



AXIOM EXPERIENCE

1. PRESENTATION

AXIOM is a company incorporated under the laws of France as a SAS (“Société par Actions Simplifiée”). AXIOM was founded in 1999 by a team of submarine telecommunication cable system experts with previous experiences working for international telecom carriers and for submarine cable manufacturers. AXIOM is fully owned by its management team and provides independent and market-neutral advice to customers looking for expertise in the area of submarine telecommunication cable systems. AXIOM’s customer base is mainly composed of international telecom carriers, either associated through a consortium or investing independently in submarine systems.

AXIOM has a permanent staff of 7 experienced engineers. AXIOM also has access to a large pool of experienced experts in many areas such as traffic & market study, Quality Assurance, marine activities witnesses (or observers), on-site-commissioning activities, etc. AXIOM calls for resources from such a pool when extra work force is required or when specialised areas of expertise, not available within AXIOM, are required.

AXIOM offers the unique feature of having submarine cable systems as its core business, hence ensuring its customers to be provided with successful and high-quality products that meet the customers' requirements.

Please bear in mind that, when dealing with submarine cable projects, especially as regards optical technologies and marine activities, experience is the cornerstone to turn a project into a success. As such, we feel that our company offers the best possible team, made of skilled people who *“have been there”*, hence knowing what it takes to move a specific business forward.

AXIOM: Not “just another consultant...”

With international know-how & recognition in the submarine system trade, AXIOM specializes in the unique arena of fibre optic communications. AXIOM is in position to offer the whole spectrum of skills required to dutifully perform the requested work with internal resources only.

AXIOM's strength also lies in the strong & diversified experience of its team in all project aspects: the financing, the promotion, the design, the procurement, the construction & the operation of the cable system.

AXIOM was requested by the SubOptic Committee – on several occasions – and the Pacific Telecommunications





Council (PTC) to present tutorials aimed at providing inputs on all aspects of submarine cable projects and or to speak at a workshop.

The AXIOM Team has accumulated years of experience in both operational & managerial positions in most of the crafts that can be found the cable trade, and amongst which:

- **Carrier's experience:** AXIOM members previously worked for international carriers with deep involvement in submarine cable projects and subsequently in the management of submarine cable systems;
- **Financing:** AXIOM members were deeply involved in the financial engineering of several submarine systems, notably EASSy where AXIOM was in charge of preparing all necessary finance documents for the lenders and of negotiating the terms of the loans with a consortium of development banks;
- **Traffic and Market study, business models:** AXIOM works in cooperation with TERABIT CONSULTING, a well-known company specialised in traffic and market studies (volumes, market shares, capacity cost forecasts), which references are more particularly detailed hereafter. AXIOM uses TERABIT CONSULTING forecasts to build accurate business plans allowing carriers to evaluate the soundness of their business cases;
- **International know-how & recognition:** AXIOM team includes one of the most well-known and respected key-figure of the submarine cable marketplace. Alain LECLERC was instrumental in the promotion and construction of several major cables around the world, among which SEA-ME-WE 3, the largest fibre-optic cable ever built;
- **Strategic & Technical Planning:** several team members have defined new strategic direction for carriers and have led them into the submarine world, integrating terrestrial and submarine network design elements to create a seamless, attractive commercial proposition;
- **Supplier's experience:** AXIOM members previously worked for two major submarine cable Suppliers (namely Alcatel-Lucent and Tycom, now Subcom);
- **Marine installation & maintenance:** AXIOM members had a top position within a marine service provider for 10 years;
- **Technology:** two of our members worked for a large R&D centre for about 10 years, where they conducted research on fibre cabling and advanced fibre-optic transmission;
- **Negotiations:** all AXIOM members have been deeply involved in many Submarine Cable Systems negotiations, from small unrepeated systems to the largest systems ever built, on either the supplier's side or the operator's side.



- **Environmental Studies:** AXIOM had been requested several times to include Environmental Studies in its Scope Of Work. AXIOM is not a specialist in Environmental Studies, but has access to various experienced companies to which those studies were sub-contracted.
- **Implementation know-how & project management:** all AXIOM members have been involved in many international cable projects and have acquired solid skills in project management and in problem handling and solving in a multi-national environment.
- **Assistance to Operation and Maintenance:** AXIOM is providing level 2 maintenance support on two large submarine cable systems, where the owners capitalise on AXIOM knowledge and technical experience to optimise the operation of their network from a technical and commercial point of view.

2. RELEVANT EXPERIENCES

AXIOM has provided a full range of various services to his clients during system's construction. AXIOM has more specifically assisted them in managing the commercial and technical sides of the project, with a particular emphasis on the marine related, technological, technical and QA activities for which AXIOM's representatives were appointed PG Chair, MWG/RWG Chair, TWG & CWG Chair. The list of recent projects under which those roles have been achieved is provided in chapter 3 of this report. In addition, this list contains a reference to consortia that contracted AXIOM as system manager & hiring manager of on-board observers for all marine activities such as electronic route survey & marine installation.

It shall be realized that the marine-related engineering and the marine activities itself are most critical to ensure the highest possible performance in terms of installation quality, reliability and reparability of any undersea network. The marine issues encountered during the construction of any new submarine cable system are always complex & likely to significantly impact on its operational performance, and, to make a long story short, on its long term reputation and on the project success, since a good reputation helps to attract new customers. All marine issues are subject to an intense "technical & commercial debating" between Purchasers & Suppliers in order to proceed smoothly to the best-possible installation decisions, based on minimizing long term risks while keeping installation costs at reasonable level. Stakes are rather huge for both the Purchasers & the Supplier, but they contemplate it with different perspectives.

Similarly, all QA activities, including project follow up, review of Contractor's QA system, new product design acceptance & qualification (when required), inspection & testing of all products & elements of the contractual supply list, whole system commissioning & assessment & recommendation on system acceptance, will be key to the success of The National Submarine Fibre Cable Network project to:



- Ensure that the Supply Contract proceeds smoothly in-line with the agreed Plan of Work and the contract price,
- Ensure that the Supplier complies scrupulously with all Contract requirements & industry standards,
- Ensure that the products of the submerged plant are designed & manufactured in compliance with the Contract requirements & industry standards, & feature high reliability and high performance as expected,
- Ensure that the cable route engineering, and cable / repeaters / BUs installation & protection are carried out in accordance with the industry standards in order to reduce risk of cable faults to an absolute minimum throughout the system lifetime.

AXIOM has a vast & successful experience in achieving these activities and therefore perfectly understands the paramount importance of properly carrying out all related tasks.

3. AXIOM TRACK RECORD

3.1 Repeated Submarine Cable Systems

Name of Repeated System	RFS Date	Cable length (km) / terminal station count	Capacity (Gbps)	AXIOM Team Role (See legend below)
ADC	Under construction	9,400 / 7	Nx100G	PM/MA
AMITIE	Under construction	6,800 / 3	Nx100G	QA
SXNext	Under construction	16,000 / 8	Nx100G	PM/QA
SCJ2	Under construction	10,500 / 11	Nx100G	PM/MA
HKA	Under construction	13,000 / 4	Nx100G	QA
WEST AFRICA	Under construction	8,000 / 6	Nx100G	PC/CMA/PM/QA/MA/OM
METISS	Under construction	3,500 / 4	Nx100G	PM/MA/QA
MANATUA	Under construction	3,600 / 6	Nx100G	PC/CMA/PM
Americas II Upgrade 6	Under construction	8,000 / 9	Nx100G	PC/PM/QA
NATITUA	2019	2,700 / 11	Nx100G	PC/PM/QA/MA
Tui Samoa	2018	1,900 / 6	Nx100G	PM/QA/MA
DARE	Under construction	5,500 / 7	Nx100G	FS/PC/CMA/PM
FASTER	2016	12,000 / 4	Nx100G	QA/MA
*Tripoli-Benghazi	Under construction	1,200 / 4	2x200	PC/PM/QA



Name of Repeated System	RFS Date	Cable length (km) / terminal station count	Capacity (Gbps)	AXIOM Team Role (See legend below)
*SMW3 Upgrade 5	2015	40,000 / 39	Nx100G	PC/PM/OM
*EASSy Upgrade#2	2014	10,400 / 9	2x400	PC/PM/QA/OM
ABBIS	Under study	8,000 / 8	Nx100G	FS/FI
*EASSy Mogadishu branch	2014	10,400 / 9	2x190	PC/PM/QA/MA/OM
*SEAS (Seychelles)	2012	2,000 / 2	1 X 320	FS/FI/PC/PM/QA/MA/OM
SJC	2013	8,500 / 6	6x2,560	QA/MA
*EASSy Upgrade 40G	2011	10,000 / 8	2x160	PC/PM/QA/OM
*BIOS (now "Jonah")	2011	2,300 / 2	2 x 2560	PC/PM/QA/MA/OM
*Macau SMW3 re-route	2011	6 / 1	> 3x200	FS/PC/PM/QA/MA
*Americas II Upgrades	2010-2012	8,000 / 9	> 4x200	PC/PM/QA
*ALBA-1 (Cuba – Venezuela)	2011	1,600 / 4	2x640	PC/PM/QA/MA/OM
*Spin	on-hold	8,000 / 8	1x640	PC
Honotua	2010	4,500 / 6	1x640	QA/MA
*SMW-3 Upgrade 10G #3.5, #4 & #4.5	2009 2012	40,000 / 39	Depending on segments	PC/PM/QA/OM
*EASSy (East Africa)	2010	10,000 / 8	2x680	FS/FI/PC/CMA/PM/QA/MA/OM
*Millenium Cable System	on-hold	10,000 / 10	3x960	PC/MA
*Alaska – Oregon Network (Seg. S2)	2008	2,800 / 2	4x640	FS/PC/PM/QA/MA
Med-Nautilus Greece-Turkey	2011	600 / 2	2x960	QA/MA
Sydney – Hawaii	2008	9,120 / 2	2x640	QA
Med-Nautilus Minerva branch	2007	200 / 2	2x190	QA/MA
*ATLAS OFFSHORE	2007	1,700 / 2	3,200	PC/PM/QA/MA/OM
*SAT3/SAFE Upgrade 10G#2	2005	26,000 / 22	100	OT
*SMW-4	2005	18,000 / 15	1,280	OT

3.2 Unrepeated Submarine Cable Systems

Unrepeated System	RFS Date	Length (km) / terminal station count	Capacity (Gbps)	AXIOM Team Role
SFR Corsica project	2021	280/330 / 4	N/A	PC/???
CDSCN (Converge)	Under construction	1800 / 21	12fp	PC/PM/QA/MA/OM
*Cook Islands	2020	370 / 2	N/A	PC/ PM/QA/M/OM
CTBTO	2018-2019	140/1	N/A	QA/MA/OT
CTBTO	2017	300/1	N/A	MA/OT
*Tui internal repeaterless	2017	120/260/360 / 6	N/A	PC/ PM/QA/MA
CTBTO (Crozet)	2016	300 / 1	N/A	PC/ PM/QA/MA /OM



Magellan Straight	2013	4 / 2	12fp	QA/MA/OM
*DDSCN (Maldives)	2012	1000 / 8	2x400	PM/QA/MA/OM
*Silphium	2012	420 / 2	3x400	PC/PM/QA/MA/OM
*ALBA-1 (Cuba – Jamaica)	2011	320 / 2	2x160	PC/PM/QA/MA/OM
*AKORN (Segment S1)	2009	100 / 2	8x960	FS/PC/PM/QA/MA/OM
*Gesma (not telecom) repair#2	2004	N/A	N/A	QA/MA

Legend

FS: Feasibility study

FI: Financing

PC: Pre-contract (RFQ, adjudication, contract negotiation)

CMA: Construction & Maintenance Agreement (C&MA)

PM: Project Management (incl. MWG member or Chair)

QA: Quality Assurance (Design Review, FAT, Commissioning)

MA: Marine Activities (DTS, shipboard representation during survey & installation)

OM: Operation and Maintenance Support

OT: Other

*** Involvement in these systems was key**



4. EXAMPLES OF SERVICES CARRIED OUT BY AXIOM BETWEEN 1999 AND 2020

Assignment Name: AMITIE		Country: US, UK & France
Location within Country: UK & France		Professional Staff Provided by Your Firm/Entity (profiles): Technical experts
Name of Client and Phone Number: Facebook Hervé Février – Technical Expert hervef@fb.com		N° of Staff: 2
Address: N/A		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 24 months
Start Date (Month/Year): Q2 2019	Completion date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Jean-Baptiste Thomine (Technical Project Manager) • Eric Carbonnelle (Cable Expert) • Artur Nazaryan (Technical Support) 		
Narrative Description of Project: Supporting AMITIE consortium for QA activities		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Wet Plant Design Review • Wet Plant Factory Acceptance • PFE FAT • System pre-Load Testing • Loading Supervision • Technical Documentation Review 		



