REDACTED VERSION

Review of Jersey Telecom Ltd's regulatory accounts and access provisions

A draft report to the Jersey Competition Regulatory Authority

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1 Executive summary

1.1 Report summary

This draft report sets out the investigations, conclusions and recommendations of Regulaid from our review of the wholesale business of Jersey Telecom. Our scope of work was defined by the Jersey Competition Regulatory Authority (JCRA) in its Invitation to Tender dated 3 December 2008. This required us to review the cost allocations used in JT's separated accounts, its range of wholesale products, the relationships between JT's wholesale and retail functions, and its plans for a next generation network (NGN). We will produce our final report after any public consultations that JCRA may undertake on this report.

In Section 2 we summarise our brief and our work programme. Section 3 analyses the regulatory and competitive environment for telecommunications on Jersey, including a comparison of fixed network retail prices, wholesale prices and operator performance in Jersey with Guernsey. We conclude that:

- the "playing field" in Jersey is more tilted towards the incumbent operator than in other jurisdictions, mainly because providers that compete with JT do not have access to wholesale products that enable effective competition
- retail prices on Jersey are higher than on Guernsey
- wholesale prices are much higher than on Guernsey, preventing OLOs on Jersey from having a viable business
- the higher retail and wholesale prices reflect greater operating costs, capital costs and profits in JT's fixed network business, which has not been challenged by strong competition or regulation to become more efficient
- the lack of effective regulation makes Jersey less attractive than its neighbours for telecommunications investment.

We regard the problems in Jersey's telecommunications sector as severe because there is no firm foundation for effective competition. We therefore think that JCRA should require JT to introduce new wholesale products, to reduce its wholesale prices, and to become more efficient.

In Section 4 we summarise our examination of JT's separated accounts, and our responses to a number of specific questions that have arisen during our discussions with JCRA and the OLOs. In Annex 1 we give a full report with many recommendations for changes in the allocation of costs. We reviewed over 900 individual cost allocations, and found errors in 18% of them.

We examine several issues associated with JT's wholesale products in Section 5, and in the relationships between JT's wholesale and retail functions in Section 6. In Section 7 we review JT's plans for its NGN, and in Section 8 make some suggestions for the implementation of our recommendations.

We also carry out a regulatory impact assessment of our recommendations in Section 8, and conclude that if our recommendations are implemented, both customers and operators will be better off in the short and long term, and Jersey's

telecommunications sector will face a reinvigorated and successful future, with benefits to the island's wider economy.

1.2 Recommendations

Section 4 Cost allocation review

4.1 JT and its accountants should confirm that the changes in cost allocations recommended by Regulaid have been implemented.

4.2 JT should implement current cost accounting as the basis for its statutory accounts as from the start of 2011.

4.3 An average rate of 0.736 pence per minute should be used for calls terminating and originating in JT's fixed network for 2009

4.4 JCRA should require JT to demonstrate that it is not cross-subsidising its data hosting business, which would be contrary to its Licence Condition 30.1.

Section 5 Wholesale product issues

5.1 JCRA should require JT to make available wholesale services that enable OLOs to replicate its retail services, provided that they are demanded by an OLO.

5.2 JCRA should permit JT to offer bundles to its retail customers, on the condition that OLOs can replicate the bundles.

5.3 JT should be required to demonstrate to JCRA that equivalent wholesale products are available, that the price of the bundle exceeds the incremental cost of each element, and that the retail price does not constitute a price squeeze.

5.4 The individual elements of the bundle should be available on an individual basis to retail customers.

5.5 Condition 32 of JT's licence should be amended to permit product bundling if the above requirements for equivalent wholesale services and pricing are met.

5.6 JT should not be able to make special offers or discounts unless it demonstrates to the satisfaction of JCRA that the reduced price covers the incremental cost of the service and that it is not undertaking a margin squeeze.

5.7 JCRA should direct JT to provide CPS in line with its Licence Condition 25.

5.8 JT and the OLOs should form a working group to agree service definitions, specifications, and processes for wholesale services.

5.9 JCRA should mandate the introduction of wholesale line rental, and introduce a specific Condition into JT's Licence.

5.10 JCRA should mandate the introduction of fixed number portability, and introduce a specific Condition into JT's Licence.

5.11 JCRA should encourage operators to share ducts, and only mandate duct sharing if the operators fail to reach agreements commercially.

5.12 JT should publish its retail prices for enhanced service levels for leased lines.

5.13 The enhanced service levels should be available to OLOs at a discount of 5 - 10% from the retail prices.

5.14 JT should be required to provide a wholesale IP bandwidth service to OLOs.

5.15 There should not be any further subdivision of JT's on island leased line categories.

5.16 JT should consider renaming the under 300 metres leased line category.

5.17 JCRA should mandate the introduction of LLU (including line sharing) and co-location, and impose suitable Licence Conditions on JT

5.18 JT should work with the OLOs to identify where they require space in MSANs, to agree a suitable co-location arrangement, and to plan the necessary processes, plans and procedures for the implementation of LLU

5.19 Working with the OLOs, JT should develop a wholesale backhaul product from its MSANs.

5.20 JT and the OLOs should discuss new forms of bitstream products (including naked DSL and those forms that will become available as a result of JT's NGN). If they are unable to agree specifications for these new services, they should refer the disagreement to JCRA using the dispute process.

5.21 JT's RIO prices should be set through the use of a wholesale price cap on separate baskets of RIO services. The cap should be set for a period of three years, with the target prices being set by the use of benchmarks and the setting of an efficiency target.

5.22 JCRA should place a price cap on JT's wholesale on-island leased lines

5.23 JCRA should require JT to provide a 25% discount to OLOs for its off-island leased lines.

5.24 Wholesale prices for JT's DSL service should be based on cost, not on retail minus, and should be subject to a wholesale price cap

5.25 JCRA should place a price cap on JT's DSL backhaul services

5.26 JT should include the router costs in its backhaul prices.

5.27 JCRA should remove the requirement placed on JT to publish changes to wholesale prices in local press.

5.28 JCRA should require JT to provide electronic notification of changes to wholesale prices to the OLOs with at least 30 days notice of their implementation

5.29 JCRA should require JT to provide electronic notification of new wholesale products and their prices to the OLOs with at least 60 days notice of their implementation.

5.30 JT should initiate the payment of penalties, not the OLO.

Section 6 Wholesale and retail functions in JT

6.1 JCRA should invite JT to propose changes in its reporting structures which make its wholesale function more commercial.

6.2 JCRA should invite JT to propose other changes in its management methods which make its wholesale function more commercial.

6.3 JCRA should require JT to publish total KPIs on its provisioning and fault repairs for leased lines and DSL lines, distinguishing between retail and wholesale customers

6.4 JT should restrict access to wholesale information on its provisioning and billing systems, and not show information about wholesale services on its customer records (with the possible short term exception of residential customers). JCRA should invite JT to indicate how it will comply with this recommendation.

6.5 Any operator with a Class 1, 2 or 3 licence issued by JCRA should be eligible for wholesale services at wholesale rates from JT.

6.6 JCRA should invite JT to consider moving the Installation and Maintenance Unit to the Operations Division.

6.7 The OLOs and JT should commit themselves to holding a quarterly meeting for the next 12 months with an agenda and written action points. Thereafter meetings should be cancelled only by agreement of both parties.

6.8 JT and the OLOs should review the requirements to submit regular forecasts in Schedule 4 of the RIO, the Legal Framework of the wholesale DSL Agreement (Clause 2) and in the Legal Framework of the Wholesale Private Circuit Agreement (Clause 2), and agree on suitable replacements.

6.9 The OLOs and JT should agree a process for resolving all disputes between them. Under this process, disputes should be brought to the JCRA only after the dispute process between the operators has been exhausted. The overall process should be sanctioned by the JCRA

6.10 JT should make proposals for improvements in its regulatory training and process documentation so that its staff are fully aware of regulatory constraints on their work.

6.11 JT should undertake documentation of its processes so that it can ensure full compliance by all its staff with regulatory processes and requirements.

Section 7 Next generation network issues

7.1 JT should communicate more details of its planned NGN migration to the OLOs.

7.2 JCRA should set-up a multi-operator forum to discuss the issues and opportunities flowing from the NGN deployment. In order that JCRA does not become fettered by decisions taken by this forum, it should ideally be independently chaired, but in any event, JCRA should be an observer to avoid any suggestion of cartel style discussions.

7.3 In particular, there needs to be more multi-lateral discussion about the need and demands for new wholesale services. Some of these may need to be subject to regulatory imposition. However, the first step would be for the OLOs to provide outline Statements of Requirements for each new wholesale service.

7.4 There also needs to be an agreed longer-term view on the migration of telephony interconnect, e.g. agreement on SIP-I.

7.5 Charging mechanisms for wholesale products are likely to remain as at present for the immediate future, though there might be a need for a capacity based interconnect charge for services which are bundled at the retail level with the line rental.

7.6 JCRA and JT will need to agree the specific NGN network elements that will be subject to detailed cost accounting and the drivers for allocating joint and common costs to NGN era products.

7.7 Since JT does not seem to be deploying a risky Next Generation Access network, there is no need for a particular lenient regulatory approach to bitstream access. However, it is important that a fit-for-purpose NGN era bitstream service is provided.

Section 8 Implementation

8.1 JCRA should update 2002 - 04 market analysis work, and include suitable remedies in order to stimulate a competitive market. This work should be initiated as soon as possible.

8.2 JCRA should request the operators to form two working groups, one to plan for the introduction of new wholesale products, and one to co-ordinate the introduction of JT's NGN and associated wholesale products.

8.3 JCRA should undertake a public consultation based on the findings of this report

8.4 JCRA should draw up proposals for the future of controls on JT's wholesale prices, and these proposals should be subject to public consultation.

