusammenarbeit (EZ) rief die German Healthcare Partnership (GHP) Anfang des Jahres 2012 die Initiative „Dialog systemische Ausschreibungen im Gesundheitssektor" ins Leben. Die im Rahmen dieser Initiative in Auftrag gegebene vorliegende Studie bereitet spezifische Fragen der Technischen Zusammenarbeit (TZ) auf. Sie kommt zu dem Ergebnis, dass die Durchführung von systemischen Ausschreibungen lediglich in bestimmten Fällen geeignet ist, entscheidend zur Nachhaltigkeit von Maßnahmen und letztlich zur Erreichung von Entwicklungszielen beizutragen. Ins-

Executive Summary

(English)

It is a well-known and widespread challenge that infrastructure investments in the health sector in developing and emerging countries often do not realize their full potential or that new acquisitions are not used at all. This is in particular due to the failure to account adequately for compatibility issues of the new acquisitions with their environment as well as poorly articulated operating and maintenance concepts and user trainings.

"Systemic calls for tender" have a considerable potential to remedy this situation by aiming to enshrine a systemic and therefore integrated approach early on, in the design of the respective procurement procedure. In a "systemic call for tender", and therefore a call for tender for functional units or systems along functional lines or performance criteria, the system change – which is fundamental for the success of a complex infrastructure investment – stands in the foreground. This means that the whole operation of the respective unit or institution has to be taken into account: it has to be analysed in terms of how far the operation needs to be adapted for optimal use of the new technical acquisition as well as a smooth progress of operation, which human and financial resources are needed to achieve it and how these resources can be generated permanently. Such an approach sharpens awareness of the dimension and importance of the required reforms. It therefore bears considerable potential to influence the working culture on a lasting basis, to lead to quality enhancement in daily therapeutic practice and thus ultimately to optimize the use of the new technical acquisition at patient level.

To develop the potential of systemic calls for tender in the German development cooperation (DC), the German Healthcare Partnership (GHP) launched the "dialogue on systemic procurement in the health sector" initiative at the beginning of 2012. The present study, which was commissioned in the course of this initiative, deals with specific questions regarding technical cooperation (TC) and comes to the conclusion that systemic calls for tender are only suited to lead to sustainable solutions and ultimately the achievement of development targets in some cases.

besondere kommt im Einzelfall auch eine Ausschreibung mit einzelnen systemischen Elementen in Betracht. Das bedeutet, dass beispielsweise Lebenszykluskosten oder Dienstleistungen wie Wartungs- und Instandhaltungsarbeiten sowie on-the-job Trainings nur teilweise Bestandteil der Ausschreibung werden.

Zudem wird festgestellt, dass auch aufgrund der Aufgabenverteilung zwischen der Gesellschaft für Internationale Zusammenarbeit (GIZ) und Kreditanstalt für Wiederaufbau Entwicklungsbank (KfW) die Durchführung von systemischen Ausschreibungen durch die GIZ bislang ein Ausnahmefall ist. Als erfolgreiches Beispiel für die Durchführung von Ausschreibungen mit systemischen Elementen wird auf zwei lokale Vergabeverfahren im Jahr 2006 in Indonesien verwiesen werden. Dabei ging es um die Einführung von Krankenhausinformationssystemen (KIS) in fünf Krankenhäusern in der Provinz Aceh.

Darüber hinaus wird in der Studie deutlich, dass neben den tatsächlichen Gegebenheiten wie personellen und organisatorischen Kapazitäten und einem förderlichen politischen Umfeld auch die rechtlichen Rahmenbedingungen für systemische Ausschreibungen und Ausschreibungen mit systemischen Elementen eine wesentliche Rolle spielen. Diese Bedingungen geben vor, inwieweit die Verankerung eines systemischen Ansatzes in Vergabeverfahren überhaupt zulässig ist und worauf im Einzelfall geachtet werden muss.

Vergibt die GIZ im Kooperationsland Aufträge durch Vergabeverfahren, so hat sie sich dabei an das deutsche Vergaberecht zu halten. Eine Bündelung von Leistungen und damit eine Gesamtvergabe ist nach deutschem Recht nur unter besonderen Voraussetzungen zulässig – und zwar bei Vorliegen „wirtschaftlicher und technischer Gründe“, die im Einzelfall festgestellt werden müssen. Die entsprechende Vorschrift bezweckt den Schutz des Mittelstandes, wobei diese Wertung von Vertretern der Wirtschaft in der GHP – inbesondere im Hinblick auf die Möglichkeit der Bildung von Konsortialstrukturen – nicht geteilt wird.

Grundsätzlich kann eine Vergabestelle ihren Beschaffungsbedarf jedoch selbst bestimmen, so dass je nach Ausschreibungsgegenstand insbesondere auch eine funktionale und damit ergebnisorientierte Leistungsbeschreibung in Betracht kommt. Eine solche funktionale Ausschreibung kann jedoch ihrem Wesen nach nicht in Teil- und Fachlose aufgeteilt werden. Der gesetzliche Vorrang der Einzellosvergabe vor einer Gesamtvergabe steht somit im Falle einer funktionalen Leistungsbeschreibung

Calls for tender with systemic elements, in which for example life-cycle costs, service and maintenance and on-the-job trainings are only partially included in the call for tender, can instead be considered as a viable alternative on a case-by-case basis.

It is also stated that due to the division of roles between the Gesellschaft für Internationale Zusammenarbeit (GIZ) and KfW Development Bank (KfW) the implementation of systemic calls for tender by GIZ has been an exception thus far. Two local contract award procedures in Indonesia in 2006 are examples of successful calls for tender with systemic elements. The subject of the invitation to tender was the implementation of hospital information systems (HIS) in five hospitals in the province of Aceh.

The study also makes clear that beside the actual circumstances such as personnel and organizational capacity as well as a conducive political environment, the legal framework plays a major role for the planning of systemic calls for tender and calls for tender with systemic elements. These conditions stipulate the extent to which it is permitted for a systemic approach to be enshrined in the procurement procedure and what needs to be assessed in each individual case.

When awarding contracts in partner countries, GIZ is bound by German procurement law. Under German law, the bundling of services and therefore the awarding of an overall contract is permitted subject to special conditions only, i.e. the existence of “economic and technical reasons”, which must be established on an individual basis. The respective provision aims to protect small and medium-sized enterprises, although this assessment is not shared by representatives of the private sector within the GHP – in particular due to the possibility of creating syndicate structures.

On the other hand, a contracting authority can determine its procurement requirements on its own and depending on the subject of the call for tender can also choose a functional and results-oriented description of the subject of the invitation to tender.

der Durchführung einer systemischen Ausschreibung in der Regel nicht im Wege.

Kann der Auftraggeber bzw. die GIZ den Beschaffungsbedarf noch nicht hinreichend konkret beschreiben (auch nicht in Form einer funktionalen Leistungsbeschreibung), so kommen des Weiteren insbesondere das Verhandlungsverfahren mit Teilnahmewettbewerb oder der wettbewerbliche Dialog in Betracht. Diese beiden Vergabeverfahren sind in Abweichung vom Regelfall des sog. offenen Verfahrens unter bestimmten Voraussetzungen zulässig. In diesen Fällen wird der konkrete Ausschreibungsgegenstand erst im Laufe des Verfahrens im Austausch mit den Interessenten ermittelt.

Je nach Fallkonstellation kann darüber hinaus auch die Durchführung systemischer Ausschreibungen durch Kooperationsländer angestrebt bzw. gefördert werden, auch wenn dies die Beteiligten angesichts von personeller und/ oder finanzieller Ressourcenknappheit oft vor erhebliche Herausforderungen stellen wird und auch die rechtlichen Rahmenbedingungen häufig noch nicht gegeben sind. Die Gelegenheit für die GIZ, hier eine proaktive Rolle zu übernehmen und ggf. Anreizstrukturen zu schaffen, kann sich vor allem in ressourcenreichen Ländern und Schwellenländern ergeben. Neben der Beschaffung IT-gestützter Informationssysteme (wie KIS) kann dies vor allem auch bei der Beschaffung von fortgeschrittener Medizintechnik und (ggf. Ansätzen von) Telemedizin der Fall sein, da diese Maßnahmen aufgrund ihrer Komplexität ebenfalls mit Systemumstellungen einhergehen müssen.

Eine Bewusstseinsschärfung für die Vorteile eines systemischen Projektansatzes für die dabei bestehenden Optionen und die ggf. zu schaffenden rechtlichen wie tatsächlichen Rahmenbedingungen bietet sich vor allem bei Projekten im Beschaffungswesen an, zudem ggf. auch im Bereich Public Financial Management. Insbesondere kann die deutsche Entwicklungszusammanarbeit allgemein darauf hinwirken, dass die Sicherstellung einer mit einer Infrastrukturmaßnahme einhergehenden Systemumstellung bereits in der Planungsphase angegangen wird. So wird beispielswiese auch dem besonderen Stellenwert von TZ-Begleitmaßnahmen im Rahmen von Kooperationsvorhaben mit der KfW Rechnung getragen. Als konkrete Maßnahmen kommen beispielsweise die Entwicklung von nationalen Gerätestandardpolicies bzw. die Einführung nationaler Wartungs- und Instandhaltungsrichtlinien – auf welche in Ausschreibungen stets Bezug genommen werden sollte – in Betracht.

By its very nature, however, such a functional call for tender cannot be divided into partial and technical lots. In the case of a functional description, the legally granted priority of single lots rather than an overall contract is thus not generally an obstacle to a systemic call for tender. If GIZ or a contracting authority cannot yet determine the procurement requirements in sufficient detail (not even by means of a functional description), then the procedure with a call for competition or the competitive dialogue procedure can be considered. These two procedures are permitted under certain conditions and depart from the rule of the so-called open procedure. A common features of both these procedures is that the concrete purchasing needs are only determined in the course of the procedure and in the exchange with interested parties.

Depending on the specific context, systemic calls for tender issued by partner countries should be aimed at and supported, even if this will often pose major challenges for those involved in view of scarce human and/or financial resources and even if the overall legal framework conditions are frequently not yet in place. Such situations can provide an opportunity for GIZ to play a pro-active role and to support the creation of incentive structures in particular in resource-rich and emerging countries. Besides the acquisition of IT-supported information systems (such as HIS), this also applies in the field of advanced medical technology and (as applicable approaches to) telemedicine, which necessarily also have to be accompanied by system change due to their increasing complexity.

Raising awareness of the advantages of a systemic project approach as well as available options for action and, if applicable, the necessary legal and factual conditions, is particularly suitable in projects in the area of procurement as well as, if applicable, in the area of public financial management. German development cooperation should in particular act to ensure that the system change that needs to accompany an infrastructure investment is addressed at the planning stage. For example, the necessary weight is attributed to accompanying TC measures in cooperation projects with KfW. Specific measures to consider include the development of national equipment and device standards as well as the introduction of a national maintenance and service policy, which should be referred to in all calls for tender.

1. Background, methodology and objective

1.1. Background and objective

The German Healthcare Partnership (GHP)[1] established the „Dialog on systemic tender generation in the healthcare sector" initiative in early 2012. Its aim is to gauge the potential for systemic calls for tender in German Development Cooperation (DC).
As the first step, the KfW Development Bank (KfW) in February 2012 commissioned an initial study to carry out an analysis of alternative procurement options from the perspective of financial cooperation (FC) and covering key DC questions and economic aspects of the subject.[2] The present study augments the KfW study and the guidelines that complement it, and it addresses specific questions of technical cooperation (TC). It includes a presentation of the overall legal framework for systemic calls for tender in the healthcare sector in the German DC and takes stock of the subject based on the status quo.

1.2 Method and scope

Besides a review and analysis of relevant literature and case studies, the study is based particularly on interviews with numerous GIZ healthcare experts and consultants.

The dialog partners were selected on the basis of their practical experience and have extensive knowledge of healthcare systems in various partner countries and regions.

The subject of systemic calls for tender in the healthcare sector of DC is complex and poses major challenges for the partner countries as well as for DC. In this context, the present study does not claim to be exhaustive but is an initial study that aims to promote the dialog on the subject of systemic calls for tender in the healthcare sector of German DC.

To that end, a brief introduction to the issue of „systemic tenders from a TC perspective" (chapter 2) is followed by an illustration of the overall legal framework for systemic calls for tender in German DC and in selected partner countries (chapter 3).

2. Overview: Systemic calls for tender and technical cooperation

„Systemic call for tender"

- Not a clearly defined term
- Objective: Avoidance of vertical and horizontal split by establishing a systemic project approach and therefore a comprehensive perspective within the contract award procedure
- Potential particularly in complex infrastructure investments that involve system migrations
- „One-stop solution": Call for tender for a functional unit or system in line with functional or performance criteria
- Enables the procurement of compatible pro ducts and services and therefore capacity expansion through more efficient processes
- Optimization of development policy benefits at the patient level.

A common challenge in the healthcare sector is the fact that infrastructure investments[3] often fail to deliver their full potential or new technical acquisitions are not (or cannot be) used at all. There are myriad reasons for this. However, this failure is attributed in particular to:

- A vertical split between planning and subsequent execution
- A horizontal split in the execution of contractually independent lots
- Insufficient consideration of the circumstances of the individual case
- The lack of a training, operation and service concept developed in collaboration with the partner, one that covers financial, technical as well as user-related and personnel aspects.

1 In the summer of 2010, the Federation of German Industries (BDI) and the BMZ (implemented via GIZ and KfW Development Bank) agreed to a „strategic partnership" in the healthcare sector. The aim of the initiative, known as the German Healthcare Partnership (GHP), is to improve access to quality-assured healthcare services through cooperation between the German public and private sector in terms of planning, equipping and operating hospitals in developing and emerging countries. Online: http://www.germanhealthcarepartnership.de/.

2 KfW, study on an alternative procurement procedure in the healthcare sector for development cooperation (July 2012) and guideline for an alternative procurement procedure in the healthcare sector for DC/FC.

3 The technical equipment of medical facilities, for example, should also be seen as an infrastructure measure.

To meet this fundamental challenge, the planning and execution of systemic calls for tenders[4] or tenders with systemic elements are discussed or examined in German TC in the context of complex plans aimed at system-change that regularly includes infrastructure measures.

The purpose is to enshrine a systemic project approach and thus a comprehensive perspective within the project by structuring the procurement procedure accordingly. This generally occurs e.g. through calls for tenders for comprehensive functional units or systems (such as the furnishing of a medical laboratory or the introduction of hospital information systems or telemedicine) by specifying functional or performance criteria. And in addition to the technical equipment or any construction measures required, services essential to operation, such as further education, on-the-job training and service and maintenance work, become part of the contract.

This results in such a solution being chosen for „one-stop“ convenience and the winning bidder being at least partially responsible for the sustainability of the measure and infrastructure.

This approach has considerable potential to lead to sustained improvement in the quality of therapeutic practice and therefore healthcare provision. So the development policy benefit of the new acquisition is optimized at the patient level. In the long term in particular, the approach can also lead to cost savings and in general to capacity expansion through more efficient processes.

However, the term „systemic call for tender“ is not yet clearly defined in German law or business. With a view to a more detailed discussion of the concept and the gradual development of the potential, a differentiation was initially carried out based on various system and application levels within the scope of the GHP dialog (see illustration). A distinction is drawn at the system level between equipment categories, functional units (e.g. operations), hospitals and regional healthcare infrastructure. At the application level, the differentiation is based on participants such as tender experts from funding institutions as well as project-executing agencies and hospital operators. In addition, it is made clear that the approach is also transferable to other sectors.

Benefits of systemic calls for tender

- Inclusion of lifecycle costs
- Focus on functionality over time (e.g. „uptime“)
- Comprehensive consideration of systemic levels, e.g. operations (including room design, materi als, equipment, processes, energy, water, etc.)
- Compatibility of equipment within system levels
- Optimization of number of maintenance contracts
- Inclusion of services (e.g. free updates)

Dialog classification of systemic calls for tenders

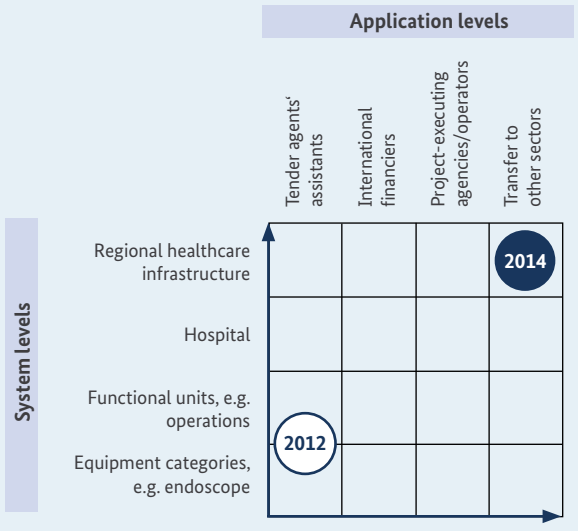


Illustration: Advantages of systemic calls for tender and systematics of dialog (GHP, 2012)

4 Or systemic awarding of contracts in general. This remark also applies to the other details of systemic calls for tender.

At the level of functional units in the healthcare sector, a systemic call for tender features the following points; these were compiled in the KfW study, in the dialog with GHP partners and by other sources:

- Procurement of products and services for a comprehensive solution or with reference to the required overall performance; therefore, call for tender for a system or functional unit in line with functional or performance criteria (result-oriented, focusing particularly on efficiency of processes and therefore benefit at patient level);

- The aim is to ensure the provision and proper operation of functional groups or systems, if possible throughout their entire serviceable life, and with the inclusion of lifecycle costs. This includes in particular
  - Ensuring regular service and maintenance
  - Consistent availability of consumables and spare parts
  - Providing training of specialists and users to ensure smooth operation through locally available staff and guaranteeing optimal functioning throughout the entire serviceable life of the product.

These aspects also need to be considered in the call for tender:

- Compatibility of individual components within the overall system, e.g. new technology included in a call for tender must be equipped with future-oriented interfaces in order to be able to communicate with other specialist departments and their systems (particularly in the IT area). However, it also means the avoidance of trivial connection problems. The constantly increasing complexity of systems calls for dovetailing and coordination of the individual construction-related elements, including with the subsequent operational concept of individual elements or the entire system.

- Standardization of systems to ensure, for example, that the number of maintenance contracts with service providers is optimized and the effort and costs for sustained provision of medical services (including consumables and spare parts) are reduced.

- Local components in the award criteria ensure that no dependencies arise and that individual responsibility is encouraged in the spirit of the Paris Declaration[5] („aid effectiveness agenda"). In terms of implementation this means, for example, using local specialists and local materials whenever possible and hiring local training institutes to train clinic staff or seeking corresponding cooperation agreements.

With regard to the potential implementation of systemic calls for tenders (or calls for tender with systemic elements), a distinction must be drawn, from the perspective of German TC, between two different sets of circumstances in the healthcare sector:

1. Cases in which GIZ awards contracts within the scope of implementing its projects in the partner country through contract award procedures (procurement of material goods, services and works, construction and planning management)

2. Cases in which the partner country (e.g. due to donor funding) assumes the role of contracting authority and carries out contract award procedures for such purpose, with GIZ acting as advisor in the process.