Assignment Name: SXNext		Country: Australia, NZ, Fiji, Tokelau, Kiribati & US
Location within Country: In-countries & France		Professional Staff Provided by Your Firm/Entity (profiles): Technical experts
Name of Client and Phone Number: Southern Cross Cable Network Gwenn NEDELEC – Project Director M: +64 21 525 699 gwenn.nedelec@sccn.co.nz		N° of Staff: 2
Address: N/A		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 24 months
Start Date (Month/Year): Q1 2019	Completion date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Jean-Baptiste Thomine (Technical Project Manager and Technical Expert) • Loïc Le Fur (Technical Project Manager and Technical Expert) • Jean-Claude Moreau (Technical Expert) 		
Narrative Description of Project: Support to SXNEXT for the management of the station constructions, Support to SXNEXT for the selection of the SLTE supplier for the project		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Support for the review and assessment of the answers to the RFQ for the modular landing stations in Savusavu, Kiribati and Tokelau • Support for finalising the modular landing stations contract • Support for the project management of the landing stations construction • Drafting of the RFI for the SXNEXT SLTE provision, review of answers • Future drafting of the RFQ for the SXNEXT SLTE provision 		



Assignment Name: West Africa Project Implementation		Country: Morocco, Ivory Coast, Togo, Benin, Gabon
Location within Country: Western Africa		Professional Staff Provided by Your Firm/Entity (profiles): Project Director & Project Manager
Name of Client and Phone Number: Maroc Telecom Nawal El Aouafay – Responsable Division Transmission Tel: + 212 537285983 elouafay@iam.ma		N° of Staff: 2
Address: Tour Maroc Telecom Avenue Annakhil, Rabat, Morocco		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 30 months
Start Date (Month/Year): Q1 2019	Completion date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Jean-Baptiste Thomine (Project Director – Technical & Commercial Advisor) • Eric Carbonnelle (Technical Project Manager) 		
Narrative Description of Project: Supporting Maroc Telecom in the implementation of the West Africa Project connecting several West African countries		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Overall commercial and technical management of the Project, including cost racking, contract variations, planning, design reviews, manufacturing, etc. • All equipment factory acceptance • Marine Working Group Lead • Shipboard representation • All test procedures review • On-site testing and commissioning activities • O&M procedures 		



Assignment Name: METISS – Marine Working Group Lead		Country: Mauritius, Reunion, Madagascar, Republic of South Africa
Location within Country: Indian Ocean		Professional Staff Provided by Your Firm/Entity (profiles): Project Managers
Name of Client and Phone Number: ZEOP Wilfried Gaillard – PG Chairman Tel: +26262010006 wilfriedgaillard@zeop.net		N° of Staff: 2
Address: ZEOP 39 Rue Pierre Brossolette, Le Port 97420, Reunion, France		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 28 months
Start Date (Month/Year): Q2 2018	Completion date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Eric Carbonnelle (Technical Project Manager) • Jean-Baptiste Thomine (Technical Project Manager) 		
Narrative Description of Project: Supporting METISS Consortium for the wet plant manufacture and installation		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Marine Working Group Chair • Wet plant design review • Cable and submerged equipment factory acceptance • Shipboard representation 		



Assignment Name: Manatua PM		Country: Samoa/PF/Cook/Niue
Location within Country: Apia/Papeete (PG Chairs)		Professional Staff Provided by Your Firm/Entity (profiles): Senior Project Manager & Technical Engineers
Name of Client and Phone Number: SSCC Ltd Emmanuel Delanoue – CEO Tel : (+685) 777 4221 ceo@ssccsamoa.com OPT Thierry HARS Tel : (689) 40 41 43 54		N° of Staff: 2
Address: Samoa Submarine Cable Company / OPT PF		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 30 months
Start Date (Month/Year): Q2 2016	Completion Date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Loïc Le Fur (Project Director – Technical & Commercial Advisor) • Alain Leclerc (C&MA Expert) 		
Narrative Description of Project: Supporting the Manatua consortium in procurement, C&MA phases and now system implementation		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Drafting RFQ, adjudication process and contracting • Drafting of the C&MA • Technical and commercial assistance to the PG • Marine working group, shipboard representation • QA, commissioning 		



Assignment Name: SJC2 Marine Lead		Country: Across South East Asia
Location within Country: Across Asia		Professional Staff Provided by Your Firm/Entity (profiles): Senior Project Manager & Technical Engineers
Name of Client and Phone Number: China Mobile Anthony Wong +852 9124 9483		N° of Staff: 2
Address: N/A		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 30 months
Start Date (Month/Year): Q2 2018	Completion Date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Pascal Gournay (Project Director – Marine Advisor) • Jean-Louis Lamy (Route Expert) 		
Narrative Description of Project: SJC2 marine lead (i.e. marine WG chair)		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Organize and provide all onboard rep (survey and lay) • Review routes and recommend to purchasers • Liaise with Supplier on all Marine activities matters, inc permits • Lead marine working groups, participate to CCM/PG 		



Assignment Name: HKA		Country: US, Taiwan, Hong Kong
Location within Country: UK & France		Professional Staff Provided by Your Firm/Entity (profiles): Technical experts
Name of Client and Phone Number: TATA Communications Daniel Welt – TWG Chairman Daniel.Welt@tatacommunications.com		N° of Staff: 2
Address: N/A		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 24 months
Start Date (Month/Year): Q2 2018	Completion date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Jean-Baptiste Thomine (Technical Project Manager) • Eric Carbonnelle (Cable Expert) • Artur Nazaryan (Technical Support) 		
Narrative Description of Project: Supporting HKA consortium for QA activities		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Wet Plant Design Review • Wet Plant Factory Acceptance • System pre-Load Testing • Loading Supervision 		



Assignment Name: Procurement of Natitua		Country: French Polynesia
Location within Country: Tahiti, French Polynesia		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: OPT Thierry HARS Tel : (689) 40 41 43 54		N° of Staff: 2
Address: Office des postes et télécommunications de Polynésie française Rond-point de Fare Ute - BP 605 - 98713 Papeete - Tahiti - Polynésie française		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 16 months
Start Date (Month/Year): Q1 2016	Completion Date (Month/Year): Q4 2018	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Loïc Le Fur (Project Director – Technical Advisor) • Jacky Melro (Technical Project Manager) 		
Narrative Description of Project: OPT French Polynesia has built a domestic network connecting several atolls. AXIOM has conducted the site visit. AXIOM has drafted the RFQ and assisted implementation phase in all aspects, inc marine and QA		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Site surveys and selection of the Landing Points. • Designing the system. • Drafting of RFQ documents (both commercial and technical). Evaluation of bids and contract awards; Contracting • Assistance to procurement team (technical, commercial, legal) • Marine expertise, QA, commissioning 		



Assignment Name: Project Implementation Manager		Country: Samoa
Location within Country: Apia, Samoa		Professional Staff Provided by Your Firm/Entity (profiles): Senior Project Manager & Technical Engineers
Name of Client and Phone Number: SSCC Ltd Emmanuel Delanoue – CEO Tel : (+685) 777 4221 ceo@ssccsamoa.com		N° of Staff: 2
Address: Samoa Submarine Cable Company Apia, ACC Mall, Matafele, Apia, Samoa		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 16 months
Start Date (Month/Year): Q4 2016	Completion Date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Loïc Le Fur (Project Director – Technical & Commercial Advisor) • Jacky Melro (Technical Project Manager) 		
Narrative Description of Project: Supporting the Samoa Submarine Cable Company in the implementation of the Samoa Connectivity Project connecting the Independent Republic of Samoa to Fiji via a submarine fiber optic cable.		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Overall commercial and technical management of the Project, including: cost tracking, budget management, contract variations, planning, design reviews, etc. • All equipment factory acceptance, including containerized stations • Marine Working Group • Shipboard representation • All test procedures review • On-site testing and commissioning activities 		



Assignment Name: “Ouest Africa” Feasibility Study for Maroc Telecom		Country: Morocco and France
Location within Country: Rabat, Morocco		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: Maroc Telecom A. BEN MOUSSA- Tel. +212 27 71 48 36		N° of Staff: 3
Address: MAROC TELECOM Boulevard Annakhil Hay Ryad Morocco		N° of Staff-Months; Duration of Assignment: Approx 1 Staff-months / 3 months
Start Date (Month/Year): 4Q2016	Completion Date (Month/Year): 4Q2016	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: Terabit Consulting		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Alain Paul Leclerc (Project Director) • Eric Carbonnelle • Yves Ravier (Project Coordinator) 		
Narrative Description of Project: MAROC TELECOM commissioned AXIOM to provide a detailed Feasibility Study for deploying a submarine cable network linking the West African coast between Morocco and Gabon. This exhaustive study performed by AXIOM includes a market and traffic study for 10 countries, a preliminary route study and the appropriate landing points choice, the business model to be able to recommend strategic choices as well as optimum vehicles to build and operate the network.		
Description of Actual Services Provided by our Staff: Main tasks covered by Axiom are listed below: <ul style="list-style-type: none"> • Strategic Advice; • Traffic Study • System definition and landings selection; • Preliminary Route study; • Financial and economical modelling of the Project to lead to a full business plan; and • Recommendations regarding the optimum structures to build and operate the system. 		



Assignment Name: Djibouti Africa Regional Express (DARE) Submarine Cable System		Country: Djibouti
Location within Country: Djibouti and East Africa		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ technical & financial skills
Name of Client and Phone Number: Djibouti Telecom Mohamed AHMED – Director International Business Tel. + 25377 838325		N° of Staff: 3
Address: 9th Floor, Air Mauritius Centre, John Kennedy Street Port Louis, Ile Maurice		N° of Staff-Months; Duration of Assignment: Approx. 3 Staff-months / 12 months
Start Date (Month/Year): 3Q2015	Completion Date (Month/Year): 3Q2016	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Alain Leclerc (Project Director) • Loïc Le Fur (Project Manager) • Jacky Melro / Eric Carbonnelle (Technical Managers) 		
Narrative Description of Project: <p>The DARE submarine cable system will connect Dar Es Salam, Mombasa, Mogadishu, Bossaso, Berbera, Mocha and Djibouti. The system provides an alternative low latency route and provides high bandwidth connectivity from the Horn of Africa, East Africa and the Middle East.</p> <p>DARE is intended to stimulate exponential business growth in participating countries by providing robust, reliable and lowest latency connectivity. Future connectivity options in Djibouti, Yemen, Somalia, Somaliland, Kenya, and Tanzania will provide vital flexibility for the consortium carriers and their customers.</p>		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Traffic and Market Study; • Financial and economical modelling of the Project to lead to a full business plan; • System definition and landings selection; • Recommendations regarding the optimum structures to build and operate the system; • Strategic advice; • C&MA and LPA drafting; • Whole procurement process (RFQ drafting, tenders assessment and supply contract drafting). 		



Assignment Name: Re-establishment of Hydroacoustic station HA04		Country: France
Location with Country: Crozet Island		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers and marine experts
Name of Client and Phone Number: Preparatory Commission for the Comprehensive Nuclear Test-Ban Treaty Organization (CTBTO)		N° of Staff: 2 - 3
Address: CTBTO Vienna International Centre Wagramerstrasse 5, P.O. Box 1200 1400 Vienna, Austria		N° of Staff-Months; Duration of Assignment: Approx. 2 Staff-months / 4 months
Start Date (Month/Year): 06/2013	Completion Date (Month/Year): 04/2017	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: -		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Alain Paul Leclerc, Project Director Pascal Gournay, Project manager Eric Carbonnelle, Project Manager		
Narrative Description of Project: CTBTO is in charge of deploying and monitoring hydro acoustic stations throughout the world to detect all types of nuclear explosions: underground, atmospheric and underwater. One of the existing hydro acoustic stations (HA04) located at Crozet Islands, required to be re-established due to technical problems on the initial system, and CTBTO decided to procure a new system in replacement of the existing one. This replacement included the underwater system (cables and 2 triplets of hydrophones), the beach and land connection and the electronic transmission equipment to be installed in the Hydroacoustics Laboratory located on shore on of the Crozet islands. CTBTO appointed AXIOM to act as an independent expert in providing technical support to the project and in ensuring that the re-establishment of HA04 by the selected system supplier is performed successfully.		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Suppliers offers technical evaluation and recommendation for the selected supplier; • Technical support during project execution including design qualification review, technical follow-up and issues clearance, quality plan review, UWS factory testing and acceptance, marine survey and installation , and system commissioning; • Participation to project and technical reviews (Kick-off, PDR, CDR, PMDR) and marine review meetings (RWG) with the commission and the system supplier; • On-board technical representation during marine operations. 		



Assignment Name: Due Diligence for Australia Singapore Cable (ASC)		Country: Australia, Indonesia, Singapore
Location within Country: Perth, Singapore, Anyer		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ technical & financial skills
Name of Client and Phone Number: Nextgen Group Art Cartwright, tel : +61 421 076 997		N° of Staff: 3
Address: Nextgen Networks Level 4, 80 Pacific Highway North Sydney NSW 2055, Australia		N° of Staff-Months; Duration of Assignment: Approx. 50 Staff-days / 2 months
Start Date (Month/Year): January 2016	Completion Date (Month/Year): 03/2016	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed:		
<ul style="list-style-type: none"> • Loïc Le Fur (Project Director) • Eric Carbonnelle (Project Manager) • Pascal Gournay (Project Manager) 		
Narrative Description of Project:		
<p>As part of the financial package arrangement set up by ASC and the Lenders and before the financial closure is reached, a due diligence was required to enable the Lenders to make informed decisions concerning the balance of Project risks.</p> <p>AXIOM SAS has been contracted to work on this due diligence exercise, more particularly on the supply contract signed with the system supplier.</p>		
Description of Actual Services Provided by our Staff:		
<ul style="list-style-type: none"> • Review of the network design including the route engineering and the marine installation solutions; • Review of the supply contract terms and conditions including prices and Plan of Work; • Reviews of all required permits; • Review of the Landing Party Agreements; • Review of the O&M organization including the team, the commercial and marketing, the sales policy; • Review of the business plan including traffic prospects; • Project implementation risks review and mitigation. 		