2 Our terms of reference and process

2.1 JCRA's requirements

In December 2008 JCRA published its Invitation to Tender for a review of Jersey Telecom's regulatory separated accounts and its interconnection and wholesale pricing[1]. This document lists a number of areas where the JCRA required the assistance of consultants in seven specific areas:

- a review of the allocation of costs in JT's separated accounts
- an examination of whether JT's wholesale leased lines should be split into additional categories
- a proposal for the costing of JT's new NGN wholesale services
- a cost based approach to the setting of wholesale DSL prices
- a review of the methodology used to set prices in the Reference Interconnection Offer
- advice on whether certain wholesale services (carrier pre-selection, wholesale line rental, local loop unbundling and bitstream broadband) should be introduced
- a review of JT's wholesale and retail structures.

JCRA specified the following outputs from the study:

- review of JT's cost allocation
- recommendations on improving cost allocation
- review of cross products allocations
- review of the product portfolio
- recommendations on cost allocation for product build up
- review of the leased line portfolio
- recommendations on better separation of private circuit products
- review of JT's broadband cost structure
- recommendations for improving product offers within broadband
- review of JT NGN migration and its effect on existing JT products
- recommendations on during and post NGN changeover
- review of JT's costing build up of local line products
- recommendations for product structures within LLU and/or WLR
- review of JT's reporting structures
- recommendations on improving the internal separation between JT's retail and wholesale functions
- review of JT's wholesale and retail divisions
- recommendations on improving separation between JT's wholesale and retail functions and whether moving to a JT wholesale internal product; guidelines on internal practices for reflecting a clear separation between JT's network and retail divisions.

[1] Available at http://www.jcra.je/pdf/081203%20tender%20for%20review%20of%20SA%20and%20access.pdf

2.2 Regulaid process

Following a competitive tender process, Regulaid was awarded the contract to carry out this study in February 2009. We then carried out our work programme in five main steps:

- a kick off meeting was held with the JCRA to agree the work programme, discuss the main issues and decide liaison arrangements. We also met JT to outline our work programme and agree liaison arrangements
- during March, April and May our costing expert spent several weeks working with JT staff on a detailed investigation of their separated accounts
- our regulatory and technical experts met several staff in JT and the other licensed operators (OLOs) to discuss wholesale matters and their NGN plans (see Table 2.1 for list of interviewees)
- we carried out a number of benchmarking exercises on JT's wholesale agreements, retail and wholesale prices, and efficiency and performance measures
- we gave JCRA regular updates on our findings and thinking during our visits to Jersey

Table 2.1: List of interviewees

Jersey Telecom		**Other licensed operators**
Carrier Relations	Regulatory Affairs	Airtel
Corporate Affairs	Regulatory Finance	Cable and Wireless (Jersey)
Faults Team	Sales and Marketing	Foreshore
Human Resources	Technical Directorate	Itex
Information Services	Transmission and Access	Newtel
Internet Planning and Development	Wireline Provision	Nitel
Product development		

This report contains our draft report to JCRA, and includes not only an examination of the issues set out in JCRA's RFP, but also some of the issues brought to our attention during the interviews with JT and the OLOs. The draft report does not include proposals for the costing and pricing of NGN wholesale products as this work will be included in the final report, after the proposals for these new products have been agreed.

We show in the table below the relevant sections in this report to the outputs required by JCRA.

Table 2.2: Guide to outputs

	Section
Review of JT's cost allocation	4.2
Recommendations on improving cost allocation	Annex 1
Review of cross products allocations	4.3
Review of the product portfolio	5.3
Recommendations on cost allocation for product build up	4.4
Review of the leased line portfolio	5.4
Recommendations on better separation of private circuit products	5.4.6
Review of JT's broadband cost structure	4
Recommendations for improving product offers within broadband	5.5
Review of JT NGN migration and its effect on existing JT products	7
Recommendations on during and post NGN changeover	7
Review of JT's costing build up of local line products	4.5
Recommendations for product structures within LLU and/or WLR	5.6
Review of JT's reporting structures	6.1
Recommendations on improving the internal separation between JT's retail and wholesale functions	6.2
Review of JT's wholesale and retail divisions	6.3
Recommendations on improving separation between JT's wholesale and retail functions	6

3 Competition in the telecommunications market in Jersey

3.1 Regulatory framework

3.1.1 Telecommunications Law

The Bailiwick of Jersey, while a Crown Dependency, is not a Member State of the European Union, and hence has not been subject to the EU's liberalisation programme and regulatory framework for the telecommunications sector. However in 2002 the States of Jersey passed the Telecommunications (Jersey) Law which:

- set up Jersey Telecom as a States company (its predecessor, the Telecommunications Board, was a States department)
- removed the exclusive power held by the Telecommunications Board to provide telecommunications
- gave JCRA (and the relevant Minister) the primary duty to ensure that telecommunications services are provided so as to satisfy current and future demand for them
- gave JCRA the power to issue licences to operators and to impose licence conditions.

The JCRA was set up in 2001 under the Competition Regulatory Authority (Jersey) Law 2001 and became the regulatory authority for telecommunications as a consequence of the Telecommunications Law 2002. Under the Competition (Jersey) Law 2005 it also became the competition authority for the Bailiwick. In all Member States of the EU (and in most other countries with a liberalised telecommunications sector) there is a separate national regulatory authority for telecommunications. This body may also regulate other electronic communications markets or utilities such as electricity or water, but is almost always distinct from the national competition authority. A few small states have followed the Jersey model of combining the regulatory authority with the competition authority.

Article 7(1) of the Telecommunications Law imposes a primary duty on the JCRA (and the relevant Minister) to carry out its functions in a way which ensures that such telecommunications services are provided as satisfy all current and prospective demands for them. Article 7(2) requires the JCRA (and the relevant Minister), so far as is consistent with the primary duty, to:

- protect and further the short and long term interests of users by, whenever appropriate, promoting competition
- promote efficiency, economy and effectiveness in commercial activities connected with telecommunications in Jersey
- further Jersey's economic interests
- impose the minimum of restrictions on telecommunications providers
- ensure that telecommunications providers have sufficient financial and other resources to conduct their activities
- have regard to any special needs of persons who are disabled, have limited financial resources, or have particular needs.

The JCRA can only enforce its wishes through obligations in existing Licence Conditions (and any future obligations it may wish to impose) by making changes in Licence Conditions (it must follow the consultation procedure set out in Article 11). If necessary the JCRA can issue a Direction requiring the Licensee to comply with its Licence Conditions (Article 19). The only sanction JCRA has at present is to revoke a licence if its Directions are not followed (under Article 20), but because this is a power of last resort, a recent review[2] has suggested that JCRA should be given the power to issue fines for non-compliance.

JCRA also deals with disputes between telecommunications operators under its powers to act "as a facilitator" under Article 22 of the Telecommunications Law. However JCRA has had limited resources to investigate disputes, most of which have required detailed examination of allegations of discrimination and price squeezes, and as a result it has taken a long time to resolve these disputes.

3.1.2 Licensing

JCRA started to issue licences at the end of 2002, and has now issued over twenty licences, as shown below:

Table 3.1: Licences issued in Jersey (as at May 2009)

Class	Description	Number of licences
I	Operators not likely to have a discernable impact on a competitive market	16
II	Operators without significant market power	4*
III	Operators with significant market power	1
TOTAL		21

* Includes "special case" licence for Jersey Airport.

In 2005 2G radio spectrum licenses were issued to Cable and Wireless (Jersey) and to Airtel. In addition 3G licenses were allocated to Cable and Wireless (Jersey) Airtel and JT making a total of three mobile operators on the island. It is also worth noting that Ofcom also awarded similar spectrum licences to Colt Telecommunications (Jersey) although it has never applied for a JCRA licence.

3.1.3 JT's licence

The Licence issued to JT by the JCRA contains a number of important conditions that relate to its wholesale activities, and in particular:

- it should not use any information provided to it as a result of interconnection arrangements which would unduly prefer its own interests or place an OLO at an unfair disadvantage (Condition 12.1)
- if JT and an OLO fail to reach agreement on the provision of access (defined as the ability to obtain a required service, facility or function) to facilities within 60 days of a request for access, JCRA may instruct JT to provide such access (Condition 22.1)

[2] LECG. Review of the regulatory powers, resources and functions of the JCRA as a telecommunications regulator. March 2009.

- on the request of an OLO or direction from the JCRA, JT must provide equal access, which is defined as carrier pre-selection and call by call access (Condition 25.1)
- it is required to publish a RIO (Condition 26)
- it has the right to interconnect with other networks, and is required to provide interconnection on request to another operator which has a right to interconnection (Condition 27.1)
- technical standards and copies of interconnection agreements should be made available to interested parties (Conditions 27.2 and 27.4)
- it should make available leased circuits to OLOs on terms no less favourable than provided to its own businesses (Condition 28.2)
- unfair cross-subsidies are prohibited (Condition 30.1)
- it should not show undue preference or exercise unfair discrimination against OLOs, or place any competing OLO at an unfair disadvantage (Condition 31.1)
- linked sales (bundling) is prohibited unless JT has announced its intention to do this and unless there are good technical reasons for so doing (Condition 32.1)
- it is required to give 21 days notice of any new price, discounts or special offers (Condition 33.1)
- wholesale and retail prices should be transparent, non-discriminatory, cost justified and objectively justified (Condition 33.3)
- it should not abuse any position of significant market power or prevent, distort or restrict competition (Condition 34.1)

3.1.4 Wholesale regulation

In 2002 JCRA undertook public consultation on its definition of telecommunications markets and operators with significant market power, following the concepts used by the EU in its new regulatory framework. In 2004 the JCRA declared JT to be dominant in all seven of the markets it had defined:

- fixed line telecommunications services
- fixed line telecommunications networks
- leased lines
- mobile telecommunications services
- mobile telecommunications networks
- fixed broadband services.

