

**PROJECT INFORMATION DOCUMENT (PID)
IDENTIFICATION/CONCEPT STAGE**

Report No.: PIDC61709

Project Name	Implementing a PPP to sell excess capacity of the SOGEM fiber optic network to improve regional connectivity
Region	AFRICA
Country	Mali
Sector(s)	Telecommunications (100%)
Theme(s)	Infrastructure services for private sector development (50%), Regulation and competition policy (40%), Regional integration (10%)
Lending Instrument	IPF
Project ID	P159668
Borrower Name	SOGEM
Implementing Agency	SOGEM
Environment Category	C - Not Required
Date PID Prepared	25-May-2016
Estimated Date of Approval	31-May-2016
Initiation Note Review Decision	The review did authorize the preparation to continue

I. Introduction and Context

Country Context

The Economic Community of West African States (ECOWAS) is one of the world's poorest sub regions. Over the last 20 years, West Africa's economic performance has been uneven. On the one hand, several countries in the sub region (such as Benin, Cape Verde, Burkina Faso, Ghana, Mali, and Senegal, among others) have made major strides from the perspective of macroeconomic stability and economic growth. But the other countries in the sub region have had mixed results in improving their economic performance. Overall, looking at the last 20 years, the sub region's average real gross domestic product (GDP) growth rate has been about one or two percent per year.

Regional integration provides a means to overcome the numerous challenges facing West Africa and make the most of opportunities for sustainable growth and development. Because of their significant size, integrated regional markets can indeed create major economies of scale, promote improvements in specialization and productivity, and attract Foreign Direct Investment (FDI). Collaboration at the regional level can also provide regional public goods or services, reduce collective vulnerability, and increase resilience to external shocks.

In a little over a decade, Africa has become the world's second most connected continent by mobile subscriptions, next to Asia-Pacific, and is expected to hit 1 billion by 2016. According to GSMA, an industry association, the mobile ecosystem contributed (directly and indirectly) 5.4% in

2013 to overall gross domestic product (GDP) in the region, equivalent to US\$75 billion. This revolution has been enabled by a widespread liberalization of the mobile markets as well as technology innovation (in service delivery, consumer devices and costs efficiencies), followed by an impressive development of mobile money solutions. Furthermore, international bandwidth capacity flowing to the ECOWAS countries has increased tremendously since 2010 as fourteen out of the fifteen ECOWAS countries (Guinea-Bissau being the only exception) today have access to at least one submarine fiber cable reducing reliance on costly satellite services for international connectivity. This is setting the stage for people to upgrade their basic phones to more sophisticated devices with computing power and access to broadband Internet. The Internet in the region is expected to play a very significant role in the countries' development, creating employment, providing opportunities for innovation and entrepreneurship, as well as acting as an enabler in the digital delivery of government services, education, and healthcare amongst others. However, the ECOWAS sub region still lags in overall connectivity and the risks for the continent to fall further behind in digital poverty is a serious concern.

Sectoral and Institutional Context

Information and Communication Technologies (ICT) in Mali

With its first wave of sector reform, Mali has truly taken advantage of its potential in the mobile telephony and mobile payment segments. Mobile telephony penetration rate is high compared to other countries in the region. This explosion in the number of mobile subscribers has been accompanied by an increase in the subscriber traffic, reflecting a real need for telephone services in the population. 83.5% of households now have access to mobile telephony in Mali. Malian mobile networks cover the main cities of the country and almost all of the road network. The particularly rapid success of mobile payment in Mali (14% penetration) also suggests a high growth potential in terms that could compete with more advanced countries such as Kenya and Zambia. However this good performance could not be consolidated by an effective market entry of the third operator (which got in January 2013 an operating license, but has not yet entered the market) resulting in the formation of a duopoly between Sotelma / Malitel and Orange Mali : price levels are in deed still high compared to the purchasing power and there remain issues of service quality and coverage, particularly in the poorest areas. This duopoly in mobile telephony is also a major threat to Mali's ability to be at the rendezvous of broadband Internet, which will be an important sector of the economy in the coming years. The Internet can be a development accelerator if it is fast, affordable and permanent. Making the Internet accessible to the greatest number involves open access networks, and the establishment of public-private partnership in the event of market failures. Ensuring open and safe access to the Internet will also bring new challenges that will require greater international cooperation among all stakeholders. Mali is therefore at a decisive moment for the continued growth of the electronic communications sector. Following workshops with public and private sector stakeholders as well as civil society, an ICT policy note prepared for the Government of Mali recommends 10 key reforms that would contribute significantly to achieving the objectives of the ICT Strategy "Mali Digital 2020" recently adopted by the Government. One of the key short term reforms to tackle the bottleneck of limited competition in the wholesale market for national / international broadband capacity is to implement the recommendation of the FY15 PPIAF funded strategic study for the excess fiber capacity on the SOGEM network (Public Private Partnership with a private wholesale operator).