Assignment Name: Validation of Retelit's business plan in the framework of AAE-1 Submarine System.		Country: Italy
Location within Country: Milan		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ technical & financial skills
Name of Client and Phone Number: Retelit S.p.A. Fabio BORTOLOTTI (CFO) Tel. +39 0220204537		N° of Staff: 2
Address: Viale Restelli, 3/7 20124 Milano, Italy		N° of Staff-Months; Duration of Assignment: Approx. 2 Staff-days / 3 months
Start Date (Month/Year): December 2015	Completion Date: Q1 2016	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: Terabit Consulting		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Alain Paul Leclerc • Yves Ravier 		
Narrative Description of Project: <p>Italian operator Retelit recently became a member of the AAE-1 submarine cable Consortium and is the landing party in Italy. Retelit commissioned Axiom for providing a second opinion by conducting a critical review of its business plan over a 15 year period so as to validate CAPEX and OPEX valuations to be used in the company's Annual Report for fiscal year 2015 based on the expected revenues over the next 15 years.</p> <p>As an independent expert, Axiom provided and substantiated all required inputs to external auditor, Deloitte & Touche, which was in charge of producing the 2015 annual report.</p> <p>To this end, Axiom produced a business plan from scratch based on its own parameters and assumptions and using a specially produced traffic study over a 15 year period that was conducted by Terabit Consulting.</p>		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Review and assessment of C&MA; • CAPEX & OPEX valuation • Traffic and Market Study over a 15 year period of AAE-1 market share so as to derived Italian traffic capture by Retelit • Financial modeling over a 15 year period and development of the business plan • Reporting and discussion with the external auditor (Deloitte & Touche) 		



Nom: Audit of the installation work undertaken by the supplier in the frame of AMX-1 Submarine Cable		Countries: Brazil, Columbia, Dominican Republic, Guatemala, Mexico and USA.
Location within Country: Rio de Janeiro, Salvador, Fortaleza, Cartagena, Barranquilla, Puerto Plata, Puertos Barrios, Cancun, Miami, Jacksonville, San Juan.		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ technical & financial skills
Name of Client and Phone Number: SERCOTEL S.A		N° of Staff: 4
Address: Lago Zurich 245 Piso 4, Edificio Telcel Ampliacion Granada 11529, MEXICO		N° of Staff-Months; Duration of Assignment: Approx. 12 staff.months / 1 2 months
Start Date (Month/Year): Q4 2014	Completion Date (Month/Year): Q4 2015	Approx. Value of Professional Staff Provided by Associated consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Alain Paul Leclerc (Project Director) • Jacky Melro (Project Manager) • Pascal Gournay (Project Manager) • Eric Carbonnelle (Project Manager) 		
Narrative Description of Project: SERCOTEL selected AXIOM to undertake an audit of the works performed by the supplier in the frame of AMX-1 Submarine Cable to check the compliance with the contract requirements and the industry best practices.		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Review of the shore end installation reports for 8 landings points, and issuance of an assessment report for each of them; • Review of the marine installation reports (main lays) for all segments/phases on the basis of the installation reports provided by the supplier. Issuance of an assessment report for each segment/phase; • Review of the Terminal Station Equipment installation reports for 11 terminal stations and 4 NOC on the basis of the information provided by the supplier and the site visits carried out by AXIOM. Issuance of an assessment report for each site; • Review of the land cable installation reports for 11 sites on the basis of the information provided by the supplier and the site visits carried out by AXIOM. Issuance of an assessment report for each site; • Review of the permits obtained in each country involved in the Project against the local regulations as well as the conditions associated with their renewal. Issuance of an assessment report for each country. 		



Assignment Name: Detailed Feasibility Study for the Rodrigues-Mauritius Submarine Cable System		Country: Republic of Mauritius
Location within Country: Port Louis and Rodrigues Island		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ technical & financial skills
Name of Client and Phone Number: Ministry of Information & Communication Technology Suraj RAMGOLAM Tel. +230-210-0201		N° of Staff: 2
Address: 9th Floor, Air Mauritius Centre, John Kennedy Street Port Louis, Ile Maurice		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 10 months
Start Date (Month/Year): 1Q2014	Completion Date (Month/Year): 2Q2015	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: Terabit Consulting, Eric Vève & Associés		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Eric Carbonnelle (Technical Project Manager) • Yves Ravier (Financial Project Manager) 		
Narrative Description of Project: <p>The lack of adequate broadband ICT infrastructure to support high-quality, high-speed telecommunication, broadcasting and Internet connections on the Rodrigues Island is a major obstacle for economic and social development. As a consequence, the government of the Republic of Mauritius made the decision of studying a submarine fiber optic link to connect Rodrigues to the Mauritius Island, which is connected to the global fiber loop through several submarine cables.</p> <p>Axiom performed the Detailed Feasibility Study for such cable project, provides assistance for the financing of the project, handles the procurement process and will negotiate the supply contract</p>		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Traffic and Market Study; • Preliminary Route study (DTS); • Environmental Study (subcontracted to X-Survey); • System definition and landings selection; • Financial and economical modelling of the Project to lead to a full business plan; • Recommendations regarding the optimum structures to build and operate the system; • Strategic advice • Whole procurement process • RFQ drafting 		



Assignment Name: Detailed Feasibility Study for BIMP-EAGA Rink Cable System		Country: Brunei, Malaysia, Philippines
Location within Country: Bandar Seri Begawan, Kota Kinabalu and Manila		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ technical & financial skills
Name of Client and Phone Number: BIMP-EAGA Rink Implementing Agencies amongst which: Brunei International Gateway Mr. Pengiran Haji Mohd Salleh Bin Pengiran Haji Aji Tel: +6732323232 ext. 1111 Email: salleh.aji@big.com.bn		N° of Staff: 2
Address: Brunei International Gateway Sdn Bhd B13, Simpang 32-5, Kg. Anggerek Desa, Jalan Berakas BSB BB 3713, Brunei Darussalam		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 3 months
Start Date (Month/Year): 1Q2013	Completion Date (Month/Year): 2Q2013	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: Terabit Consulting		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Eric Carbonnelle (Technical Project Manager) • Yves Ravier (Financial Project Manager) 		
Narrative Description of Project: <p>The lack of adequate regional, coastal, and terrestrial broadband ICT infrastructure to support high-quality, high-speed telecommunication, broadcasting and Internet connections in the BIMP-EAGA Region is a major obstacle for economic and social development.</p> <p>As a consequence, the BIMP-EAGA program made the decision of studying a submarine and terrestrial fiber optic network, so called "BIMP-EAGA Rink Cable System", with a view to interconnect Brunei Darussalam (Brunei), the State of Sabah, Malaysia (Sabah), the Southern Philippines and the North-East region of Indonesia (i.e. Kalimantan & Sulawesi). AXIOM carried out a Detailed Feasibility Study for the inter-region bandwidth connectivity and intra-region communication needs in the BIMP-EAGA Region.</p>		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Traffic and Market Study for BIMP-EAGA Region (about ten countries); • Preliminary Route study; • System definition and landings selection; • The financial and economical modelling of the Project to lead to a full business plan; and • recommendations regarding the optimum structures to build and operate the system; • Strategic advice • EPIC contract Technical Specification drafting 		



Assignment Name: Consulting and engineering services on international business development on a new cable system		Country: Tahiti, French Polynesia
Location with Country: Tahiti and Pacific region		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ technical & financial skills
Name of Client and Phone Number: Office des Postes et Telecommunications, OPT Tahiti		N° of Staff: 2
Address: Office des Postes et Télécommunications Hôtel des Postes de Papeete 98713 Papeete- TAHITI POLYNESIE FRANCAISE		N° of Staff-Months; Duration of Assignment: Approx. 2 Staff-months /2 months
Start Date (Month/Year): 1Q2013	Completion Date (Month/Year): 2Q2013	Approx. Value of Professional Staff Provided by Associated Consultants: 1
Name of Associated Consultants, If Any: Terabit Consulting		N° of Months of Professional Staff Provided by Associated Consultants: 1
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Alain Paul Leclerc (Project Director) • François Deroubaix (Project Manager) • Loic Lefur (Business Modelling) 		
Narrative Description of Project: Following the implementation by OPT of the Honotua cable system from Tahiti to Hawaii, OPT decided to launch a study for a second connection by submarine cable from French Polynesia. Two options had been identified. OPT was looking for expertise and advices that could enhance OPT in developing business on existing cable system and on the potential new cable system for the 2 identified options.		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Traffic and Market Study for the countries of the Pacific Region • Evaluation of traffic captation • Evaluation of backup capacities for the existing cable securization • The financial and economical modelling of the Project including connectivity pricing and capacities • Strategic advice 		



Assignment Name: Procurement and Implementation of Dhiraagu Domestic Submarine Cable Network (DDSCN)		Country: Maldives, Japan and France
Location within Country: Malé, Maldives		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: DHIRAAGU Mohamed HAZMATH ABDULLA Tel. +960 33 11-425		N° of Staff: 3
Address: 19 Medhuziyaaraiy Magu Malé, Maldive		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 21 months
Start Date (Month/Year): 3Q2010	Completion Date (Month/Year): 2Q2012	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Pascal Gournay (Team Leader) • Yves Ravier (Contractual and Financial) • Jean-Baptiste Thomine (Technical) • Jacky Melro (Commissioning) 		
Narrative Description of Project: Dhiraagu, a joint venture of Maldivian Government and Cable and Wireless is building a domestic repeaterless festoon connecting 8 atolls. Procurement was jointly handled by Cable & Wireless/AXIOM and the whole implementation process was handled by AXIOM.		
Description of Actual Services Provided by our Staff: AXIOM took part in designing the system, analyzing the bids, recommending a supplier, and taking care of project implementation, covering main tasks listed below: <ul style="list-style-type: none"> • Strategic Advice; • Evaluation of bids and contract awards; • Cable route survey analysis; • Implementation supervision and project management; • Handover to Operation & Maintenance (O&M). 		



Assignment Name: Procurement and Implementation of Seychelles East Africa System (S.E.A.S.)	Country: Seychelles, Tanzania
Location within Country: Seychelles, Tanzania	Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: SCS Benjamin Choppy Tel. +248 4 286 600	N° of Staff: 2-3
Address: 3rd Floor, Caravelle House Manglier Street, Victoria, Mahé, Seychelles	N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 14 months
Start Date (Month/Year): 3Q2010 Completion Date (Month/Year): 2Q2012	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:	N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed:	
<ul style="list-style-type: none"> • François Deroubaix • Michel Rouilleault (now retired) • Jean-Baptiste Thomine 	
Narrative Description of Project: SCS, a joint venture of Government Of Seychelles, C&W Seychelles and Airtel Seychelles is building a repeatered cable system connecting Seychelles to Tanzania. Axiom performed the feasibility study for such cable project, provided assistance in the negotiation with the development banks for the financing of the project, negotiated the supply contract (ASN) and is currently managing the implementation of the system	
Description of Actual Services Provided by our Staff:	
<ul style="list-style-type: none"> • Feasibility study; • Environmental Study (subcontracted to X-Survey); • Assistance for building the business plan and negotiating the loan with development banks • Strategic Advice; • Preparation of supply contract; • Cable route survey; • Implementation supervision and management (project management, technical design, QA, commissioning); • Assistance for negotiating the marine maintenance contract • Handover to Operation & Maintenance (O&M), including JSMD drafting. 	