In 2003 JT produced its reference interconnection offer, and JCRA carried out a public consultation on this document. JT has also produced other wholesale agreements (wholesale DSL, wholesale private circuits and mast sharing agreements), but these have not been the subject of public consultation.

In 2004 JCRA consulted on its retail and wholesale price controls on JT, and imposed a price cap on the regulated retail services, and set the fixed termination rate, mobile termination rate and the on-island transit rate. In the same year JCRA set out its requirements for JT's separated accounts, which were implemented from the financial year ending December 2004. When the price controls were reviewed in 2008, the termination and transit rates were set on the basis of the separated accounts. The new

retail price cap period started in January 2009 for a period of three years, with a RPI – 3% being applied to call charges, and RPI - 1% being applied to line rentals.

In 2005 JCRA carried out a public consultation on the options for broadband on Jersey, including the options for wholesale broadband access services. In 2008 a mobile number portability database was set up for the mobile operators in Guernsey and Jersey, following inter-island discussions and co-operation.

3.1.5 Wholesale agreements

JT has produced three agreements which set out the terms and conditions for the supply of its wholesale services:

- Reference Interconnection Offer
- Wholesale DSL Agreement
- Wholesale Private Circuit Agreement

In general their terms and conditions follow best practice elsewhere, and the service standards (for example for delivery times and fault repairs) do not discriminate between retail and wholesale customers. However we have some comments on them:

- the forecasting requirements in the RIO (Schedule 4) are onerous and are not followed in practice
- there are no procedures for negotiating new services in either the DSL Agreement or the Private Circuit Agreement
- the dispute process in the RIO is limited to technical and billing issues.

We address these specific matters later in our report.

3.1.6 Regulatory remedies

We have compared the remedies available to national regulatory authorities in the European Union[3] with those available to the JCRA. In the table below we show the range of remedies available, and the relevant clause in JT's licence that provides JCRA with comparable powers. In the final column we add some comments where the power available to JCRA is more restricted than available to the European regulators.

[3] Based on the analysis in: European Regulators' Group. Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework. ERG (06) 33. May 2006

Table 3.2: Remedies available to European regulators and JCRA

European remedies		Relevant JT licence clause	Comments
Transparency	publication of terms and conditions	18, 26, 27	
	publication of prices	18	
	publication of separate accounts		
Non discrimination	application of equivalent terms and conditions	12, 31	undue discrimination rather than equivalent terms
Accounting separation	production of separate accounts	29	
	prohibition on cross subsidies	30	
Access to facilities	access to network elements	22, 27	if not economically feasible, after 60 days
	unbundled access	32	reasons for bundling to be demonstrated
	negotiations in good faith		
	maintenance of supply of services	21	
	provision of wholesale services that enable replication		
	equivalence of inputs		
	adherence to interconnection requirements	26	JCRA may direct changes
	terms on fairness, reasonableness, timeliness	26, 33	JCRA may direct changes
Price control and cost accounting	cost orientation requirement	33	
	price controls	32	
	price squeeze restrictions		prohibited under Clause 16 of Competition Law
	specification of costing methodologies	29	
Retail obligations	prescribed set of services	13 - 16	emergency services, payphones, and DQ only; no minimum set of services
	price controls	33	
	affordability measures		
Leased lines	Minimum set of leased lines	28	non discriminatory provision of leased lines
	Carrier selection and pre-selection	25	carrier pre-selection not introduced
Functional separation	separation of network/wholesale activities		
	structural separation		

There are a number of important obligations missing from that list, as far as Jersey is concerned. They are:

- the publication of JT's separated accounts
- JT to apply equivalent terms and conditions to OLOs, rather than not to show undue discrimination

- JT to negotiate in good faith with OLOs
- JT to provide wholesale services that enable the replication of its retail services
- JT to provide equivalence of input for the OLOs
- any functional or structural separation of JT's activities.

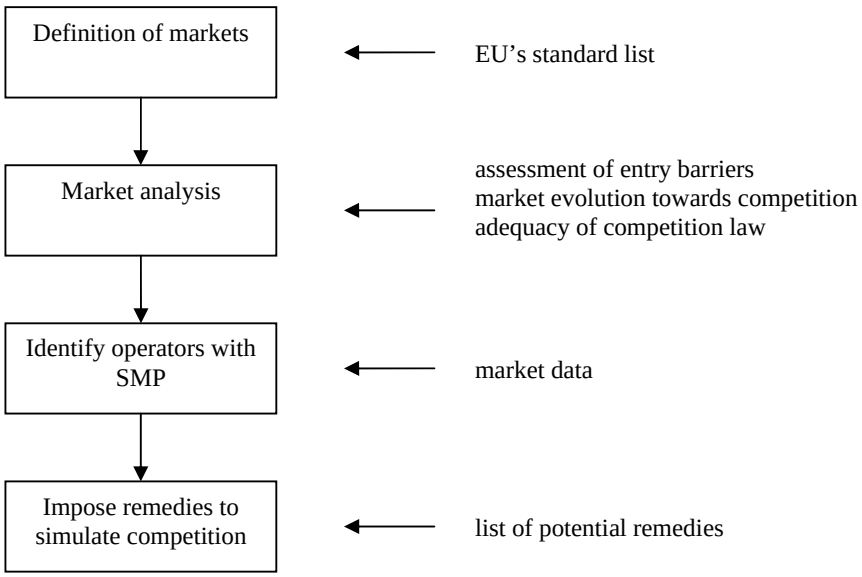
3.1.7 Regulaid's assessment of the regulatory framework

In most countries the national regulatory authority relies on "ex ante" regulation (the setting of rules to guide subsequent behaviour by the operators) and the national competition authority on "ex post" regulation (the judgement of individual cases of behaviour and the development of the rules from these individual cases). Telecommunications regulation in Jersey is mainly "ex post", relying on the resolution of individual disputes and the amendment of specific licence conditions of individual operators to make changes in the regulatory framework.

Guernsey, when it established its own utility regulatory agency (the Office of Utility Regulation), gave it the power to issue regulations and directions. Gibraltar, another micro-state adjacent to Europe, has adopted the European framework, adapted as necessary for its market environment.

The European Commission has required its Member States to implement a defined process for the imposition of ex-ante regulation on operators with significant market power, which we summarise in Diagram 3.3.

Diagram 3.3: Telecommunications regulatory process in Europe



This process leads to a predictable and comprehensive regulatory framework across Europe, with a transparent process, thus reducing the risk of unexpected changes in regulatory environment for existing operators and new investors. While Jersey is not under any obligation to follow this process, it does have to compete with the rest of Europe for investment, and without a regulatory environment that offers similar fairness and predictability, Jersey will be less attractive than its neighbours. With the

contraction of the financial services industry, Jersey may need to take steps which were previously thought unnecessary in order to make its telecommunications industry attractive to outside investment.

3.2 Assessment of competition in Jersey

3.2.1 Regulatory scorecard

In Table 3.4 we show a "regulatory scorecard" for Jersey in comparison to the countries of the EU.

Table 3.4: Regulatory scorecard

Measure	Jersey	Europe
Incumbent privatised?	no	yes
Fixed network competition?	yes	yes
Internet services competition?	yes	yes
VoIP permitted?	yes	yes
Mobile network competition?	3 operators	3 - 4 operators
MVNOs permitted?	yes	yes
Reference Interconnection Offer available?	yes	yes
Wholesale line rental available?	no	yes
Local loop unbundling available?	no	yes
Carrier pre-selection available?	no	yes
Fixed number portability available?	no	yes
Mobile number portability available?	yes	yes
Retail price controls on main operator?	yes	yes
Price controls on interconnection rates?	yes	yes
Accounting separation required for main operator?	yes	yes
Universal service fund established?	no	in some countries
Spectrum trading permitted?	no	in some countries
Market based regulation introduced?	yes	yes
Score	11	18

This comparison demonstrates that a number of regulatory measures used to promote competition are not available in Jersey, particularly wholesale line rental, local loop unbundling, carrier pre-selection and fixed number portability. However we recognise that not all these measures may be required or be cost-effective in a state as small as Jersey, and that an assessment of the need for additional measures that open the market to greater competition is necessary.

3.2.2 Retail price levels

Retail prices are an important indicator of the extent of competition. In a market with ineffective competition, price levels are likely to be higher, partly because the existing operators can charge more to customers without the risk that they will be undercut by other operators, and partly there is less pressure on them to become more efficient and to reduce their costs. In markets with effective competition, prices will be driven down to costs, and there will be constant pressure to reduce these costs further.

In Annex 2 we describe in detail a comparison of retail and wholesale prices in Jersey and Guernsey, using the price basket methodology developed by the OECD. We have

limited the comparison to Guernsey as the use of other jurisdictions raises questions of how comparable they are to Jersey.

Residential customers

In Table 3.5 we show the results for the three baskets used for residential customers (low, medium and high users).

Table 3.5: Fixed residential customer baskets (£ per month)

	Low user		Medium user		High user	
	Guernsey	Jersey	Guernsey	Jersey	Guernsey	Jersey
Line rental	9.16	14.01	9.16	18.01	9.16	18.01
Call charges	6.76	6.93	15.02	9.08	32.32	24.28
Total	15.92	20.94	24.17	27.09	41.48	42.29

Low users are much worse off in Jersey than in Guernsey (by 32%). The medium users are worse off by 12% and high users by 2%. In Jersey line rental charges are much higher than on Guernsey, and customers can choose between bundles of calls and line rentals. We have calculated the most economic package for the user given the call pattern in the basket, and used this package. The differences between the call baskets are mainly due to the greater proportion of calls to mobiles in the medium and high user baskets. The retail price for these calls is lower in Jersey than in Guernsey.

The OECD calculates price baskets for its 30 countries, and if Jersey was included in these comparisons, it would be 17th for the low user basket, 14th for the medium user basket, and 8th for the high user basket.

