RESPONSES TO APRIL 5TH VC

1. *What is the optimal length of a CoA? How do we deal with external requirements/limitations on code length?*

The optimum length of a CoA is largely determined by the decisions a country makes about what is included and what is excluded from the structure. Consequently, it is not possible to define an optimum length or structure of a CoA for all countries. Rather, it is possible to define the characteristics of a CoA which countries should generally seek to adhere to in order to ensure the CoA supports an integrated PFM system.

In designing a CoA the key decisions a country must take are:

- overall structure for the CoA
- coverage of the CoA
- relationship between each level within each segment
- Constraints to CoA code length

The overall structure for the CoA

An important question is what are the specific segments required today and in the future? These should reflect the comprehensive requirements for reporting, control and accounting. Some countries may choose to have a highly aggregated CoA structure, as the more detailed accounting is undertaken within budget entities which may have their own FMIS − the case in many OECD countries (e.g. Australia and the United Kingdom). Other countries, where a single FMIS is in place for central budget management and reporting and for budget entity accounting and reporting, will require a much more detailed CoA to meet the management and control requirements of each budget entity as well as the overall management and control requirements of the consolidated entity (e.g. France and Russia).

A starting point for the design of any CoA structure must be the budget classification (BC), as this must underpin any government CoA structure to ensure effective budget appropriation control and reporting within the FMIS.

Table 1. Example of a County COA Segments

Organization	Source of Funds	Economic	Location	Function	Project	**Total**
MMDDSSSS	FFsDD	COOIAA	OORRLL	FFS	PPPC	
8 digits	5 digits	6 digits	6 digits	3 digits	4 digits	**32 digits**

The structure shown in Table 1 represents a typical country coverage in the CoA. In some larger countries, there may be 10 or more segments and this will be determined by the level of integration a country has institutionalised.

However, it is also important to ensure a level of flexibility in CoA structural design too. Thus, where possible, countries should anticipate future segment requirements in the design of their schematic (see Table 2).

Table 2. Country CoA Segments including Programs

Organization	Source of Funds	Economic	Location	*Program*	Function	Project	**Total**
MMDDSSSS	FFsDD	COOIAA	OORRLL	*PPSSAA*	FFS	PPPC	
8 digits	5 digits	6 digits	6 digits	*6 digits (not currently in use)*	3 digits	4 digits	**38 digits**

This flexibility is required in relation to accommodating future segments, expanding existing segments, or potentially modifying relationships within the CoA. Thus, while it is important to clearly define the CoA at any point in time, supported with manuals and instructions, it is also important that it is designed in a way that will result in minimal disruption should future changes be required. This represents perhaps the biggest challenge in CoA design – ensuring the design allows for future changes, and anticipating those changes.

The updated structure in Figure 2 has an added program segment as an anticipated requirement for the future BC and CoA. An estimate of the length of the segment has been made (and this has been predefined in the structure), although it will not be in use until program budgeting (PB) is instituted. Other future changes could include: an expansion of the consolidated reporting entity to include extra budgetary funds or state enterprises, a new tax, or the reorganisation of departments and agencies under ministries. All of these changes should be anticipated in the design to the extent possible.

A modern FMIS should support this level of flexibility, as allowing at least annual modifications to the CoA is critical[1].

[1] Most modern "off the shelf" FMISs support full user-defined CoA structures and allow changes between years in a new database (this will of course require backward mapping of the historical data to ensure it aligns with the new CoA). Countries should ensure that their system has this level of flexibility.

The coverage of the CoA

For each segment, it is necessary to determine what level of detail will be included as highlighted in the example in Table 3.

Table 3. The Schematic of the CoA

Level	Organ.	Source of Funds	Economic	Location	Program	Function	Project
1	Ministry (MM)	Fund (FF)	Class (C)	Oblast (OO)	Program (PP))	Function (FF)	Project (PPP)
2	Department (DD)	Sub-Fund (s)	Object (budget control) (OO)	Rayon (RR	Sub-Program (SS)	Sub-Function (S)	Component (C)
3	Spending Unit (SSSS)	Development Partner (DD)	Intermediate Reporting Level (I)	Local Govt (LL)	Activity (AA)		
4			Account (AA)				
	8 digits	5 Digits	6 digits	6 digits	6 Digits	3 digits	4 digits

Each country determines the detail required in the design of each segment. For example, in many OECD countries, budget control and reporting occurs at a relatively high level, such as ministry by programs. Detailed breakdown and reporting at lower organizational, program or economic levels is not required centrally (although periodic reporting would be required), managed instead entirely within each budget entity. Thus for each segment, the universal CoA (for consolidation and appropriation control purposes) will be defined at a relatively aggregated level.