The OMVS-SOGEM fiber optic network

The Organisation de la mise en valeur du fleuve Senegal (OMVS) is a regional organization set up initially by the three countries Mauritania, Senegal and Mali to build (1982-1988) and jointly operate the Manantali dam with the following three objectives: (i) develop irrigation for agriculture in Senegal, Mauritania and Mali; (ii) provide electricity; (iii) make the Senegal river suitable for navigation. The OMVS countries (which includes Guinea alongside to Mali, Mauritania and Senegal) have made significant economic progress compared to other West African countries which have had a mixed record in improving their economic performance. The countries' economic performance reflects improvements in macroeconomic management. In 2013, the GDP growth was respectively 2.1% in Mali, 6.7% in Mauritania (due the boom of its mining industry) and 4.0% in Senegal; these countries remain nevertheless among the poorest countries in the world (DAC I).

Hydroelectricity was set up between 1997 and 2003, once the Manantali dam was built. OMVS was given the responsibility to provide electricity and operate the Manantali dam through a public company called SOGEM (Société de Gestion de l'Energie de Manantali), whose shareholders are the three OMVS countries. In 2001, SOGEM awarded, for a 15 year period that can be renewed, the operation to the Eskom's (South-African private company) subsidiary called Eskom Energy Manantali (EEM). EEM operated on behalf of SOGEM high voltage transmission lines that have been equipped with an Optical Ground wire - OPGW (câble de garde à fibre optique - CGFO). A dispute between EEM and SOGEM led recently to contract termination. After EEM's decision to exit on July 1, 2014, the Council of the Minister of OMVS approved the creation of a subsidiary to SOGEM to take over EEM's activity for Manantali. The current fibre optic footprint connecting Mauritania, Mali and Senegal is 1,728 km of fibre optic cables. SOGEM plans to build an additional 1,960 km by 2019 in these countries and in Guinea.

Broadband access

The 2014 flagship report 'Broadband Networks in the Middle East and North Africa : Accelerating High-Speed Internet Access' elaborates a strategic framework for broadband sector reform. The key factors limiting the development of broadband in most countries of the region are lack of effective competition and lack of appropriate incentives to deploy and/or fully utilize infrastructure. The report recommends a holistic approach combining the four following strategic policy measures to accelerate broadband development by providing investors appropriate predictability on the policy and regulatory regime and a reasonable expectation that they will recover their costs and make a return on their capital:

- Promote facilities-based competition;
- Address underserved areas of the country;
- Introduce new models of infrastructure supply; and
- Implement measures to decrease deployment costs.

These recommendations are fully relevant for West Africa. In particular measures to decrease deployment costs through opening and facilitating access to the excess capacity of utility companies for telecommunications sector needs are an established practice in developed countries, and are being increasingly adopted in emerging economies such as in the Arab Maghreb Union countries (Mauritania, Morocco, Algeria, Tunisia). In West Africa, growing awareness of the broadband business development potential and abundant international connectivity brought to the Africa with the new submarine cables, led SOGEM to seek the most appropriate business model and

organization structure to commercialize the excess capacity available on its infrastructure to all licensed telecommunications operators and service providers in Mauritania, Senegal and Mali. For broadband connectivity, Africa has the highest unit prices per Mbit/s in absolute terms, which makes high-speed internet affordable only to a small part of the population (given the relatively low disposable income levels). In 2013, only 16% of Africans had access to the internet, with as few as 0.3%, estimated to have high-speed internet, amounting to 3.1 million broadband subscribers across the region. The next challenge therefore is to ensure regional connectivity, bringing broadband Internet from the shores to inland. This next phase is critical considering that 80% of the rural population in the ECOWAS region reside in rural areas.