We have also compared the broadband services available on the two islands. There is a much greater variety of speeds available on Guernsey (up to 8 Mb), while on Jersey speeds are limited to 2 Mb and there are download limits. As a result it is more difficult to compare prices. The entry level price is much lower on Jersey.

Business customers

The OECD has developed two profiles of business customers for its price baskets – a SOHO customer (small office/home office) and a SME customer (small and medium enterprise). In Table 3.6 we show the basket calculations for Guernsey and Jersey.

Table 3.6: Business customer baskets (£ per month)

	SOHO		SME	
	Guernsey	Jersey	Guernsey	Jersey
Line rental	9.16	17.89	274.90	536.65
Call charges	18.04	10.61	568.33	536.59
Total	27.21	28.50	843.23	1073.23

Prices are higher in Jersey for SOHO business customers by 5% and by 27% for SME customers. The differences between the call baskets reflect the greater proportion of international and peak time calls in the SME basket, and the greater number of calls per line for SMEs. The higher line rental on Jersey is offset by the discounted call charges. On both islands the SME customer would qualify for volume discounts, and we have included these in the calculations above. If the volume discounts are excluded, retail prices are 19% greater in Jersey for SOHO customers, and 11% greater for business customers.

In comparison to the 30 OECD countries, Jersey would stand at 14th for both SOHO customers and SME customers.
As with residential customers, business customers have greater choice of speeds on Guernsey, and download limits apply on Jersey. On Guernsey a greater range of internet and web hosting services are available than on Jersey. The entry level prices for broadband DSL services are lower on Jersey than on Guernsey.

For some business customers, the price of leased lines is important, and we have created a simple basket of on-island and off-island leased lines to enable a comparison. We have calculated the monthly cost of buying this set of leased lines on Guernsey and on Jersey (including any connection charges spread over 5 years). The basket purchased on Jersey is 4% more expensive than if purchased on Guernsey.

Hence in general the retail prices charged on Jersey are somewhat above those charged on Guernsey. We have excluded the sales tax imposed on Jersey from our calculations, and the number of fixed lines on Jersey is slightly greater than on Guernsey (59,000 compared to 55,000) and hence the economies of scale, a major factor in network costs, is not an explanation for the difference. In Section 3.2.4 below we discuss whether the price differences are mainly due to differences in costs between the two operators.

3.2.3 Wholesale price levels

We also calculated the cost of providing the baskets for OLOs using the wholesale prices offered by the incumbent operators on Guernsey and Jersey. We show the results (which include the cost of interconnection links) in Tables 3.7 and 3.8.

Table 3.7: Retail and wholesale residential call (£ per month including interconnection link charges)

	Guernsey			Jersey		
	Retail	**Wholesale**	**Profit as % retail**	**Retail**	**Wholesale**	**Profit as % retail**
Low user	6.76	3.99	41%	6.93	5.56	20%
Medium user	15.02	8.46	44%	9.12	9.60	-5%
High user	32.32	17.58	46%	24.28	23.71	2%

Table 3.8: Retail and wholesale business call baskets (£ per month including interconnection link charges)

	Guernsey			Jersey		
	Retail	**Wholesale**	**Profit as % retail**	**Retail**	**Wholesale**	**Profit as % retail**
Business SOHO	18.04	8.86	51%	10.61	10.86	-2%
Business SME	568.33	366.56	36%	536.59	475.19	11%

In the tables we show the margins that an OLO can make from the wholesale prices if it charged in the same retail prices as the incumbent operator. In practice, the OLO has to charge a lower retail price in order to win business, and has to recover its retail costs and a return on capital if it is to be profitable. Usually a margin of at least 20% on wholesale costs is necessary to achieve this. The analysis above shows that for business customers, such a profit margin is not achievable on Jersey, and this is mainly due to the high termination rates charged to OLOs and deep discounts offered

to large business customers by JT. Only the margins available on the high residential user look attractive. The negative margin available on residential medium users is due to the bundle of free calls available with line rental from JT, whereas OLOs have to pay interconnection charges for each call made. In contrast, the wholesale margins available on Guernsey should permit an OLO to make a reasonable level of profit.

We have also analysed the margins available to OLOs on residential broadband and business broadband services, and this shows that because the costs of backhaul are built up from large units of capacity, the profitability of DSL broadband depends on the number of customers available to OLOs. The cost structures for backhaul on Guernsey and Jersey mean that OLOs have to recruit about 5,000 customers before they can reach a reasonable return to cover their retail and other costs. However as customer numbers rise, OLOs have to purchase additional units of capacity, and this may result in profitability per customer becoming negative again as certain critical levels of customer numbers are reached.

For business leased lines, the margin available on Jersey is 11%, compared to 22% on Guernsey.

The lack of margins available to OLOs is a matter of major concern as they will deter competition and investment in the telecommunications sector on Jersey. Moreover, it appears that JT is capable of operating a price squeeze on narrowband and leased line services, and if it is charging itself the same rates as it is charging the OLOs, it is likely to make a loss on these retail services. This would result in some cross-subsidisation taking place from more profitable activities.

3.2.4 Operator performance comparisons

Another indicator of the state of competition is the performance of the incumbent operator. A competitive environment is likely to promote efficiency, innovation and an effective use of assets in an operator. We therefore have compared the separated accounts published by Cable and Wireless Guernsey (C&WG) with those of JT (which are not currently in the public domain), and we were particularly interested to see whether one reason for higher prices on Jersey is that JT has higher costs than C&WG. We give full details of this analysis in Annex 3.

The separated accounts of both operators (for the year ending 31 December 2007 for JT, and for the year ending 31 March 2008 for C&WG) enable us to split out the fixed and mobile businesses. In Table 3.9 we show some financial measures comparing the two operators for these businesses and for all activities. The main difference between the accounting standards used by the two operators is that C&WG uses current costs for its capital assets, while JT uses historic. However C&WG's accounts show a reconciliation with its published accounts, which has allowed us to compare capital costs on an historic basis, but only for the combined businesses (see last line of the table below).

Table 3.9: Financial ratios

	Fixed		Mobile		All businesses	
	C&WG	**JT**	**C&WG**	**JT**	**C&WG**	**JT**
Operating costs as % of turnover	73%	redacted	68%	redacted	74%	>>>%
Profit as % of turnover	23%	redacted	32%	redacted	26%	>%
Turnover as % of assets	128%	redacted	371%	redacted	178%	>>%
Return on assets	29%	redacted	119%	redacted	46%	>%
Return on assets (HCA)					54%	>%

While operating costs for the fixed network as a percentage of turnover are similar, JT has much higher operating costs for its mobile network. The two operators have a similar profit margin on turnover on the fixed network but C&WG has a better profit performance on the mobile business. C&WG obtains a better utilisation of its assets, especially in its mobile business.

Table 3.10 shows the costs, profits and revenues on a per customer basis. We use the number of fixed lines for a comparison of the fixed business, mobile SIM cards for the mobile business, and the two added together for the analysis of all businesses (which includes the "other" activities undertaken by the operators). The number of customers has been taken from statistics published by the JCRA[4] and OUR[5].

Table 3.10: Performance per customer (£)

	C&WG	**JT**	**JT as % of C&WG**
	Fixed		
Turnover per customer	550	redacted	>>>%
Operating costs per customer	403	redacted	>>>%
Profit per customer	148	redacted	>>>>%
Fixed assets value per customer	429	redacted	>>>>>%
	Mobile		
Turnover per customer	443	redacted	>>>%
Operating costs per customer	301	redacted	>>>%
Profit per customer	142	redacted	>%
Fixed assets value per customer	119	redacted	>>>%
	All businesses		
Turnover per customer	567	redacted	>>>%
Operating costs per customer	419	redacted	>>>%
Profit per customer	148	redacted	>>%
Fixed assets value per customer	319	redacted	>>>%
Fixed assets value per customer (HCA)	272	redacted	>>>>%

On a per customer basis, JT obtains a higher revenue and profit per customer in the fixed network while C&WG is more profitable in its mobile business. However JT's operational and fixed costs in the fixed network are much higher than C&WG's costs (by >% for operational costs, and by >>% for fixed assets). We converted the fixed assets value into an annual cost for depreciation and for a return on capital employed, and added this to the annual operational costs. JT's total costs for the fixed network are 33% above C&WG's costs, >% for the mobile network, and >>% for all businesses.

[4] JCRA. Telecommunications statistical review 2008.
[5] Office of Utility Regulation. Telecommunications Market Report Jan – June 2008.

We draw three important conclusions from these analyses of prices and performance:

- the higher retail and wholesale prices in Sections 3.2.2 and 3.2.3 are due to JT's higher costs in the fixed network. JT is larger than C&WG, and so should have lower, not higher, costs due to economies of scale. We accept that this factor may counter-balanced by C&WG's access to Cable and Wireless's corporate buying power, but think that JT should be able to reach C&WG's levels of efficiency, and that some form of control on wholesale prices will be necessary to give JT an incentive to achieve efficiency improvements.
- the use of cost based wholesale prices results in prices that are higher for both retail and wholesale customers because of JT's higher costs, and therefore wholesale price controls should be based on a price cap rather than on JT's actual costs in order to give JT an incentive to become more efficient
- effective competition will also act as a spur to greater efficiency, and so an important objective should be the creation of a regulatory framework that enables more effective competition.

3.2.5 Next generation networks

JT is now renewing its core network with next generation network (NGN) technology, and customers will be linked to it over a two year period which is due to start in the middle of 2009. As we discuss in Section 7, a particular feature is the roll out of fibre to about 30 multi-service access nodes (MSANs), which will reduce the length of local loops and thus enable the provision of higher speed and more advanced broadband services than are available at present on Jersey. Clearly this development is to be warmly welcomed, but it is important that competing operators are able to provide services on an equal basis with JT over it.

The NGN investment should allow JT to reduce its operating costs, and while JT should be permitted to obtain a return on its investment, the benefits of the NGN cost savings should be passed on to retail and wholesale customers.