It is essential to point out that within German DC it should not be a matter of holding systemic calls for tender per se; it is only in specific cases that this can contribute decisively to the sustainability of the measures and ultimately to the achievement of the development goals. In particular, a call for tender with only systemic elements should also be considered in individual cases where, for example, lifecycle costs or services such as service and maintenance work and on-the-job training to some extent become part of the call for tender.

5 Paris Declaration on Aid Effectiveness – Ownership, Harmonization, Alignment, Results and Mutual Accountability, 2005, online: www.oecd.org/dac/effectiveness/350237.pdf.

3. Overall legal framework for systemic calls for tender in development cooperation

The overall legal framework and in particular, therefore, the applicable procurement law and guidelines for awarding contracts play a major role in DC – as they do in other areas of government procurement.[6] Procurement law can have a substantial influence on how and for what purpose government funds are used.[7] A good example of this is the increasing frequency with which green procurement policies are introduced, their purpose being to create incentives for more ecological entrepreneurial action as a whole by favoring an ecological approach.[8] In the DC context in particular, it is also relevant as to whether the call for tender is held only on the domestic market of the donor country, locally (in the partner country) or internationally.[9]

IIn regard to the implementation of systemic calls for tender, it is important as to whether the applicable rules provide the opportunity to invite tenders for more complex facilities or systems as an overall package and in line with functional criteria, and indeed to promote or oppose them.

3.1 Procurement law in German DC: International, regional and national requirements

In general, either the procurement rules of the donor or those of the partner country can be applied in DC. In the latter case, however, general principles as well as control and monitoring modalities established by the donor must nevertheless always be observed.[10]

However, it was agreed in the Paris Declaration on Aid Effectiveness in 2005 that the donors should rely on „consolidated country systems" of partner countries. Procurement is cited as one example of a country system or procedure.[11] Accordingly, all signatories of the Declaration should follow as a guideline the use of the partner country's procurement systems and rules.[12]

Under European law there are no specific provisions to be complied with for contract award procedures in DC, as the EU directives relevant to the procurement law of the member states do not contain any specific requirements for DC. General principles apply. Consequently, special rules for the awarding of contracts in DC apply only in some cases and the procurement systems of the partner countries are also only used in some cases.[13]

In German DC, special rules must be observed in regard to the awarding of contracts. Here a distinction must be drawn between KfW and GIZ.

3.1.1 KfW procurement guidelines

KfW does not generally conduct any calls for tender itself within DC, as KfW is not usually a contracting authority to executing entities and instead provides funding for projects within the scope of FC. (Performance) contracts are concluded between the project-executing agency of the country concerned and the successful bidder, so that the partner country conducts the call for tender and consequently the procurement law of the partner country applies. In the case of

6 In regard to the overall legal framework of donors, see e.g.: Derk Bienen. Procedures for the procurement of aid in Europe: A critical assessment. Trade and development discussion paper no. 01/2008; and as regards the overall legal framework of partner countries: Bodo Ellmers, Helping or hindering? Procurement, tied aid and the use of country systems in Bangladesh, Eurodad, 24 March 2011, website: http://eurodad. org/?p=4438. (accessed: 07.09.2012)

7 The GIZ annual report 2011 states that „In 2011 orders worth a total of EUR 723.3 million were placed with, for instance, service providers, suppliers and construction companies. The GIZ's full order books enabled Head Office to place orders worth some EUR 384.3 million. This involved 7,452 contracts inside Germany. Orders worth around EUR 238.6 million were placed with consulting companies, while consulting institutions received orders worth some EUR 93.8 million and individual consultants were contracted for about EUR 51.8 million. Additionally, other GIZ offices worldwide placed orders for services, construction and financing worth EUR 172 million and purchases of materials and equipment worth EUR 42 million." (http://www.giz.de/de/downloads/giz2012-de-unternehmensbericht- 2011. pdf, accessed 07.09.2012).

8 See GIZ „Konzept zur weiteren Vorgehensweise für eine Umweltfreundliche Beschaffung „(Green Procurement)", edition: 01.08.2011 and, for an overview of environmental aspects in German procurement law, see Miriam Dross, Dr. Angela Dageförde & Hendrik Acker. Legal opinion on national implementation of new EU procurement guidelines (Federal Environment Agency: 2008).

9 The ending of tied aid, which means the restriction to a bidder group of the donor country, is enshrined as a goal under point 31 of the Paris Declaration – Heading: Strengthening of national procurement systems (28-30): Paris Declaration on Aid Effectiveness – Ownership, Harmonization, Alignment, Results and Mutual Accountability, 2005, Partnership Commitments, Alignment, Donors Base their Overall Support on Partner Countries' National Development Strategies, Institutions and Procedures, ending of tied aid in the interests of a better cost/benefit ratio 31. With untied aid, DC effectiveness generally increases because the transaction costs for the partner countries fall, ownership on the part of partner countries is strengthened and alignment on the part of donors is enhanced. In accordance with the 2001 DAC recommendation for the ending of tied aid in relation to the awarding of ODA funds to the least developed countries, the DAC donors are working towards further progress on the untying of aid (indicator 8).

10 Bienen, p. 8.

11 Paris Declaration on Aid Effectiveness – Ownership, Harmonization, Alignment, Results and Mutual Accountability, 2005, Partnership Commitments, Alignment, Donors Base their Overall Support on Partner Countries' National Development Strategies, Institutions and Procedures, point 17: Using a country's own institutions and systems, where these provide assurance that aid will be used for agreed purposes, increases aid effectiveness by strengthening the partner country's sustainable capacity to develop, implement and account for its policies to its citizens and parliament. Country systems and procedures typically include, but are not restricted to, national arrangements and procedures for public financial management, accounting, auditing, procurement, results frameworks and monitoring.

12 See also: Nordic Procurement Group, A Joint Guide for Strengthening and Using Reliable Country Procurement Systems (9 September 2009), online: http://www.unpcdc. org/media/142160/jppguidefinal090909.pdf (accessed 10 September 2012).

13 Bienen.

projects in the sense of the Paris Agenda, KfW therefore uses the countries' procurement systems.

In accordance with its „Guidelines for the Awarding of Contracts for Supplies and Services and of Consulting Services," however, KfW assumes a controlling function and provides advice in regard to the awarding of contracts. Based on international rules and standards, these guidelines contain requirements for the tender process and the participating companies. In particular, the publication of calls for tender and award to the successful bidder are dependent on KfW's consent.[14]

3.1.2 GIZ and German procurement law

a. General

In the case of federal government contracts, GIZ is required under German procurement law[15] to appoint third parties for contracts with a value equivalent to or above the limit agreed by the BMZ and GIZ. If GIZ awards contracts in the partner country – which is desirable where technically feasible and economically viable – it must apply these provisions accordingly.[16]

When concluding contracts within the scope of co-funding, the provisions of the individual contracting authority must be taken into consideration along with national procurement law.[17] When concluding contracts for GIZ International Services (IS), the procurement rules of the contracting authority shall apply, provided they do not contravene the provisions of EU law.[18] In particular this involves general principles such as efficiency and cost-effectiveness, competition, equal treatment of bidders and transparency.

Accordingly, when procuring goods and services (direct services as opposed to funding), GIZ does not use the procurement systems of partner countries; instead, it conducts award procedures itself and, unlike KfW, thus becomes a contracting partner to the appointed companies.

On the other hand, GIZ – like KfW – uses the procurement systems of partner countries when awarding funding to partners' institutions within the scope of a TC project. A prerequisite in this respect is that the partner's systems meet certain minimum standards.[19] However, this always occurs on only a small scale, so as not to blur the distinct separation from FC.

In selected partner countries, TC also helps foster the gradual build-up of capacity in the procurement area. Through the partner's involvement in procurement decisions in the partner country as observer and advisor, each TC project can (and is intended to) contribute to a strengthening of partner systems, transparency and ownership.[20]

b. Implementation of systemic calls for tender by GIZ

A major element of a systemic call for tender is that it takes into consideration a functional unit or system as a whole as well as the lifecycle costs. In particular, services such as servicing and maintenance, technical and specialist training as well as on-the-job training in the initial stages of the operation – or for as long as deemed necessary for the sustainability of the measure – become part of the call for tender.

In this context, the following must be examined carefully as to how German law applies:

1. The legally granted priority of awarding specialist or partial lots rather than an overall contract
2. The requirements pertaining to a performance specification (functional or constructive specification)
3. The various award procedures.[21]

14 KfW Development Bank, Vergabe von Aufträgen, online: http://www.kfw-entwicklungsbank.de/ebank/DE_Home/Über_uns/Ausschreibungen/index.jsp (accessed 08.09.2012).

15 Restriction of Competition Act (GWB), Regulation on the Award of Public Contracts (VgV) and „Contracting Regulations": Contracting Regulations refer to the German Construction Contract Procedures (VOB), the Regulations on the Awarding of Contracts for Freelance Services (VOF) and the Procurement and Contract Procedures for Services (VOL) – until 2009 referred to as „Contracting Terms for Supplies."

16 See Section 5 General agreement; BMZ Konzept 165 Leitlinien für die bilaterale Finanzielle und technische Zusammenarbeit mit Kooperationspartnern der deutschen Entwicklungszusammenarbeit (Guiding principles for bilateral financial and technical cooperation with partners of German Development Cooperation) (edition: 2008), p. 40; GIZ Orientierung und Rahmenbedingungen für Beschaffungen (OuR) (Guidance and framework conditions for procurement) (edition: 16.01.2012) [OuR 2012]; GIZ Einführung neuer Mitarbeiter/-innen: Beschaffung von Sachgütern und Dienstleistungen und Abschluss von Verträgen über Finanzierungen (Induction of new employees: procurement of goods and services and conclusion of contracts on funding) (edition: 08.11.2011). [GIZ introduction „Procurement" 2011]

17 Co-financing or partial financing describes all cases in which third parties are appointed to provide additional resources or a complementary measure in relation to a measure being implemented by GIZ for the BMZ or another contracting authority. Donors may be foreign governments, multilateral organizations or foundations: GIZ company report 2011, p.13. With regard to the procurement guidelines of the World Bank (as an example of a „co-funder"), see also 3.2.1 Overall legal framework for systemic calls for tender in partner countries/ General considerations.

18 Bilateral donors and international financial institutions and funds generated business worth around EUR 43 million and EUR 17 million respectively. (GIZ annual report 2011, p. 13 and 14).

19 BMZ Concept 165 Leitlinien für die bilaterale Finanzielle und Technische Zusammenarbeit mit Kooperationspartnern der Deutschen Entwicklungszusammenarbeit (Guiding principles for bilateral financial and technical cooperation with partners of German Development Cooperation) (edition: 2008), p. 41; GIZ, Einbindung der Partner in Vergabeentscheidungen für die Beschaffung von Sachgütern, Einzelgutachtern und Consultings im Gemeinnützigen Geschäftsbereich (Involvement of partners in award decisions for the procurement of goods, independent experts and consulting in the not-for-profit sector) (edition: 28.03.2011). [GIZ Einbindung der Partner in Vergabeentscheidungen 2011 (GIZ Involvement of partners in award decisions 2011)]

20 ibid

21 The Contracting Regulations (in some cases) contain different requirements for calls for tender up to and those above a contract value of EUR 20,000 („EU threshold"). The following information mainly relates to VOL 2009.

aa. Overall awarding of contract or awarding of specialist and partial lots and performance specification

German procurement law specifies that, when certain limits are exceeded,[22] services are always to be awarded
- Divided by quantity (partial lots)
- Separated by type or specialist area (specialist lots); "principle of awarding by lots."

The wording is intended to protect small and medium-sized enterprises. (Incidentally, this assessment is not shared by representatives of the private sector within the GHP in regard to the possibility of forming consortia, although here in particular the involvement of companies in the individual target country is of major importance for sustainability purposes.) Division or separation can however be waived in regard to procurement if „this is necessary for economic or technical reasons."[23]

> *Section 97 Restriction of Competition Act (GWB): General principles*
>
> ..
>
> *(3) The interests of small and medium-sized enterprises shall take priority when awarding public contracts. Services must be procured on the basis of division by quantity (partial lots) and separation in accordance with type or specialist area (specialist lots). Multiple partial or specialist lots may be procured together where necessary for economic or technical reasons. If a company that is not a public contracting authority is entrusted with carrying out or implementing a public service task, the contracting authority requires the company, provided it awards sub-contracts to third parties, to proceed as specified by sentences 1 to 3.*

The provision of Section 97 (3) GWB could in individual cases conflict with a systemic call for tender (or call for tender with systemic elements), as by its very nature the latter comprises a bundling of services (including from various specialist areas, if applicable). Therefore, this is basically an overall contract. However, systemic calls for tender could at least require special justification: economic or technical reasons would have to make the overall contract necessary in the individual case.

It should be noted that the provision of Section 97 (3) GWB was only tightened in 2009 as part of a change in the law and that the former appropriateness criterion was replaced by the stricter criterion of necessity. It is therefore not sufficient for justifiable economic or technical reasons to favor an overall contract; necessity only exists where these reasons predominate in a comprehensive evaluation. The typical consequences of a division into lots, such as the increased expense of the call for tender, examination and coordination, as well as the increase in transaction costs, are insufficient, as is the argument relating to easier enforcement of warranty claims in the case of an overall contract. This is a typical additional expense intrinsic to the awarding of lots, an expense that must be accepted in accordance with the object of the law.[24]

The argument that small and medium-sized companies could join together to form bidder consortia also does not apply. This does not satisfy the protective purpose of § 97 par. 2 GWB, which states that small and medium-sized enterprises should always be given the opportunity to participate independently in the bidding competition.[25]

Despite the aforementioned tightening of the regulations, however, case law thus far overwhelmingly supports overall contracts, provided an economic or technical reason is clearly demonstrated.[26] Documentation of the reasons for an overall contract can also be obtained later, as can the substantive reasons for not dividing into lots as such. This applies at least where the public contracting authority has not unduly failed to consider the structure and extent of the SME interests and/or has not identified or deployed the eligible measures for protecting SME interests.[27] The prospects for success of a judicial review of an overall contract by a bidder disadvantaged by the absence of a division into lots (in principle not possible in the case of a national call for tender in the partner country) are

22 cf. Section 100 (1) GWB and Sections 1-3 of the Regulations on the Award of Public Contracts (VgV), see in particular also Section 100 (8) no. 4 and 6 GWB

23 See also Sections 2 (2), 2 EC (2) VOL/A 2009, 5 VOB/A.

24 See Kus, NZBau 2009, 21, 22; position paper for the 4th Deutscher Baugerichtstag (German Building Commission) 2012 of Working Group II Effizienz und Rechtssicherheit bei Vergaben – Brauchen wir veränderte Regeln? (Efficiency and legal certainty in procurement – Do we need a change of rules?), online: http://www.baugerichtstag.de/index.php?pageid=11 (accessed 07.09.2012, papers by lawyer Dr. Matthias Krist, p. 11; [position paper 4th Baugerichtstag 2012]; Ziekow in: Ziekow/Völlink, Vergaberecht Kommentar, 1st edition, 2011, Section 97 recital 67. [Ziekow/Völlink, Vergaberecht Kommentar]

25 Rudolf Weyand, Vergaberecht, Praxiskommentar zu GWB (Procurement law, practical commentary on the GWB), VgV, SektVO, VSVgV, VOB/A 2012, VOL/A, VOF, 4th edition, 2013, part 1 GWB Section 97, recital 423 [Weyand, GWB Praxiskommentar (GWB practical commentary)] with reference to Düsseldorf Higher Regional Court, decision dated 08.09.2004 / Ref.:VII – Verg 38/04 inter alia.

26 See Brandenburg Higher Regional Court, VergabeR 2011, 652, 657; Düsseldorf Higher Regional Court, VergabeR 2011, 718, 720; Karlsruhe Higher Regional Court, VergabeR 2011, 722, 727/728; Celle Higher Regional Court, VergabeR 2010, 661, 664 – but also Koblenz Higher Regional Court, decision dated 30.03.2012 – 1 Verg 2/11 on the awarding of technical lots in the case of glass cleaning work (see http://www.vergabeblog.de/2012-04-29/fachlosvergabe-zu-lasten-der-wirtschaftlichkeit-kein-spielraum-mehr-fur-offentliche-auftraggeber- olg-koblenz-beschluss-v-30-03-2012-1-verg-211/ (accessed 07.09.2012)..

27 See Weyand, GWB Praxiskommentar, § 97, recital 681, p. 198; Ziekow in: Ziekow/Völlink, Vergaberecht Kommentar, § 97 recital 54 and Düsseldorf Higher Regional Court, VergabeR 2011, 718, 721.

consequently uncertain, to say the least.[28]

The existence of economic and technical reasons, and therefore the appropriateness of implementing an overall contract, must always be assessed on the basis of the individual case and therefore based on the specifics of the individually defined service (case-by-case assessment). Typical consequences of a division into lots and factors caused by the contracting authority are not sufficient in this regard.[29]

In individual cases, the following reasons (co-)justify an overall contract according to case law:[30]

- Disproportionate cost disadvantages (due to synergy effects not being considered)
- Single warranty for facilities and systems with numerous interfaces
- Urgent need for shorter set-up or construction time, or considerable and unacceptable delays to project
- Coordination of different specialist advisory services by an overall advisor (for example PPP projects[31]) required; and security risks / traffic safety.

In view of infrastructure investments in the healthcare sector of developing and emerging countries that necessitate changes to the system, particularly the second point may be important: The growing complexity of systems is likely to justify the need for a single warranty on a regular basis.

With regard to the existence of technical reasons, Ziekow also notes in this context:

> *Technical reasons should be seen as reasons that necessitate the integration of all performance steps on a one-stop basis in order to achieve the quality level desired by the contracting authority. In this regard it is especially important that only the contracting authority is responsible for the specification of the performance profile. An example of the existence of technical reasons is the construction of a structure where a merging of the services of various trades is not sufficient given its specific function and where specific structural elements or special coordination of the construction steps with one another is necessary, requiring special measures on a one-stop basis during the construction process. Technical reasons are not only technical points of view in the narrower sense of the word but all aspects that go hand-in-hand given the performance profile specified by the contracting authority. This may be the case e.g. with complex, interrelated services such as advisory services. Furthermore, technical reasons can also link several types of activity if, for example, due to the specific knowledge required, the building can only be maintained by the company that built it.*[32]

From a development policy perspective, the following reasons may also favor the implementation of systemic calls for tender in individual cases:

- Practical experience in comparable projects in partner countries has shown it is possible that sustainable results are not achieved when services are divided amongst multiple providers. In addition, the sustainability of a measure can if applicable be optimized through the bundling of services in the procurement process. When the argument is inverted, this means that in individual cases GIZ cannot meet its public mission to the greatest extent possible if it refrains from a systemic call for tender. In particular, calls for tender that are not planned to be systemic have a significantly greater risk of incompatibility between individual components; this could result in reduced performance for the system as a whole. Examples mainly include a lack of interface compatibility in the IT area as well as trivial connection problems due to a lack of planning. For example, incompatible compressed air supplies can hinder the commissioning of an entire operating room for months.
- Through the awarding of an overall contract or system procurement and therefore the procurement of compatible products and services, operating expenses are minimized thanks to more efficient clinical processes (coordination of equipment and operating concept) and capacity is expanded. The benefit to the patient is greater (higher quality of treatment). In addition, a comprehensive service and logistics

28 cf. Section 97 (3 and 7) GWB; position paper 4th Baugerichtstag 2012, papers by lawyer Dr. Matthias Krist, p. 11.