Key findings & recommendations of the phase I and Economic benefits for OMVS/SOGEM

This business will generate additional revenues that could be used for the electricity grid maintenance and upgrade.

The immediate opportunity to leverage regional excess fiber communication capacity between Mauritania, Mali and Senegal owned by OMVS/SOGEM has been strategically assessed by the Consultants McMillan Keck / Scanbi-Invest in the first phase funded by PPIAF as referred to above. Realized in 2014-2015, the PPIAF-funded study on *“Leveraging the Fibre Optic Opportunity of the OMVS/SOGEM fiber optic network”* led to the following conclusions and recommendations.

On 22 June 2001, SOGEM signed with the 3 incumbent telecoms operators *“Mauritel, Sonatel and Sotelma”* a Construction and Maintenance Agreement for the Telecommunications sub-system via Optical Ground Wire (terrestrial interconnection between Senegal, Mali and Mauritania) with the aim to cooperate in the installation and maintenance of Optical Ground wire (CGFO), linking Mali, Mauritania and Senegal, alongside the high voltage electricity grid property of SOGEM. Out of the 6 pairs of fibres of the CGFO, 3 are used by the incumbent telecoms operators till January 2018. From the remaining 3 pairs, only one pair is used by SOGEM for its own electricity grid management needs, so that two pairs could be made available to serve regional connectivity needs of telecoms operators and service providers. For a period of 8 years following the Ready for Service Date of the Telecommunications sub-system, SOGEM was not allowed to divest, sell, transfer or commercialize capacity on the CGFO. This exclusivity ceased in 2011.

The fibre optic cables are of good quality compared to industry standards, and are in a good state of maintenance. Making SOGEM's excess capacity fibre optic cable available for telecom services can greatly increase competition among telecom service providers addressing the retail market. As a result, the prices of international calls, Internet access and other international data services in the three countries can be expected to decline significantly, boosting usage by the population, businesses and governments of these services.

There is substantial and sustainable demand and readiness among telecom and service providers in Mali, Mauritania and Senegal to pay to use excess capacity on SOGEM's fibre optic network.

Four strategic options have been assessed by the Consultants in their strategic report delivered to SOGEM, and a recommendation provided for SOGEM to opt for the Public Private Partnership with a wholesale operator under a concession contract (*“PPP Concession operator de*

gros) model), which strikes a good balance between complexity, impact on the market and financial return to SOGEM. The four options are described as follows:

➤ (Passif simple is very simple, only requiring consulting support to carry out a tender process for offering the fibre pair segments. It is relatively profitable because the costs are low, but not as remunerative as the PPP cases because the volume of services is limited by the number of fibre pairs. It also has a lower impact on the market because only a limited number of fibre pairs are available. This limits the development of a wholesale bulk data market unless the customer intends to enter that wholesale market. It also has the lightest impact on the incumbent operators who currently use SOGEM's network.

➤ (Passif special is a little less simple because it introduces to the tender process a requirement that the customer offer a wholesale product, at least at the level of DWDM wavelengths with necessary co-location. This requires some degree of contractual compliance monitoring, and so some complexity. This does not reduce its profitability because the operators will compete for the asset on the primary basis of serving their own needs anyway, and their interest in offering wholesale services may be stimulated when they begin to focus on it. It has a positive impact on the market because all licensees would then have some form of access to capacity on the SOGEM network, albeit in some cases provided by a competitor with all of the risks of discriminatory treatment this presents.

➤ (PPP DWDM filiale is the most complex because it involves SOGEM entering the market without handing over responsibility for the whole business to a concessionaire as in PPP concession opérateur de gros. SOGEM has to establish a subsidiary with staff and provide some initial funding. Despite the higher capital and operating costs, it is financially attractive because it increases the number of wavelengths available and minimizes the share of revenue paid to a partner. Its impact on the market is very strong as all licensees would have access to capacity on the SOGEM network. The model has a more significant impact on SOGEM's existing customers, the incumbent operators, because it will be easier for their competitors and customers to obtain prices for capacity at lower rates. However, its complexity also creates the highest risk that it will not be successfully implemented.