3.3 Conclusions on the telecommunications market and regulation in Jersey

Our analysis of the regulatory environment and the telecommunications market in Jersey leads us to the following conclusions:

- the "playing field" in Jersey is more tilted towards the incumbent operator than in other jurisdictions, mainly providers that compete with JT do not have access to wholesale products that enable effective competition
- retail prices on Jersey are higher than on Guernsey
- wholesale prices are much higher than on Guernsey, preventing OLOs on Jersey from having a viable business
- the structure of JT's discounts and bundles prevents OLOs from making a reasonable margin in certain customer segments (especially business customers)
- the higher retail and wholesale prices reflect greater operating costs, capital costs and profits in JT's fixed network business, which has not been challenged by strong competition or regulation to become more efficient

- the lack of effective regulation makes Jersey less attractive than its neighbours for telecommunications investment.

Hence there is a circular dynamic of weak regulation, ineffective competition, high prices and inefficiency, which is not serving the short term and long term interests of users in Jersey. As a result, we think that JCRA faces a major task to require JT to introduce new wholesale products, to reduce its wholesale prices, and to become more efficient. In the EU, national regulatory authorities are required to give increased emphasis to the regulation of the wholesale market so that regulation on the retail market can be decreased, and we believe that a similar focus on wholesale regulation is needed on Jersey.

An important issue, especially in a small state such as Jersey, is to ensure that regulation is proportionate, and does not impose unnecessary costs, which are ultimately funded by customers through higher retail prices. While the principle of proportionality is very reasonable, implementing it requires a judgement about the severity of the problems and the costs involved in solving them. We regard the problems in Jersey's telecommunications sector as severe because there is no foundation for effective competition at present. Hence we think that JCRA needs to intervene substantially in the market in order to remedy weaknesses in the market.

The views expressed above provide the basis for our analysis and recommendations in the following sections.

4 Our findings on the separated accounts

4.1 Review of cost allocations

4.1.1 Our work

We were required by the JCRA's terms of reference to carry out a detailed investigation of JT's separated accounts in order to advise whether the costs in the model of Jersey Telecom's separated accounts were correctly allocated, and hence whether its prices are properly based on cost.

We have reviewed all allocation steps from the input level (cost accounts) to the products (both retail and wholesale). The detailed description of all the allocations and their assessment is contained in Annex 1. In summary, we have found there are many errors in the allocations, especially in the network related areas. In total we reviewed over 956 individual cost allocations, and found errors in 168, an error rate of 18%.

We were not required to evaluate whether these errors have a material effect on JT's separated accounts. In order to assess this, a rerun of the accounts with the recommended changes would be necessary, and then we could see what impact the changes have on the results. While some errors may not be material, in total they may have a significant effect – alternatively they may cancel each other out.

4.1.2 Errors in cost allocations

The allocation of direct costs accounts is based on details booked in trial balance. However there are two serious errors:

- interconnection outpayments are allocated only to calls from postpaid mobiles and not to calls from prepaid mobiles (this error repeats for several accounts)
- the cost of visiting roamers is allocated to JT roaming abroad.

In reviewing the allocation of costs, we found that the:

- allocation of departments has only 9 errors from 285 allocations
- allocation of capital employed has only 2 errors from 149 allocations
- reallocation to departments and assets has 3 errors from 35 allocations
- allocation of support activities has 3 errors from 49 allocations
- allocation of assets has 51 errors from 185 allocations, mainly in the area of network assets
- allocation of network activities has 11 errors from 43 allocations
- allocation of customer facing activities (activities allocated to products) has 35 errors from 97 allocations
- allocation of network elements has 45 errors from 70 allocations.

All costs are allocated to products from direct cost accounts, customer facing activities and network elements, which are exactly the areas with high error rate. All other allocations send costs to customer facing activities and network elements.

The errors are caused mostly by missing or too many receivers. This means that the sender sends costs to a more or less correct group of receivers (the basic direction is correct) however some receivers, which should be included in the group, are missing, or on the other hand some receivers, which should not be included in the group, are present.

Cost drivers are usually correct with the exception of routing factors and an allocation of customer facing activities based on time. An allocation to customer facing activities to products based on time is not typically used. In the ABC methodology departments should be split based on time questionnaires to activities, and activities are then allocated to products using other drivers (volume, revenue, number of bills etc). However in JT's model some of the customer facing activities do not represent costs dedicated only to the activity. Instead, they represent costs of departments, which are allocated directly to those activities. This departmental cost (named as activity) is then split to products based on time spent by people in these departments. The allocation may be confusing, but mathematically the result is correct.

Unfortunately in some cases the manager who created the driver values was not able to give detailed information for each product, so he split the value equally between products in a group. This is not correct, because some of the products in the group have high volumes and some low volumes. The cost on those with high volume is then very small, while on those with low volume it is disproportionately high. In such cases where the manager is able to give values only for product group and not individual products, he should split the values between the products in the product group based on volume and not equally.

4.2 Recommendations on improving cost allocations

In Annex 1 we give our analysis of each cost allocation category and our recommendations for changes where we have identified incorrect allocations.

4.2.1 Cost allocations

As summarised above, we found many errors in JT's cost allocations. While we understand that JT are implementing corrections for its 2008 statutory accounts, we suggest that JT and its accountants should confirm that our recommendations have been implemented.

Recommendation

4.1 JT and its accountants should confirm that the changes in cost allocations recommended by Regulaid have been implemented.

4.2.2 Current cost accounting

We suggest that current cost accounting (CCA) should be introduced as the cost basis for the allocation as this will bring JT's cost calculations closer into line with the standards used for the calculation of long run incremental costs. JT should introduce CCA as it implements its NGN, when many network assets will be replaced by modern equivalent assets, so the revaluation will be then easier.

Recommendation

4.2 JT should implement current cost accounting as the basis for its statutory accounts as from the start of 2011.

4.3 Cross product allocations

4.3.1 Costs that overlap fixed and mobile businesses

As part of our terms of reference from JCRA, we were required to assess whether costs were correctly allocated between JT's fixed and mobile businesses. At the input level of the model, most operational costs overlap fixed and mobile (wages, electricity consumption etc.). At later stages in the allocation they are split to individual network elements and from this point they do not overlap. Some of these allocations are correct, some not. Details about the allocations and their assessment are in the appendix.

4.3.2 Cost allocation of calls from JT's mobile marine business

During our discussions with JCRA, we were asked to review the allocation of costs to JT's mobile marine business, in order to ensure there are no cross-subsidies between this business (which is not regulated) and other businesses. Currently some network elements are allocated to GSM maritime services. However the allocation is wrong because it is off-shore service and no JT's network elements should be allocated to this product. Costs of this product abroad are booked as external services (direct costs). Retail costs like billing, debt management, set customer service standards, tariff management etc. are added.

4.4 Cost allocation for product build up

4.4.1 Separation of wholesale and retail costs for wholesale broadband products

In the terms of reference, we were required to identify wholesale and retail costs for JT's broadband access products, so that wholesale prices for them could be based on cost, rather than on the present retail minus formula. Most costs related to broadband products are not separated between retail and wholesale in JT and therefore also not in the model (they are done by the same people – installation, maintenance, billing, product development etc.). These activities are common and are split to products (both retail and wholesale) using cost drivers. However if the cost driver values are correct, then the accounting separation done by such allocation is correct. The following activities and network elements are allocated to wholesale broadband products:

CF04 Debt management charges
CF05 Billing Management
CF11 Business Solutions Operations Support
CF15 Provide customer support enquiries and fault reporting
CF67 Manage Licence and Regulation
CF78 Set & monitor customer service standards
CFE01 Bad Debt Provision
CFE05 Trade Debtors
A101 PSTN local loop
C348 ADSL equipment

CFE04 Rentals in Advance - Miscellaneous
A107 Install and Maintain HSBS Residential Lines (Access)
C353 Install datacomms circuits
CF09 Process business orders (call centre)
CF12 Maintain Private Circuits
CF63 Develop new business products
CF74 Install and Maintain HSBS Residential Lines (Retail)
A106 Provide HSBS Residential Maintenance
CF50 Provide Wholesale ADSL

Details about their allocations and their assessment are in the appendix.

4.4.2 Review of JT's interconnection rate calculations

The setting of termination rates has been a major issue for JT, JCRA and the OLOs. (see Section 5.7.1 below). We were asked to examine JT's calculations for fixed termination rates, and the results may form the basis of the rates for 2009.

Fixed termination means the calls incoming from OLOs to JT's fixed lines. The unit cost of fixed termination can be calculated from product FI202 Fixed Line - Incoming (National). This product includes all types of calls from OLOs to JT fixed lines, including special numbers like premium rate numbers, freephone, local call fee access, JustConnect etc. To calculate the cost of fixed termination from product FI202 we have excluded the unit costs of network elements used for these special calls. The values based on costs, capital employed and volume (<>) of product FI202 in JT's 2007 separated accounts are as shown below:

Table 4.1: Calculation of fixed termination rate

	Total cost (£)	**Capital employed (£)**	**Cost of Capital (11.6%)**	**Total cost incl. CoC (£)**	**Unit cost incl. CoC (pence per minute)**
C101-Remote Concentrators (Call Set Up)	redacted	redacted	redacted	redacted	redacted
C102-Remote Concentrators (Call Duration)	redacted	redacted	redacted	redacted	redacted
C103-Local Switches (Call Set Up)	redacted	redacted	redacted	redacted	redacted
C104-Local Switches (Call Duration)	redacted	redacted	redacted	redacted	redacted
C105-PSTN Switching Softswitch	redacted	redacted	redacted	redacted	redacted
C106-Signalling Transfer Point	redacted	redacted	redacted	redacted	redacted
C107-MSANS PSTN	redacted	redacted	redacted	redacted	redacted
C201-Local switch - remote concentrator links	redacted	redacted	redacted	redacted	redacted
C202-Interswitch links	redacted	redacted	redacted	redacted	redacted
C203-Backhaul Voice links – Fixed	redacted	redacted	redacted	redacted	redacted
C331-Interconnect Product Management Fixed	redacted	redacted	redacted	redacted	redacted
CF67-Manage Licence and Regulation	redacted	redacted	redacted	redacted	redacted
Average termination rate					0.7362

The average cost for call termination in JT's fixed network is therefore 0.736 pence per minute, and using JT's time of day gradients, we show the resulting termination rate by time of day in Table 4.2.