29 See Düsseldorf Higher Regional Court, decision dated 08.09.2011, VII-Verg 48/11; decision dated 23.03.2011, VIIVerg 63/10, Karlsruhe Higher Regional Court, decision dated 6.04.2011 – 15 Verg 3/11; Vergaberechtsreform 2009/2010: Die Praxis unter Berücksichtigung der aktuellen Rechtsprechung (Reform of procurement law 2009/2010: Practice taking into account current case law), Publicus 2011, online: http://www.publicus-boorberg.de/sixcms/detail.php?template=pub_ artikel&id=boorberg01.c.150449.de (accessed 08.09.2012) and Ziekow/Völlink, Vergaberecht Kommentar, Section 97 recital 67, 68 with additional references.

30 Granting legal status 2009/2010, The practice taking into account current jurisprudence, 2011. See also fn. 26.

31 Public-private partnership

32 Ziekow/Völlink, Vergaberecht Kommentar, Section 97 recital 68.

concept is regularly a component of the tender and also takes into account he budget required for sustained operation (consumables, spare parts and staff).

- If no overall contract is awarded, considerably more coordination is required but may not yet be able to be provided by the partner country, for example due to limited capacity.

- An additional reason for a systemic call for tender may exist if prompt introduction of the new system or a functional unit is urgently needed in order to achieve key development policy targets (ensuring the provision of health care, poverty reduction, etc.).

However, it is questionable whether these reasons are always recognized as economic and/or technical reasons within the meaning of § 97 para. 3 GWB and they therefore predominate in individual cases when weighed against the „protection of small and medium-sized enterprises“ (in its statutory form).
But it is a fact that the specification is generally functional and results-oriented in the case of systemic calls for tender that first identified the basic requirements: This shows what is to be achieved. The Regulations on the Procurement and Contract Procedures for Services, Part A (VOL/A) expressly provide for the use of performance and functional requirements in the specification. A combination of standards and specifications as well as performance and functional requirements is also possible.[33]

Stricter requirements apply only within the scope of the Regulations on the Procurement and Contract Procedures for Public Works, Part A (VOB/A). Pursuant to Section 7 (13) - (15) VOB/A (performance description including performance program), a deviation from the principle of „performance description with specifications“ is only permitted if this is appropriate to „identifying the best and most functionally appropriate solution for the construction project in technical, economic and design terms.[34]

FUNCTIONAL PERFORMANCE DESCRIPTION

- Results-oriented performance description; the goals to be achieved by means of this measure are the focal point of the call for tender

- High degree of relevance in the context of systemic calls for tender or calls for tender with systemic elements

- Permitted under German award law – in the case of construction services, however, only if this is considered „appropriate“

- Separation into partial or specialist lots is consequently not usually possible.

In regard to functional performance descriptions, GIZ states the following in its introduction to procurement procedures: „If in the case of more costly investments a clear description with all technical data and performance features is not possible, then a functional description giving suppliers the option to develop their own visions and solutions for the tender is sufficient.“[35]

By its nature, however, such a functional call for tender cannot be divided into partial and specialist lots. Partial and specialist lots cannot be created for a service where the type of execution has not yet been determined.[36]

The provision of Section 97 (3) GWB, i.e. the legally granted priority of awarding individual lots rather than an overall contract, is thus not generally an obstacle to a systemic call for tender, at least in the case of a functional performance description.

In this context, Bernhardt talks of tension between procurement by lots and functional performance description. Considering the fact that at least in relation to construction services it is predominantly only general contractors that are in a position to fulfil the necessary planning task, he explains that even without a statutory requirement an obligation to sub-contract to smaller

33 e.g. Section 8 EC (2) no. 2 VOL 2009

34 See also Lars Gonschorek and Simon-Finn Stolze, Einfluss von Transaktionskosten auf die Wirtschaftlichkeit funktionaler Ausschreibungen (Influence of transaction costs on the efficiency of functional calls for tender), Brunswick University of Technology, Institute for Construction Engineering and Management (IBB) (March 2010), pp. 5-6, online: https://www.tu-braunschweig.de/Medien-DB/ibb/ibb_paper_2010-03_gonschorek-stolze_auswirkungen_ funktionaler_ausschreibungen.pdf (accessed 13/09/2012). [Gonschorek & Stolze 2010]

35 GIZ, Einführung neuer Mitarbeiter/-innen: Beschaffung von Sachgütern und Dienstleistungen und Abschluss von Verträgen über Finanzierungen (Induction of new staff: procurement of goods and services and conclusion of contracts on funding) (edition: 08.11.2011), p. 13. See also Bernhardt in: Ziekow/Völlink, Vergaberecht Kommentar, § 7 VOL/A, recital 8-11 (Funktionale und Konstruktive Leistungsbeschreibung [Functional and constructive description of services]).

36 See Gonschorek & Stolze 2010, p. 6.

and medium-sized companies (as sub-contractors) in accordance with „principles of competition" is advisable as compensation for the absence of a division into lots.[37]

This result also reflects the principle settled by case law that the public contracting authority is not bound by Section 97 (3) sentence 2 GWB to base its procurement requirements on the interests and concerns of specific markets and market participants. Instead, it specifies the respective procurement requirements within the scope of the public duties assigned to it and is not required to tailor calls for tender such that the requirements can be met by small and medium-sized enterprises. Thus the provision takes into account the interests of public contracting authorities and the requirement of efficient and cost-effective structuring of the procurement process.[38]

bb. Relevant tendering processes, pre-qualification systems and verification of suitability

The selection of the tendering process is particularly important, as the client may not yet be able to put together the performance specification in sufficient detail for a systemic call for tender in the particular case (also not in the form of a functional performance specification). The negotiated process with competitive bidding or competitive dialog should be considered in such cases. Both represent exceptions to the rule of an open process, which is why their use must be justified.[39]

In a negotiated process with a call for competition, the client always consults selected companies after the official contract notification and negotiates the bids submitted by those companies. The competitive dialog is a process used for awarding contracts that are particularly complex. In this process, the call for tender takes place with subsequent negotiations with selected companies on every aspect of the contract. One key difference to the negotiated process is that the solution for the goods and services being sent out to tender is only established in dialog with the bidders. The intention here is not to conclude a contract based on negotiation.[40]

The negotiated process with a call for competition is only permitted under special circumstances, e.g. when the nature and scope of performance or the associated risks cannot be described clearly or in sufficient detail for a price to be calculated easily for a fixed level of remuneration to be agreed,[41] or, in the case of contracts that by their nature and the risks they entail, make it impossible for the overall price to be determined in advance.[42]

Similar requirements apply to the competitive dialog that is permitted, in the event that the clients are objectively not in a position to specify the technical resources with which their requirements and objectives can be realized or specify the legal and financial conditions of the project,[43] – and generally, when awarding particularly complex contracts.[44]

Competitive dialog may be used particularly when implementing significant, integrated traffic infrastructure projects, large computer networks or projects with complex and structured financing.[45] Numerous contracts have already been sent out for tender for hospital information systems.

The option of setting up a pre-qualification system as provided for by the tendering process,[46] or asking bidders to verify their suitability,[47] particularly with respect to relevant practical experience, should be taken advantage of. It is particularly advisable, given the criterion of specialist knowledge, to obtain information about the staff to be deployed, including their training and professional experience.[48]

3.2 Legal framework conditions for systemic calls for tender in partner countries

3.2.1 General considerations

In general, it should be noted in regard to the legal framework condition for systemic calls for tender in partner countries that procurement law is "superseded" in the case of (partial) financing by the World Bank (WB)

37 Bernhardt in: Ziekow/Völlink, Vergaberecht Kommentar, 5 VOB/A recital 11.

38 See: Düsseldorf Higher Regional Court, decision dated 08.09.2011, VII- Verg 48/11; decision dated 23.03.2011, VII- Verg 63/10; Ziekow in Ziekow/Völlink, Vergaberecht, Section 97 GWB, recital 58, 68; Weyand, GWB Praxiskommentar, § 97 Rn. 415.

39 cf. Section 101 (7) of the German Restriction of Competition Act (GWB).

40 cf. Antweiler in: Ziekow/Völlink, Public Procurement Law comments, section 101 recital. 22; White & Case report, „Rechtliche Handlungsmöglichkeiten bei der Berücksichtigung mittelständischer Interessen im Rahmen der Vergabe von PPP-Projekten" [Legal courses of action when taking account of the interests of SMEs as part of awarding contracts in PPP projects] (2007).

41 cf. Section 3a (4) lit. c German Construction Contract Procedures, Part A (VOB)/A.

42 Section 3 EC 3b of German regulations on contract awards for public supplies and services (VOL) 2009.

43 Section 3 EC (7) VOL 2009, 3a (4) no. 1

44 Section 101 (4) GWB.

45 cf. no. 31 of the Directive 2004/18 EC dated 31 March 2004 and Antweiler in Ziekow/Völlink, Public Procurement Law, comments, section 101 recital. 23.

46 cf. Section 97 (4a)

47 e.g. Section 6 (3 and 4), Section 7 EU VOL 2009.

48 See also 4.1.2: Introduction of a health information system in the province of Aceh, Indonesia.

procurement regulations.[49] GIZ healthcare experts have also alluded to this in the course of their discussions. Loan and credit agreements with the World Bank specify that the contract should take precedence in the event of a conflict between the contract and national legislation on procurement in the borrower's country (The procurement directives also become an integral part of the contract by means of a clause referencing this directive).

[...]
".. In case of a conflict between the loan agreement and the borrower's national procurement laws and regulations, the loan agreement (including by reference the Procurement and Consultant Guidelines, the Procurement Plan (see paragraph 16 below), and, wherever applicable, the Project Implementation Manual) takes precedence under the General Conditions for Loans (Section 8.01) and the General Conditions for Credits and Grants (Section 7.01)."[50]

The WB guidelines for International Competitive Bidding (ICB) are very detailed and are also of relevance to systemic calls for tender. For example, they also provide for the normal case where a contract is awarded in lots (also to protect smaller to medium-sized enterprises), but at the same time allow a two-stage award process, including for complex projects and complex information and communications technologies:[51]

"Type and Size of Contracts
[...]
2.3 The size and scope of individual contracts will depend on the magnitude, nature, and location of the project. For projects requiring a variety of goods and works, separate contracts generally are awarded for the supply and/or installation of different items of equipment and plant and for the works.

[...]
2.5 In certain cases the Bank may accept or require a turnkey contract under which the design and engineering, the supply and installation of equipment, and the construction of a complete facility or works are provided under one contract. Alternatively, the Borrower may remain responsible for the design and engineering, and invite bids for a single responsibility contract for the supply and installation of all goods and works required for the project component. Design and build, and management contracting contracts are also acceptable where appropriate.

Two-Stage Bidding
2.6 In the case of turnkey contracts or contracts for large complex facilities or works of a special nature or complex information and communication technology, it may be undesirable or impractical to prepare complete technical specifications in advance. In such a case, a two-stage bidding procedure may be used, under which first unpriced technical proposals on the basis of a conceptual design or performance specifications are invited, subject to technical as well as commercial clarifications and adjustments, to be followed by amended bidding documents and the submission of final technical proposals and priced bids in the second stage."

Consequently, a functional invitation to tender, and with it, a systemic call for tender is only permitted in exceptional cases.

There is therefore a greater requirement for justification when implementing systemic calls for tender in the event of (partial) financing by the WB, regardless of the partner country's legal position.

On the basis of the discussions and the documents currently available, an overview of the legal framework conditions and public procurement law is given in the following for holding systemic calls for tender using Morocco as an example.[52]

3.2.2 Example: Public procurement law in Morocco

The 2007 Decree[53] which came into force on 1 October 2007, is the foundation of Moroccan public procurement law. This procurement law reformed the old public procurement law of 1998 following an extensive analysis of procurement practice and the legal position by the WB (applying the OECD/DAC method) in cooperation with the Moroccan government. The new law on public procurement also meets a series of require-

49 § 101 Abs. 4 GWB

50 WB Operational Manual, OP 11 Procurement (revised March 2012), Punkt 3, online: http://go.worldbank.org/WJV2U7DIL0 (letzter Zugriff 08.09.2012).

51 WB Guidelines Procurement under IBRD Loans and IDA Credits, May 2004, revised 2006 & 2010, online; http://go.worldbank.org/RPHUY0RFI0 (letzter Zugriff 08.09.2012).

52 In addition to public procurement law, other legal framework conditions, such as the division of competences and budget law, are of importance when holding systemic calls for tender. A comprehensive presentation of the legal framework conditions does not form part of this survey, however. The following presentation therefore makes no claim to be exhaustive but provides an overview of Moroccan public procurement law in terms of the potential for holding systemic calls for tender based on the information currently available to the writer of the report.

53 Strengthening Country Procurement Systems: Results and Opportunities, 4th High Level Forum on Aid Effectiveness, 29 Nov-1 Dec 2011, Busan Korea, Chapter 3: Country Profiles on Achieving Results in Development of Procurement Systems, Morocco Profile, pg. 50, online: http://www.unpcdc.org/media/352128/strengthening-country-procurement-systems-oecddac-hlf4-2011.pdf (letzter Zugriff 07.09.2012).

ments of the free trade agreement with the US and the association agreement with the EU.[54]

Morocco's new constitution, passed by referendum on 1 July 2011, also contains regulations governing the state procurement process.[55]

The 2007 Decree, a 64-page (including appendices) detailed set of rules, is valid both for the central government and for local offices or authorities. State authorities are entitled, under certain circumstances, to pass their own laws, provided they meet certain requirements for transparency and competition. The Ministry of Health holds calls for tender itself. Because the procurement value of medical equipment is usually very high, calls for tender are always sent out internationally. Foreign firms are, nonetheless, obliged to cooperate with a local distributor.

The 2007 Decree contains various regulations that are important for carrying out systemic calls for tender and therefore for tendering for a functional unit or a system as a whole. Article 18(3) lists the following contract award and award criteria that may be used to evaluate the most economic offer depending on the procurement item:

- Operating costs
- Technical value and innovative nature of the offer
- Performance as it relates to environmental protection
- Turnaround time for building contracts
- Aesthetic and functional qualities
- Services after purchase
- Technical support
- Lead time
- Costs for services and guarantees.

Other selection criteria may also be specified if the procurement item justifies them and they are directly associated with it.

The various procurement procedures can be found in article 16. Besides the (official) tender (l'appel d'offres), the competitive procedure (le concours) is of particular interest when holding systemic calls for tender. This may be used if technical, aesthetic or financial reasons place particular demands on the procurement procedure. [56]

There is no regulation comparable to the German procurement legislation specifying that awarding a contract by lots always takes precedence over awarding a single contract. In fact, according to article 8 the contracting authority decides between awarding a contract by lots and as one contract based on economic, financial and technical factors.[57]

In chapter IV, section 1, subsection 2 (tenders based on a pre-qualification process) the 2007 Decree also grants authority to hold a pre-qualification process, if this is essential or required because of the complexity of the tender item or its special nature (cf. the option to generally integrate suitability procedures within the award process: Article 18 (2)).[58]

In summary, the 2007 Decree offers considerable leeway in terms of flexibility with regard to holding calls for tender, even if the law does not specifically support this and actual interpretation is a significant factor.

54 Strengthening Country Procurement Systems: Results and Opportunities, 4th High Level Forum on Aid Effectiveness, 29 Nov-1 Dec 2011, Busan Korea, Chapter 3: Country Profiles on Achieving Results in Development of Procurement Systems, Morocco Profile, pg. 50, online: http://www.unpcdc.org/media/352128/strengthening-country-procurement-systems-oecddac-hlf4-2011.pdf (letzter Zugriff 07.09.2012).

55 Laurence Folliot Lalliot, "Morocco: When Governance, Transparency, Integrity, Accountability, & Public Procurement Entered the Constitution" (01/25/2012), Blogs.Worldbank.org, online: http://blogs.worldbank.org/publicsphere/morocco-when-governance-transparency-integrity-accountability-public-procurement-entered-constitutio (letzter Zugriff 07.09.2012); "World Constitutions Illustrated: Morocco: Draft Text of the Constitution", durch Referendum am 1 Juli 2011 verabschiedet, übersetzt von Jefri J. Ruchti (Buffalo, NY: 2011), online: http://www.ancl-radc.org.za/sites/default/files/morocco_eng.pdf (inoffizielle Übersetzung, letzter Zugriff 07.09.2012); US Department of State, Bureau of Near Eastern Affairs, Background Note: Morocco (March 12, 2012), online: http://www.state.gov/r/pa/ei/bgn/5431.htm (letzter Zugriff 07.09.2012).

56 Section II : Marchés sur concours, Article 63 : Principes et modalités : „1- Lorsque des motifs d'ordre technique, esthétique ou financier justifient des recherches particulières, il peut être passé un marché sur concours. 2- Le concours peut porter: a) soit sur l'établissement d'un projet; b) soit sur l'exécution d'un projet préalablement établi; c) soit à la fois sur l'établissement d'un projet et son exécution."

57 Article 8 : Marchés allotis
„1 - Les travaux, fournitures ou services peuvent faire l'objet d'un marché unique ou d'un marché alloti.
Le maître d'ouvrage choisit entre ces deux modalités de réalisation des prestations en fonction des avantages économiques, financiers ou techniques qu'elles procurent.
Dans le cas où plusieurs lots sont attribués à un même concurrent, il peut être passé avec ce concurrent un seul marché regroupant tous ces lots.
Le maître d'ouvrage peut le cas échéant, pour des raisons liées à la sécurité de l'approvisionnement, limiter le nombre de lots pouvant être attribués à un même concurrent.. 2 - Au sens du présent article, on entend par lot :- En ce qui concerne les fournitures : un ensemble d'articles, d'objets assortis ou de marchandises vendues ensemble; - En ce qui concerne les autres catégories de prestations, partie d'un tout (corps d'état) ou groupe de prestations appartenant à un ensemble plus ou moins homogène, présentant des caractéristiques techniques semblables ou complémentaires.."

58 Article 48:"Il peut être passé des marchés sur appel d'offres avec présélection lorsque les prestations objet du marché nécessitent, en raison de leur complexité ou de leur nature particulière, une sélection préalable des candidats dans une première étape avant d'inviter ceux d'entre eux qui ont été retenus à déposer des offres." Vgl. auch Artikel 16 (1): ... „L'appel d'offres est dit „ avec présélection „ lorsque seuls sont autorisés à présenter des offres, après avis d'une commission d'admission, les candidats présentant les capacités suffisantes, notamment du point de vue technique et financier."

4. Systemic calls for tender and systemic project approaches in the Technical Cooperation: practice and courses of action

1. Tendering process / calls for tender by GIZ for projects on behalf of the German government (awarding contracts to third parties)
2. Cooperation programs with the KfW Development Bank on behalf of the German government
3. Advising partner countries on procurement and tendering processes (in the case of third-party financing, if necessary)
4. GIZ as the bidder or contractor as part of GIZ's third-party business (GIZ IS).