Assignment Name: Implementation of EASSy Submarine Cable System and its Upgrade#1 to 4x40G		Country: Sudan, Djibouti, Kenya, Tanzania, Comores, Madagascar, Mozambique, South Africa
Location within Country: Cape Town, South Africa		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: WIOCC Ryan Sher (CEO) Tel. +27 72 785 7557		N° of Staff: 2
Address: Cape Town South Africa		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 40 months
Start Date (Month/Year): 1Q2009	Completion Date (Month/Year): 1Q2012	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed:		
<ul style="list-style-type: none"> • Loic Le Fur • Michel Rouilleault (now retired) • Jean-Baptiste Thomine • Jacky Melro 		
Narrative Description of Project: EASSy, a 10,000km submarine cable system linking Sudan, Djibouti, Kenya, Tanzania, Comores, Madagascar, Mozambique, South Africa. Axiom provided part of the design review and QA services, Assistance to the Technical Working Group and Procurement Group chairs and was the commissioning coordinator for the System implementation and for its Upgrade at 4x40G		
Description of Actual Services Provided by our Staff:		
<ul style="list-style-type: none"> • Design review • Factory audits and factory acceptance tests • Project management of the commissioning of EASSy and of its upgrade at 40Gbit/s • Upgrade#1 Contract negotiation 		



Assignment Name: Implementation of Americas-2 Upgrade#1 to #1L		Country: Florida, Virgin Islands, Puerto Rico, Curacao, France (Martinique and French Guyana, Venezuela, Trinida and Tobago, Brazil)
Location within Country: New Jersey, USA		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: AT&T Wayne Gucwa Tel. +1 973 326 3868		N° of Staff: 1-2
Address: New Jersey USA		N° of Staff-Months; Duration of Assignment: Approx 1-2 Staff-months / 27 months
Start Date (Month/Year): 4Q2009	Completion Date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Jean-Baptiste Thomine 		
Narrative Description of Project: Americas-2, a project initially implemented in the early 2000s with a design capacity of 8 x 2.5Gbit/s has been upgraded with 10Gbit/s technology, then 40Gbit/s then 100Gbits/. The first phase completed in 2010, followed by 10th upgrade phase (one by year) up to Upgrade#1L which is to start shortly.		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Design review • Factory audits and factory acceptance tests • Management of traffic transfer during the upgrades • Project management of the Americas-2 Upgrade#1, #1B and #1C implementation (technical and commercial) 		



Assignment Name: Procurement and implementation of BIOS (now JONAH) submarine system		Country: Israel, Italy
Location within Country: Tel Aviv, Israel		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: Bezeq International Daniel Simis Tel. +972 3 9257527		N° of Staff: 1
Address: Tel Aviv Israel		N° of Staff-Months; Duration of Assignment: Approx 1-2 Staff-months / 20 months
Start Date (Month/Year): 2Q2010	Completion Date (Month/Year): 4Q2011	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Loic Le Fur 		
Narrative Description of Project: BIOS, a submarine system linking Israel to Itay. Axiom was in charge of preparing the ITT, reviewing the tenders, negotiating and drafting the supply contract, project-managing the implementation and all quality insurance services, including onboard representation FAT and commissioning.		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Drafting of ITT, analysis of tenders, negotiation, drafting of supply contract • Design review • QA, Factory acceptance Tests • On-board follow-up of marine operations (survey and installation) • On-site commissioning • Technical and Commercial project management of the BIOS project implementation (inc final negotiation of the Provisional Acceptance) 		



Assignment Name: Procurement and implementation of Silphium Cable System		Country: Libya, Greece
Location within Country: Tripoli, Lybia		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: LITC Heatham Fighi Tel. +218 21 3600045 Ext 6014		N° of Staff: 2
Address: Tripoli Lybia		N° of Staff-Months; Duration of Assignment: Approx 1-2 Staff-months / 20 months
Start Date (Month/Year): 1Q2010	Completion Date (Month/Year): 3Q2012	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed:		
<ul style="list-style-type: none"> • Pascal Gournay • Alain Leclerc • Jean-Baptiste Thomine 		
Narrative Description of Project: Silphium, a submarine system linking Lybia to Greece.		
Description of Actual Services Provided by our Staff:		
<ul style="list-style-type: none"> • Strategic advice for the design of the project, assistance in reaching an agreement with the landing partner in Greece (OTEGLOBE) • Drafting of ITT, analysis of tenders, negotiation, drafting of supply contract • Design review • QA, Factory acceptance Tests • Follow-up of marine operations • Site commissioning • Project management of the Silphium project implementation (technical and commercial) 		



Assignment Name: Technical Assistance to prepare technical specifications of the Central African Backbone (CAB) Project.		Country: Chad, Cameroon, DRC, CAR, Congo, Rep., Gabon
Location within Country: Douala & Yaoundé (Cameroon), N'Djaména (Chad), Bangui (Central African Republic) and Paris (France)		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: The World Bank Yann BURTIN - Tel. +33 (1) 40 69 33 62		N° of Staff: 2
Address: 66 avenue d'Iéna 75116 Paris France		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 14 months
Start Date (Month/Year): 1Q2009	Completion Date (Month/Year): 2Q2010	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: Terabit Consulting		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Michel Rouilleault (Project Director) • Yves Ravier (Project Coordinator) 		
Narrative Description of Project: AXIOM has been chosen by the World Bank to follow the “Central African Backbone (CAB)” project implementation, network connecting Chad, CAR and Cameroon. AXIOM is taking care of the integral bidding process (writing and issuance of Tender documents, negotiation) as well as the implementation follow up. An extension to this network being envisaged towards four neighbour countries (DRC, Gabon, Equatorial Guinea and Congo), AXIOM is also performing a traffic study and a business model to check the feasibility of this extension to CAB.		
Description of Actual Services Provided by our Staff: AXIOM took part in designing the system, writing and issuing tender documentation, recommending a supplier, and taking care of project implementation, covering main tasks listed below: <ul style="list-style-type: none"> • Strategic Advice; • System definition and landings selection; • Preliminary Route study; • Preparation of tender documents; • Evaluation of bids and contract awards; • Implementation supervision and management; • Handover to Operation & Maintenance (O&M). 		



Assignment Name: “West Africa” Feasibility Study for Maroc Telecom		Country: Maroc, France and Eastern Africa
Location within Country: Rabat, Morocco		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: Maroc Telecom A. BEN MOUSSA- Tel. +212 27 71 48 36		N° of Staff: 6
Address: MAROC TELECOM Boulevard Annakhil Hay Ryad Morocco		N° of Staff-Months; Duration of Assignment: Approx 1 Staff-months / 3 months
Start Date (Month/Year): 2Q2008	Completion Date (Month/Year): 3Q2008	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: Terabit Consulting		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed:		
<ul style="list-style-type: none"> • Alain Paul Leclerc (Project Director) • Jean-Baptiste Thomine • Loïc Le Fur • Jacky Melro • Jonathan Yapoudjian • Yves Ravier (Project Coordinator) 		
Narrative Description of Project: MAROC TELECOM asked AXIOM to provide a detailed Feasibility Study for a submarine cable network linking the West African coast between Morocco and Gabon. This exhaustive study performed by AXIOM includes a market and traffic study for five countries, a preliminary route study and the appropriate landing points choice, the business model to be able to recommend strategic choices as well as optimum portage structures to build and operate the network.		
Description of Actual Services Provided by our Staff: AXIOM took part in designing the system, writing and issuing tender documentation, recommending a supplier, and taking care of project implementation, covering main tasks listed below:		
<ul style="list-style-type: none"> • Strategic Advice; • Traffic Study • System definition and landings selection; • Correspondent relationship and co-location agreements; • Preliminary Route study; • the financial and economical modelling of the Project to lead to a full business plan; and • recommendations regarding the optimum structures to build and operate the system. 		



Assignment Name: Procurement and Implementation of WACS		Country: South Africa, UK and France
Location within Country: Johannesburg, South Africa		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: BROADBAND INFRACO Vishen MAHARAJ - Tel. +27 (82) 927 68 02		N° of Staff: 2
Address: 328 Main Ave, Ferndale Randburg, 2194 South Africa		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 30 months
Start Date (Month/Year): 4Q2007	Completion Date (Month/Year): 3Q2010	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:.		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Patrick Faidherbe (Project Director) • Yves Ravier (Project Coordinator) 		
Narrative Description of Project: Broadband InfraCo, a South African state owned public Utility Company, is building a multi-terabit/s submarine cable system linking the Republic of South Africa with Europe with onward connectivity to the United States of America. Broadband InfraCo is also planning optional branches to service the West Coast of Africa. Part of the procurement and implementation process is subcontracted to AXIOM.		
Description of Actual Services Provided by our Staff: AXIOM took part in designing the system, writing and issuing tender documentation, recommending a supplier, and taking care of project implementation, covering main tasks listed below: <ul style="list-style-type: none"> • Strategic Advice; • System definition and landings selection; • Correspondent relationship and co-location agreements; • Desktop study (DTS); • Preparation of tender documents; • Evaluation of bids and contract awards; • Cable route survey analysis; • Implementation supervision and management; • Handover to Operation & Maintenance (O&M). 		



Assignment Name: Full procurement and Implementation of AKORN Submarine Cable		Country: USA and France
Location within Country: Anchorage, Alaska, USA		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: ALASKA COMMUNICATIONS SYSTEMS Anand VADAPALLI - Tel. +1 (907) 564-3335		N° of Staff: 4
Address: 600 Telephone Ave. Anchorage, AK 99503 USA		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 18 months
Start Date (Month/Year): 4Q2006	Completion Date (Month/Year): 3Q2008	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:.		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed:		
<ul style="list-style-type: none"> • Jean-Baptiste Thomine (Project Director) • Loïc Le Fur (Project Coordinator) • Jacky Melro • Henri Palacin 		
Narrative Description of Project: ALASKA COMMUNICATIONS SYSTEMS proactively decided to deploy its own submarine cable system that will link Alaska to Mainland USA. The whole procurement and implementation process was subcontracted to AXIOM.		
Description of Actual Services Provided by our Staff: AXIOM was in charge of designing the system, writing and issuing tender documentation, recommending a supplier, and taking care of project implementation, covering main tasks listed below:		
<ul style="list-style-type: none"> • Strategic Advice; • System definition and landings selection; • Correspondent relationship and co-location agreements; • Desktop study (DTS); • Preparation of tender documents; • Evaluation of bids and contract awards; • Cable route survey analysis; • Implementation supervision and management; • Handover to Operation & Maintenance (O&M). 		



Assignment Name: Full procurement and Implementation of Millennium Submarine Cable	Country: India and France
Location within Country: New Delhi, India	Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: MILLENNIUM TELECOM A.K. PATHAK - Tel. +91 23351060	N° of Staff: 4
Address: Jeevan Bharati Tower-I 13th Floor, 124 Connaught Circus New Delhi 110 001, India	N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 18 months
Start Date (Month/Year): 4Q2006 Completion Date (Month/Year): 3Q2008	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:.	N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Alain Paul Leclerc (Project Director) • Jean-Baptiste Thomine (Project Coordinator) • Loïc Le Fur • Jacky Melro 	
Narrative Description of Project: MILLENNIUM TELECOM proactively decided to deploy its own international submarine cable system that will link India to South East Asia and to the Middle East. This system will be used to provide onward connectivity to Europe and North America. The whole procurement and implementation process was subcontracted to AXIOM.	
Description of Actual Services Provided by our Staff: AXIOM was solely in charge of designing the system, writing and issuing tender documentation, recommending a supplier, and taking care of project implementation, covering main tasks listed below: <ul style="list-style-type: none"> • Strategic Advice; • System definition and landings selection; • Correspondent relationship and co-location agreements; • Desktop study (DTS); • Preparation of tender documents; • Evaluation of bids and contract awards; • Cable route survey analysis; • Implementation supervision and management; • Handover to Operation & Maintenance (O&M). 	



Assignment Name: Detailed Feasibility Study of the Central Africa Backbone link to serve Cameroon, Chad, CAR and connect SAT-3 submarine Cable System		Country: Cameroon, Chad, Central African Republic
Location within Country: Douala & Yaoundé (Cameroon), N'Djaména (Chad), Bangui (Central African Republic) and Paris (France)		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ financial skills
Name of Client and Phone Number: World Bank IFC Yann BURTIN - Tel. +33 1-40-69-33-62		N° of Staff: 2
Address: The World Bank 66 avenue d'Iéna 75116 Paris France		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 3 months
Start Date (Month/Year): 2Q2006	Completion Date (Month/Year): 4Q2006	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: Terabit Consulting		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Patrick Faidherbe (Project Director) • Yves Ravier (Project Coordinator) 		
Narrative Description of Project: Central Africa was heavily and exclusively relying upon satellites to manage its long distance and international telecommunications. The Detailed Feasibility Study conducted by AXIOM explored the joint planning of an international network made up of suitable onward terrestrial fiber connections to undersea optical fiber cable system on the African Western Coast (SAT3) to would link Cameroon, Chad, Central African Republic and provide the region with a digital broadband access to the global fiber network.		
Description of Actual Services Provided by our Staff: The World Bank requested AXIOM to provide a Detailed Feasibility Study for a submarine cable system linking the countries of the Africa Eastern coast. This exhaustive study includes: <ul style="list-style-type: none"> • Identify the terrestrial, backhaul, hinterland and cross border connectivity that will facilitate access for and ensure that the Central African countries landlocked countries have a wideband, digital access to the most convenient, appropriate shore landing stations of SAT-3 submarine cable system. • Complete traffic study for all Central African countries concerned by the development of the Backbone (Cameroon, Chad, CAR) over a 10-15 year period taking into account the development of (i) the Regional backbone • Benefits and drawbacks linked to the open access arrangements vs. closed deal clubs (including impact on traffic and profitability/viability). SAT 3 experience will be reviewed in this context (with a focus on the Cameroonian experience) • Capital and operating cost related to the Central African Backhaul base configuration, optional variants (Trans-African backbone) and alternative configurations • Review and recommendation on the optimal financing and ownership structures taking into account different scenarios for access conditions. 		



Assignment Name: Full procurement and Implementation of Atlas Offshore Submarine Cable (Morocco-France Submarine Cable)		Country: Morocco and France
Location with Country: Rabat, Morocco and Marseilles, France		Professional Staff Provided by Your Firm/Entity (profiles): Senior Technical Engineers
Name of Client and Phone Number: MAROC TELECOM A. BEN MOUSSA- Tel. +212 27 71 48 36		N° of Staff: 4
Address: MAROC TELECOM Boulevard Annakhil Hay Ryad Morocco		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 18 months
Start Date (Month/Year): 1Q2006	Completion Date (Month/Year): 3Q2007	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any:.		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Alain Paul Leclerc (Project Director) • Jean-Baptiste Thomine (Project Coordinator) • Loïc Le Fur 		
Narrative Description of Project: Maroc Telecom, Morocco's incumbent operator, proactively decided to deploy its own 1400 km long submarine cable across the Mediterranean to connect France and establish a new high bandwidth submarine telecom cable to connect the global fiber loop. The whole procurement and implementation process was subcontracted to AXIOM..		
Description of Actual Services Provided by our Staff: AXIOM was solely in charge of designing the system, writing and issuing tender documentation, recommending a supplier, and taking care of project implementation, covering main tasks listed below: <ul style="list-style-type: none"> • Strategic Advice; • System definition and landings selection; • Correspondent relationship and co-location agreements; • Desktop study (DTS); • Preparation of tender documents; • Evaluation of bids and contract awards; • Cable route survey analysis; • Implementation supervision and management; • Permits for landing in France; and • Handover to Operation & maintenance (O&M). 		