➤ (PPP concession opérateur de gros is simpler than PPP DWDM filiale because SOGEM will not itself set up a new company. The complexity of the model lies in judging the right economic arrangement for the PPP with the international wholesale operator. We expect it to be very profitable on the basis that SOGEM should insist on a fair economic share due to the very substantial latent value of its rights of way and physical infrastructure on which the OPGW is installed. The profitability will depend entirely on what SOGEM is able to negotiate with the partner. The impact on the market is high because the international partner will be strongly motivated to exploit the infrastructure to develop a wholesale market, and will have the expertise and brand name to do so. Consequently, this is also the most aggressive in relation to the existing operators.

The recommended business model was the (PPP concession opérateur de gros) endorsed by OMVS Council of Ministers in March 2015 (PPIAF Financing request received in March 2015). Two workshops were organized in Bamako and Dakar with all stakeholders including regulatory authorities, telecoms operators to discuss report and propose the most appropriate option. Following these workshops, the PPP option (10 to 15 years concession) with an experienced private operator to provide broadband services on a wholesale basis in Mali, Mauritania and Senegal was adopted. An implementation plan was proposed to implement the selected method. The prospects of increased revenues from leveraging excess capacity available on the Optical Ground Wire of

SOGEM/OMVS were well received by the last Council of OMVS Ministers held in Conakry on March 10, 2015. The Conference of the Heads of State and Government of OMVS countries held in Conakry on 2015, March 11 mandated OM VS to implement this recommendation.

From SOGEM's perspective, assuming reasonable market and financial assumptions, SOGEM would get a satisfactory return on investment and a recurring income from this activity. The above mentioned feasibility study (performed by the Consultants McMillan Keck / Scanbi-Invest in the first phase funded by PPIAF) projected this activity under a PPP concession opÃ©rateur de gros would generate for SOGEM: an annual net income of USD6.5 million in 2020, an accumulated free cash flow of USD25 million by 2020, a NPV of USD24 million over 10 years. On the costs side, most if not all operational duties will be performed by the wholesale operator, which will bear the costs of the telecom business, including equipment, staff, license fees and all other costs. SOGEM is therefore expected to only incur some minor recurring costs to monitor compliance with the agreement; the staff needs on the SOGEM side will be limited.

In addition, replication opportunities in Sub Saharan Africa are important, including in the context of projects financed by the World Bank such as the OMVG Interconnection Project (P146830). Under the OMVG Interconnection Project (P146830) approved by the Board in April 2015, the 1,667 km of electricity lines of the OMVG network will be equipped with two ground wires, one of them with optic fibre (24 fibre pairs). The OMVS network will ultimately be interconnected with the OMVG (Organisation pour la Mise en Valeur du Fleuve Gambie) network through the OMVS - Hydropower and Energy Infrastructure development project (P147921) under preparation.

The WARCIP Program

The ongoing West Africa Regional Communications Infrastructure Program (WARCIP) seeks to provide a comprehensive solution to address connectivity gaps in the ECOWAS Region. Approved on January 20, 2011, the US\$300 million WARCIP program aims to increase the geographical reach of broadband networks in West Africa and reduce the cost of communications in the region. WARCIP focuses on international and regional connectivity to enable the creation of a fully integrated network which will eventually link all countries' networks in the region and provide affordable high speed connectivity within countries. Phase 1A (approved January 20, 2011) focused on Sierra Leone and Liberia, Phase 1B (approved June 21, 2011) on Guinea, The Gambia and Burkina Faso, and Phase 1C (approved July 12, 2012) on Benin. Phase 2 (approved May 02, 2013) focused on Mauritania and Togo. Phase 3 currently under preparation is dealing with Guinea-Bissau.

The WARCIP Mauritania project is financing interconnections between the SOGEM fiber optic network and the ACE submarine landing station in Nouakchott which is operated by a PPP (GIE IMT) on an open access basis.

Relationship to CAS/CPS/CPF

The proposed activity is fully aligned with the second Area of Focus "Create Economic Opportunities" of the Country Partnership Framework (CPF) for Mali for the period FY16-19, aiming at contributing to improved access and quality of ICT.

The proposed activity would also strongly contribute to the twin WBG Goals. The World

Development Report (WDR) 2016 shows that the potential gains from digital technologies (the internet, mobile phones, and related technologies) for economic development are high when effectively realized. It acknowledges furthermore that connectivity for all (as per the PDO of the proposed activity) remains an important goal and a tremendous challenge and underlines that market competition, public-private partnerships, and effective regulation of internet and mobile operators encourage private investment that can make access universal and affordable.