A distinction should be made between four case groups when presenting GIZ's advisory practice and courses of action[59]:

Case groups 1 and 3 deal specifically with holding (or the potential to hold) systemic calls for tender or calls with systemic elements. The legal framework conditions were highlighted in section 3. Case groups 2 and 4 detail consultancy services that should be seen as closely associated with these, as they can support a systemic approach in the planning phase or when beginning implementation of an initiative. Both case groups may therefore not merely heighten awareness of the benefits of a systemic project approach in general. They can also place far greater emphasis on the existing options and any requisite legal and actual fundamental conditions with respect to systemic calls for tender or tenders with systemic elements.

4.1 Systemic calls for tender by GIZ and GIZ/KfW cooperation programs

GIZ holding systemic calls for tender or tenders with systemic elements has been an exception to date. One of the reasons for this is the way tasks are shared between GIZ and KfW in the German Development Cooperation: Whereas the remit of the Financial Cooperation (KfW) includes measures to improve the healthcare infrastructure and provision, the Technical Cooperation (GIZ) focuses on capacity building of individuals, organizations and institutions.[60]

The BMZ Sector strategy on health care states that German development policy is careful to ensure there is a complementarity of measures by the Financial Cooperation and the Technical Cooperation: „In the healthcare sector in particular, due to its specific characteristics – its substantial need for advice, training and information, as well as for a high level of investment – dovetailing of technical and financial cooperation is essential."[61] This is implemented in practice mostly in the form of so-called cooperation programs between GIZ and KfW.

Besides creating greater awareness of the benefits of a systemic project approach as part of the cooperation project with the Financial Cooperation, GIZ can also highlight and utilize existing options and general conditions. To this end, GIZ is able to work towards ensuring that the system change associated with an infrastructure measure is already guaranteed as early as possible and therefore included in the planning phase. That means that the entire operational procedure of the facility concerned is taken into account, and the focus is on the extent to which this may be implemented to make optimal use of the new technical acquisition and for overall smooth operation. This also includes the question of the personnel and financial resources required and how these may be generated in the long term. Due account is therefore taken of the Technical Cooperation's complementary measures as part of cooperation programs with the KfW Development Bank.

One major objective should also be to not to have to make a separate decision for each pending infrastructure measure, but that a general solution be found, particularly in regard to service and maintenance services as well as capacity-building measures. The aim should therefore be to specify minimum standards in national rules for awarding contracts within the partner countries.[62] These should also address and encompass social and ecological criteria as well as quality standards. The rules for involving local experts, local (hospital) staff, national further education establishments or the local

59 It should be emphasized that a clear distinction cannot be made in the case groups 2 - 4, as they overlap, at least in part.

60 BMZ Strategy 187 Sector Strategy: German Development Policy in the Health Sector, 2009

61 ebda

62 cf. comparable considerations for reinforcing national maintenance structures in Uzbekistan, 4.2.2 „Case study: Planned medical technology project in Uzbekistan".

population in general should be taken into account as social criteria – also to avoid dependencies. Certification training and on-site training are therefore particularly important, so that the supplier or manufacturer of the technical infrastructure does not have to provide servicing and maintenance work permanently, for example.

From an ecological perspective, the issues are particularly energy demand and energy efficiency as well as lifecycle costs. This related e.g. to proper disposal options for drugs and other consumables.[63]

4.1.1 Thematic approaches with the potential for systemic calls for tender

THEMATIC APPROACHES WITH THE POTENTIAL FOR SYSTEMIC CALLS FOR TENDER IN THE TECHNICAL COOPERATION

1. IT-supported information systems
2. Telemedicine
3. Advanced medical technology

Areas of focus of the BMZ's activities in the healthcare sector are:

- Improving healthcare systems
- Improving the prevention and treatment of HIV and AIDS as well as other infectious diseases, including access to low-cost drugs
- Increasing and asserting the rights and choices that women have regarding contraception, pregnancy and birth.[64]

There has always been potential for holding systemic calls for tender and tenders with systemic elements as part of the focus of healthcare system improvement and especially for initiatives to introduce IT-supported information systems. The introduction of (approaches for) telemedicine may be one further area in the future.

The introduction of new advanced medical technology is one further thematic approach that offers considerable potential and that is also the subject of much discussion among GHP partners. This topic is handled in section 4.2 „Systemic calls for tender by partner countries."

The introduction of IT-supported information systems for optimizing processes and for supporting management decisions can be found both at a national and regional level as well as at a micro level, e.g. in hospitals. Given the associated system change, such an introduction is closely linked to such issues as personnel management, organization management, maintenance and quality management, and finance. It is therefore an ideal starting point for comprehensive hospital management reforms, including e.g. a hospital's waste management. The introduction of IT-supported information systems can therefore also assist with ecological aspects as well as financial ones.

The GIZ project in the province of Aceh in Indonesia is an example of a tender that has already gone ahead with at least systemic elements for introducing hospital information systems. Considerations for introducing a hospital information system in Bangladesh are currently being explored. The special feature is that the plan is to use open source software that an NGO is to provide.[65]

Initial consideration is being given to introducing a telemedicine network in Vietnam.

A common element of both thematic approaches is that the procurement of new equipment and e.g. an initial introduction to the new system represent only a small part of the actual system change. Many of those involved are often unaware of this. GIZ's main task in the first instance is therefore to explore, together with the partner, what the general actual and statutory conditions are for a system change in the specific case, what the consequences would be for a system change (in particular with respect to personnel and financial resources) and to create awareness for this among all those involved. Then the scope and priorities of reforms should be determined. It is important to analyze the steps to be taken in detail and how these

63 Reference can be made in this regard to the waste disposal project in Kenya: cf. GIZ Africa Department, Competence Centre Cooperation with the Private Sector, "Healthcare – Kenya: Biomedical Waste Management in Hospitals" (December 2011) online: http://www.giz.de/Themen/de/SID-64C6AB0E-C81D6332/dokumente/ giz2011-en-kenya-psb-biomedical-waste.pdf; GIZ Healthcare Sector Programme in Kenya, A web log on activities of GIZ Healthcare Programme in Kenya, "Nairobi women's hospital launches incinerator to dispose of medical waste", posted in general, PPP by Andrew Moseti on 5 May 2011, http://www.gtzkenyahealth.com/blog3/?p=7904.

64 BMZ Strategy 187 Sector Strategy: German Development Policy in the Healthcare Sector 2009, p. 5.

65 See: BMZ German Healthcare Practice Collection 2014: http://health.bmz.de/good-practices/GHPC/A_Quiet_Revolution/HIS_Bangladesh_short_EN.pdf

should be implemented in a coordinated fashion.

One important instrument may be to implement systemic calls for tenders or at least tenders with a systemic element.

It would be helpful to present suitable system changes (for example, the introduction of hospital information systems or telemedicine), approaches and experiences in fact sheets. General reference to successful initiatives in partner countries is not always sufficiently persuasive. The early involvement of the private sector (more details under point 4.2) as well as NGOs (see hospital information system in Bangladesh) is also considered depending on the circumstances.

The following hospital information system serves as an example of important factors for a successful system change and the key elements of a suitable call for tender with systemic elements.

Although the factors are cited for specific cases here, they can mostly be generally applied.

4.1.2 Case study of tender with systemic elements and subsequent cooperation program with KfW: Introduction of a hospital information system in Indonesia

A tender with at least systemic elements was particularly highlighted in the interviews with GIZ healthcare experts. Its content concerned the successful introduction by GIZ of a hospital information system in the provincial hospital Dr. Zainoel Abidin (RSUZA) in the provincial capital of Banda Aceh and in four district hospitals in the province of Aceh in Indonesia as part of the reconstruction program following the tsunami disaster.[66]

When compiling local tendering procedures for GIZ in 2006,[67] and in particular the performance specifications, the focus was not solely on technical specifications for hardware, content requirements for the software program that had already been developed, maintenance services or the training to be introduced. In fact, the performance specifications already reflected how critical to success it was to adapt the software to the prevailing circumstances, to support the introduction with comprehensive training and on-the-job training, and to generally focus on system change from the start.

> A systemic call for tender (or tender with systemic elements) focuses on the system change required for the sustainability of the infrastructure measure as early as the planning phase for an upcoming complex infrastructure investment.

Particularly the following points have been identified as factors key to the success of the measure and therefore system change:

- Communication and transparency: The comprehensive involvement of the partner (technical and medical hospital personnel and hospital management), and whenever possible local experts, thus starting with the requirements assessment.

- Create awareness and highlight consequences: The introduction of the hospital information system means system change; it affects the organization and therefore changes the working culture overall; thus the process requires not just time but above all comprehensive resources.[68]

- Support „from above“: Involvement and regular communication with political decision makers at a national and regional level, and especially with the hospital CEOs. In particular, it should also be ensured that the system is compatible with other national systems, is accredited and will remain so for the foreseeable future.

- Adapting to local circumstances and requirements: Consideration of the general operational conditions and the available infrastructure (electrical connection, work stations, etc.). Also sensitive handling of any initial aversion to change; after the tsunami, many of those affected had the need to restore the previous status quo, even if this had been shaped by decades of conflict and mismanagement.

- Highlight and create incentives: Incentives (particularly of a financial nature) for the hospital management and also clinical staff were decisive for the

66 See Kelvin Hui & Dr. Wolf Wagner for detailed information on the project and how this fits into the overall context in Aceh. Hospital Management Information System: The Aceh Experience (2010), accessible online via the website „Indonesian Health platform“, on which relevant tender information can also be found: http://www.ighealth.org/id/home.

67 The call for tender was held separately for RSUZA, on the one hand, and district hospitals on the other, even if ultimately the same provider was awarded the contract.

68 Based on the experience gained from this measure, the overall costs of a commercial information system are approximately 40% for hardware, networks, program and licenses, around 10% for maintenance contracts, and at least 40% for personnel training, refresher courses and complementary troubleshooting.

successful introduction of the hospital information system. The incentives for hospital management and directorates were particularly the desire for financial and managerial autonomy and accreditation for the hospitals. An improvement in the management and evidence of a transparent, accurate and rational use of resources, e.g. through electronic accounting processes, was essential to this.[69] The same applies to the parallel initiative to establish health insurance fund systems. These require IT-supported systems for invoicing. Positive reports in the media, e.g. about „highlights such as shorter waiting times for patients, were significant for the social recognition of the clinic staff. An incentive was created for fee-based physicians to use the systems by introducing a fee.

- Highlight and create incentives: Incentives (particularly of a financial nature) for the hospital management and also clinical staff were decisive for the successful introduction of the hospital information system. The incentives for hospital management and directorates were particularly the desire for financial and managerial autonomy and accreditation for the hospitals. An improvement in the management and evidence of a transparent, accurate and rational use of resources, e.g. through electronic accounting processes, was essential to this. The same applies to the parallel initiative to establish health insurance fund systems. These require IT-supported systems for invoicing. Positive reports in the media, e.g. about „highlights such as shorter waiting times for patients, were significant for the social recognition of the clinic staff. An incentive was created for fee-based physicians to use the systems by introducing a fee.

- Three-phase project: The initiative was essentially divided into three phases: customization (adaptation), testing, (parallel treatment of the old and new system) and go-live.

- Capacity development: General introductory computer courses and administrator courses took place during the system adaptation and implementation phase. This included hospital information system training and on-the-job training in the initial phase of the operation, as well as further coaching and troubleshooting during the ongoing data entry.

The following points are relevant, especially with respect to the tendering process:

69 This was only achieved following completion of the project, however.

- Verification of suitability: The bidders had to set out their technical qualifications and their financial resources with respect to the goods and services for which they are tendering, i.e. software, hardware, system introduction, user training and also maintenance and support. In particular, the bidders had to provide evidence of the successful installation and use of a hospital information system in a hospital in Indonesia that was comparable to that being sponsored in Aceh.[70]

- Performance specification and contract award criteria: As well as largely functional requirements and specifications for the hospital information system components and the implementation period, bidders had to present a training strategy and timelines, along with indicators for education and training. The selection criteria encompassed the financial[71] qualification, and technical factors as well as completeness of the tender documents.

- Functional requirements and service performance: In addition to the minimum one-year warranty for the system, the client had to be given a contractual option of signing a contract for a minimum of an additional two years for maintenance, servicing and support.[72]

- Local expertise and ownership: The assessment committee included local IT and hospital management experts.

- Post qualification: The remaining three bidders (short list) had to present on-site the hospital information reference systems that had already been introduced. The results of the presentation were included in the decision as a criterion for awarding the contract.

The measure's success is also particularly reflected in the fact that new hospital information models were introduced in 2008 at the request of provincial hospitals. These were financed in part in cooperation with GIZ by extending the contract and in part by the KfW

70 Competitive Bidding for Hospital Management Information System in Rumah Sakit Umum Zainoel Abidin, Banda Aceh, Section 1: Instruction to Bidders (October 2006).

71 When evaluating the financial aspects of the bid, a 70% weighting was given to the hospital information system (e.g. application software and training), whereas the pure infrastructure performance, e.g. hardware and system software, was only given a 30% weighting.

72 When evaluating the financial aspects of the bid, a 70% weighting was given to the hospital information system (e.g. application software and training), whereas the pure infrastructure performance, e.g. hardware and system software, was only given a 30% weighting.

Development Bank.[73] KfW also undertook the financing and the Technical Cooperation took care of complementary measures when, following completion of a new provincial hospital in 2009 (also funded through financing from KfW), the facility not only had to move but also had to make changes to the system with infrastructure/hardware, setup of new workstations, etc. because of the new building's increased capacities.

The cooperation agreement gave KfW the responsibility for the move from the renovated, old building into the new provincial hospital RSZUA it had built. All the changes, additions and extensions to the hospital information system that were to occur after relocating to the new facility had long been the subject of ongoing planning, customization and discussions between KfW, hospital management, the IT team and GIZ consultants.

The individual steps and measures of the relocation of the hospital information system and the system upgrades at the new facility, including the requisite financing, were the result of mutual consultation and agreements, i.e. KfW had no new or unexpected additional expenditure as a result of the move to the new facility. The collaboration between the KfW and GIZ consultant teams was exemplary throughout all phases and aspects according to those with main responsibility for the GIZ team.

ROLE OF TECHNICAL COOPERATION

- Proactive role as part of advice on policy / policy dialog
- Create awareness among decision makers
- Highlight and create incentives, where necessary
- Analyse the basic conditions nationally and provide support to the partner when developing and implementing report initiatives

73 Competitive Bidding for Hospital Management Information System in Rumah Sakit Umum Zainoel Abidin, Banda Aceh, Section 3: Functional Requirements (October 2006) and Competitive Bidding for Hospital Management Information System in Rumah Sakit Umum Zainoel Abidin, Banda Aceh, Annex 5: Maintenance Contract (October 2006).
Reference is also made to this cooperation initiative as part of the KfW study.

4.2 Systemic calls for tender by partner countries

Systemic calls for tender by partner countries can be strived for and promoted in the specific case because of the long-term nature of infrastructure investment. This applies even though the implementation often presents those involved with considerable challenges given a lack of personnel and/or financial resources, and the basic legal framework often does not exist.

GIZ has the opportunity to be proactive, especially in resource-rich countries and emerging economies, as part of the GIZ IS business (see 4.3). GIZ can take a proactive role in bilateral business operations, principally with policy advice / policy dialog. It is able to create awareness of the problems and the systemic call for tender approach among decision makers and to highlight incentives. GIZ can further analyse the basic conditions domestically in terms of personnel and institutional capacities and the required institutional and legal reports and develop reform initiatives, supporting their implementation where required.

Cooperation with public financial management projects or general initiatives in the procurement process may also be considered depending on the circumstances of that particular country, also a dialog across different sectors and exchange of experiences. The range of topics is ultimately not limited to the healthcare sector but is of general significance where complex infrastructure initiatives are present that are associated with a system change.

In addition, reference is made to the implementations under 4.1 and 3, particularly with respect to the procedure and the content of a systemic tender process (and therefore also the requisite legal scope).

4.2.1 Range of topics „Advanced medical technology“

The range of topics relating to “Advanced medical technology” is one of the factors driving the GHP initiative “Dialog systemic calls for tender in the healthcare sector,” within the framework of which this study has also been commissioned. The intention is also particularly to highlight and create incentives for industry, including with respect to the current considerable potential in Central Asia in the field of medical technology. Development partnerships with the economy that have already been carried out in the healthcare sector,

particularly in Kenya,[74] serve as successful examples. One further incentive is that such corporate responsibility is integrated positively with a "corporate social responsibility strategy."[75]

In medical technology it is also about accessing the companies' extensive expertise above and beyond the physical products to be procured. One area of focus in the concept of a development with the economy and a corresponding systemic call for tender therefore also has to be capacity-building measures, on-the-job training and certification training.

A particular feature and preparatory step for holding systemic calls for tender and tenders with systemic elements is that the development of national policies for equipment standards (standard operating) and the introduction of a national servicing and maintenance policy are of great importance. Tenders should always refer to these. It is also important to take into account the fact that, in respect to (advanced) medical technology, there is sometimes no requirement for a call for tender for an entire system or a functional unit. The challenge is much more often about optimizing an existing facility or upgrading its service, maintenance and use.

4.2.2 Case study: Medical technology initiative in Uzbekistan

The "Advanced training of doctors and medical staff to work on modern, high-tech medical equipment" project is helping to fill the gaps in the application, operation and management of advanced medical technology. The focus is on training and further education for medical and technical healthcare personnel. An audit report from 2010[76] states:

> *„High level consultancy by the health ministry is initially limited to a few elements of technology management, particularly in preparing an adequate budget for maintaining and servicing equipment, and offering advice to the procurement department, obtaining options and bids for maintenance contracts when purchasing high-tech equipment and also hopefully signing these in the future. The requesting and processing of warranty services following the delivery of new equipment should be improved. The inclusion of further equipment and technology training set out as part of a contract by the manufacturer is one further area for consultancy when procuring high-tech equipment. One problem with the tendering process in Uzbekistan is that an internal commission at the health ministry, which is generally comprised only of doctors, decides the orders and specifications and the contract following approval of the requested budget. No technical staff is involved, even though there is a basic lack of technical expertise in the hospital's operation.*

In the past this has often led to loans that have been used for as much equipment as possible without any resources being allotted for important aspects, such as warranties, training, spare parts and maintenance services. The project should make a more detailed assessment here, with support being given to building capacity in the technical as well as the medical area in consultancy management. This is also carried out by helping to develop in-house technical services at public hospitals and to develop inventory systems to improve equipment management.

By advising the health ministry's procurement department and applying the systemic approach to improving the use, operation and management of advanced medical technology, the project offers opportunities in terms of holding systemic calls for tenders and tenders with systemic elements by the partner country. This also includes creating the necessary legal and actual framework conditions.

4.3 GIZ International Services (IS)

GIZ IS is also able to make an important contribution to supporting systemic calls for tender, tenders with systemic elements and a systemic approach. Even if GIZ IS is unable to exert any influence on the tendering process of a partner country in the role of bidder or contractor (otherwise the bidder will be disqualified), it can raise awareness for a systemic approach as part of the bid and therefore the way in which the order is implemented (also in terms of social and ecological factors). It can build up capacities through close coope-

74 cf. GIZ Africa Department, Competence Centre Cooperation with the Private Sector, "Health – Kenya: Biomedical Waste Management in Hospitals" (December 2011) online: http://www.giz.de/Themen/de/SID-64C6AB0E-C81D6332/dokumente/giz2011-en-kenyapsb- biomedical-waste.pdf; GIZ Health Sector Programme in Kenya, A web log on activities of GIZ Health Programme in Kenya, "Nairobi women's hospital launches incinerator to dispose of medical waste", posted in General, PPP by Andrew Moseti on 5 May 2011, http://www.gtzkenyahealth.com/blog3/p=7904; Joshua, Mokaya. "GIZ and B Braun seek to improve medical safety and health service provision in Kenya" (25 July 2011), online: www.gtzkenyahealth.com/blog3/?p8554.