In the case of many transition and developing countries, however, the CoA budget controls are at a more detailed level, and the accounting for budget entities also occurs within the central FMIS. In such cases, the CoA will need to be much more detailed for each segment.

As mentioned earlier, even though the CoA schematic may specify an eight-digit organizational code, the FMIS should allow this to be modified in the future if required. It should not be seen to be set in concrete.

Relationship between each Level within each Segment

Will the parent-child relationship within the structure be unique or will each child potentially have many parents? To answer this question, it is useful to consider the organizational structure for the budget in many countries. While ministry structures may change from year to year, lower level organizational structures such as the departments[2] of government tend to be enduring. Primary education, for example, will always be required, but it may fall under the control of the Ministry of Education and Social Welfare one year and the Ministry of Tourism and Education in a future year. Thus the departmental number should be unique to reflect its ongoing nature. As departments move from one portfolio to another from one year to the next, the unique code allows backward mapping of the historical budget and budget execution for reporting and analysis.

Table 4. Unique codes (a)

Year	Code	Ministry	Department
X	311234	31 – Education and Social Welfare	Primary Education – 1234
X+1	321234	32 – Tourism and Education	Primary Education – 1234

A further example of where a unique code may be required is for projects. A project may be the responsibility of one ministry and program, or it may span many ministries and programs. It is also common for projects to have multiple sources of financing. Thus, it is generally important for a project code to be unique.

Table 5. Unique codes (b)

Source of Fund	Project
321 Donor Fund – DFID	4321 – Sector-Wide Approach to Health Care
313 Donor Fund – EU	4321 – Sector-Wide Approach to Health Care

[2] Departments is used here as an example only – the same principle could apply to other levels in each segment. A country must determine where codes will have only a single parent or require the use of a unique code

Thus the appropriate length of a country's CoA is determined by the integration and scope of the budget, accounting and reporting requirements, and should ensure full coverage of all requirements within the FMIS.

Constraints to CoA code length

Probably the most common constraints to code lengths within a CoA are the accounting system in use and the electronic bank payment system environment in a country. Some FMISs will have a maximum number of digits and a defined number of segments, although most modern systems should have adequate capacity in this area.

In relation to payment systems, the central banks in many countries lead on policy in relation to payment reference information that can be included for both receipt and payment transactions. While the MoF should be involved in any policy discussions regarding payment systems to ensure its requirements are met in any payment system design, this is not always the case, leaving the MoF with payment reference fields that do not fully support its accounting and recording requirements.

Importantly, the CoA should be designed to meet all control, accounting and reporting requirements as a first step. After this has been achieved system limitations should be addressed.

The power of modern accounting systems and technology means that there are now methods for overcoming these restrictions. Two useful options include using alpha-numeric codes and rollup tables.

Alpha-numeric codes – In CoA design there has been a general preference for numeric codes. This is because it is easier to design an intuitive CoA structure in this way and, historically, systems may not have been as readily able to accommodate alpha-based codes. Indeed, where capacity is not restricted it may be prudent for countries to continue to use only numeric codes. Where code length has become a problem, using alpha-numeric codes significantly increases the potential number of codes available for CoA design. Table 6 shows the size of a one- to six-digit segment using either numeric or alpha numeric codes (Latin alphabet). Even with just a three-digit code, an alpha numeric code provides 46 times more options than a numeric code. Thus, moving to alpha numeric codes will reduce code lengths and may contribute to overcoming any system-based or external code restrictions.