II. Project Development Objective(s)

Proposed Development Objective(s)

The proposed development objective of this activity is to support SOGEM in designing and implementing an innovative PPP model with a private wholesale operator under a concession contract to sell excess capacity of the SOGEM fibre optic network to improve regional integration through enhanced connectivity between Mali-Mauritania-Senegal.

Key Results

- 1) Private wholesale operator selected following international open competitive bidding best practices
- 2) SOGEM staff trained on procedures and systems to monitor the execution of the PPP Concession opÃ©rateur de gros contract

III. Preliminary Description

Concept Description

The advisers with legal, financial and techno-economical PPP expertise funded by PPIAF will support SOGEM in designing a new concession (the PPP Concession opÃ©rateur de gros) structure and process, drafting the associated documents (draft tender documents, draft concession contract, draft wholesale operator authorization in the three countries), assisting in selecting the private wholesale operator through an international open competitive bidding procedure, and finally supporting SOGEM in launching the related operations.

More specifically, the assignment will be undertaken in three components:

Component I- Preparation of international tender documents for the open access PPP model for the resale of excess capacity on the OPGW network (Setting up the environment for the PPP implementation).

- Conducting a due diligence on the recommended PPP Concession opÃ©rateur de gros (technical, economical, legal and regulatory).
- Preparing draft wholesale operator authorizations in the three countries where open access to the excess capacity will be offered.
- Preparing draft Memorandum of Understanding (MoUs) to allow connection between CGFO and submarine landing stations in Mauritania and in Senegal.
- Drafting the PPP agreement (including a pre-established RIO or wholesale pricing structure, and QOS or SLAs).
- Developing pre-qualification criteria and prepare Request for Qualification (RFQ) documentation.
- Preparing a Request for Proposal (RFP) document and other supporting documents (project information, bidding instructions, transaction structure, criteria for evaluation of bids, etc).
- Preparing a draft briefing note for the OMVS Council of Ministers.

Outputs: (i) due diligence report; (ii) full package of international tender documents (including pre-qualification); (iii) draft briefing note for the OMVS Council of Ministers.

Component II- Assistance in effective implementation of the open access PPP model for resale of excess capacity on the OPGW network (Transaction Implementation).

- (€ Setting up of a data room.
- (€ Organizing during the pre-qualification phase a potential bidders ➤ (conference to discuss and clarify any issues the bidders may have with the project.
- (€ Assisting SOGEM/OMVS during the pre-qualification phase including drafting qualification reports.
- (€ Assisting SOGEM/OMVS in conducting a transparent and robust bid evaluation process including drafting bid evaluation reports.
- (€ Assisting SOGEM/OMVS in conducting negotiations with preferred bidder(s) till signature of the PPP agreement (closing of the transaction).

Outputs: (i) data room set up; (ii) potential bidder ➤ (s conference organized; (iii) qualification reports prepared; (iii) bid evaluation reports prepared; (iv) PPP agreement signed.

Component III- Capacity-building and knowledge transfer.

The advisers will also provide training to key SOGEM staff to strengthen their capacity to monitor the performance of the selected private operator as well as recommendations to ensure sustainability.

- (€ Detailed presentation of responsibilities of SOGEM with respect to supervising, monitoring and controlling the execution of the PPP contract;
- (€ Detailed proposals for inclusion in SOGEM ➤ (s staff job description and for recruitment of new staff if deemed appropriate;
- (€ Proposals for procedures and tools (e.g. dashboards, template for regular meetings with the wholesale operator) including meeting simulations.
- (€ Proposals for presentation of this new activity in the accounts of SOGEM.