75 cf. for example of development partnerships with the economy in Kenya „Kenya/Germany: provision of water" in: SHARE magazine on corporate responsibility by B.Braun, issue 2011, online: http://www.bbraun.de/documents/Company/Share2011_2011_07_07_dt.pdf, p. 10-12.

76 GIZ report on the audit of a Technical Cooperation measure (PN 01.3502.0-008.00), Einsatz von fortgeschrittener Medizintechnik in Uzbeskistan [Use of advanced medical technology in Uzbekistan] (Eschborn: June 2010).

ration with the partners and therefore put the partner country and the partner organization in a position to implement comparable contracts themselves systemically in the future. For example, the Ethiopian government commissioned GIZ IS to construct 500 healthcare centers in 2007. Given the capacity built up in parallel, it was subsequently in a position to carry out, plan, oversee and coordinate the construction and set-up of numerous further healthcare centers independently based on the same principles.[77]

GIZ IS is also able to take on the role of advisor to partner countries on how to hold systemic calls for tender (see 4.2):

The initiative "Hospital rehabilitation and reorganization program in Morocco" can be cited as an example with potential for corresponding advice. Financed by the European Investment Bank (EIB), GIZ IS has provided support in an initiative to set up and rehabilitate a total of 16 hospitals. The technical consultancy services also particularly include support for the tendering process for building initiatives and technical and medical equipment. GIZ IS also holds "awareness-raising workshops" on environmental standards for hospital construction and hospital management.[78]
Strong influence by interest groups on the technical specifications in tenders as well as the fact that separate institutions are responsible for training and maintenance work once the warranty period has expired pose a challenge to consultancy; GIZ does not act as an advisor here. One noteworthy positive point is that a two-year warranty period in tenders was asserted.

5. Conclusion: Potential for implementing systemic calls for tender

- There is potential for holding systemic calls for tender, in particular within the scope of identified thematic approaches of IT-supported information systems, telemedicine and advanced medical technology. Therefore, there is general potential when a planned, complex infrastructure investment for the sustainability of the measure has to involve a system change.
- The object of the tender is regularly a system or a functional (technical) unit where the focus is on the goals of the introduction or the setup, and therefore a performance specification based on functional criteria is beneficial.
- The actual and legal environment must enable the implementation, or it must be possible to implement necessary reforms promptly and effectively. The following points are amongst the significant factors:
  - Public procurement and budget law
  - Personnel and financial resources as well as technical competency of the parties who hold the call for tender and support or monitor the subsequent implementation
  - Political environment: Is the situation sufficiently stable, e.g. given the timescale for a systemic call for tender (decision based on fore casts)? Or is the closer involvement of private sector that results from a systemic call for tender (in the form of the bidder who wins the contract) desirable (and legally permissible)? etc.

77 GIZ, health centers for Ethiopia, http://www.giz.de/themen/de/24073.htm.

78 See 3.2.2. about the general legal framework and legislation of public procurement contracts in Morocco.

Part 3:
Study on the use of alternative procurement procedures in the healthcare sector for Development Cooperation

Dialog on systemic tender generation in the healthcare sector German Healthcare Partnership

October 2012

Assessors:
Mr Pieter Riemersma
Mr Dieter Nassler

List of abbreviations

ADB	Asian Development Bank
BMZ	Federal Ministry for Economic Cooperation and Development
DEG	Deutsche Investitions- und Entwicklungsgesellschaft mbH
GHP	German Healthcare Partnership
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (German Society for International Cooperation)
GMP	Good Manufacturing Practice
EU	European Union
EZ	Development Cooperation
FZ	Financial Cooperation
IFI	International Financial Institution
KfW	KfW Development Bank
LZK	Lifecycle costs
MoH	Ministry of Health
NRO	Non-governmental organization
PFI	Private Financing Initiative
PPP	Public Private Partnership
ToR	Terms of Reference
TZ	Technical Cooperation
WB	World Bank

1. Background, methodology and objective

1.1 Background

To ensure that healthcare facilities are outfitted with the best possible equipment, it pays off to make a large investment at the outset, because this enhances efficiency and lowers operational costs, e.g. for sterilization procedures and instrument management systems developed for this purpose (such as those shown in Appendix 4), over the serviceable life of the equipment. To this end, a systemic assessment over the serviceable life of the equipment is important for procurement.

The German Healthcare Partnership (GHP) aims to investigate the potential of systemic calls for tender in the healthcare sector in order to enhance the impact and sustainability of investments in health care in developing and emerging countries under German Development Cooperation (DC). Systemic calls for tender take into account the system's overall performance required in the course of its serviceable life (e.g. an operation). Prior to the study, several GHP partners strongly advocated this approach, including in a kind of position paper that explained issues surrounding tendering practice customary today and showed how systemic calls for tender could lead to improvements to create a win/win situation for users and suppliers.

Lessons learned from DC healthcare infrastructure projects show that the requirements for operation, maintenance and service are regularly underestimated by the project-executing agency and too few resources are then provided as a result. In addition, the increasing complexity of the technical systems requires more integrated approaches which no longer consider construction activities, technical equipment and services separately but together in an integrated approach.

Integrated approaches also make it possible to consider the serviceable life of a system at different system levels. Examples of system levels are device classes, functional units, etc. (e. g. operations or laboratories), the hospitals themselves or the regional/national healthcare infrastructure.

Systemic calls for tender with lifecycle assessment have the potential to increase the sustainability of a measure and optimize the relationship between functionality and investment/operating costs. Operating costs often considerably exceed investment costs although, in the DC context, the local development partner usually finances operation.

GOPA Consultants was commissioned with the study. The two procurement specialists, Pieter Riemersma and Dieter Nassler, conducted the study itself.

1.2 Procedure

The study was conducted in three phases: (i) data collection and definition of terms; (ii) synthesis with the results of an initial draft report and (iii) revision of the report to incorporate comments.

Following a kick-off meeting in Berlin on 8 February 2012, discussions were held during the first phase with prospective GHP partners and companies that are involved in healthcare infrastructure in developing and emerging countries. There was also extensive dialog with the KfW Development Bank, Deutsche Investitions-und Entwicklungsgesellschaft mbH (DEG), Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and GHP. DC projects that contain potential elements for an integrated call for tender were analyzed along with the current DC portfolio.

Information was synthesized in the second phase, resulting in a first draft of the report. During phase three, the results of the study were presented, comments from the GHP partners collected, including those made at a workshop in Berlin held on 22 June 2012, and the feedback from the GHP partners was incorporated into the report.

1.3 Objective

The objective of this initial study is also to draw up guidelines for KfW tender experts and make concrete proposals for implementing systemic tender documents in the healthcare sector, particularly at the functional unit level. The study also aims to contribute to the dialog between the partners working in the sector.

1.4 Scope of the study

The content of the study focuses on tenders financed within the scope of programs or projects of German Development Cooperation, especially healthcare investments in developing and emerging countries by Financial Cooperation (FC).

2. Definition of terms and general framework

2.1 Definition of terms

The definitions of the key terms “systemic tender” and “lifecycle costs” are important for this study.

Systemic tender	There is no formal definition of the key term „systemic tender.“ The word „systemic“ indicates an integrated approach to a tendering procedure, taking into account functions, systems and strategies. Systemic tenders aim to ensure the provision of functional groups or systems all the way to operation. A systemic tender takes into account the overall performance of the system required over it entire serviceable life and considers the lifecycle costs. It focuses on the functions and services that are to be achieved with the system. A systemic tender is thus a functional tender. After the basic requirements are identified, they are further developed in view of potential solutions, collaborating with potential bidders. This is designed to improve compatibility between planning and subsequent implementation. Integrated project planning is a basic prerequisite for systemic calls for tenders.
Training	When medical technology is procured, training services to instruct users and technical staff in the operation and maintenance of devices are usually included in the call for tender. These training services, however, are generally limited to simple device operation. More extensive training, such as the effective use of new devices and operative process training, is often not included. Tasks of this nature can be included in a systemic approach.
Maintenance services / service contracts	Service contracts are generally part of the call for tender for projects funded by FC and havea term of two to three years. The service contracts include repair services as well as preventive maintenance and service. The costs of the service contracts also cover the necessary spare parts, but usually no consumables. Service contracts generally include the performance of the devices and response and repair times in the event of damage. Because service agreements usually only go into effect when a project ends, the project-executing agency is usually responsible for contract management. In a small number of cases (e.g. Nepal), calls for tenders were issued for medical technology service agreements to procure maintenance services for several healthcare facilities over a longer period of time (between three and five years) in a region or country.
Lifecycle costs (LCCs)	Lifecycle costs are costs that arise over the entire serviceable life of a system. Apart from acquisition costs and installation, they also include maintenance, consumables, training needs, energy consumption, waste removal, disposal and personnel costs for operation. Lifecycle costs have to be considered for systems with more complex components for a sound, economic decision to be reached, because the pure acquisition costs only represent one part of the total costs, and other cost elements can therefore have a considerable impact on the award of a contract.
Technical operations management	Technical operations management includes the provision of devices, consumables and the maintenance of devices over a specific period of time, usually between five and ten years. Technical operations management can relate to a functional group (surgery, radiology or sterilization department) or entire systems such as building or medical equipment.

Tenders, as defined in this study, can be broken down into three main categories: traditional tenders, traditional tenders with systemic approaches and systemic tenders (see Fig. 2-1).

Traditional tender	• Supply (equipping or building, if applicable), installation and warranty services • May also include lifecycle costs, but this is rarely the case
Traditional tender with systemic approaches	• Supply (equipping or building, if applicable) and installation, training and long-term maintenance, provision of consumables • May also include lifecycle costs but almost never fully
Systemic tender	• Planning, supply/provision (equipping and building, if applicable) including installation and long-term maintenance, training and provision of consumables, all the way to roll-out • Inclusion of lifecycle costs

Figure 2-1: Types of tenders

For systemic tenders, a distinction must be made regarding whether the tender relates to a functional group (e.g. an operation) or an overall system (see Figure 2-2).

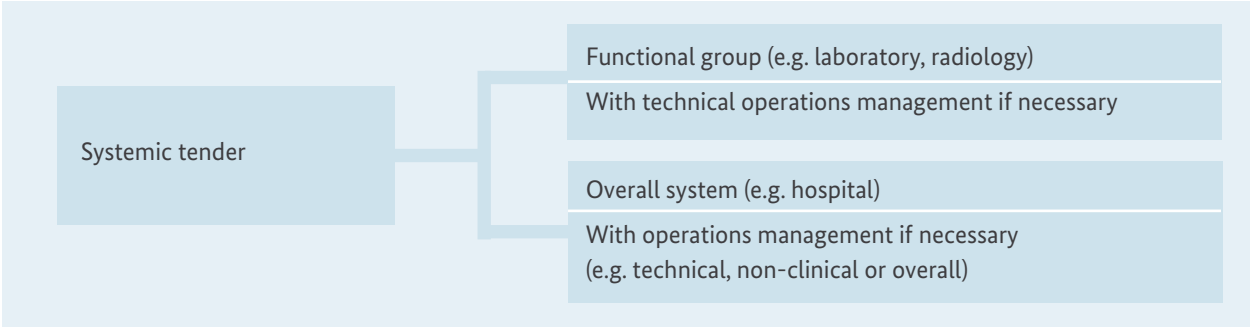


Figure 2-2: Different types of systemic tenders by scope

Other definitions of terms related to systemic tenders are summarized in Appendix 1.

2.2 Properties of systemic tenders

In the case of a traditional tender, planning, call for tender, implementation and maintenance are separate from one another. This creates a kind of "vertical split" which makes communication between planning and subsequent implementation more difficult, even when a consultant/architect/engineer is involved in both planning and implementation. A "horizontal split" also occurs if the contract is awarded in several construction or equipment lots because implementation is generally carried out by independent suppliers; this in turn creates interfaces that need to be coordinated.

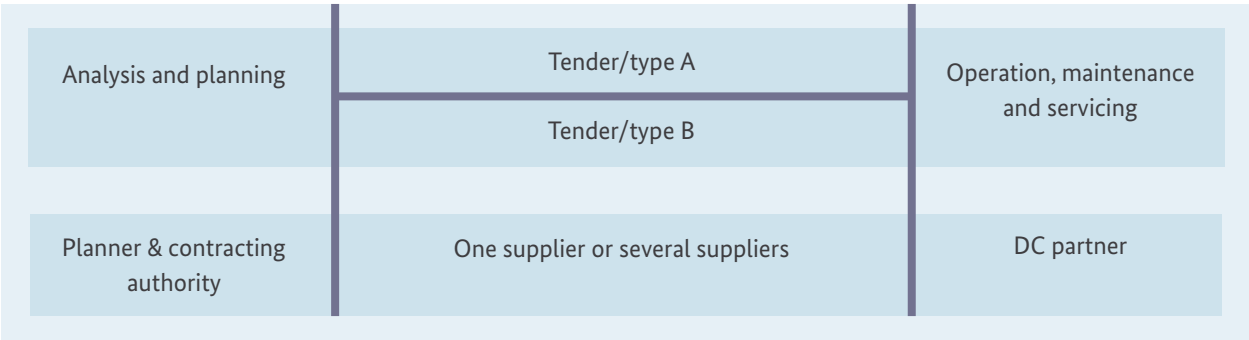


Figure 2-3: Traditional tender – horizontal and vertical break

A systemic tender is part of a systemic project assessment. In this assessment, after basic requirements have been identified in consultation with potential providers (e. g. general contractor), the exact detailed plan and specification of the construction and equipment is compiled, which is intended to improve the compatibility between planning and subsequent implementation.

Systemic tenders take into account the overall performance of the system required over its serviceable life. The focus is not on what the tender calls for but on which functions and services are to be performed with the system. A systemic tender is thus a functional tender.

A multi-phase process with an increasing level of detail is often used to reach a decision about the final bidder. In this case as well, the contracting authority normally involves a consultant/architect/engineer in basic planning, for support during the tendering procedure and to monitor implementation. This process prevents the "vertical split" and allows a solution to be provided from a "single source."

Properties of the systemic tender as compared to those of the traditional tender:

- Solution from a "single source" with economy of scale advantages for the bidder
- Because the contracting authority focuses on functional requirements, detailed implementation planning and specification by the contracting authority/ consultant is avoided and the procurement costs are thus lower in the preliminary stage of the tender
- Prevention/reduction of the "vertical split" between planning and subsequent implementation (see above). This allows the market proximity and experience of the bidder/executing agency to be used more effectively, helping to lower total costs
- Prevention/reduction of the "horizontal split" upon implementation of lots contractually independent of one another (see above)
- Significantly higher requirements for the contracting authority's capacity to execute the tender for more complex projects with several phases
- Increasing complexity and tendering costs for the bidders
- Contractor's risk premiums and planning activities must be included in the price calculation. They should, however, be compensated for by lower costs arising from more effective use of the market proximity and experience of the executing agency.

2.3 Lifecycle costs

Lifecycle costs are costs that arise over the course of the serviceable life of a system. In addition to acquisition costs including installation, expenses for maintenance, consumables, training requirements, energy consumption, waste removal and disposal, etc. can all play a role. Lifecycle costs have to be considered in order to make a sound economic decision in the case of systems with more complex components.
When defining the "system," the time frame (serviceable life) and any related services to be included in the tender after construction/supply is completed (maintenance, training, operation) therefore play an important role.

Including the lifecycle costs in a tender allows the most economically advantageous solution over the serviceable life of the system to be identified. This prevents a solution with low investment costs but higher lifecycle costs from being chosen. The following aspects also need to be considered:

- The tender documents must include the information about relevant lifecycle costs, to be supplied by the bidder.

- The evaluation methodology must be adapted to determine the most economically advantageous solution from among the compliant bids in order to include all relevant lifecycle costs.

To this end, criteria are needed that can be both quantified and judged objectively. In cases where it is difficult to make factors objective, evaluation point schemes can be helpful.

Although this methodology is more complex and requires more expertise, it is essential to determining the most economically advantageous solution.

At this point, it should be mentioned that lifecycle costs can be taken into account when a contract is awarded, but they do not necessarily have to be part of the contract.

2.4 Examples of systemic tenders

Systemic calls for tenders in the healthcare sector are rare and are mainly carried out in industrialized nations and emerging countries. Systemic tenders have hardly been used in developing countries to date.

Systemic tenders are certainly not the norm in industrialized nations either. An example of a systemic tender in Germany is the Kassel Clinic (Klinikum Kassel) which signed a supply contract in 2011. This contract includes the provision of medical devices including consumables and the maintenance of the devices over a longer time period. Similar approaches exist for radiology and sterilization departments.

An example of a tender with systemic elements funded with FC resources is the "Sector Programme Health & Family Planning" in Nepal. The program includes, among other things, the tender for maintenance services for medical devices over a time period of four years in two of the five regions of Nepal.
The agreement between KfW and the Department of Health Services also includes an annually increasing financial contribution by the Ministry of Health to the costs.

Under FC financing of the TB II program in Uzbekistan, the expansion of a laboratory in Tashkent to become the national reference laboratory which included renovation of a building, installation of a ventilation system and equipment was designed as a turnkey tender.

In Malaysia, a call for tender was issued in 1997 for non-clinical services for all public hospitals (contract term 15 years); these contracts were extended again in 2011.
The call for tender included: (i) servicing of building and medical equipment, (ii) disposal of clinical waste, (iii) cleaning and (iv) laundry services including the provision of linen. The lessons learned from the service contract are particularly beneficial for the Ministry of Health and the hospitals because there is only one contact person who, in turn, relies on experts qualified and certified by manufacturers.

Appendix 4 contains further information in addition to the examples from Nepal and Malaysia.

2.5 General framework for Development Cooperation and systemic tenders

As shown below, the general framework for FC makes systemic tenders possible.
Systemic tenders, however, already have to be considered early on in the project cycle. For FC development partners (generally ministries of health), however, the environment for systemic tenders is often difficult

with regard to a country's award law and institutional capabilities.

BMZ general framework for Financial Cooperation

The guidelines for Development Cooperation created by the Federal Ministry for Economic Cooperation and Development (BMZ)1 state that "sponsorship and responsibility for development measures - and thus also their preparation and implementation - lie with the development partners who without further support also subsequently assume responsibility for and continue the tasks initially handled by the German side." FC mainly finances fixed capital expenditure, material goods and consumables. In every country, priorities for German bilateral development policy are set in collaboration with the partner country. "Health" is one of a total of 10 priority areas. It is currently a priority area in 12 African and Asian countries.