Table 4.2: Proposed fixed termination and origination rates for 2009

Period	Pence per minute
Peak	0.92
Off peak	0.52
Weekend	0.52

As discussed in Section 5.7.1, the OLOs have contested JT's calculations for fixed termination rates for 2009, and the resolution of this dispute is awaiting the recommendations of this report. JT had calculated an average of 1.05 pence per minute, and the main difference between our calculations and JT's calculations is in the customer facing activities. JT has used network costs from product FI109 PSTN termination. To these network costs JT added the average value of following customer facing activities for all fixed traffic services:

- Debt management charges
- Manage Licence and Regulation
- Provide customer support enquiries and fault reporting
- Billing Management
- Tariff Management.

We have used customer facing activities relevant only to fixed termination and their values allocated to product FI202.

We found major problems in the routing factors used by JT, which influence all traffic products, including termination and transit rates. Details about the allocations and their assessment are in Annex 1. However we do not have sufficient information to revise the routing factors. As described in the Annex, we have noted many errors in JT's cost allocations, which if corrected, may produce a different figure. Nevertheless, we believe that our estimates provide a reasonable basis for the 2009 termination and origination rates.

Recommendation

4.3 An average rate of 0.736 pence per minute should be used for calls terminating and originating in JT's fixed network for 2009

4.4.3 JT's prices for its disaster recovery service

A number of OLOs were concerned about the prices charged by JT for its commercial disaster recovery services, and claimed that JT was undercutting their prices by cross-subsidising its disaster recovery services from its regulated businesses. We therefore investigated whether the separated accounts could cast any light on this issue.

The costs for JT's disaster recovery service are merged in the model with co-location. It is product OR111 Co-Location and Business Continuity. There is no volume because it is individual - different equipment co-located in different locations with different level of support. Therefore there are no defined unit costs and prices. The

total revenue is £<>. The total cost is £<>. The service as a whole is loss making and the loss is quite significant. Therefore it is probable that the prices are below costs. This product belongs in a competitive market, and competing operators have suggested that JT's prices are below cost. These comments support our analysis and it appears that this product is being cross-subsidised by other activities, which would be contrary to its Licence Condition 30.1.

We suggest that JCRA should require JT to demonstrate that it is not cross-subsidising its data hosting business.

Recommendation

4.4 JCRA should require JT to demonstrate that it is not cross-subsidising its data hosting business, which would be contrary to its Licence Condition 30.1.

4.5 Costing build up for local line products

4.5.1 Calculation of retail costs for leased line and DSL products

In its terms of reference, JCRA asked us to assess whether retail costs were correctly allocated for leased lines and DSL products. The wholesale products for both these services are based on retail minus formulae, and hence it is important that retail costs are correctly allocated. We concluded that some retail costs are split correctly, some are not. Details about the allocation of individual retail activities and assessment of the allocations are in Annex 1.

4.5.2 Wholesale discounts for on and off island leased lines

A number of OLOs expressed concern that the retail discount for wholesale leased lines calculated from the separated accounts (9%) was not realistic. We therefore examined this matter further. Discounts are not calculated in the costing model. A comparison between the retail price and the cost calculated in the model gives the profit margin. As the table below shows, on-island circuits and off-island circuits below 2MB have profitability more than >>%, while the off-island circuits 2MB and above >%.

The wholesale price is based on the retail price less 9%, as an approximation of a cost based price based on the retail costs saved by selling to wholesale customers rather than to retail customers. This analysis shows that this figure of 9% does not approach JT's costs in providing leased lines, and hence provides JT with large profits on its wholesale leased line business. In contrast the OLOs (as we discuss in Section 5.7.2) believe that they cannot make a profitable business at the current wholesale discount.

Table 4.3: Analysis of leased line profitability

	Revenue	Costs	Profit	Profitability
On-island circuits less than 2Mb (retail)	redacted	redacted	redacted	>>>%
On-island circuits 2Mb and above (retail)	redacted	redacted	redacted	>>%
Off-island circuits less than 2Mb (retail)	redacted	redacted	redacted	>>>>%
Off-island circuits 2Mb and above (retail)	redacted	redacted	redacted	>%

Hence the price of leased lines charged to wholesale customers is considerably above cost, even allowing for a rate of return at the regulated costs of capital (11.6%). Therefore JT has significant scope to offer a much greater discount than the current 9% for wholesale leased line circuits. (See also the comparison of leased line circuit prices and profitability in Annex 2, and our recommendations 5.24 and 5.25 on the future of leased line pricing.)

4.5.3 Broadband cost allocations between GPRS and 3G

Our terms of reference asked us to examine the allocation of broadband costs between GPRS and 3G in JT's mobile business. However as there is no separated 3G data product in JT model, only GPRS, we could not take this issue further.

4.5.4 Costs of local loop

We were also required to estimate the cost of local loops, so that this information could be used in the calculation of the prices of future wholesale products such as wholesale line rental or local loop unbundling. The cost of local loop is £<> in JT's 2007 separated accounts. There were 65771 PSTN lines, 141 SDSL lines and 15 wholesale SDSL lines, giving a total of 65,927 lines. Hence the unit cost of local loop was £<> per year, or £<> per month.

4.5.5 Duct maintenance costs

JCRA asked us to examine how JT allocated its duct maintenance costs in its separated accounts. We found that duct maintenance is not separately identified in JT's accounts. Duct allocation (depreciation of ducts, without maintenance) is described in detail in Annex 1- assets PL253, PL253A.

5 Wholesale product issues

5.1 JT's wholesale product range

Jersey Telecom (JT) provides a range of wholesale products, which are listed in its Reference Interconnection Offer (RIO), its Wholesale DSL Agreement and its Wholesale Private Circuit Agreement. The present wholesale products are summarised below:

Table 5.1: JT wholesale products in RIO and wholesale DSL agreement

Reference Interconnection Offer	Wholesale DSL Agreement
In span interconnection	ADSL service 2048/384 at 50:1 contention ratio
Full span interconnection service	ADSL service 2048/512 at 20:1 contention ratio
Fixed termination	SDSL service 2048/2048 at 10:1 contention ratio (SDSL)
Mobile termination	Backhaul (Private Connect Main) at 10 Mb
Carrier selection (call by call)	Backhaul (Private Connect Main) at 100 Mb
Emergency call access	
Directory number inclusion	
Operator access	
Freephone termination	
Local access termination	
On island transit	
Outgoing off island transit	
Incoming off island transit	

Table 5.2: JT wholesale products in private circuit agreement

	Speed	On island Within exchange	Between exchanges	Off island Jersey - Guernsey	Jersey UK
Megaline	2 Mbit	✓	✓	✓	✓
	2 - 155 Mbit	✓	✓	NA	✓
Fibre link	10 - 1000 Mbit	✓	✓	✓	✓
Fibre channel	1.25 - 4 Gbit	✓	✓	✓	✓
Private connect main	10/100/155 Mbit	✓	NA	NA	NA
Private connect remote	various	✓	NA	NA	NA

As we discuss in Section 3.2, we think that the lack of certain wholesale products in Jersey are an important factor affecting competition in the marketplace, and in this section we consider whether new wholesale products should be introduced. In its terms of reference, JCRA asked us to examine a number of issues related to wholesale products, and we discuss these in this section, along with other product issues raised by JT and the OLOs during our meetings with them.

5.2 Wholesale product principles

5.2.1 Replicability of retail products

An important principle of telecommunications regulation is that competing operators should be able to replicate the retail services provided by the incumbent operator from

its wholesale services (or services available to the OLOs from third parties or by the OLO itself if it has its own network). This principle ensures that the incumbent operator is not discriminating in favour of its own retail arm by refusing to supply wholesale services to OLOs, and ensures that competition is possible in all parts of the market.

It can be argued that the principle of replication may deter investment by the incumbent operator in innovative retail services, especially on those developed on a NGN. However we do not think that this argument outweighs the need to ensure a more level playing field in Jersey, especially as JT appears not to be planning any new retail services over its NGN in the foreseeable future.

We are aware of the danger of requiring JT to produce wholesale services as a matter of course when there may not be a demand for them from OLOs, resulting in a waste of its resources. We suggest that the requirement of replicability should be subject to a request for the specific service from a licensed operator, and that JT should be allowed to recover the costs incurred by an efficient operator in providing the wholesale service (bearing in mind that the service is also provided to its retail arm). However JT is not in a good position to judge whether there is a demand for the service as it may be more aware of the costs of provision than the benefits (which will be enjoyed by the OLOs). Hence if there is a disagreement between the OLO and JT over whether the service should be provided, JCRA should become involved in resolving the dispute (see Section 6.3.3).

When it considered the issue in 2003, Oftel[6] proposed four tests for judging whether an OLO can replicate a service:

- does the service have the same functionality from the end-user's viewpoint?
- does the OLO face a similar cost base to the incumbent operator?
- can the OLO provide the same quality of service?
- is the wholesale service available at the same time as the retail service (that is, when a retail customer is able to make a buying decision about the retail service)?

We think that these four tests form a good basis for assessing whether a retail service is replicable in Jersey. To provide Jersey Telecom with an incentive to provide new wholesale products quickly, it could be prevented from offering the residential and business bundles until a replicable wholesale equivalent was available.

Recommendation

5.1 JCRA should require JT to make available wholesale services that enable OLOs to replicate its retail services, provided that they are demanded by an OLO.