Assignment Name: Detailed Feasibility Study of the East Africa Backhaul link to serve Burundi, Kenya, Rwanda, Tanzania and Uganda and connect EASSy submarine Cable System	Country: Burundi, Kenya, Rwanda, Tanzania and Uganda
Location within Country: Bujumbura, Kampala, Kigali, Dar Es Sallam, Nairobi	
Name of Client and Phone Number: IFC (World Bank) Alan HOOPER - Tel. +27 11 731-3041	N° of Staff: 2
Address: IFC/The World Bank 14 Fricker Road, Illovo 2196 Johannesburg South Africa	N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 3 months
Start Date (Month/Year): 1Q2006	Completion Date (Month/Year): 2Q2006
Name of Associated Consultants, If Any: Terabit Consulting	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed:	N° of Months of Professional Staff Provided by Associated Consultants:
<ul style="list-style-type: none"> • Patrick Faidherbe (Project Director) • Yves Ravier (Project Coordinator) 	
Narrative Description of Project: Detailed Feasibility Study of an East Africa backhaul link serving Burundi, Kenya, Rwanda, Tanzania and Uganda. This backhaul was put in place by a consortium of telecom operators and other users of broadband capacity, not only from the coastal countries, which had direct access to EASSy, but also from landlocked countries such as Rwanda, Burundi and Uganda, who relied on terrestrial fibre optic "backhaul" links to access EASSy.	
Description of Actual Services Provided by our Staff: The World Bank requested AXIOM to provide a Detailed Feasibility Study for a submarine cable system linking the countries of the Africa Eastern coast. This exhaustive study includes:	
<ul style="list-style-type: none"> • Conduct a Market Analysis • Detailed review of traffic, tariffs and operational characteristics • Confirm the status of the backhaul links in existence, in construction, those planned • Pricing assumptions; traffic quantity; cross border pricing including analysis of various general pricing regimes • Provide cost elements pertaining to each portion of the Loop • Prepare several scenarios for sensitivity analysis under different conditions affecting costs, prices, traffic, and implementation time • Examine EASSy Landing Point Access Modalities • Identify and review legal issues • Identify any operating, financial or other contractual commitments which are binding on the Clients and advise on options for dealing with them 	



Assignment Name: Eastern Caribbean Submarine Cable (ECSC) Detailed Feasibility Study		Countries: Guadeloupe, Martinique, Dominica, St. Lucia, Barbados, Grenada, Trinidad, St Vincent
Location within Country: Guadeloupe, Martinique, Dominica, St. Lucia, Barbados, Grenada, Trinidad, St Vincent		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ financial skills
Name of Client and Phone Number: Eliud Williams (ECTEL) Donnie De Freitas (ECTEL) - +1 758 458-1701 Rob Schware (World Bank)- Tel. +1 202 458-0794		N° of Staff: 2
Address: 1818 H Street, NW Washington, DC 20433 USA		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 6 months
Start Date (Month/Year): 4Q2005	Completion Date (Month/Year): 1Q2006	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: Terabit Consulting, E.G.S. and WFNStrategies		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Alain-Paul Leclerc (Project Director) • Yves Ravier (Project Coordinator) • Patrick Faidherbe 		
Narrative Description of Project: The Detailed Feasibility Study focused on a generic submarine cable project, so-called Eastern Caribbean Submarine Cable (ECSC) Project, linking Guadeloupe to Trinidad & Tobago, and including connections to Dominica, Martinique, St Lucia, St Vincent & the Grenadines, Barbados and Grenada. The general idea was to assess viability of this generic Network against the various submarine cable initiatives in the Region that were aiming at the same market.		
Description of Actual Services Provided by our Staff: ECTEL and The World Bank requested AXIOM to provide a Detailed Feasibility Study for the generic submarine cable system. This exhaustive study includes: <ul style="list-style-type: none"> • a Traffic and Market Study for about 10 countries (ten countries: Trinidad and Tobago, Martinique, Barbados, St. Lucia, Antigua and Barbuda, Grenada, St. Vincent and the Grenadines, Dominica, St. Kitts and Nevis, and Anguilla); • a Desk Top Study with site visits to finalising the cable route and defining the adequate landing points in Guadeloupe, Martinique, Dominica, St. Lucia, Barbados, Grenada, Trinidad, St Vincent; • the financial and economical modelling of the Project to lead to a full business plan; and • recommendations regarding the optimum structures to build and operate the system. 		



Assignment Name: Detailed Feasibility Study for the EASSy Project		Country: USA and in most East African countries
Location within Country: Washington and numerous other cities in Easy Africa		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ financial skills
Name of Client and Phone Number: World Bank IFC / DBSA Pascal Leccia - Tel. +1 (202) 473 3980		N° of Staff: 2
Address: CITCP Mail Stop F5P-128 2121 Pennsylvania Avenue, NW Washington DC 20433 USA		N° of Staff-Months; Duration of Assignment: Approx 2 Staff-months / 6 months
Start Date (Month/Year): 4Q2004	Completion Date (Month/Year): 2Q2005	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: Terabit Consulting and E.G.S.		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: <ul style="list-style-type: none"> • Alain Paul Leclerc (Project Director) • Yves Ravier (Project Coordinator) 		
Narrative Description of Project: <p>East Africa is one of the rare region not to take advantage of fibre optic transmission for its long distance network. Today, all of the international communications, including the Internet, are using satellite transmission, which is very expensive as soon as the needs increase. Furthermore, the numerous constraints, especially in terms of transmission delay, prevent the development of the Internet, as well as the Information & Communication Technologies (ICT). EASSy (“East African Submarine System”) is an ambitious and realistic project to provide the East African countries with their first optical connectivity. The EASSy project includes a submarine cable system linking the coastal regions to the fibre optic international network, and a whole fibre optic terrestrial backhaul system allowing the landlocked countries to connect to EASSy.</p>		
Description of Actual Services Provided by our Staff: <p>The World Bank requested AXIOM to provide a Detailed Feasibility Study for a submarine cable system linking the countries of the Africa Eastern coast. This exhaustive study includes:</p> <ul style="list-style-type: none"> • a Traffic and Market Study for about twenty countries; • a Desk Top Study finalising the cable route and defining the adequate landing points; • a Backhaul connectivity Study in terms of traffic, cable route and economics; • a request for quotation to be sent worldwide to all the major submarine cable system suppliers; • the financial and economical modelling of the Project to lead to a full business plan; and • recommendations regarding the optimum structures to build and operate the system. 		



Assignment Name: SEA-ME-WE 3 - Central Billing Party (several contracts)		Country: France
Location with Country: Paris		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers w/ financial skills
Name of Client and Phone Number: France Télécom Rachel Bonjean – Tel. +33.1.40.29.69.69		N° of Staff: 2
Address: France Télécom 61 rue des Archives 75141 Paris Cedex 03 France		N° of Staff-Months; Duration of Assignment: Approx 12 Staff-months / 12 months
Start Date (Month/Year): Mid 2003	Completion Date (Month/Year): on going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: -		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Alain Paul Leclerc (Project Director)		
Narrative Description of Project: France Telecom has been in charge of the Central Billing Activity of the SEA-ME-WE 3 which consist in (adequately) invoicing the 93 co-owners and paying the various Suppliers (including Parties acting as supplier). The result is an accounting database with several tens of thousand entries in multiple currencies.		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • AXIOM reviewed the CBP work since the beginning of the project and identified entry mistakes. Further to the clearance of most discrepancies in coordination with relevant parties, AXIOM proposed a computation to perform capital (including Japanese Yen payment valuation) financial settlement of account based on the Present Value methodology. Additionally, Late Payment Charges and incurred interests were calculated for each Party. • AXIOM was also in charge of negotiating “quitus”, i.e. “remaining dues” with each supplier. • Finally, AXIOM participated to the drafting of the CBP report to the Management Committee and Financial and Administrative Sub-committee. • Currently, AXIOM is undertaking the review of O&M accounts on behalf of CBP. 		



Assignment Name: Analysis of the Conditions for a SEA-ME-WE 4 landing in Djibouti		Country: Djibouti
Location with Country: Djibouti		Professional Staff Provided by Your Firm/Entity (profiles): 1 Senior Analyst + 1 Senior Engineer
Name of Client and Phone Number:	Djibouti Telecom S.A. Pierre DUREY, General Director Tel. +253 (32) 11-11	N° of Staff: 2
Address:	Djibouti Telecom S.A. B.P. 2105 Djibouti République de Djibouti	N° of Staff-Months; Duration of Assignment: 1
Start Date (Month/Year): 05/2004	Completion Date (Month/Year): 06/2004	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: -		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed:		
<ul style="list-style-type: none"> • Alain-Paul LECLERC (Project Director) • Yves RAVIER (Project Analyst) 		
Narrative Description of Project: Case Study for Djibouti Telecom to join the SEA-ME-WE 4 Consortium: pros & cons, commercial constraints (capital cost, administrative aspects, etc.), technical constraints (shore safety, new landing site, new cable station, etc.) & market opportunities.		
Description of Actual Services Provided by our Staff: Detailed analysis of commercial (financial, administrative, etc...) and technical constraints & opportunities to enable Djibouti Telecom to formally apply for membership in the SEA-ME-WE 4 Consortium.		



Assignment Name: SEA-ME-WE 3 - Technical assistance to the O&M-SC		Country: Germany, Belgium, France, UK, Portugal, Morocco, Italy, Greece, Turkey, Cyprus, Egypt, Saudi Arabia, Djibouti, Oman, U.A.E., Pakistan, India, Sri-Lanka, Myanmar, Thailand, Malaysia, Indonesia, Singapore, Atralia, Brunei, Vietnam, Philippines, Hong Kong, China, Taiwan, Japan, Korea
Location with Country: Various		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineer
Name of Client and Phone Number: Singtel - O&M-SC Chair Seng Sui Bah - Tel. +65.6346.3706		N° of Staff: 1-2
Address: Singtel Katong Centre 375 Katong Road Singapore - Republic of Singapore		N° of Staff-Months; Duration of Assignment: Approx 10 Staff-months / 30 months
Start Date (Month/Year): 12/2002	Completion Date (Month/Year): on-going	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: -		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Jean-Baptiste THOMINE (Project Director)		
Narrative Description of Project: SEA-ME-WE 3 is a submarine system stretching from Europe to Singapore, Australia and Japan. Probably the most gigantic system ever implemented: 40,000 km, 40 landing stations, 92 investors, 5 Suppliers, budget in excess of 1.5 b\$. The O&M-SC is in charge of the operation and maintenance of the system (dry and wet). The O&M-SC annual budget is in the range of \$ 50 m		
Description of Actual Services Provided by our Staff: AXIOM provides technical assistance to the O&M-SC as follows: <ul style="list-style-type: none"> • Regular analysis of the system “health”, including equipment failure rate analysis, • Assistance during fault, fault localisation and marine repair operations, • Assistance in clearing (obvious and more difficult) technical/transmission issues, • Management of the relationship with Suppliers (including negotiating final acceptance tests, warranty extension, additional works). 		



Assignment Name: Assessment of Asian Global Crossing Submarine Cable Assets, prepared for China Netcom		Country: Singapore, Japan, Hong-Kong
Location with Country: Singapore, Tokyo, Hong-Kong		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineer
Name of Client and Phone Number: The Management Network Group (T.M.N.G.) John Krzywicki - President Tel. +1 888 480 TMNG		N° of Staff: 1
Address: The Management Network Group (T.M.N.G.) 7300 College Boulevard Suite 302 Overland Park KS 66210 U.S.A.		N° of Staff-Months; Duration of Assignment: 1
Start Date (Month/Year): 10/2002	Completion Date (Month/Year): 11/2002	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: -		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Loïc LE FUR (Team Leader)		
Narrative Description of Project: Unbiased technical assessment of "Asian Global Crossing Network", which China Netcom was in the process of buying, required in the due diligence process.		
Description of Actual Services Provided by our Staff: Visit of three submarine cable stations to inspect and assess Cable Station, Submarine Line Terminal Equipment (SLTE), Power Feeding Equipment (PFE), SDH (main, spares), power, redundant power, alarms, Building, fire protection, Management Systems, Staff Competence, Operation and fault management, Maintenance issues.		