Outputs: (i) capacity-building report (including summary of training sessions); (ii) staff job ToRs; (iii) manual of procedures and tools for the monitoring of the contract execution

The proposed activity leveraging an existing regional electricity infrastructure grid by selling excess fibre capacity through a suitable business model where the private sector would invest in the active equipment required to transmit telecommunications services on the fibre (➤ (lit ➤ (the fibre) would become a pioneering project for other countries not only in West Africa where other energy utilities are owning excess dark fibre capacity and are looking for private sector financing of the equipment required to light the fibres as a means to have a stronger impact on the broadband market development compared to simply ➤ (auctioning off ➤ (the existing excess dark fibre (see strategic study Phase I). The excess capacity on the SOGEM grid presents three distinctive features of a pioneering project: the existence of regional fibre excess capacity that can be made readily available, an open access connection to international submarine connectivity in Nouakchott (Mauritania) and a major bottleneck in the provision of competitive international connectivity in landlocked Mali. The proposed activity would be a particularly important reference for the other regional electricity regional organization OMVG. Under the OMVG Interconnection Project (P146830) financed by the Bank, one of the ground wires will be equipped with a fibre optic cable (24 pairs) and excess fiber communications capacity will be available for renting to telecoms operators and service providers). It will be also relevant for the OMVS - Hydropower and Energy Infrastructure development project (P147921) under preparation that will interconnect OMVS and OMVG regional networks. Finally

the proposed activity will also provide a key building block to inform the WAPP secretariat endeavors to foster the emergence of a regional fiber optic network. Following a PPIAF-funded study conducted in 2007 - which assessed the technical and financial viability of utilizing excess and redundant optic fibre capacity on existing and planned extra-high voltage power transmission Lines of the West African Power Pool (WAPP) for commercial use, the WAPP Secretariat and ECOWAS Commission commissioned between 2008 and 2010 several feasibility studies to identify the communications infrastructure requirements of the Power Pool Companies and to ascertain to what extent fibre on power lines could be leveraged into an international fiber network for telecommunication purposes in the ECOWAS region. More recently, the ECOWAS Commission submitted an application for PPIAF financing aiming at supporting the ECOWAS Commission to improve the framework to enable the private sector to invest in the expansion of communications infrastructures and services in the region. This activity would aim to create greater capacities within regional institutions (ECOWAS, West Africa Telecommunications Regulatory Assembly and WAPP) to improve delivery of regional PPP ICT projects and consolidate regional successes gained so far by individual countries. Besides a regional approach to easing cross-border communications through regulating cross-border/international roaming rates and interconnection arrangements, specific outputs of this activity include developing and adopting an accompanying policy on the use of alternative infrastructure (i.e. power grid, gas pipes, roads and railways) for provision of broadband service.

Partnerships:

- GEEDR : Knowledge dissemination with GEEDR to include fibre optic excess capacity when expanding energy networks and to provide technical assistance to utilities to unleash infrastructure synergies.

- IFC: IFC is seeking to fund alternative private sector business models that are rolling out access to broadband along electricity lines on a wholesale, operator independent/ vendor neutral basis. An example of one of such IFC's investee companies is ITXPar in Brazil. ITXPar's network is an alternative to telecom operators looking to optimize costs and reduce investment requirements by acquiring a network right instead of building proprietary networks. In the right hands, with the right structure the fiber optic along regional utilities such as SOGEM is considered as having the potential to transform the adaption of broadband in the ECOWAS region. Some private companies bidding to be selected as the private wholesale operator of the SOGEM fiber optic excess capacity and invest in the active equipment and the operations of the network are therefore expected to approach IFC for financing.

- WAPP: The proposed activity will also provide a key building block to support the WAPP secretariat endeavors to foster the emergence of a regional fiber optic network. Between 2008 and 2010 the WAPP Secretariat and ECOWAS Commission commissioned several studies to identify the communications infrastructure requirements of the Power Pool Companies and to ascertain to what extent fiber on power lines could be leveraged into an international fiber network for telecommunication purposes in the ECOWAS region.

IV. Safeguard Policies that Might Apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01		x	
Natural Habitats OP/BP 4.04		x	
Forests OP/BP 4.36		x	

Pest Management OP 4.09		x	
Physical Cultural Resources OP/BP 4.11		x	
Indigenous Peoples OP/BP 4.10		x	
Involuntary Resettlement OP/BP 4.12		x	
Safety of Dams OP/BP 4.37		x	
Projects on International Waterways OP/BP 7.50		x	
Projects in Disputed Areas OP/BP 7.60		x	

V. Financing (in USD Million)

Total Project Cost:	0.61	Total Bank Financing:	0
Financing Gap:	0		
Financing Source			Amount
Public-Private Infrastructure Advisory Facility			0.61

VI. Contact point

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