The executing agency is generally supported by external consultants in planning the project/program and preparing a feasibility study (FC Study and Consultancy Fund). In every FC project, the detailed potential of and risks associated with sustainable operation are analyzed and, if necessary, risk mitigation measures are planned. After the feasibility study is reviewed, usually by KfW, and approved by the BMZ, the financing contract between KfW (representing the BMZ) and the respective partner country (usually the Ministry of Finance) and Special Agreements with supplementary project-specific details are signed with the project-executing agency (e. g. Ministry of Health). This is followed by a call for tender to identify the consultant who will support the project-executing agency in the implementation of the project.

The key overall conditions for a project are defined in the feasibility study and then in the financing contract / Special Agreements. Because the systemic approach also includes the longer term operation, the general framework conditions have to be defined in the feasibility study for this more encompassing approach.

The KfW guidelines for the award of supply and service contracts apply to tenders. In addition to "traditional," international, open calls for tender, the guidelines also include other forms of procurement, e.g. local calls for tenders, limited calls for tenders, quote requests, direct award and multi-phase procedures. Because systemic tenders can entail a multi-phase process after a pre-qualification stage, this option is important.

The guidelines say: "In the case of complex technical projects, particularly turnkey tenders (BOT, BOOT, etc.), an exact technical specification is often not possible in advance. In these cases, a multi-phase tendering procedure can be used. Details of the procedure are agreed between the project-executing agency and KfW in the course of the review."

This section makes it clear that completely systemic tenders are allowed under the existing KfW guidelines as long as the relevant details are taken into account during the conceptual phase and are then agreed accordingly.
The DC/FC general framework is therefore sufficiently flexible.

General framework for development partners

The DC/FC development partners in the healthcare sector are generally the ministries of health with, if applicable, specific executing agencies that usually report to the ministry. In special cases, institutions other than state agencies can also function as executing organizations (e.g. NGOs)[1].

Apart from their regulatory function, ministries of health with their lower-level offices and agencies act more like service providers and are organized accordingly. Administration of the building infrastructure and its maintenance is often completely separate from the procurement of equipment and consumables. Equipment maintenance and servicing is often only inadequately organized. Institutions that also procure medicines and contraceptives (e.g. Central Medical Stores) are usually responsible at the national level for procurement in the healthcare sector. They are often understaffed and underfunded.

As KfW acknowledged in its guidelines for awarding contracts, the project-executing agencies and thus also the offices issuing calls for tender are usually subject to the respective national laws, which also include award law. In practice, there is often a clause in national award law that allows deviation from the national award law in the case of external financing, particularly for grants. In cases like these, the requirements in the

1 Leitlinien für die bilaterale Finanzielle und technische Zusammenarbeit mit Kooperationspartnern der deutschen Entwicklungszusammenarbeit (Guiding principles for bilateral financial and technical cooperation with partners of German Development Cooperation, edition 03-2007).

respective financing contract are usually applied. This often means that the requirements stipulated in the financing contracts are applied, but so are the requirements in the national regulation as long as they do not conflict with the conditions of the financing contract. The national award law, which may make no mention of systemic tenders, normally applies for partial financing from internal budgetary funds. This can make systemic tenders difficult or even impossible.

Over the long term, it would be both desirable and necessary to further develop the infrastructure of the public healthcare system in most DC target countries by shifting the orientation of the executing ministries from the operator to the contracting agency for the implementation of supply services. This would entail a change in focus from input to output and thus include more planning, supervision and monitoring functions. This kind of development would also considerably expand opportunities for private sector participation, mainly in operation, and create an environment for comprehensive systemic tenders.

In the currently prevailing institutional environments, systemic tenders are difficult for the project-executing agencies to implement in the short term and require institutional changes in the medium term.

3. Use of systemic elements in tenders

The use of systemic approaches for tenders funded by FC can be broken down into the following two categories:

Standard tender with systemic approaches	• Relatively easy to incorporate into tenders standard today
Systemic tender	• Used when the respective institutional environment exists to carry out a systemic tender and when • Systemic approaches are defined within the scope of project design

Figure 3-1: Systemic approaches – tender categories

In both cases, lifecycle costs should be taken into account regardless of which services are still required after supply.

Use of systemic approaches in standard tenders

The currently common tenders in FC-funded projects could be enhanced by systemic elements to achieve greater sustainability in the operation of healthcare facilities. As a result, some of the possibilities are explained in more detail:

- Lifecycle costs (LCC): Lifecycle assessments could be better incorporated into tenders for individual groups of devices (e.g. vehicles, laboratory equipment, washing machines). Criteria for the use of LCCs are the costs for: (i) expendables and consumables; (ii) electricity, water, fuel consumption; (iii) maintenance requirements and (iv) disposal. The mechanisms for the use and evaluation of LCCs in tenders are further described in chapter 5.

- Maintenance contracts: Most tenders for medical equipment already include maintenance services, usually for two years after the warranty period has expired. Corresponding service contracts are also included in some tenders. The goal should be long-term maintenance contracts to extend the serviceable life of the equipment. To ensure that these contracts are successfully implemented, effective supervision and management of the service contracts is necessary.

- Certification: ISO 13485 (Medical devices – Quality management systems – Requirements for regulatory purposes) should be applied in tenders as a condition for tender approval.
  The same applies to products (CE mark or equivalent from other industrialized countries).

- Training and further education: Training measures are usually included in the supply services.
  Basic training usually covers technical operation of equipment and basic service activities. Future tenders should include training that is more sustainable, with refresher courses after the warranty has expired. The equipment manufacturer or supplier could be requested to hold certification training which qualifies the participants to be trainers for specific groups of devices. Other possibilities for training would be functional or operative process training, e. g. technical courses on supplying sterilized goods.
  This kind of functional training could be supplemented by a series of operative measures, e. g. infection control, waste management or service management.

The systemic incorporation in tenders of the elements that are listed above would further improve the sustainability of medical equipment supplies and raise the bar for supplier quality requirements. Introducing these elements, however, requires that tenders be better prepared and follow-up support provided for projects, not least of all to ensure that training and maintenance are carried out in compliance with the terms of the contract. This generally implies higher requirements for the capacities of the development partners for contract management, with external support if necessary.

3.2 Use of systemic tenders

Systemic tenders relate to more complex projects or project components. Several examples which would lend themselves to systemic tenders are stated here. The case studies relate to upcoming projects or are assumptions about these kinds of approaches that could be funded within the scope of FC:

- Functional groups
- Technical operations management
- Telemedicine
- IT
- Operational management of the hospital

3.2.1 Supply of medical equipment for functional groups

Tenders for complete functional groups (e. g. laboratory, radiology, surgery) are rare, because the projects usually finance medical equipment for existing facilities. In the future, however, these types of tenders could play a larger role.

3.2.2 Technical operations management

Tenders for technical operations management could apply for a hospital or for specific functional groups. The tender can include the supply of equipment and technical operations management where technical operations management is defined as the maintenance and provision of consumables. These types of contracts should have a minimum term of five years to guarantee that responsibility is transferred gradually. An alternative could be the provision of a functional group where the owner of the equipment is not the hospital. Technical operations management should be remunerated using service records (time sheets) and should set clear parameters for service provision (available operating times, response time, etc.).
Technical operations management concepts are becoming increasingly important and could also be applied in Development Cooperation in the near future.

One special option is outsourcing maintenance services. Maintenance services have been outsourced in the past for equipment already provided by several suppliers after the warranty or contractual supplier maintenance period has expired (Nepal, Kyrgyzstan), but this is relatively uncommon. The services can relate to a region, country or device category (radiology, intensive care). Contracts of this kind should be concluded with experienced companies with qualified staff (preferably trained by manufacturers) over the long term (at least five years). Clear agreements with the development partner must be reached to ensure the sustainability. The share of costs borne by the development partner should increase gradually and amount to 100% by the end of the term.

3.2.3 Telemedicine

The area of telemedicine is characterized by the dovetailing of very different functional groups not normally bundled together in a conventional tender approach. To successfully implement a telemedicine project, it is necessary to ensure compatibility between medical technology, teletechnologies, computer hardware and software as well as the physical facilities and electrical equipment. In the conventional approach, many of these services would be dealt with separately and, in some circumstances, even supported by different consultancy partners.

The integrative aspect of telemedicine thus requires a systemic approach. Telemedicine equipment would be considered a functional group in this approach, unrelated to technical device categories. A call for tender would be issued as an overall package for the individual components. This ensures that the individual components also actually work together as a functional unit and the target results (e.g. diagnosis, training, etc.) are achieved.

In the area of telemedicine, the systemic approach requires considerably more time and effort for project planning and also sets strict requirements for support advisory services and administration (in this case, particularly for needs assessment and tender management).
On the other hand, a systemic approach significantly reduces the need for communication between interfaces and prevents technical and organizational incompatibility.

The inclusion in a tender of complementary measures after implementation would make it possible to support the development partner in a number of aspects, e. g. in developing telemedical guidelines. It would also make sense for the development partner to assume responsibility for technical operating costs gradually and not immediately, because it can take two to three years in some cases until the development partner is

ready to meet the financial and organizational requirements of telemedicine deployment on his own and, during this period, there is a risk that telemedicine could be abandoned or even rejected in the future.

3.2.4 IT

For healthcare facilities in developing or emerging countries, introducing information technology is a considerable paradigm shift that not only involves technical aspects but also the entire operational structure.

Because the conventional approach to tender and supply is usually not sufficient for successful IT implementation, additional services for consulting and implementation support are often provided separately. It would, however, be beneficial to carry out IT projects with a systemic tender that covers evaluation, procurement, implementation and supported operations.

Experience gained in all previous phases is incorporated directly into the procurement process in a systemic approach. This improves communication between financers, consultants and development partners and keeps the number of interfaces needed to a minimum.

A systemic approach should also include a follow-up phase, on the one hand to support the development partner with expertise in the critical first months after the switch and, on the other to make it possible to evaluate the project after the fact and assess the benefits of the measures.

A systemic tender for IT projects should also include a transition phase for operation and maintenance funding. Hospitals that switch from manual operation to IT-based operation often underestimate the financial resources required to operate the system. A progressive assumption of these costs makes it possible for these facilities to gradually adapt their budgets and reduces the risk that parts of the system are not used due to insufficient funds.

The use of systemic, holistic approaches for interdisciplinary projects, e.g. telemedicine or IT-based operation, generally requires greater effort which is, however, substantially offset by greater sustainability and a reduction in potential project risks.

3.2.5 Management of hospital operation

Calls for tender for the management of hospital operation or the operation of a functional unit have not been issued to date within the scope of FC. These kinds of projects would potentially be very well-suited to systemic tenders and should be taken into account when developing the relevant projects within the framework of DC/FC.

For hospital operation, there are models of management contracts with or without a contribution to risk capital, of a Public Private Partnership with a contribution to risk capital by the operator or, if applicable, complete private investment with private operation. These are practiced in industrialized and in some emerging countries. In the case of a developing country, it is likely that only the model of a management contract could be considered, although funding could not be provided solely from FC resources. Mixed financing would be unavoidable in this case, requiring additional state funds from the partner country at a minimum and possibly private financing.

4. Recommendations for compiling tender documents for lifecycle assessments and systemic tenders for FC projects

4.1 Recommendations for lifecycle assessments for conventional tenders and evaluations

It makes sense to incorporate lifecycle assessments in tenders if costs other than the acquisition costs play an important role during the serviceable life of the equipment.
Criteria for the use of lifecycle costs (LCCs) are the expenses for: (i) expendables and consumables; (ii) electricity, water, fuel consumption; (iii) maintenance requirements and (iv) disposal. This could be the case for e.g. laboratory equipment, washing machines and vehicles.

The goal of including lifecycle costs is to award the contract to the bidder with the lowest relevant lifecycle costs (the "economically most advantageous bid").

To achieve this goal, it is necessary to identify all relevant costs over the serviceable life of the equipment. The table below provides an overview of the costs to be potentially included and how to identify them.

Elements of lifecycle costs

Goal: Determination of the net present value per device type for the serviceable life, or the average annual net present value for lifecycle costs. When determining these values for several device types, the results for the individual device types have to be added together.

To be defined: The economic serviceable life (based on a specific output/year, e.g. the number of tests to be conducted). The data must be substantiated by the bidder. The discount rate adjusted for inflation (e.g. 2%) must be defined by the contracting authority.

Type of costs (for a device type)	Determined on the basis of bidder data	Info required from the contracting authority	Determined by contracting authority	Comments
Purchase price, potentially incl. installation	Financial bid			
Training/instruction for equipment to be supplied	Should be included in the financial bid	Type and scope		
Other training / further education	Financial bid, only when specified by contracting authority	Type and scope		
Maintenance as a component of the tender	Financial bid	Type and scope, i ncl. degree of use		Annual costs necessary
Maintenance not included in bid	Partially, e.g. info for the expected costs of maintenance should be separated by spare parts and wages	Degree of use, e.g. request an estimate for the anticipated expenses for maintenance from the bidder or minimum info on spare parts (consumption) with costs for spare parts	For estimates not requested from the bidder	Basic annual costs necessary
Energy consumption	Specific energy consumption (elect./gas/fuel) per unit of power	Request information on the specific energy consumption per unit of power	To be estimated on the basis of the degree of use and current energy costs	Annual costs necessary
Consumables (incl. water/oxygen)	Manufacturer-specific consumables with costs Other: minimum information on required materials and quantities for the degree of use	Information on the degree of use (e.g. number of annual tests) Request bid for manufacturer-specific consumables in any case	For estimates not requested from the bidder	Annual costs necessary. If applicable, consider difference for multiple-use consumables
Abfallentsorgung	Information on required disposal (type and scope)	Request information on required disposal (type and scope)	Cost estimate based on bidder information on type and scope	Annual costs necessary
Restwert am Ende der Lebensdauer bzw. Entsorgungs-/ Verwertungskosten			Usually to be estimated by the contracting authority	

Type of costs (for a device type)	Determined on the basis of bidder data	Info required from the contracting authority	Determined by contracting authority	Comments
Personnel costs	Information on the personnel necessary for operation	Request information on the personnel necessary for operation	Estimate cost consequences for differences in personnel requirements	Only if differences in personnel requirements emerge as a result of differences between bids; annual costs
Any other costs (e.g. fees)			To be estimated by the contracting authority	If applicable

Table 5-1: Elements of the lifecycle costs

To prevent unnecessary costs for including LCCs in tenders, it is generally recommended to only include the respective components for the specific case. The relevant components are those for which considerable cost differences are expected between individual bids, thus individual components may be eliminated in specific cases.

If bids for the same type of device have a different serviceable life, a comparison can only take place based on the average annual lifecycle costs (net present value).

Evaluation and contract award

In the case of traditional tenders, the contract is usually awarded to the qualified bidder with the lowest price from among technically and commercially acceptable bids or the most favorable bid following a combined technical quality and financial bid evaluation. The quoted price generally relates to acquisition costs (e.g. device on-site, installed) and contains, if applicable, additional services such as maintenance and training if these were also included in the call for tender.

According to KfW guidelines (consistent with international best practices, e.g. ISO 10485 for "Construction Procurement"), other quantifiable criteria key to the success of the project can also be considered in addition to the bid price. These include operating costs and total lifecycle costs. These kinds of criteria (e. g. supply deadlines, supply of spare parts, training) can either be included individually on the basis of "acceptable / not acceptable" or according to an evaluation scheme with points allocated for the respective criteria. If the "acceptable / not acceptable" model is used, all criteria must be rated "acceptable"; whereas if a point system is used, generally the minimum score to be achieved has to be defined both for the individual criterion and overall. For the latter approach, it is possible to perform a combined technical quality and financial bid evaluation with a weighting between financial bid and technical quality properties. For traditional tenders with fully specified supplies/services of conventional goods, the technical quality properties are usually not weighted any more than 10%.

According to international best practices, lifecycle costs are included as a "quality attribute" which, as a result, can only be assessed with a weighting scheme to award contracts in a combined quality and financial bid evaluation. This, however, would for assessment purposes incorporate costs both in the quality assessment (lifecycle costs) as well as in the financial evaluation (financial bid which includes key components of the lifecycle costs) which, in the opinion of the assessors, would not be correct from a methodological standpoint.

The assessors thus recommend – as long as the relevant lifecycle costs can be calculated fairly reliably – awarding the contract to the qualified bidder with the bid with the lowest relevant lifecycle costs per year ("economically most advantageous bid") from among the technically and commercially acceptable bids. This generally applies for normal, traditional tenders with conventional goods. In the case of traditional tenders for more complex goods, a combined quality and finan-

cial analysis with weighting scheme can be applied, where the relevant lifecycle costs determined for the financial component are to be used.

It will sometimes not be possible to reliably determine all relevant lifecycle costs not contained in the financial bid, e.g. due to insufficiently verifiable basic information to determine individual elements. If this is foreseeable and the relevant lifecycle costs can nonetheless be estimated fairly reliably, it is recommended that the combined quality and financial analysis be used, and that the quality weighting be raised to 20%. Of this figure, 10% would then be allocated for other relevant lifecycle costs not included in the financial bid and the remaining 10% for other technical and commercial factors.

If a reliable estimate of these LCC elements is not possible, the only reliable possibility is to award the contract to the qualified bidder with the lowest price (from among the technically and commercially acceptable bids).

The same applies to traditional tenders of construction projects with complete specifications.

4.2 Recommendations for systemic tenders and evaluations

This part of the guidelines is geared towards the functional unit level in the healthcare sector, e.g. operations, radiology or laboratories. Most recommendations, however, can also be applied at "higher" levels (hospital, regional infrastructure).

In the sense of a systemic tender for an integral healthcare infrastructure unit with functional requirements, the services to be provided by the contractor usually include a combination of design, construction, (medical and non-medical), equipment with possible additional (partial) operation over a longer period of time (10 - 20 years). The most common case is technical operation with maintenance of the equipment and, if applicable, with supply of consumables.

With this combination of services, it is probable that the contractor is a consortium of companies focusing on the sub-sectors of the services or a general contractor with sub-contractors for several of the sub-sectors.

This does not take into account a private contribution from the contractor to financing (risk capital and loans) because firstly, this is more relevant for larger projects at a higher level (e. g. hospital) and secondly, a combination of DC funds and funds from project-executing agencies is likely to be too complicated in the DC/FC context.

There are publications that deal with best practices in the implementation of functional tenders, e.g. for the Competitive Dialog, an EU process that was specifically designed for these types of tenders, mainly in the PPP context, and may also be used in the EU's DC, however only after specific justification and approval.
Several of these publications were considered by the assessors. The references listed in Appendix 3 contain further references.
Several publications of the Fédération Internationale des Ingénieurs-Conseils (FIDIC) are also relevant, in particular:

1. FIDIC Procurement Procedures Guide – 2011 (starting with the project concept)
2. FIDIC DBO (Design Build Operate) Contract Guide – 2011 with Conditions of Contract for Design, Build and Operate Projects
3. FIDIC Contract Guide for Construction; Plant and Design Build; and EPC (Engineering, Procurement, Construction)/Turnkey - 2000 with Conditions of Contract for Plant and Design Build – 1999, Conditions of Contract for EPC/Turnkey Projects – 1999
4. FIDIC Standard Pre-qualification Form for Contractors – 2008

The FIDIC publications originated in the construction sector. With their supplementary publications, first "Electrical and Mechanical Works" and later "Plant and Design Build," they provide a basis for the combined procurement of construction services and the associated equipment. The documents are relevant for systemic tenders (with functional requirements) for which the design is created by the contractor.