Assignment Name: Feasibility study of submarine cable network to French Polynesia		Country: French Polynesia
Location with Country: Tahiti - Papeete		Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers, marine & traffic experts
Name of Client and Phone Number: OPT Tahiti Dominique Paquier - +689.414.272		N° of Staff: 3-4
Address: Hôtel des Postes 8, Rue de la Reine POMARE IV PAPEETE - TAHITI 98 714 Polynésie Française		N° of Staff-Months; Duration of Assignment: 4 Staff-month / 8 months
Start Date (Month/Year): 01/2002	Completion Date (Month/Year): 08/2002	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: -		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Loïc LE FUR (Team Leader)		
Narrative Description of Project: French Polynesia is currently linked to the global network via satellite. Recently, in view of increasing demand (and associated satellite capacity rent), Office des Postes et Télécommunication de Polynésie Française (“OPT”) decided to study alternative. AXIOM provided a complete technical/financial feasibility study of a submarine cable link towards Tahiti.		
Description of Actual Services Provided by our Staff: <u>System configuration/ cost</u> <ul style="list-style-type: none"> • Select configuration options (landing points, technology and capacity), • Provide the initial Desk Top Study, Route Position lists for the three route options, • Estimates of system cost, construction and O&M budgets, • Request and review Rough Orders of Magnitude provided by 4 suppliers, <u>Financial analysis</u> <ul style="list-style-type: none"> • Review traffic data and provide 4 traffic evolution scenarios, • Review satellite current prices (capacity, terrestrial equipment and stations) and provide associated budget forecasts, • Provide full comparative financial analysis between satellite and optical link options, within various traffic scenarios, • Review technical pros and cons of satellite/optical options and provide risk analysis, • Present basis and results of the study to the OPT board 		



Assignment Name: AQUARIUS Cable Project		Country: Cuba, Mexico
Location with Country: Havana, Cancun, Mexico		Professional Staff Provided by Your Firm/Entity (profiles): 1 Senior Consultant
Name of Client and Phone Number: Denis Gianini, TELMEX (France Telecom)		N° of Staff: 1
Address:		N° of Staff-Months; Duration of Assignment: 22 months
Start Date (Month/Year): 04/2000	Completion Date (Month/Year): 02/2002	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Associated Consultants, If Any: None		N° of Months of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Alain Paul LECLERC (as Project Developer)		
Narrative Description of Project: <p>Further to the completion of the MAYA 1 Cable System linking several countries of Central America and the Caribbean Region, Telmex and Etecsa (Cuban incumbent telco) requested AXIOM to perform a feasibility study for an international sea cable between Cuba and Mexico (Cancun), considered as an extension to Cuba of the Maya 1 cable system.</p> <p>The main parts of the work performed by AXIOM included a <u>traffic study</u>, a <u>business model</u> to convince the two promoters of the economical viability of the concept, and a <u>project setting up</u> accommodating the local political constraints.</p> <p>AXIOM was also responsible to develop a <u>marketing campaign</u> directed towards the North American carriers to convince them to use the capacity made available by the cable system.</p> <p>Three North American carriers had signed the project MOU when AXIOM assignment was stopped by France Telecom due to internal political shake up (FT finally withdrew from Telmex).</p>		
Description of Actual Services Provided by our Staff: <ul style="list-style-type: none"> • Development of Traffic Study; • Market Study; • Sea cable configurations; • Interconnection pricing strategies (with Maya 1 and other systems); • Pricing of cable configurations; • Development of project marketing strategy for Telmex (France Telecom) to attract investors. 		



Assignment Name: SEA-ME-WE 3 - Procurement Group Chairmanship (several contracts)	Country: Germany, Belgium, France, UK, Portugal, Morocco, Italy, Greece, Turkey, Cyprus, Egypt, Saudi Arabia, Djibouti, Oman, U.A.E., Pakistan, India, Sri-Lanka, Myanmar, Thailand, Malaysia, Indonesia, Singapore, Atralia, Brunei, Vietnam, Philippines, Hong Kong, China, Taiwan, Japan, Korea
Location with Country: Various	Professional Staff Provided by Your Firm/Entity (profiles): Senior Engineers
Name of Client and Phone Number: France Télécom Rachel Bonjean - Tel. +33.1.40.29.69.69	N° of Staff: 2
Address: France Télécom 61 rue des Archives 75141 Paris Cedex 03 France	N° of Staff-Months; Duration of Assignment: Approx 20 Staff-months / 57 months
Start Date (Month/Year): 10/1999	Completion Date (Month/Year): on-going
Name of Associated Consultants, If Any: -	Approx. Value of Professional Staff Provided by Associated Consultants:
Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Alain Paul LECLERC (Project Director)	N° of Months of Professional Staff Provided by Associated Consultants:
Narrative Description of Project: SEA-ME-WE 3 is a submarine system stretching from Europe to Singapore, Australia and Japan. Probably the most gigantic system ever implemented: 40,000 km, 40 landing stations, 92 investors, 5 Suppliers, budget in excess of 1.5 b\$.	
Description of Actual Services Provided by our Staff: <u>Procurement Group Chairmanship</u> France Telecom has been in charge of the procurement group ("PG") since the signing of the supply contracts. This task was passed to AXIOM and namely Alain Paul LECLERC, who previously undertook this task as FCR employee. The PG undertakes the follow up of system implementation up to the acceptance. As such it is in charge of the interface with contractors (contract variation negotiations, review of bills, Plan of Work), with stations and Parties and is responsible for the implementation within budget, time frame and technical specifications. <u>Commissioning Working Group Chairmanship</u> The CWG is the technical body of the PG. This task is sub-contracted by France Telecom to AXIOM, namely Jean-Baptiste THOMINE. During its assignment Mr. THOMINE has been in charge of reviewing/drafting all test procedures (for initial system and upgrades) and follow up of all outstanding technical issues. CWG was also in charge of drafting the RFQ and contractual documentation related to the recent upgrades.	



5. CV OF AXIOM TEAM

AXIOM CORE TEAM

Name	LE FUR Loïc
Nationality	French
Date of Birth	September, 7 1971
Title	Chief Executive Officer
Contact Details	Loic.lefur@axiom.fr Mob: +33 620357521

Formal Education

1994 - 1996	Master degree in Telecommunication Engineering, Ecole Nationale Supérieure des Télécommunication de Paris.
1991 -1994	Master degree in Engineering, Ecole Polytechnique (Paris)
1991-1992	Navy officer – Djibouti.

Professional Career

YEAR	COMPANY / PROFESSIONAL ACTIVITIES
2020-	AXIOM CEO
1999 -	<p>AXIOM / VP then COO since 2011, Paris</p> <p>Co- founders of AXIOM.</p> <p>2019 - On-going: Manatua Cable Project Implementation Manager, incl. QA and commissioning</p> <p>2019 – On going: Technical expert in support of Converge for CDSCN implementation</p> <p>2018 – On-going: DARE Project implementation manager for Djibouti Telecom, incl. QA and commissioning</p> <p>2017 – 2018: Technical expert providing assistance for drafting of RFQ, tenders assessment, adjudication and contract forming for Manatua cable.</p> <p>2017 – 2018: Natitua Project Manager during the implementation phase, including management of the QA.</p>



	<p>2016 – 2018: Tui – Samoa Cable technical implementation manager for Samoa Submarine Cable Company, including products audits and factory acceptance.</p> <p>2016: Technical expert providing assistance for drafting of RFQ, tenders assessment, adjudication and contract forming for Natitua cable project launched by OPT French Polynesia. Site visits to confirm the various landing points location.</p> <p>2015 – 2016: DARE Project: MoU and C&MA negotiation incl. LPA’s, RFQ drafting, tenders assessment, adjudication and Supply Contract negotiation (\$115m).</p> <p>2016: Submarine cable project due diligence for investment bank (South East Asia – \$110m).</p> <p>2015 – on-going: SeaYam Project: RFQ, tenders assessment and adjudication.</p> <p>2015: Due diligence for capital fund in the context of an LBO on a major submarine system supplier.</p> <p>2008 – 2015: Various key roles in the EASSy (East Africa Submarine System – 10,000km 9 landings – \$270m): Technical Working Group Chair, Procurement Group Co-Chair of the EASSy System, Commissioning Coordinator, commercial and technical assistance to the O&M-SC.</p> <p>2013: Implementation of EASSy Mogadishu (Somalia) branch and cable landing station incl. on-site acceptance (within the green zone).</p> <p>2011: Implementation (as an integrator supplier) of the rerouting of SMW3 and change of landing point and PFE station in Macau.</p> <p>2011: Cable and cable factory audit (JDR) for McDermott (Dai Hung Program).</p> <p>2010 - 2011: Implementation manager for the Jonah cable System (Tel Aviv to Bari - \$50m).</p> <p>2007 - 2009: Implementation manager for the Akorn (Alaska – Oregon - \$85m) cable system.</p> <p>2007 - 2008: Implementation of the WIOCC Ad Hoc company for investment (~30%) in EASSy System. Head of the Interim Management Team – Finance structuring (Negotiation of Shareholder Agreement, loans from the Development Fund Institutions, Equity and pre-sales implementation, business plan & info memo). Negotiations with DFIs for completion of the loans, with other parties to modify the C&MA and with WIOCC parties for setting up the SHA. Follow-up and achievement of all conditions precedent. Assistance in selecting final management team.</p> <p>2005 - 2006: Implementation manager for the Atlas Offshore (Morocco – France) cable system.</p> <p>2005 - 2006: Technical and Economic study for the JP Consortium (Saudi Arabia) and subsequent structuring of the terrestrial network project.</p> <p>2004 - 2005: Management of pipeline cable crossings agreements for the SMW4 system (India, Egypt and Libya).</p> <p>2002: Technical and financial study for the optical connection of French Polynesia (This will be finally completed in the form of Honotua (Tahiti-Hawai) in 2010).</p> <p>2002: Technical audit of the Asia Global Crossing network before purchase by CNC.</p> <p>1999 – 2002: Development of the Axone system (1b\$). System design, Company group structuring. Participation to the financing (in charge of the business model, drafting of the info memo, negotiation with capital funds, incl. GE capital).</p>
<p>1998 - 1999</p>	<p>Tyco Submarine System Ltd / Deputy Sales & Marketing Director, Paris</p> <p>Marketing and Sales for the Europe, Middle East and Africa Region.</p> <p>In charge of putting several bids (EAC, Mercus, SAT-3, ESAT-2, etc.) and subsequent negotiation, when relevant.</p> <p>Technical and commercial marketing towards existing customer and prospects in the EMEA.</p>



1996 - 1998	France Cable et Radio / Project Manager, Paris Technical Project Manager for the Atlantis 2 System (South America, Africa Europe – 13,000km). Deputy Technical manager for the negotiation and the implementation of the SMW3 project (40,000km, 39 landings, 1.5b\$).
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Name	THOMINE Jean-Baptiste
Nationality	French
Date of Birth	16 August 1964
Title	Chief Technical Officer
Contact Details	Jeanbaptiste.thomine@axiom.fr Mob: +33 6 20357519

Formal Education

1986 – 1988	Master degree in Telecommunication Engineering, Ecole Nationale Supérieure des Télécommunication de Paris.
1983 -1986	Master degree in Engineering, Ecole Polytechnique (Paris)
1983-1984	Army officer – France.

Professional Career

YEAR	COMPANY / PROFESSIONAL ACTIVITIES
1999 –	<p>Axiom / VP then CTO since 2011, Paris</p> <p>Co- founder of Axiom</p> <p>Director and Board Member in Axiom.</p> <p>2020 – On-going: Technical expert providing assistance for drafting of RFQ, tenders assessment, adjudication and contract forming for North Africa – Portugal cable.</p> <p>2019 – On-going: Technical & implementation manager for SXNEXT project terminal stations.</p> <p>2019 – On-going: Inspection Authority for cable & submerged plant for AMITIE transatlantic Systems.</p> <p>2018 – Q2 2020: Inspection Authority for cable & submerged plant for HKA transpacific System.</p> <p>2018 – On-going: Project implementation manager in support to Maroc Telecom in the frame of West Africa project.</p> <p>2015: Due diligence for capital fund in the context of an LBO on a major submarine system supplier.</p> <p>2015: Cable and cable factory audit (Nexans) for Telstra (Chevron Barrow Island Project).</p> <p>2014 – On-going: Technical project manager in support to SMW3 O&M.</p> <p>2013-2015: provision of level 2 support to LITC for the O&M of their national and international submarine systems.</p> <p>2012-2015: contracted by the SMW3 consortium for managing the works associated to the new SMW3 Upgrade using 100G technology. Drafting and analysis of RFI, management of in-traffic field trials, drafting</p>