5.2.2 Bundling of JT's retail products

Condition 32 of JT's licence places some restrictions on the ability of JT to bundle together its products and services. JT is not allowed to bundle services together unless it has notified JCRA of its intention to offer a bundled service, and satisfied it that there are technical reasons for so doing, or that there are economic benefits to the user

[6] Oftel. BT's pricing of services for business customers. 15 October 2003.

of the bundle. At present JT offers some bundles, notably the Talk100, Talk250 and TalkUnlimited bundles of discounted calls, and the Premier and PremierPlus packages for business customers (all of which depend on the purchase of a line rental from JT).

In a number of countries incumbent operators have the freedom to offer bundles that include IPTV, internet access and other services. These give benefits to customers of lower prices, thus enabling them to benefit from the economies of scope that are achieved when bundles of services are sold together. However the national regulatory authority will only permit bundling if certain conditions are met at the wholesale level. These conditions ensure that competitors are able replicate the bundles from individual wholesale services that are available from the incumbent (or from third parties) and that they are able to do this profitably.

Hence there are three issues for further analysis:

- should JT be given greater freedom to offer bundles to its retail customers?
- what conditions should be attached to this freedom at the wholesale level?
- what changes will be necessary in JT's licence to implement any changes?

Retail bundling
As mentioned above, many incumbent operators are permitted to offer bundles of services to residential and business customers, providing them with the economic benefits of lower prices and cost savings from dealing with a single supplier rather than multiple suppliers. With the development of its NGN, JT will be able to provide a larger range of services, and hence will have more opportunities for bundling services. Such services should benefit customers, and so in principle, JT should be enabled to offer such bundles at a retail level.

National regulatory authorities usually impose conditions on retail bundles to ensure that customers are not buying services that they do not require, for example, by requiring that services in the bundles should be available individually. A further danger is that an operator could leverage its power in an uncompetitive market to advantage itself in a competitive market, for example, by tying the purchase of competitive products to an uncompetitive one or by cross-subsidising the competitive elements in the bundle. These issues would generally be covered by an ex-ante prohibition on unfair bundling, and by ex-post investigations into individual complaints.

Wholesale conditions
The freedom to bundle should only be permitted if OLOs can replicate these bundles, not only in terms of wholesale services, but also in terms of having similar conditions, prices and processes. This requirement should be met if:

- wholesale services available from JT to the OLOs are equivalent to those available to JT's own retail services (see Section 5.2.1 for a definition of replicability)
- the price of the bundle should exceed the sum of the incremental cost of each element of the bundle

- the retail price charged by the operator for the bundle does not result in a price squeeze, that is, an efficient OLO can make a reasonable profit if it sells the bundle at the price charged by the incumbent operator[7].

Changes to JT licence
We think that the present wording of the JT licence is insufficient to implement the proposals above, and that Condition 32 should be revised to permit retail bundling when the conditions above are met, in addition to the conditions in Condition 32.1 (a) and (b).

Implementation issues
Once the changes have been made to JT's licence, we suggest that JCRA should place the onus on JT to demonstrate to JCRA that it has satisfied the bundling conditions before it can go ahead with offering the bundle in the retail market.

Recommendations
5.2 JCRA should permit JT to offer bundles to its retail customers, on the condition that OLOs can replicate the bundles.

5.3 JT should be required to demonstrate to JCRA that equivalent wholesale products are available, that the price of the bundle exceeds the incremental cost of each element, and that the retail price does not constitute a price squeeze.

5.4 The individual elements of the bundle should be available on an individual basis to retail customers.

5.5 Condition 32 of JT's licence should be amended to permit product bundling if the above requirements for equivalent wholesale services and pricing are met.

5.2.3 Should JT's promotional offers be replicated for OLOs?

The issue
In common with other operators, JT has made a number of special offers and discounts, particularly in its DSL offer. An OLO claims that JT's waving of the connection charge to retail customers is anti-competitive as it is not available to the OLOs, who have to recover the connection charge from the rental if they are to compete with a zero connection charge. JT has responded that this discount is not available to wholesale customers as it is a retail promotion. This raises the important but difficult question of how retail promotions should be handled at the wholesale level.

Analysis
Special offers and discounts provide retail customers with the benefits of lower prices, and can be used by an operator to boost demand or to launch a new product. On the other hand, they can be used as a form of predatory pricing, and result in a margin squeeze. We recognise that they are a normal part of a competitive market, but that

[7] Sometimes the test is based on the incumbent operator's costs (Equally Efficient Operator test) rather than the alternative operator's costs (Reasonably Efficient Operator test). See European Regulators' Group. Report on the discussion on the application of margin squeeze tests to bundles. March 2009. 09/07, page 6.

the freedom of the incumbent operator may need to be limited, depending on the state of competitiveness in the market.

JT's licence places some significant limitations of the offering of discounts. In Clause 33.4 it requires that prices and discounts should be transparent, cost justified and non-discriminatory. All special offers have to be objectively justified. Clause 31.1 prohibits undue preference, and JT is in breach of this clause if it favours its own businesses ".. so as to place Other Licensed Operators competing with that business at an unfair disadvantage in relation to any licensed activity".

We think that these licence conditions require JT to ensure that any discounts or special offers have to cover their costs. Although the level of costs is not defined, we suggest that the incremental cost should be used, as the usual standard for such tests. We note in Annex 2 (Table A2.24) that the retail prices for some calls in the PremierPlus scheme for business users are below the fixed network termination plus the origination rate, and thus are below their incremental cost. These prices would not be permitted if the incremental cost rule is adopted.

We also think that the discount should not create a margin squeeze for the OLOs so as to comply with Clause 31.1, and that JT should demonstrate to JCRA that it is not undertaking a margin squeeze when it seeks JCRA's approval for special offers and discounts. This demonstration requirement could be relaxed when competition is further developed on Jersey to one where it is necessary only after a complaint.

Recommendation

5.6 JT should not be able to make special offers or discounts unless it demonstrates to the satisfaction of JCRA that the reduced price covers the incremental cost of the service and that it is not undertaking a margin squeeze.

5.3 JT's wholesale product portfolio

5.3.1 Carrier pre-selection (CPS)

The issue

JT offers the OLO carrier selection through the use of a code which has to be dialled for each call. This can be done either manually by the customer, inserted automatically by a PABX, or be injected by a "black box" which is installed on the PSTN line in the customer's premises. In many countries the incumbent operator is required to provide carrier pre-selection, in which its switch is programmed to route all calls from that customer to the OLO. Should CPS be required in Jersey?

Analysis

We discussed the introduction of CPS with the OLOs and JT. The OLOs want to see CPS as it removes the need to install and maintain the black boxes, and overcomes the problem of leakage (when the customer does not bother to dial the code). They state that they have requested CPS from JT, but have not received any responses to these requests. JT does not have a CPS on its existing System X switches, and doubts that it is now possible to obtain the facility on such outdated equipment. It has not ordered the facility for its new NGN switch. However CPS is required in many markets, particularly in Europe, and we expect that this facility would be available as a standard add-on to any NGN switch.

We believe that CPS should be introduced in Jersey for the following reasons:

- CPS is regarded as an essential remedy against the dominance on the incumbent operator in the fixed call origination market in all countries of the European Union. JT still has most of the calls market in Jersey (92% in 2008[8]), and our analysis of prices suggest that further pressure on JT's call prices is desirable (see Section 3.2.2).
- carrier selection on a call by call basis is not a satisfactory alternative to CPS, and does not allow the OLOs to replicate JT's calls service because of the need to dial or inject a code for each call.

However CPS is increasingly an outdated remedy as it is being overtaken by voice over IP services, and for two of the existing OLOs it is not a high priority for this reason. Of course, the provision of CPS may enable other entrants to provide narrowband voice services, especially to business customers.

Implementation issues
Under Clause 25 of its licence, JT is required to introduce equal access at the request of an OLO or if directed by JCRA. Equal access includes call by call codes and CPS. However no OLO has sought to enforce this requirement by requesting a Direction from JCRA.

We see little point in requiring the provision of CPS on the existing switches, but think that JCRA should require JT to provide it on its softswitch, and to roll out its availability as customers are migrated on to the new switch. The OLOs and JT need to agree a service definition, service specification, and processes for the migration of customers before CPS can be made available.

Recommendations
5.7 JCRA should direct JT to provide CPS in line with its Licence Condition 25.

5.8 JT and the OLOs should form a working group to agree service definitions, specifications, and processes for wholesale services.

5.3.2 Wholesale line rental

The issue
Wholesale line rental (WLR) enables an OLO to rent exchange lines from the incumbent operator, and to resell them to customers. WLR is usually combined with carrier pre-selection and fixed number portability so that an OLO can replicate the line and calls packages offered by the incumbent and provide a full service with a single bill to its customers. However the implementation of WLR poses significant challenges to the incumbent operator in terms of developing an ordering and provisioning process that is quick, that does not leave the customer without service during transfer, and is fully integrated with the parallel process for number portability and carrier pre-selection. Furthermore, the incumbent operator remains responsible for fault repairs and maintenance, and it is essential that these services are provided on a non-discriminatory basis, so that the OLO's customers receive the same standards of service as the incumbent's customers. The OLOs therefore need

[8] JCRA. Telecommunications Statistical Review, 2008. Figure 16.

equivalent access to the incumbent's fault reporting processes, and the incumbent's staff have to be seen by the customers as acting on behalf of the OLO (for example, by not undertaking opportunities to "win back" the customer to the incumbent). Hence the introduction of WLR raises some significant process challenges for the incumbent operator.

Analysis
JT controls 100% of the fixed narrowband access market in Jersey, and the only way of introducing competition in this market is through WLR. Furthermore, our pricing analysis suggests that the current levels of margins for wholesalers in the calls market are insufficient to make entry profitable, and WLR is one way of making the calls market more attractive by providing another source of revenue. With WLR, the OLOs will be able to offer packages in competition with JT. At present JT is the only operator that can offer calls packages combined with line rental, and until WLR is available, this package is not replicable.