Overall, the FIDIC publications form a "family" of coherent documents designed for use in different sectors (e. g. energy, transport or healthcare). They often make reference to developing countries and IFI financing, particularly in the FIDIC Procurement Procedures Guide.

This makes these publications generally relevant to the extent that they are recommended as reference documents with a much more in-depth level of structure of the tendering procedure and the tender and contract

documents than is possible in this context.
When FIDIC created the documentation types, it prioritized a fair distribution of risks between the contracting authority and the contractor.

The above "Conditions of Contract for Plant" and "Design Build" shall generally be used if the contracting authority plans to be heavily involved in monitoring (and this implies several authorization levels) during the design and implementation phase, with the respective risk distribution between the contracting authority and the contractor. As a result of the contracting authority's heavy involvement, some of the documents convey the impression of specified performance instead of functional requirements and are thus less suitable for systemic tenders with functional requirements.

In contrast, the documentation corresponds to the requirements for a systemic tender both for EPC/turnkey as well as DBO (Design, Build, Operate). Most risks are borne by the contractor in these cases.

Phases of the procurement procedure

A decision already needs to be reached about implementation as a (systemic) tender with functional requirements (see also chapter 3, FIDIC Procurement Procedure Guide contains a lot of information on this issue) as early as the project review phase.

As is standard in the DC context, the contracting authority normally involves a consultant/architect/engineer in basic planning, compiling the tender documents, support during the tendering procedure and the monitoring of implementation.

Taking into account best practices (also for the EU's Competitive Dialog), the following phases are recommended for the procurement process continuing through contract award.

1 Pre-qualification
Goal: Create a "shortlist" of qualified potential bidders for the subsequent process below.

2 Dialog
Goal: Fine-tune the contracting authority's requirements and the structure of the tender documents in consultation with the companies on the shortlist (bidders) in order to then carry out a definitive call for tender.

3 Call for tender for a final bid
Goal: Obtain technically and financially acceptable bids from the remaining bidders.

4 Evaluation and contract award
Goal: Award the contract to the bidder with the most economically advantageous bid.

These phases are further explained in Appendix 4 and detailed for specific requirements for systemic, functional tenders taking into account the LCCs. The FIDIC documents mentioned above are referenced for a further level of detail.

For the assessment, a combined technical and financial evaluation focusing on the technical components is recommended because there is no final product to evaluate in this case, only the ability of the bidder to provide the services required with his/her own design. The LCC elements not included in the financial bid are included in the technical evaluation.

Appendix 4 contains examples of a how lifecycle cost calculations can be concretely applied, one example from the GHP and one created with GHP partner support.

5. Final remarks

Possible approaches for systemic tenders within the scope of DC have only been used to a limited extent in the past, because the elements of systemic tendering are complex and the partners insufficiently sensitized.

This report discusses suggestions on how to improve the sustainability and cost effectiveness of DC-funded supplies and services through tenders with a more integrated approach to investment (supply/construction) and operation and that include relevant lifecycle costs. The approaches can be broken down into the following two categories:

- Traditional tender with systemic elements, particularly for maintenance, training and inclusion of relevant lifecycle costs
- Systemic tender based on functional requirements and serviceable-life assessments, particularly for the construction of healthcare infrastructure or healthcare systems and their (partial) operation.

We recommend consistently including and applying the first category (elements that can relatively easily be incorporated into traditional tenders). This applies to both ongoing programs and programs that are currently in the preparation phase. Although this is already taking place in some cases, it is not being consistently applied for all programs. This would positively affect sustainability and economic efficiency in a relatively short period of time.

The second category can only be considered for new programs because the necessary prerequisites already have to be included during the program preparation phase. One goal is to reliably show and include the economic benefits of a systemic tender so that tender documents are created that make it possible to objectively compare bids. Even then, the use of systemic tenders is expected more on a case-by-case basis because, on the one hand tenders are relatively uncommon for more extensive healthcare infrastructure or healthcare systems and (partial) operation. On the other hand, the institutional environment in many developing countries is an obstacle to implementation. The goal, however, is to make use of opportunities that arise.

Appendix 1
Definition of terms

Appendix 1: Definition of terms

This appendix explains several additional terms related to the forms of (systemic) tenders. It must also be kept in mind that there are no generally accepted definitions.

Terms for systemic approaches and forms of tenders

Relatively common terms related to alternative approaches include:

- DB(T) – Design, Build, Transfer – design and turnkey production from a single source, from a general contractor/consortium who bears complete responsibility vis-à-vis the contracting authority on the basis of specified (often functional) requirements.

- DBO(T)- Design, Build, Operate, Transfer – similar to DB(T), but with defined, often long operation with operational parameters to be satisfied that are the responsibility of the contractor. The contractor is usually a consortium, where there are normally different partners for production and operation.

- DBOO(T)- Design , Build, Own, Operate, Transfer – similar to DBO(T), but with "contractor" ownership (and thus financing and income/revenues from operation) for a fixed operating period. After this period is over, the project becomes the property of the "contracting authority" and operation is generally continued by the contracting authority.

- BO(T) - usually used as a synonym for DBO(T)

- BOO(T) – usually used as a synonym for DBOO(T)

Private Finance Initiative (PFI) is a way to form public-private partnerships (PPP) to finance public infrastructure projects with private capital. PFIs originated in Great Britain and Australia and is now practiced with different variations in many countries. It is controversial to what extent these partnerships actually always bring value for money.

These types of developments have also occurred in emerging countries, e. g. in Malaysia in hospitals (design, build, equip and operate for 25 years). An example is provided in Appendix 2.

Appendix 2
Examples of systemic tenders

Appendix 2: Examples of systemic tenders

Maintenance Nepal (KfW)

The maintenance services through a Maintenance Contractor (MC) will cover planned preventive maintenance (PPM), corrective maintenance (CM), operational end-user training and technician training for selected medical equipment in all listed public health facilities in 24 districts of mid-western and far-western regions. In addition to these services, the MC will be responsible for the procurement of spare parts, as required. Objective of the programme is to strengthen health services by reducing breakdown time of medical equipment through regular maintenance services.

Result of the three year programme:

- Service contract/s with private maintenance companies are established;
- Inventory of medical equipment conducted and inventory system in place;
- Physical Asset Management (PAM) unit established and working at the MD;
- Users of medical equipment are trained;
- Setting up a maintenance fund to achieve sustainability.

Contract award in 2010 and contract is ongoing.

Malaysia's approach in privatising non-medical services

The privatisation of hospital support services by the Malaysian government has taken place in January 1997 for the period of 15 years. This privatisation included general, district and nucleus hospital and covers about 123 hospitals and institutions under Ministry of Health with a total of about 50,000 beds. The Contracts have been extended for an additional 10 years in the year 2011.

The main objective of such implementation was to enhance the quality of medical services in government sector. All the government's doctors and nurses will concentrate their discipline in providing medical and health services to the public and other group of hospital support team will contribute their expertise on maintenance of all equipment and facilities available in hospitals.

The scopes of services falling under the hospital support services are the following:

- Facility engineering services;
- Biomedical engineering services;
- Clinical waste management services;
- Housekeeping services;
- Linen and laundry services.

Three Malaysian contractors (north, south of peninsula Malaysia and East Malaysia) have been awarded with a contract and all of them had international partners in developing the expertise and know-how. The biomedical engineering service contract is a comprehensive covering all the expenses including spare parts on a lump sum basis. The equipment will be repaired and preventive maintenance will be conducted for the life span of the equipment, which is in general 10 years. Specialised services are subcontracted to manufacturers.

The government has introduced a comprehensive mechanism to monitor and ensure that all concession companies need to deliver their services as stipulated in contract document. For example, a Master Agreed Procedure (MAP) document explains the details of scope of services for each category of service. The other reference document is the Technical Requirement and Performance Indicator (TRPI) which states all the details pertaining with technical compliance, procedure and agreed standards to be followed during implementation of non-medical services to be provided.

In addition, a quality assurance programme is applied for implementation by the Concession Company to enhance the continuous improvement of hospital support services in addition of having accreditation such as ISO9002.

There is an independent agency engaged to assisting the government in monitoring as well as auditing all concession companies. A deduction formula to the monthly payment received by a concession company will be imposed if they have failure to provide their services in accordance to MAP and TRPI.

In the initial stage some concern especially by the hospital staff was raised, meanwhile all parties agree that the service provided by the companies is good and

there is no medical equipment out of service for more than few days and emergency services for essential equipment will be provided within hours. It must be mentioned that the cost for such comprehensive maintenance services are considered high. The contract for outsourcing is paid by the Ministry of Health without external funding sources.

Appendix 3
Systemic tender: Details of the tender phases and evaluation with inclusion of LCCs

Appendix 3: Systemic tender: Details of the tender phases and evaluation with inclusion of LCCs

1 Pre-qualification

Goal: Create a "shortlist" of qualified potential bidders for the subsequent process below. The number of bidders should preferably be three to four to guarantee competition and limit the time and cost associated with the tender (for the contracting authority and bidders).

Announcement: Public, as invitation for pre-qualification (if applicable, after a public pre-announcement).

Documents required from the contracting authority:

- Invitation to pre-qualification
- Information on the PQ procedure, including submission and qualification as well as shortlisting criteria for applicants. The requirements generally involve financial and technical/organizational capacities of the applicant and relevant experience. Enough time should be granted for submission (at least four weeks). More time is appropriate if consortiums are expected to be formed
- Project description with type and scope of supplies/services, incl. planned services after supplies are complete, e.g. maintenance and training, financing, global scheduling, planned evaluation and contract award criteria for the tender (these must already be mentioned here if the LCCs are included)
- Forms to be filled out by the potential bidders.

Evaluation: Generally based on a point system in an evaluation scheme, broken down into financial, technical-organizational criteria and experience, with a minimum score per criterion. If applicable, financial evaluation can take place on a yes/no basis regarding the satisfaction of the criteria; then only the other aspects are evaluated with points. The shortlist (e.g. three bidders) is reduced to the target number by selecting the highest-ranked bidders.

2 Dialog

Goal: Fine-tune the contracting authority's requirements and the structure of the tender documents in consultation with the companies on the shortlist in order to then carry out a definitive call for tender.
We do not recommend reducing the number of bidders at this stage of a selection process even though this is permitted!

The contracting authority's requirements generally involve the functional, output-based requirements for build, equipment and operating elements with quality and technical norms as well as standards for processes and products. Appendix 2 contains some information about the norms, standards and certification to be used.

Methods:
A: After presenting the solution preferred by the contracting authority and discussing how this solution can be improved, the bidders create interim technical bids based on the contracting authority's solution. These bids may contain technical or commercial deviations or variants. Alternatively, it is possible for bidders to create technical bids solely on the basis of the functional requirements. This, however, is not recommended because the solutions may then differ significantly, making the rest of the procedure more difficult.

B: After evaluating the interim bids, a dialog is carried out with individual bidders to coordinate and define changes to the solution preferred by the contracting authority. Once the solution preferred by the contracting authority is final (or bidder solution, if applicable), the dialog phase formally ends.

Nach Festlegung der endgültigen vom AG bevorzugten Lösung (oder ggf. Bieterlösung) wird die Dialogphase formell beendet.

3 Call for tender for a final bid (also called best and final tender or final tender).

Goal: Obtain technically and financially acceptable bids from the remaining bidders.

Methodology:
The bidders are asked to submit a final technical and financial bid.

Documents required from the contracting authority:
Letter of invitation:
Tender documents consisting of:

- Information for the bidder with details on preparation and submission of a bid as well as evaluation/ contract award
- Requirements of the contracting authority. This basically involves the functional, output-based requirements for the construction, equipment and operating elements with quality and technical standards as well as norms and standards for processes and products.
- Other information to supplement the contracting authority's requirements and essential to a well-founded bid (e.g. drawings, role of the parties, contracting authority's representatives, contractor, etc.- in project implementation, performance monitoring, acceptance tests, mandatory guidelines for quality, health, safety and the environment)
- Sample contract with contract conditions. If required due to a separation between FC and project-executing agency financing, the contract can be subdivided into Design-Build with FC funding and Operation with project-executing agency funding
- Required collateral (bank guarantees)
- Forms for the bid letter and all bid documents to be filled out by the bidder (e. g. price sheet)
- List of documents or information to be additionally supplied by the bidder (e. g. CVs of the key staff in the bid). For LCC inclusion, all relevant LCCs that are not part of the financial bid are included (for possible relevant LCCs, see list of the LCC elements under 5.1). Note that, with the exception of DBO with complete operation over the entire serviceable life, the financial bid of all other variants will likely not contain all relevant LCCs.

4 Evaluation and contract award

Goal: Award the contract to the bidder with the most economically advantageous bid.

When evaluating tenders for which the contractor carries out the design or key parts of the design for the supplies, the technical capability of the bidder and the corresponding methodology for the design and the subsequent supplies/services are of primary importance in addition to the bid price. In addition, the "product" itself cannot yet be evaluated because it still needs to be designed – at least in part. As a result, for this kind of tender a combined technical quality and financial bid evaluation with a defined weighting between financial bid and technical (and commercial) quality properties is recommended and standard. The quality properties may be weighted here at 60 - 85% and the financial bid at 40 - 15% accordingly.

Factors that can be included in the technical and commercial evaluation include:

- Suitability of contractor's organization, management and key staff for Design-Build
- Suitability of the methodology for the design and construction methods or production/procurement of the equipment
- Quality and readiness for operation of the equipment
- Minimization of impact of environmental factors during serviceable life and avoidance of dangerous substances
- Time to complete the functional unit
- For operating components in the bid (e.g. technical operation): quality of the bid (organization, personnel).

The factors have to be individually defined for every single tender with a weighting (a minimum score).

LCC inclusion in the evaluation

In addition, (relevant) LCCs should be included that are mentioned in the "best practices" under 5.1, generally included as a "quality attribute" for technical and commercial evaluation but not incorporated into the financial evaluation (of the financial bid). The goal here is minimum LCCs in combination with quality factors.

To resolve the "conflict," the following is proposed, taking into account the high relative weighting of the quality properties:

- As shown in the table under 5.1, several factors are incorporated into the LCC calculation. Some of these factors (acquisition costs and, if applicable, training costs, maintenance, etc.) are found in the bidder's financial bids. Others ("other LCCs," e.g. energy consumption, disposal, operating costs, etc.) cannot be directly incorporated into the financial bids and are taken into account in the technical evaluation of the bids.

- The evaluation of the LCCs contained in the financial bid would be the same as the standard evaluation for financial bids. The bid with the lowest LCCs in the financial bid is given the maximum score/percentage for the financial bid. For the other bidders, the percentage that their LCCs are higher is deducted.

- The maximum weighting to be reached of the "other" LCCs compared to the bid costs should be in proportion to the cost estimates before the call for tender.

- For the evaluation of these "other" LCCs, the bid with the lowest "other" LCCs would be given the maximum score/percentage.
  For the other bidders, the percentage that their LCCs are higher is deducted.

- The quality weighting that remains after the deduction of the maximum evaluation to be reached for other relevant LCCs is distributed applying the technical and commercial criteria.

An example is intended to explain this procedure. To this end, the following assumptions are made:

a) Ratio technical evaluation / financial evaluation = (80% / 20%)
b) Estimated costs for LCC factors that can be part of the financial bid (LCC(f)) = 100
c) Estimated costs for other LCC factors (LCC (t)) = 50

The LCC(f)/LCC(t) ratio in the example is thus 2/1. This ratio is now included in the evaluation of the technical bid. This means that half of the financial evaluation (10%) is assigned to the other LCC factors (LCC(t)). For the 80% distribution of the technical evaluation, this would mean that 10% is reserved for the evaluation of the LCC(t) costs and the remaining 70% is used for the evaluation of other criteria. When this procedure is applied, the weighting of LCC(t) increases in the technical bid for goods that have a higher ratio of LCC(t) (mainly key operating costs) to LCC(f) (mainly acquisition costs and part of the operating costs).

The evaluation of LCCs for goods that only have low LCC(t) is lower in the technical bid because they are then less important.
The procedure requires that a qualified estimate of LCC(f) and LCC(t) be carried out before the tender.

The contract should then be awarded to the bidder with a technically and commercially acceptable bid who was given the highest evaluation in the combined quality and financial evaluation.

We would point out that explanations from the bidders may be obtained for an evaluation if necessary, but changing the bid is not permitted.

After evaluation approval and contract award, the contract can be prepared if necessary. The next steps in the procedure fall outside of the context of these guidelines and are therefore not addressed.