	<p>and analysis of RFQ, tenders assessment, adjudication, Supply Contract drafting, project management up to Provisional Acceptance.</p> <p>2012 – on-going: provision of level 2 support to SCS for the O&M of the SEAS cable.</p> <p>2012: drafting of the Request For Quotation for the TBI cable (a cable project which planned to connect North America to the East and West coasts of South America).</p> <p>2011-2012: Project management for the construction of the SEAS cable linking Seychelles to Tanzania. Drafting of the JSMD (Joint Maintenance System Document).</p> <p>2011 – on-going: upon various customer requests, provision of various “spot” technical analysis on submarine cable technical issues (such as reliability of components, design adequacy, design life).</p> <p>2010-2013: analysis of Tenders received for the construction of a cable connecting Libya (Darnah) to Greece (Chania), recommendation to the Purchaser (LITC – the Libyan international carrier), supply contract drafting, and project management for the implementation of the “Silphium” cable. Drafting of the JMSD.</p> <p>2009 – on-going: project Management for the successive of the Americas-II network upgrades. Drafting of the JMSD updates.</p> <p>2007 - 2009: Implementation manager (together with an Axiom colleague, Mr Le Fur) for the Akorn (Alaska – Oregon) cable system.</p> <p>2007-2008: provision of inspection and QA services to Telstra for the manufacturing and loading of the wet plant of the Sydney-Hawaii 9,200 km cable.</p> <p>2005 - 2006: Implementation manager (together with an Axiom colleague, Mr Le Fur) for the Atlas Offshore (Morocco – France) cable system.</p> <p>2005-2018: contracted by the SMW3 consortium to provide the Commissioning Working Group chairmanship for 5 capacity upgrades (10G#2 in 2005-2006, 10G#3 in 2007-2008, 10G#3.5 in 2008-2009, 10G#4 in 2009, 10G#4.5 in 2011-2012, Upgrade#5 and #5.1 in 2014-2018).</p> <p>2002 – on-going: contracted by the SMW3 consortium for the provision of level 2 technical maintenance support for the O&M of the SMW3 project: this includes providing technical advice for the localisation of complex faults on the system, yearly monitoring of the failure rate of all equipment deployed on SMW3, managing and negotiating with the 4 SMW3 manufacturers the end of warranty of the various Segments and their Upgrades.</p> <p>2000-2003: sub-contracted by France Telecom to ensure the Commissioning Working Group chairmanship for the first two SMW-3 capacity Upgrades, including the first 10Gbit/s Upgrade.</p> <p>1999 – 2002: Development of the Axone system (1b\$). System design, Company group structuring. Participation to the financing (in charge of the business model, drafting of the info memo, negotiation with capital funds, incl. GE capital).</p>
<p>1998 - 1999</p>	<p>France Cable et Radio/SEA-ME-WE 3 and SAFE/SAT-3 technical project manager</p> <p>Technical manager for the implementation of the SMW3 project (40,000km, 39 landings, 1.5b\$). Chairman of SMW3 Technical Working Group and SMW3 Commissioning Working Group. SMW3 is declared Ready For Service in July 1999.</p> <p>Technical manager for the negotiation and drafting of the SAFE/SAT-3 project (28,000km, 20 landings, 700m\$)</p> <p>SMW3 Inspection team leader for the QA and inspection of all SMW3 equipment provided by ASN under the SMW3 Contract.</p> <p>Optical Transmission Expert at France Telecom (provision of various technical advice on the France Telecom fiber network).</p>



<p>1997 - 1998</p>	<p>Centre National d'Etude des Télécommunications/head of 2 R&D groups, Paris + SEA-ME-WE 3 technical project manager</p> <p>In charge of two R&D Teams:</p> <ul style="list-style-type: none"> • 1 Team of 4 working on very long-haul optically amplified transmission research • 1 Team of 5 providing Quality Assurance and Inspection of submarine cable systems <p>Technical manager for the negotiation and the implementation of the SMW3 project (40,000km, 39 landings, 1.5b\$). Chairman of SMW3 Technical Working Group and SMW3 Commissioning Working Group.</p> <p>SMW3 Inspection team leader for the QA and inspection of all SMW3 equipment provided by ASN under the SMW3 Contract.</p> <p>Optical Transmission Expert at France Telecom (provision of various technical advice on the France Telecom fibre network).</p>
<p>1992 - 1996</p>	<p>Centre National d'Etude des Télécommunications/head of R&D group, Paris</p> <p>In charge of an R&D team of 4 working on very long-haul optically amplified transmission: transmission experiments using a re-circulating optical loop, software simulation, etc.</p> <p>Co-director of a CNET R&D multi-team project ("Soliton project").</p> <p>Author or co-author of various patents on long-haul optical transmission.</p> <p>In charge of various R&Ds activities: development of simulation software for long-haul optically amplified transmission, test bench for PMD.</p> <p>In charge of following transmission integration tests on TAT-12/TAT-13 submarine cable on behalf of France Telecom.</p>
<p>1988 - 1992</p>	<p>Centre National d'Etude des Télécommunications/R&D engineer, Paris</p> <p>In charge of following the development of submarine repeaters (regenerated repeaters, then newer generation of optically amplified repeaters).</p> <p>In charge of various R&Ds activities: development of simulation software for long-haul optically amplified transmission, test bench for PMD.</p> <p>In charge of following integration tests on TAT-9 submarine cable on behalf of France Telecom.</p>



Name	CARBONNELLE Eric
Nationality	French
Date of Birth	August, 6 1963
Title	Senior Project Manager

Formal Education

1988	Post-master degree in Engineering, University of Lille, France.
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Professional Career

YEAR	COMPANY / PROFESSIONAL ACTIVITIES
2012 -	<p>AXIOM / Senior Project Manager, Paris</p> <p>2019 – On going: Technical expert in support of CTBTO</p> <p>2019 – On going: Technical expert in support of Converge for CDSCN implementation</p> <p>2019 – On-going: Inspection Authority for AMITIE Cable System.</p> <p>2018 – On-going: Inspection Authority for cable for HKA transpacific System.</p> <p>2018 – On-going: MWG Chair of the METISS Project (South Africa- Madagascar-Reunion- Mauritius) and Inspection Authority for cable and submerged plant.</p> <p>2018 – On-going: Technical support of Maroc Telecom in the frame of West Africa project.</p> <p>2017 – 2018: Technical support to CTBTO Preparatory Commission for one of their hydro-acoustic station.</p> <p>2017 – 2018: Technical support during NATITUA implementation including audit of cable factory and MWG client representation.</p> <p>2017 – 2018: Technical support during Tui-Samoa implementation including factory acceptance of cable and MWG client representation.</p> <p>2016 – 2018: drafting of the JSMD for AAE-1 cable system.</p> <p>2015 – 2018: support to an international system Owner for the renewal of its French permits.</p> <p>2015: Cable and cable factory audit (Nexans) for Telstra (Chevron Barrow Island Project).</p> <p>2014 – 2016: Management of the marine experts representation on-board the survey & installation vessels for FASTER Consortium (US – Japan – Taiwan). Client on-board representative during the system marine installation.</p> <p>2014 – 2015: Technical and economic study for Mauritius – Rodrigues system (Indian Ocean). Drafting of the Supply Contract commercial & technical requirements.</p> <p>2013 – On going: Technical and economic study for BEST Cable System (Brunei – Philippines – Guam). Drafting of the supply contract technical requirements.</p>



	<p>2013: Implementation of EASSy Mogadishu (Somalia) branch and cable landing station, including on-site acceptance (within the green zone).</p> <p>2012: Management of the marine experts representation on-board the installation vessels for SJC Consortium (Asia – Japan)</p>
2010-2012	<p>Alcatel-Lucent Submarine Networks / Director Projects, France</p> <p>Director Projects for the wet plant (cable & repeaters) and marine operations, also in charge of all jointing (maintenance & installation vessels and training school) and all bids/projects planning including factories.</p> <p>Lead the team of Line Project Managers.</p> <p>Drawing up budgets and factories workload predictions.</p>
2001-2010	<p>Alcatel-Lucent Submarine Networks / Senior Contract Project Manager, Calais</p> <p>Overall project team lead, responsible for the management of all commercial and financial aspects (invoicing, payment, taxes & duties, warranties, bonds, contract changes) of the contract, accountable for the project P&L. Monitoring of the project FCAC, the Risk Management Plan and various reporting towards the Management and the Customers.</p> <p>Primary interface with the Customers throughout the life of the projects.</p> <p>In this capacity, worked on various Systems notably including:</p> <p>2008 – 2010: TE North (Egypt – Cyprus – France)</p> <p>2009 – 2010: Comores Domestic</p> <p>2007 – 2010: EASSy (East Africa)</p> <p>2004 – 2010: SAT-3/WASC & SAFE successive upgrades</p> <p>2004 – 2006: GCN/MCN/SCF (Caribbean)</p> <p>2004 – 2006: SMW4</p> <p>2003 – 2004: GWEN (Greece – Italy)</p>
1990 - 2001	<p>Alcatel-Lucent Submarine Networks / Line Project Manager, Calais</p> <p>Project Manager responsible for all elements of the submerged plant (cable, repeaters, equalisers, and branching units) and the power feed equipment. The function covered manufacturing and engineering specifications drafting, follow up of manufacturing and acceptance process with the customers, on-site delivery, installation and commissioning.</p> <p>Supervision of the marine installation activity, from DTS & route engineering to cable installation, charting and reporting. As part of the assignment, also Engineer In Charge (EIC) on board the installation and post-installation vessels.</p> <p>In this capacity, worked on various Systems amongst which:</p> <p>1999 – 2001: SAT-3/WASC (Europe – Africa)</p> <p>1997 – 1999: SMW3</p> <p>1996 – 1997: APCN (Asia – Pacific)</p> <p>1992 – 1994: SMW2 (Asia – Middle East – Europe)</p> <p>1991 – 1993: SAT-2 (Europe – Africa)</p> <p>1990 – 1991: TAT9 (US – Europe)</p>



Name	NAZARYAN Artur
Nationality	Armenian
Date of Birth	April, 24 1979
Title	Project Manager

Education

2009	PHD degree of engineering sciences State Engineering University (<i>Ecole Polytechnique</i>), Graduate School, Yerevan, Armenia
2005-2009	Research and development of energy systems State Engineering University (<i>Ecole Polytechnique</i>), Graduate School, Yerevan, Armenia
2007	Invention certificate awarded on Solar - Wind and Biogas Energy System Development for Biogas Production and Medical Waste T
2001	Engineer Diploma from The State Engineering University (<i>Ecole Polytechnique</i>), Yerevan, Armenia
1995 - 2001	Fuel energy complexes management The State Engineering University (<i>Ecole Polytechnique</i>), Yerevan, Armenia

Detailed Professional Career

YEAR	COMPANY / PROFESSIONAL ACTIVITIES
2019 -	<p>Project Manager at AXIOM (Paris)</p> <p>2019 – On-going: West Africa cable project</p> <p>2019- On-going: AMITIE</p> <p>2019- On-going: HKA</p>
2011 -2015	<p>Gasprom - "IMEX" INC / Project Manager (Russia-Armenia)</p> <p>Control over projects implementation within 8 branches of "Gasprom" CJSC</p> <p>Responsibility for control and elaboration of energy field programs</p> <p>Technical supervision</p> <p>Drawing up and implementation of business plans</p> <p>Business relations with company's customers and partners</p> <p>Customers' Business relationship quality control</p> <p>Establishing objectives & strategies</p> <p>Quality Responsible for high level of productivity and safety standards</p> <p>Manages resources & provides expertise</p> <p>Monitoring on pipeline installations, control panels, synoptic, wire routing and medium voltage substation, HVAC Equipment Installation and Maintenance</p> <p>Develops and motivates staff</p> <p>Support the commercial department in contract and claim management</p>



	<p>Negotiate with sub-contractors</p> <p>Customer Contact Person for pipeline requests in all project phases</p> <p>TECHNICAL PROJECTS AND TECHNICAL MAINTAINANCE COORDINATOR AND SUPERVISOR</p> <p>Diagnostic of the equipment breakdowns, efficiently carryout the troubleshooting and resolving the technical errors</p> <p>Diagnose malfunctioning systems, apparatus and components, using test equipment and hand tools, to locate the cause of a breakdown and correct the problem</p> <p>Inspect systems, equipment and components to identify hazards, defects, and the need for adjustment or repair, and to ensure compliance with codes</p> <p>Supervisor upon installation, service and maintenance</p> <p>Implementing the relevant computer applications for data management and communication</p> <p>Remote management</p> <p>Manages the overall Discipline activities</p>
2003-2011	<p>Gasprom / Project Manager, Leading Expert (Russia-Armenia)</p> <p>Control over projects implementation within 6 branches of "Gasprom" CJSC</p> <p>Responsibility for control and elaboration of energy field programs</p> <p>Technical supervision</p> <p>Drawing up and implementation of business plans</p> <p>Public Relationship</p> <p>Establish new and maintain existing relationships with customers and counterparties</p> <p>Frequently meet clients in order to originate the most relevant and client-driven products in the energy market</p> <p>Evaluation, analysis and monitoring over financial and economic activity of company's branches</p> <p>Monitoring the technical and economic part of concluded contracts with external companies</p> <p>Control and check-up of the reliability of manufactures estimates of company branches</p> <p>Reports' feasibility elaboration and inspection, revealing of unconformities</p> <p>Management and assessment of expediency and efficiency of HR involved in gas equipment manufacturing</p> <p>Registry holder of securities and shareholders of Company</p>
1998-2003	<p>Expert in the energy industry department / Ministry of Economics (Armenia)</p> <p>Contribution to the drafting of Energy Balance for Armenia (Tacis program)</p> <p>Collaboration with international expert from Avolong Limited in the field of Data Collection in Armenia for Energy Balance ("Tacis" program)</p> <p>2001 January-February: Participation in International Conference on Energy Balance Workout ("Tacis" program, Paris, France)</p> <p>2000 March-April: International Conference on Economic Problems in Energy, Georgia, Tbilisi</p>