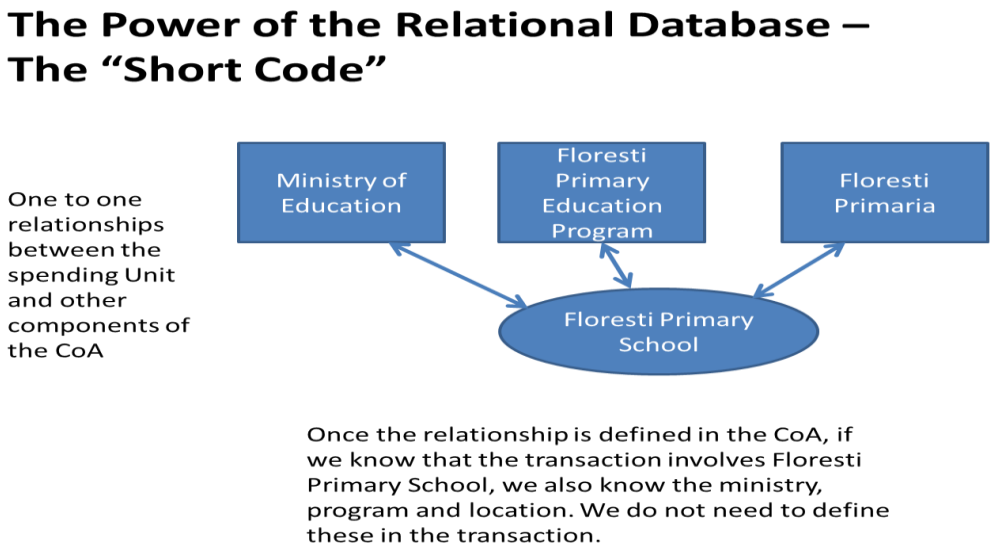
Table 6. Numeric vs Alpha-numeric codes

Code Length	**Numeric**	**Alpha-Numeric**
1 Digit	10	36
2 Digit	10^2= 100	36^2= 1,296
3 Digit	10^3= 1,000	36^3=46,656

4 Digit	10^4= 10,000	36^4=1,679,616
5 Digit	10^5= 100,000	36^5=60,466,176
6 Digit	10^6= 1,000,000	36^6=2,176,782,336

Roll-up tables and the power of the relational database − In 2007 Moldova discovered that while the design of its CoA was a major undertaking, and required a full understanding by the MoF and Treasury of all the structures, understanding the CoA from a specific spending unit perspective was far less demanding. Once the relationships in the CoA are defined for a specific spending unit, only those codes relating to the unit need to be known. Frequently this is just a single code from each different segment of the CoA. Even more importantly, because there is often a one- to-one relationship between the spending unit and other segments in the CoA, once the relationships to the other segments are defined in the CoA, reports for the other segments can be derived from existing mapping in the CoA through rollup tables. Figure 1 illustrates how this works.

Figure 1. The power of the CoA and a relational database



A primary school in Floresti, Moldova, has the following unique (one-to-one relationships): one-parent department and ministry, one physical location, and one program and sub-program. Once we know these relationships, and they are defined in the CoA, we no longer need to capture all of this information when payments are made, or revenues are collected, as long as we

know the spending unit number and the relationships. Moldova termed this the "short code". [3] The parent-child relationships could change from one year to the next (e.g. the ministry); however, within any year a unique relationship will exist. This reduces the amount of information that needs to be recorded when making payments or collecting revenues.

If the bank payment system has a limited number of codes, it can avoid adversely affecting the ability to capture complete information by using a "short code" to capture the critical data necessary for determining the relationships in the CoA. In the case of revenues, it is likely that a combination of just the economic code, along with a unique revenue collectors code (ideally this would be a single code also used for the spending unit), would allow full recording in a well-designed CoA. A geographic code may also be required.[4]

2. ***Can different classes in a segment of the CoA be a different code length?***

Within a CoA segment, it is possible to have different code lengths for different classes or components of that segment. The constraints on this will be:

- **FMIS requirements** – most systems require a common code length for some aspects of each segment, as this determines reporting and control requirements within each segment. This may be the case for budget control within the economic segment and/or for the level at which transactions are posted to the general ledger for accounting.
- **The CoA may be more intuitively designed if a common structure is used throughout a segment** – if for example, budget control with the economic segment is always at the three-digit level, then users will know that requesting a report at that level is the budget control level. Similarly, if the posting of transactions to accounts in the general ledger is at the six-digit level, it will be commonly known that any code other than six digits in length is not a valid posting account.

*Ensuring that the CoA is uniform in length makes it more intuitive for users, easier to explain in manuals and easier to use for user-defined reporting***.**

In some cases, certain elements of a CoA segment require more detail than other elements. An example of this is where we break down non-financial assets into different types of flows, such as cash inflows and outflows, and non-cash flows (refer to the Russian, Moldovan and Kyrgyz economic segment of the CoA, and to GFSM). Another common example is in relation to development partner (DP) projects. Some DPs will require a single budget line for the control of a project, while other projects may have multiple budget components or even budget subcomponents. It should be unnecessary to require every project to be defined to the sub-component level, instead allowing the level of detail to be defined according to the project needs.

[3] In countries where the system is very inflexible, a "short code" approach can be used outside the FMIS, using other software to define the CoA relationships for reporting, while capturing the information based on a simplified "short code" within the FMIS.

[4] Of course, in the event that the banking system code length is very restrictive, an additional unique number could be developed to create a short code, where the relationships to the CoA structure are defined in a roll-down table.