Appendix 4
Example with a lifecycle cost calculation

GHP
german healthcare partnership

Systemic tenders integrate new innovative solutions and compare economic benefits over its life cycle

	Traditional Tenders		Systemic Tenders
1. Initial situation	Need for action is identified, e.g. need for replacement of medical equipment	=	Need for action is identified, e.g. need for replacement of medical equipment
2. Approach	Tender for known solutions are being published	≠	Solutions for the task at hand are researched and benefits of alternatives evaluated
3. Comparison of alternatives	After PQ of suppliers, purchasing prices plus elements of maintenance costs are being compared	≠	After PQ of suppliers, life cycle costs and other benefits are being compared

Whereas traditional tenders mainly focus on purchasing costs of known solutions, systemic tenders also consider new innovative solutions and compare them over the entire life cycle

The case of instrument trays for operating procedures is used to illustrated the benefits of systemic tenders

1. Initial situation

Nursing and medical staff report that hospitals often experience problems with instrument trays:

- inadequately maintained instruments in trays
- trays that do not contain the right instruments and are returned to the OR with items missing
- additional sterilization costs occur due to the requirement to open new trays to supply the missing instrument
- intraoperative delays, which may in turn delay the surgical schedule and put patients at risk

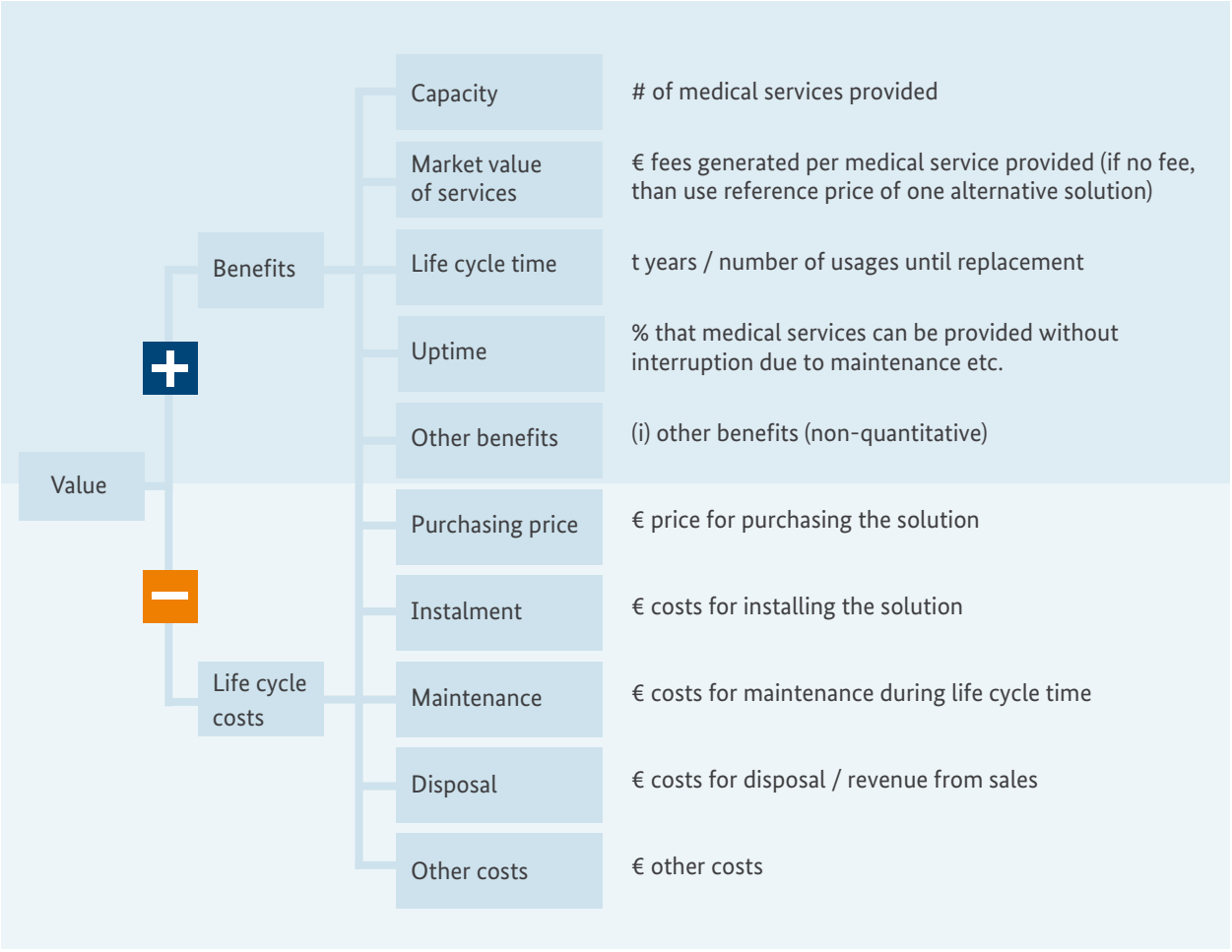
The traditional approach would be to order more trays; the systemic tender approach defines the system first

	Traditional Tenders	Systemic Tenders
2. Approach	Tender for known solutions are being published	Solutions for the task at hand are researched and benefits of alternatives evaluated
	Prepare purchase more instrument trays: • Identify suppliers of instrument trays	**Define the system that:** • reduces unnecessary sterilization • optimizes tray and instrument inventory • improves instrument composition of trays • Localizes instruments and trays
Traditional tenders ignore new innovative solutions:	**Solution arena:** suppliers of instrument trays	**Solution arena:** provider for medical instrument management solutions

Systemic tenders evaluate costs and benefits over the life cycle of the system

	Traditional Tenders	Systemic Tenders
3. Comparison of alternatives	After PQ of suppliers, purchasing prices plus elements of maintenance costs are being compared	After PQ of suppliers, life cycle costs and other benefits are being compared
	Purchase more instrument trays: • Compare prices of instrument trays:	**Compare value of alternatives:** • Life cycle costs (purchasing price, instalment costs, maintenance etc.) • Impact on efficiency and quality (capacity, value of services provided, uptime, updates, wastage etc.)
	Purchasing costs 	Costs, benefits  + Quality • Life cycle time • Hygiene • ...
	Purchase based **on price**	Purchase based **on value**

Costs and benefits can be quantified for a large part and complemented by non-quantitative measures



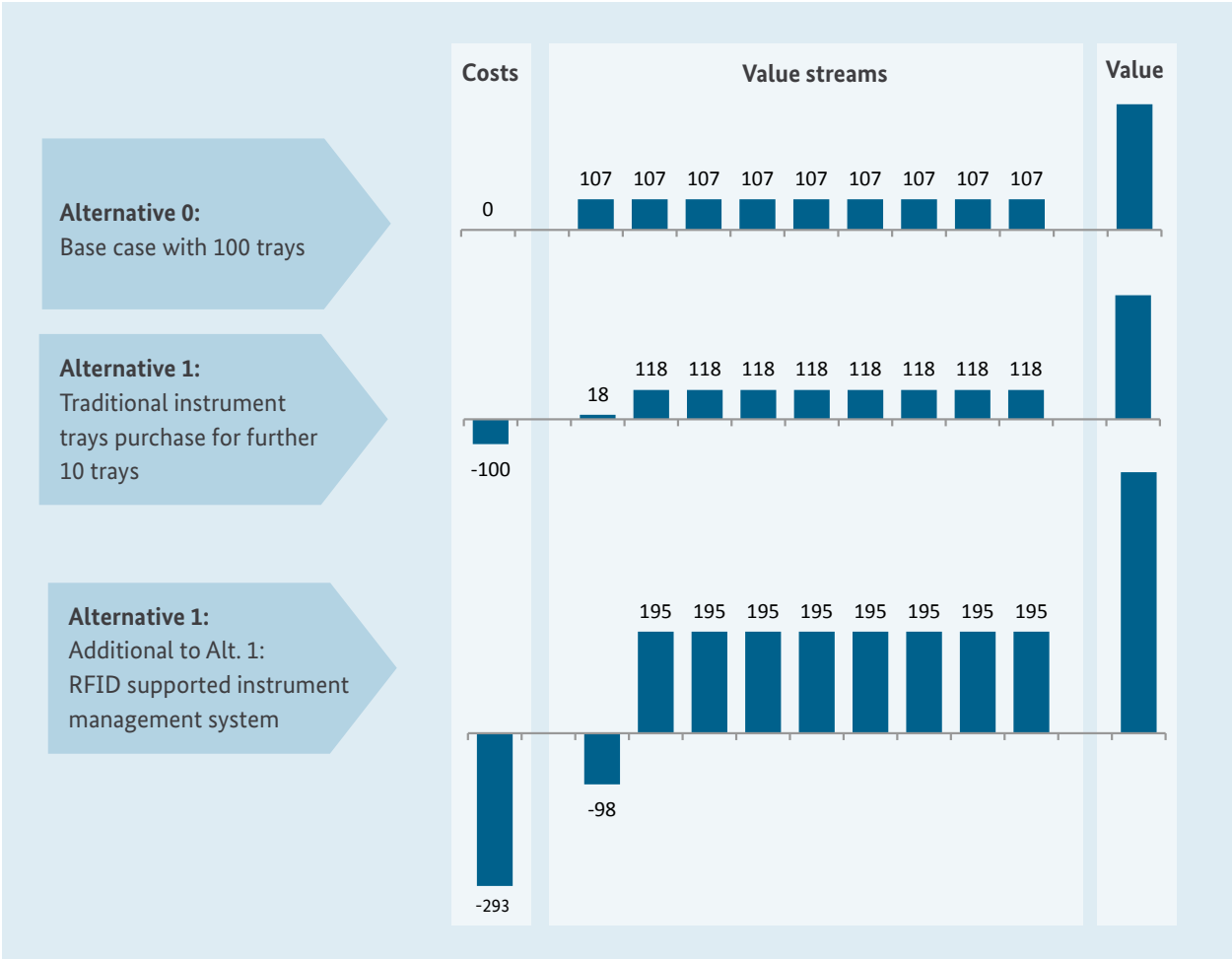
In the following assumption, two alternatives to the base case (100 trays) are presented: Alternative 1 and Alternative 2. In Alternative 1, the solution is simple: 10 additional trays are to be purchased to increase the capacity by 10%, thereby increasing the capacity for medical treatments from 1.250 to 1.375 treatments p.a.

Whereas in Alternative 2, an RFID supported instrument management system is being purchased and implemented. Due to the elimination of incomplete sets and thus no intraoperative delays, the capacity for medical treatments increases from 1.250 to 1.543 treatments p.a. Using Alternative 2, the downtime of the trays is reduced from 10% to 2% (which is due to software updates).

Alternative 1 leads to an increase of costs for sterilisation procedures: 16 sterilisation procedures for 110 trays cost 70€ per tray; 123.00€ in total (compared to 112.000€ for the base case). Alternative 2 saves 10% in sterilisation procedures, 8% fewer opened trays and 10% in personnel costs, making 91.809€ in yearly costs, saving 20.191€ p.a. only in sterilisation costs.

All in all, the net present value of Alternative 2 is 356.219€ higher than that of Alternative 1 (724.007€), being 1.080.226€. This concludes that even if Alternative 1 appears to be the less expensive option, the solution provided through the systemic tender, Alternative 2, provides the costumer with a value about one third higher than Alternative 1.

Case study: illustrating the return on investing in a new technology with initially higher costs



Traditional tenders come to different conclusions

	Traditional Tenders	Systemic Tenders
Alternative 1: Traditional instrument trays purchase	Buy this option: Price is about one third of alternative option	Don't buy this option: Value is about 27% lower than alternative option
Alternative 1: RFID supported instrument management system	Don't buy this option: Price is about two and a half times as high as alternative option	Buy this option: Value is about one third higher than alternative option

Assumptions and calculations for base case and alternatives 1 and 2

Assumptions

Definition of the system and its requirements:
The system requires to provide medical instruments for operation procedures

- in the right composition
- at the right time
- at the right place
- at the right quantity
- properly sterilized and ready for usage

			Source	Alternatives identified		
				Alternative 0	Alternative 1	Alternative 2
				Current operations with 100 instrument trays	10 additional instrument trays purchase at classical procurement	10 additional instrument trays purchase at systemic procurement including instrument management system
				No additional purchase	Purchase of 10 trays	Purchase of 10 trays and instrument management system
Benefits	Yearly Capacity	# of medical services provided	Invest+Rev d)	1.250	1.375	1.543
	Market value of services	€ market value of services per year	Invest+Rev e)	250.000 €	275.000 €	308.550 €
	Life cycle	€ instrument trays replacement costs	Costs b)	5.000	5.000	0
	Uptime	% that medical services can be provided without interruption due to maintenance etc.	Invest+Rev f)	90%	90%	98%
	Medical treatment costs	Reduction of sterilisation costs due to transparent process of trays management	Costs a)	112.000 €	123.200 €	91.809 €
Life cycle costs	Purchasing price	€ price for purchasing the solution	Invest+Rev a)	- €	100.000 €	247.000 €
	Installation	€ costs for installing the solution	Invest+Rev b)	- €	- €	45.500 €
	Maintenance	€ costs for maintenance during life cycle time	Costs c)	1.000 €	1.100 €	17.000 €
	Disposal / revenue from sales	€ costs (minus) for disposal or revenues (plus) from sales	Costs d)	- €	- €	30.000 €
	Other yearly costs	€ update of hardware	Costs e)	- €	- €	1.000 €
	Discount factor	%	7%			

c.p. no further cost enhancement arising from increase of medical services

Ancillary calculations – Investment and Revenues

	Alternative 0	Alternative 1	Alternative 2
	Current operations with 100 instrument trays. No additional procurement	10 additional instrument trays purchase at classical procurement	10 additional instrument trays purchase at systemic procurement including instrument management system
	No additional purchase	Purchase of 10 trays	Purchase of 10 trays and instrument management system
a) € price for initial purchase	n.a.	10 trays à 10.000 EUR	Software license à 60.000 EUR, hardware à 87.000 EUR, 10 trays à 10.000 EUR
Assumption Result:	- €	100.000 €	247.000 €
		.	
b) € costs for installing the solution	n.a.	n.a.	installation procedure
Assumption Result:	- €	- €	45.500 €
c) Instrument trays life cycle in years	Average usage time in years	Average usage time in years	Average usage time in years
Assumption Result:	10	10	10
d) Calculating the capacity for medical treatments provided	No new investment, except the required additional trays due to tray losses. 100 trays = 1.250 medical treatments per yea	In addition to the already available 100 trays, the newly purchased 10 trays will increase capacity by 10 percent. This will increase the capacity for medical treatments from 1.250 to 1.375 treatments per year	IT system increases efficiency of usage of all instrument trays by minimizing expiration (+10%) and reducing tray loss (+2%). This will increase the capacity for medical treatments from 1.250 to 1.543 treatments
Assumption Result:	1.250	1.375	1.543
e) calculating the market value per year	Average treatment fee equals 200 EUR	Average treatment fee equals 200 EUR	Average treatment fee equals 200 EUR
Assumption Result:	200 €	200 €	200 €
	250.000 €	275.000 €	308.550 €
f) % that medical services can be provided without interruption due to maintenance etc.	10% downtime due to incomplete sets / expired sterilizations	10% downtime due to incomplete sets / expired sterilizations	2% downtime due to software updates
Assumption Result:	90%	90%	98%

Ancillary calculations - Costs

	Alternative 0	Alternative 1	Alternative 2
	Current operations with 100 instrument trays. No additional procurement (base case)	10 additional instrument trays purchase at classical procurement	10 additional instrument trays purchase at systemic procurement including instrument management system
	No additional purchase	Purchase of 10 trays	Purchase of 10 trays and instrument management system
Yearly costs			
a) Instrument trays sterilisation costs	16 sterilisation procedures per year each tray - cost: 70€	16 sterilisation procedures per year each tray - cost: 70€	Reduction on costs: 10% savings in sterilisation procedures, 8% no extra opened trays and 10% personal costs
Assumption Result:	112.000 €	123.200 €	91.809 €
b) Instrument trays replacement costs due to tray loss	Replacement of 1 instrument tray every 2 years	Replacement of 1 instrument tray every 2 years	Not applicable due to instrument management system
Assumption Result:	5.000 €	5.000 €	- €
c) Costs for maintenance during life cycle time	1 % of market price	1 % of market price	10% of software and and 1% trays market prices
Assumption Result:	1.000 €	1.100 €	17.000 €
d) € costs (minus) for disposal or revenues (plus) from sales	n.a.	n.a.	Estimated residual value of software license on second hand software market: 50% of original purchasing price
Assumption Result:	- €	- €	30.000 €
e) € other yearly costs	n.a.	n.a.	Update of hardware every 5 years equals 5.000 EUR / 5 years = 1.000 EUR
Assumption Result:	- €	- €	1.000 €

Calculations Alternative 0

Alternative 0
Current operations with 100 instrument trays. No additional procurement (base case)

No additional purchase

Time	Life cycle time	10									
	Year from purchase	1	2	3	4	5	6	7	8	9	10
	Years of usage	1	1	1	1	1	1	1	1	1	0
Fees	Fee per service generated (if no fee than price of 1st alternative)	200,00 €									
	Capacity for medical services per month	1.250									
	Fees generated per year	250.000 €									
	Fees generated w/o taking uptime into account	250.000 €	250.000 €	250.000 €	250.000 €	250.000 €	250.000 €	250.000 €	250.000 €	250.000 €	- €
	Fees generated with taking uptime into account	225.000 €	225.000 €	225.000 €	225.000 €	225.000 €	225.000 €	225.000 €	225.000 €	225.000 €	- €
Costs	Purchasing price	0									
	Installation	0									
	Instrument trays sterilisation costs	-112.000	-112.000	-112.000	-112.000	-112.000	-112.000	-112.000	-112.000	-112.000	- €
	Instrument trays replacement costs due to tray loss	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	- €
	Maintenance	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	- €
	Disposal / revenues from sales	0	0	0	0	0	0	0	0	0	- €
	Other yearly costs	0	0	0	0	0	0	0	0	0	- €
	Total costs	-118.000	-118.000	-118.000	-118.000	-118.000	-118.000	-118.000	-118.000	-118.000	- €
Value	Value generated before discounting	107.000	107.000	107.000	107.000	107.000	107.000	107.000	107.000	107.000	- €
	Discounted values generated	107.000	100.000	93.458	87.344	81.630	76.290	71.299	66.634	62.275	- €
	Net present value of alternative	745.929									

Calculations Alternative 1

Alternative 1
10 additional instrument trays purchase at classical procurement

Time	Life cycle time	10									
	Year from purchase	1	2	3	4	5	6	7	8	9	10
	Years of usage	1	1	1	1	1	1	1	1	1	0

Fees	Fee per service generated (if no fee than price of 1st alternative)	200,00 €									
	Capacity for medical services per month	1.375									
	Fees generated per year	275.000 €									
	Fees generated w/o taking uptime into account	275.000 €	275.000 €	275.000 €	275.000 €	275.000 €	275.000 €	275.000 €	275.000 €	275.000 €	- €
	Fees generated with taking uptime into account	247.500 €	247.500 €	247.500 €	247.500 €	247.500 €	247.500 €	247.500 €	247.500 €	247.500 €	- €

Costs	Purchasing price	-100.000									
	Installation	0									
	Instrument trays sterilisation costs	-123.200	-123.200	-123.200	-123.200	-123.200	-123.200	-123.200	-123.200	-123.200	- €
	Instrument trays replacement costs due to tray loss	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	- €
	Maintenance	-1.100	-1.100	-1.100	-1.100	-1.100	-1.100	-1.100	-1.100	-1.100	- €
	Disposal / revenues from sales	0	0	0	0	0	0	0	0	0	- €
	Other yearly costs	0	0	0	0	0	0	0	0	0	- €
	Total costs	-229.300	-129.300	-129.300	-129.300	-129.300	-129.300	-129.300	-129.300	-129.300	- €

Value	Value generated before discounting	18.200	118.200	118.200	118.200	118.200	118.200	118.200	118.200	118.200	- €
	Discounted values generated	18.200	110.467	103.240	96.486	90.174	84.275	78.762	73.609	68.793	- €
	Net present value of alternative	724.007									

Calculations Alternative 2

Alternative 2
10 additional instrument trays purchase at systemic procurement including instrument management system

Time	Life cycle time	10									
	Year from purchase	1	2	3	4	5	6	7	8	9	10
	Years of usage	1	1	1	1	1	1	1	1	1	0
Fees	Fee per service generated (if no fee than price of 1st alternative)	200,00 €									
	Capacity for medical services per month	1.543									
	Fees generated per year	308.550 €									
	Fees generated w/o taking uptime into account	308.550 €	308.550 €	308.550 €	308.550 €	308.550 €	308.550 €	308.550 €	308.550 €	308.550 €	- €
	Fees generated with taking uptime into account	302.379 €	302.379 €	302.379 €	302.379 €	302.379 €	302.379 €	302.379 €	302.379 €	302.379 €	- €
Costs	Purchasing price	-247.000									
	Installation	-45.500									
	Instrument trays sterilisation costs	-91.809	-91.809	-91.809	-91.809	-91.809	-91.809	-91.809	-91.809	-91.809	0
	Instrument trays replacement costs due to tray loss	0	0	0	0	0	0	0	0	0	0
	Maintenance	-17.000	-17.000	-17.000	-17.000	-17.000	-17.000	-17.000	-17.000	-17.000	0
	Disposal / revenues from sales	0	0	0	0	0	0	0	0	0	30.000
	Other yearly costs	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0
	Total costs	-400.309	-107.809	-107.809	-107.809	-107.809	-107.809	-107.809	-107.809	-107.809	30.000
Value	Value generated before discounting	-97.930	194.570	194.570	194.570	194.570	194.570	194.570	194.570	194.570	30.000
	Discounted values generated	-97.930	181.841	169.945	158.827	148.437	138.726	129.650	121.169	113.242	16.318
	Net present value of alternative	1.080.226									