	Collect, analyse, keeping up-to-date and reporting the statistical data
	<p>Publications</p> <ul style="list-style-type: none">• <i>“Combined System of Renewable Energy Sources for Waste Treatment” , “15th European Biomass Conference and Exhibition - From Research to Market Deployment”</i>, International Conference, Berlin, Germany, 2007• <i>“ Electric osmosis for fermentation from biomass”</i>, International Conference, Progress in Biogas, Baden-Wurttemberg, Germany, 2007• <i>“Small-sized combined solar-biogas installations for use in individual and farms”</i>, International Conference, Progress in Biogas, Baden-Wurttemberg, Germany, 2007• <i>“Combined Solar-biogas basis for the population social level raising”, “Cogeneration in industry and public energy supply”</i>, International Conference, Kiev, Ukraine, 2006• <i>“System of Management of the Biomass Mixing Process in the Bioreactor” “Renewable Energy in Armenia: Reality and Perspectives “</i>, Second International Conference, Yerevan, Armenia, 2007• <i>“Perspectives of Renewable Energy use in Armenian Republic”</i>, Annual Scientific Conference, State Engineering University of Armenia (SEUA), Yerevan, Armenia, 2006• <i>“Combined System of Renewable Energy Sources for Medical Waste Recycling”, “Cooperation for Waste Issue Solution”</i>, International Conference, Kharkov, Ukraine, 2007• <i>“Incorporated Solar-Biogas Installation – the basis for solution of social problems”, “Public Council on Renewable and Clean Energy”</i>, The Third International Renewable and Clean Energy Conference”, Yerevan, Armenia, 2007



Name	GOURNAY Pascal
Nationality	French
Date of Birth	February, 15 1958
Title	Senior Project Manager

Formal Education

1982	Maitrise (Master 2) in Electronics, Electrotechnics and Automatics , Lille University, France
1988	Master degree in Engineering, Hautes Etudes d'Ingénieur (HEI) Lille, France

Professional Career

YEAR	COMPANY / PROFESSIONAL ACTIVITIES
2010 -	<p>AXIOM / Senior Project Manager, Paris</p> <p>2019 – On going : Technical expert in support of CTBTO</p> <p>2018- On-going: Co-MWG Lead of the SJC2 project (Singapore, Cambodia, Vietnam, HKG, Taiwan, China, Korea, Japan)</p> <p>2018 – On-going: Deputy MWG Chair of the METISS project (South Africa- Madagascar-Reunion- Mauritius)</p> <p>2017 – 2018: Technical support to CTBTO Preparatory Commission for one of their hydro-acoustic station.</p> <p>2016 – On-going: drafting of the JSMD for AAE-1 cable system.</p> <p>2015: Client on-board representative during FASTER marine installation.</p> <p>2014-2017: Technical support to CTBTO Preparatory Commission for Crozet Island hydro-acoustic station re-establishment project.</p> <p>2013-2014: Technical and Economical study for Tridan Project (Libya, Sudan).</p> <p>2011-2013: Implementation manager for the SILPHIUM cable System (Libya-Greece).</p> <p>2011 - 2012: Implementation manager for the DDSCN cable System (Dhiraagu Maldives Domestic).</p> <p>2010-2011: Project manager (as an integrator supplier) of the rerouting of SMW3 and change of landing point and PFE station in Macau.</p>
2007 - 2010	<p>DUONS MCO/ Marketing Engineer, Paris</p> <p>Marketing and Sales manager for the Russia and CIS Region, radio SCADA systems for Oil & Gas onshore fields.</p>
2005 - 2006	<p>ALCATEL SUBMARINE NETWORKS/Project Manager Consultant, Calais</p> <p>Project Management of the FALCON system wet plant (Suez, Red sea, Persian Gulf, India) for Alcatel Submarine Networks (end customer: Reliance).</p>



<p>2003 - 2004</p>	<p>STOLT OFFSHORE/ Senior Project Manager, Paris Deputy Manager of feasibility study for FPSO Riser tower in Nigeria. Deputy Bid Manager for technical offer (SURF part) of AKPO project in Nigeria.</p>
<p>2001 - 2002</p>	<p>ALCATEL SUBMARINE NETWORKS/ Sales and Marketing Engineer, Paris Marketing and Sales manager for submarine cable projects in Russia, Ukraine, Kazakhstan regions</p>
<p>1990 - 2001</p>	<p>ALCATEL SUBMARINE NETWORKS/ Project Manager, Calais Project Manager of turnkey submarine cable projects from contract signature till system acceptance by the customer. Main tasks included steering of all project phases from engineering studies up to installation and commissioning, coordination of project technical-operational and financial resources, contractual and technical interfacing with customer. Supervision of the marine installation activity, from DTS & route engineering to cable installation, charting and reporting. As part of the assignment, also Engineer In Charge (EIC) on board the installation and post-installation vessels. Main submarine cable projects achieved during that period are: 1999-2001: Flag Atlantic (France, UK, USA) 1999-2001: BS FOCS (Russia, Ukraine, Bulgaria) 1997-1999: Sea-Me-We 3 extension (Australia-South-East Asia- China-Korea-Japan) 1998-1999: Sochi-Poti 1997-1998: Novorossyisk-Sochi 1996-1997: Aletar-Berytar (Egypt, Syria, Lebanon) 1994-1996: ITUR (Italy, Turkey, Ukraine, Russia) 1993-1994: Turmeos-Turcyos (Turkey domestic, Turkey-Cyprus) 1992-1994: Sea-Me-We 2(India to Singapore Segments) 1992-1994 : Columbus-2 (Italy, Canaria, Madeira, Mexico, USA) 1990-1992: EURAFRICA (France, Portugal, Morocco)</p>



Name	MOREAU Jean-Claude
Nationality	French
Date of Birth	August, 12 1977
Title	Project Manager

Formal Education

2000	Bachelor in telecommunication, University of Reims, France.
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Professional Career

YEAR	COMPANY / PROFESSIONAL ACTIVITIES
2019 -	<p>AXIOM / Project Manager, Paris</p> <p>2019 – On-going: Technical support during implementation</p> <ul style="list-style-type: none"> • SXNext, • Manatua, • Dare-1, • West Africa project.
2017-2019	<p>Alcatel-Lucent Submarine Networks / Chief Engineer, France</p> <p>Chief Engineer, responsible for the technical design aspect of submarine system.</p> <p>Insure that system will meet Purchasers technical requirements. Responsible of the implementation and test until provisional acceptance.</p> <ul style="list-style-type: none"> • 2019: EllaLink • 2018-2019: JGA South • 2018-2019: METISS • 2017-2018: Americas 2 Upgrades • 2017-2018: SMW5 Upgrade • 2017-2018: BBG Upgrade • 2017-2018: GCN Upgrade
2006-2017	<p>Alcatel-Lucent Submarine Networks / After-Sales Project Manager, France</p> <p>After-Sales project manager responsible of technical follow-up for in service submarine cable systems during and after the warranty period.</p> <ul style="list-style-type: none"> • 2006-2017: SMW3 and SWM3 Upgrades • 2015-2017: PCCS • 2010-2017: EASSy • 2006-2017: LFON • 2006-2010: SAS-1 <p>Technical support assistance (On call 24/7) for all cable systems installed by Alcatel Submarine Networks such as:</p>



	<ul style="list-style-type: none"> • SAT3/SAFE • LION • SMW4/SMW5 • IMEWE • Comoros Domestic • ...
2001-2006	<p>Alcatel-Lucent Submarine Networks / Technical Support Operator, France</p> <p>Technical support assistance (On call 24/7) for all cable systems installed by Alcatel Submarine Networks.</p> <ul style="list-style-type: none"> • Deliver service and support to Customers via Email, phone and remote connection, • Interact with customers to provide and process information in response to inquiries, concerns, and requests about products and services, • Gather customer's information and determine the issue by evaluating and analyzing the symptoms, • Diagnose and resolve technical hardware and software issues, • Deliver refresh training to O&M staff
2000-2001	<p>Alcatel-Lucent Submarine Networks / NOC Operator, France</p> <p>NOC Operator (Remote) for Pangea cable system. Cable system supervision and traffic management by remote.</p> <ul style="list-style-type: none"> • Network monitoring • Performance monitoring • Problem resolution and local O&M staff assistance



Name	LECLERC Alain
Nationality	French
Date of Birth	April, 20 1950
Title	Chief Executive Officer

Education

1977	Telecom Engineer Diploma from the <i>Ecole Nationale Supérieure des Télécommunications</i> , Paris, France.
1975 - 1977	<i>Ecole Nationale Supérieure des Télécommunications</i> , Paris, France.
1974	Engineer Diploma from The <i>Ecole Polytechnique</i> , Paris, France.
1971 - 1974	<i>Ecole Polytechnique</i> , Paris, France.

Detailed Professional Career

YEAR	COMPANY / PROFESSIONAL ACTIVITIES
2020 -	Director
1999 -	<p>CEO & President of AXIOM</p> <p>2018 – On-going: Advisor to MANATUA Consortium for the C&MA drafting</p> <p>2017- On-going: DARE Project MC and PG advisor.</p> <p>1999 – on-going: SEA-ME-WE 3 PG Chairman, promotion & development of 10G Upgrades #1, #2, #3, #4, #4.5 and 100G Upgrade #5. Upgrade #6 on-going.</p> <p>2017 – 2018: Technical support to CTBTO Preparatory Commission for one of their hydro-acoustic station.</p> <p>2017: Advice and assist Manutua Consortium for the C&MA drafting.</p> <p>2016 – 2017: Detailed Feasibility of West Africa cable project.</p> <p>2015 – 2016: DARE Project: MoU & C&MA development & negotiation incl. Landing Party Agreements. RFP drafting, tenders assessment and adjudication.</p> <p>2016: Business plan for DARE Project.</p> <p>2016: For OPT French Polynesia, Updated Feasibility Study for a second international cable.</p> <p>2016: Validation of the business plan of Retelit Spa, the Italian Landing Party in AAE-1 Submarine System.</p> <p>2015: Due Diligence for capital fund in the context of an LBO on a major submarine system supplier.</p> <p>2014: won CTBTO Preparatory Commission bid.</p> <p>2013 – 2014: Feasibility study of BIMP-EAGA/BEST cable project.</p> <p>2013: Feasibility Study for a second international cable led by OPT of French Polynesia.</p> <p>2009 – 2014: UJ Consortium Supporting Management.</p>



	<p>2011 – 2012: Tobrouk - Emsaed cable project management for LITC.</p> <p>2010 – 2011: Supply contract negotiation, implementation by AXIOM as a turnkey supplier, of SMW3 sea cable deviation, change of landing point and PFE station in Macau (China).</p> <p>2009 – 2011: Strategic support to LITC resulting into Silphium cable project development & construction.</p> <p>2009 – 2010: Development & procurement of Maldives Domestic project.</p> <p>2009: Feasibility study, negotiations with CTM and Local Authorities in Macau (China) wrt SMW3 sea cable landing & terrestrial cable configuration deviation due to Macau International Airport extension.</p> <p>2008 – 2011: Project development, procurement, implementation and commissioning of ALBA-1; negotiation of O&M service contracts for ALBA-1.</p> <p>2007 – 2008: Initial feasibility study for INFRACO wrt WACS.</p> <p>2007: Update of feasibility study for Transbit wrt international fiber connectivity of Cuba.</p> <p>2007: Initial feasibility study wrt. ACS in Alaska.</p> <p>2005 – 2006: Detailed feasibility study for World Bank wrt. EASSy followed by feasibility study update, development of business plan and start-of-procurement.</p> <p>2005: Feasibility study for ETECSA wrt. international fiber connectivity of Cuba.</p> <p>2005: Update of feasibility study for OPT French Polynesia wrt. international fiber connectivity of Tahiti that materialized into Honotua.</p> <p>2002 – 2003: Development and start-of-procurement of Atlas-Offshore cable project for Maroc Telecom.</p> <p>2003: Initial feasibility study for OPT French Polynesia wrt. international fiber connectivity of Tahiti.</p> <p>1999 – 2002: Initial development of Axone Cable System (1bUS\$). design, project & cable company group structuring; participation to financing and funding efforts (in charge of the business model, drafting of the info memo, negotiation with capital funds, incl. GE capital, etc.).</p> <p>Others: Instrumental in feasibility studies of cable projects that stopped for “political” reasons (Millenium, SPIN, BRICS, A&N Islands, Pars-on-line, etc.).</p>
1988 -1999	<p>France Cable et Radio/ Director, Paris</p> <p>Director of new cable project: development and construction of several global submarine cable infrastructures, notably Eurafrica, SAT-2, SEA-ME-WE 2, Aden-Djibouti, Ariane 2, Tagide 2, SEA-ME-WE 3, largest telecommunication network ever deployed in the world, holding the position of PG Chairman, MAYA-1, Atlantis-2, SAFE, SAT-3.</p> <p>Deputy director of cable ship department, responsible for cable ships marketing and sales, thereby developing also knowledge of surveying, marine installation and maintenance of submarine cables.</p>
1977 -1988	<p>CNET (France Telecom / Orange R&D) / Paris</p> <p>Research Engineer in CNET in charge of power equipment, cable and repeater/BU technical design SLTE, QA during manufacturing, installation, commissioning & acceptance, project management, traffic study and business modeling.</p> <p>Active member of the multi-national team of telecom engineers from AT&T, BT and FT in charge of the development, manufacturing and implementation of TAT 8, the first transatlantic fiber-optic cable system, brought to commercial life in 1988.</p>



6. QUALITY CERTIFICATION

Although not formally QA-certified, the proposed Team has significant and outstanding experiences in submerged products matters, marine operations and project management as evidenced by their professional profiles. Also all of them have been working for years in QA systems environment and have always put quality at the centre of their concerns, approaches and ways of working.