The challenge here is whether the system will accommodate these differences directly, or whether it requires uniformity. Where it requires uniformity, this simply means that we use "zeros" to fill the positions where the additional detail is not required. From the perspective of the project manager, the zeros simply mean they receive only the level of detail they require for their project[5].

Table 7. Examples of different reporting levels in Projects with a Common Coding Length

Project	Number of budget and reporting levels	Codes
Refurbishment of Kiev Hospital –single level	1	12340000
Refurbishment of Kiev Hospital –two level	2	12341100
Refurbishment of Kiev Hospital –three level	3	12341111

3. *Is it necessary to implement a new CoA or it is possible to make the mapping between the budget classification and accounting?*

A useful question to pose to each country on this issue is why the accounting is not aligned to the budget classification, given that budget control and reporting against the budget represent an important element of accounting under both for the cash and accrual IPSAS?

Understandably, changes to the BC and CoA represent a major investment of resources for a country. Thus, changes should be limited to those which are necessary (e.g where not changing would impede other reforms such as program budgeting) or undermine the integrity of budget, accounting, fiscal or statistical information. If a mapping table provides the necessary bridge between the BC and CoA, it is not necessary to change the CoA.

However, where major reforms are to take place, such as upgrading to a new FMIS or implementing changes to accounting practice, the opportunity presents itself to also upgrade the CoA at the same time so that it is integrated with the BC.

A major issue in relation to the BC/CoA mapping is whether the mapping possesses integrity, ensuring both accurate budget and financial accounting. The key here is whether the mapping is one-to-one or many-to-one. Does the mapping provide an accurate report without manual intervention? Frequently, because the budget and accounting structures have evolved separately, alignment issues do exist which require decisions about one-to-many relationships, or worse many-to-many relationships. In such cases, someone needs to take a decision as to how the relationships will be defined − for example, 30 % of spending to code one, 40% to code two and

[5] Even when some systems require the uniformity, it is possible to use the abbreviated code, and the system can be programmed to fill in the "zeros".

30% to code three. A further (preferred) option is to eliminate these issues by properly integrating the CoA and BC.

4. *Is it necessary to implement (at full scale) program budgeting when the new CoA is introduced?*

The implementation of CoA segments, such as a program segment, should only occur when they are required. In fact, it is standard for countries to take a very gradual, medium- to long-term approach to PB reform. When designing a new CoA, it is important to anticipate these requirements and build them into the proposed structure. However, the segment would only be activated at the time that PB recording is required. So for any new CoA which is being designed, countries should set aside a segment for PB based on a reasonable assessment of the PB requirements. For example, first phase implementation is a four-digit program and sub-program structure, with a two-digit activity code added as a third level after a further year.[6]

Introducing PB represents a major change in the management of budget entities and the way in which the budget is presented. In most countries, this process takes a generation to implement[7], largely because it also requires a major shift in public sector culture, legislation and budget reporting. It is fundamentally a shift from central control over inputs to accountability for results. This will mean that control over inputs is devolved to the budget entity.[8] Such changes require new legislation and new functions, such as internal audit. These changes are significant and cannot be under-estimated. It is much more significant than a new segment in the CoA.

In fact, from a CoA perspective, the change is relatively simple. We add a segment and populate the segment with the programs and subprograms (and perhaps activities) that the government defines. These represent structures in the CoA for budget control, accounting and reporting, just like any other segment. Of course, financial reporting of programs is just one element of program management. Reporting non-financial information (performance indicators) is also key, but occurs outside the CoA (although there may be relationships defined within the CoA and PIs agreed that are derived from the CoA).

Figure 2 outlines how results based budgeting was implemented in Australia. PB was introduced over a number of budget cycles, with budget control through economic items reduced over time. This gradually reduced central control over inputs, allowed the MoF to train, educate and monitor budget entities, therefore, ensuring budget entities gradually improved their capacity to manage inputs and report on results over time. At the final stage, the budget is no longer appropriated economically – although capturing the economic nature of transactions continues to

[6] This represents an example only.

[7] Australia commenced implementing PB in the 80s. In the 90s it shifted to outputs and outcomes. It recently further modified its budget management to once again report programs in combination with outcomes. All represent variations of results based budgeting.

[8] It does not mean, as some erroneously think, that inputs are no longer important. Input management is now a budget entity responsibility, and managing inputs remains an important budgeting and accounting requirement which must be support in the CoA.

be a priority within the budget entity. A useful variant to this approach, which can occur in a central system, is that appropriation control is gradually reduced; however, transactions also continue to be recorded by the economic segment at the detailed account level.