In our discussions with the OLO, both Newtel and C&WJ showed strong interest in WLR, which enables them to provide a complete narrowband service to the customer, strengthens their relationship with the customer (who no longer receives a bill from the incumbent operator for line rental), and to capture termination rates for incoming calls. We believe that WLR is important because it enables the OLOs to replicate JT's bundles, thus improving competition in both the calls and the lines markets.

Implementation issues
Condition 22 of JT's licence permits JCRA to require JT to provide "access" (defined as the ability to obtain a required service, facility or function) to its facilities, provided that it is the only "economically feasible means". This may permit JCRA to mandate WLR, but we think it will be preferable to introduce a specific Licence Condition requiring JT to provide WLR.

As discussed above, experience in other countries has shown that considerable discussions are required between the operators (and with the national regulatory authority) to agree the processes described above. The OLOs and JT will need to commit resources to achieve agreement on these processes, and should operate within a strict timetable, which should be set by the JCRA.

Recommendation
5.9 JCRA should mandate the introduction of wholesale line rental, and introduce a specific Condition into JT's Licence.

5.3.3 Fixed number portability

The issue
Number portability for the mobile networks in Guernsey and Jersey was introduced successfully in 2008. Fixed number portability (FNP) has been mandated in many countries so that customers changing their fixed line supplier can retain their number. This saves them the cost of having to inform their contacts of a number change, and in the case of businesses, reduces the loss of business that may result from a number change. FNP also removes one barrier to switching to another operator, and hence increases the intensity of competition, which can bring benefits to all customers through lower prices and better service.

Analysis
The demand for FNP is usually much lower than for mobile number portability (MNP), and if starting from fresh, the costs of a new database and associated processes for FNP may be greater than the benefits. We understand that at low levels of porting it may not be worth using the database already established for MNP, and that a simple manual process may be sufficient to transfer porting customers between operators. JT's current fixed network switches are not capable of supporting "all call query" (the system used to route mobile calls), and so discussions between the operators will be necessary to agree the best routing of calls to ported fixed numbers. JT's current System X switches should be capable of supporting onwards routing of calls to ported numbers, the solution used in BT's network when it was based on the same type of switch. However all call query should be available on JT's new softswitch as standard or as an option, and this method should be used as the old switches are phased out.

Implementation issues
We suggest that FNP should become available at the same time as WLR so that the OLOs can offer a convincing package to potential customers. The operators will have to agree processes for transferring customers and for call routing, and to discuss the pricing of FNP services.

A specific Licence Condition will be required in JT licence, and suitable wording may be available from the terms introduced in 2008 for MNP (Licence Conditions 19.5 – 9).

Recommendation
5.10 JCRA should mandate the introduction of fixed number portability, and introduce a specific Condition into JT's Licence.

5.3.4 Duct sharing

The issue
JT possesses a network of ducts which carry its cables around the island, and this network is maintained by a commercial maintenance company. In other states there has been considerable discussion about the feasibility of permitting OLOs to install their own cables in the incumbent operator's ducts. These discussions have been renewed recently as national regulatory authorities consider how OLOs should gain access to street cabinets in the new next generation access networks. On Jersey, mandated access to ducts may spur investment by OLOs in access networks. Should JCRA mandate access to JT's ducts, or simply encourage duct sharing between operators?

Analysis
There are arguments for and against mandated duct access. On the one hand, this would permit OLOs to provide their own infrastructure without the cost of duplicating the ducting network, and would save the disruption to traffic and local communities that civil engineering works cause. On the other hand the installation of additional cables, jointing boxes and break out points in existing ducts may damage the existing cables, and maintenance operations are made more complicated by having multiple maintenance gangs. In Jersey, the latter problems are reduced by having an independent maintenance company.

One OLO sees duct sharing as very important as this will speed up the deployment of its own fibre network to customers and reduce the costs of deployment. Another operator prefers to share ducts with other utilities rather than with JT. JT points out that not all its ducts are suitable for sharing as space in some is limited, especially in St Helier, and with the deployment of its NGN core network, it will be removing old cables and installing new cables. Hence the opportunity for duct sharing has to be considered on a case by case basis, and it is changing at the present time.

We think that duct sharing should take place where practical as it reduces the costs imposed on local communities, promotes the roll out of alternative infrastructures, and reduces costs to operators and customers. Duct sharing is also a business opportunity for JT. However mandating duct sharing would require JT to collect and make available information on where it has duct space available, and JCRA would have to set terms and conditions, including price, for duct sharing. We think that duct sharing should be mandated only if operators fail to negotiate suitable arrangements commercially. The only exception would be where an operator has a bottleneck facility (for example, if there is no space available in the road for additional ducts).

Recommendation

5.11 JCRA should encourage operators to share ducts, and only mandate duct sharing if the operators fail to reach agreements commercially.

5.4 JT's wholesale leased line portfolio

5.4.1 The portfolio

We analysed the retail and wholesale leased lines offered by JT, and found that the retail range of leased line products is also available as wholesale products. With the exception of wholesale IP bandwidth (discussed below in Section 5.4.4), we had no complaints from the OLOs about the range of wholesale leased lines. The process for requesting new leased line products works, if a little slowly (JT took two months to respond to a request for a 155 Mbit/s leased line service from an OLO).

However a number of issues about the leased line portfolio arose during our discussions with JT and the OLOs, and we consider them here.

5.4.2 Should enhanced leased line service levels be available at wholesale prices?

The issue

JT provides five levels of enhanced service levels for retail customers, with differences in the speed of repairs and the hours of coverage. In order to compete with JT, the OLOs need to offer the same levels of enhanced care, and JT has indicated that it is willing to make these available, but at the prices charged to retail customers. JT does not publish standard prices for the enhanced levels of service, but provides individual quotations to customers.

Analysis

The leased line market in Jersey is important to the OLOs, and some business customers require high levels of availability. It is not practical for the OLOs to have their own staff available to carry out the maintenance of lines leased from JT. Hence

the OLOs should have access to the enhanced service levels in order to compete with JT. However leased lines are available to OLOs at a 11% maximum discount, and as discussed below, this discount is inadequate to promote competition. The enhanced service level at retail prices reduces this margin further.

JT argues that it does not incur additional retail costs by selling the enhanced service levels to its retail customers – they simply tick the appropriate box and this is processed along with the rest of the order. Hence there should not be a discount available to wholesale customers. We expect that JT will save some costs in providing enhanced service levels to wholesale customers rather than to retail customers. For example, it should take less time to carry out initial fault checking and customer liaison because wholesale operators should be more expert than retail customers. However in total these savings may not be significant.

We do think that JT should offer a small discount on its enhanced service levels to its wholesale customers for the following reasons:

- if the OLOs are incentivised to offer enhanced service levels to their customers, JT will be better off because of the extra income
- the OLOs will be able to replicate JT's enhanced service levels from a commercial viewpoint
- customers requiring enhanced services levels will be better off as they will have a choice of suppliers.

We suggest that the discount should be between 5 and 10% from the retail prices.

Implementation
JT does not publish its prices for enhanced service levels, and negotiates them individually. If this service is available to the OLOs, the lack of transparency will create suspicion that JT is undercutting its wholesale prices at the retail level. Hence JT should be required to publish its retail and wholesale prices for enhanced service levels.

Recommendations
5.12 JT should publish its retail prices for enhanced service levels for leased lines.

5.13 The enhanced service levels should be available to OLOs at a discount of 5 - 10% from the retail prices.

5.4.3 Should JT deliver leased lines to OLOs in the same timescales as it delivers to its own retail department?

The issue
JT has the same leased line delivery timescales for wholesale customers as for retail customers. One OLO proposed that the timescales for delivery to the OLO should be the same as to JT's retail department, so that the OLO had time to inform the customer and to provide any equipment.

Analysis
An OLO does have to take the extra step of informing its customer that the leased line has been delivered, but we think that in practice this should not take a significant

amount of time and so should not be a cause of disadvantage to the OLO. The time taken to provide equipment may take longer, but this should be planned in advance, and so again should not add significantly to the amount of time to before the leased line is ready for service.

The handover to the retail or wholesale customer is a clear point for monitoring delivery times because the customer accepts delivery at that point in time. The retail department of JT may be informed of the delivery, but does not take responsibility in the same way. Hence the handover to the retail or wholesale customer is a better point for monitoring than any handover to the JT retail department.

Conclusion
We think that there should be no change in the current practice.

5.4.4 Should JT provide a wholesale IP product?

The issue
A number of licensed operators in Jersey provide data warehousing services, as does JT. They require IP based bandwidth to provide connectivity to the rest of their customers' networks, and JT provides this on a retail basis (as its JTIBS service, which ranges from 64 kbit/s to 10 Mbit/s). The OLOs have requested this on a wholesale basis, but JT has refused on the grounds that it is not a regulated service. Should the principle of replicability (as discussed in Section 5.2.1) be applied in this case?

Analysis
The provision of on-island IP bandwidth requires a network of leased lines and IP routers. While an OLO can provide its own routers, it cannot replicate the access network economically by itself. JT's retail arm is able to construct this service from facilities provided by its network and other departments, and OLOs need to have the same access to these facilities. Hence JT should be required to provide wholesale IP bandwidth as a wholesale service.

As discussed in Section 7, there are several possible wholesale IP bandwidth products, and JT and interested OLOs should discuss which products are most suitable. The working group proposed for NGN services (see Recommendations 7.2 and 8.3) would be an appropriate forum for this discussion.

Recommendation

5.14 JT should be required to provide a wholesale IP bandwidth service to OLOs.

5.4.5 Should JT offer a desk top survey for high speed leased lines?

The issue
When an OLO requests a delivery timescale for leased lines above 2 Mbit/s, JT needs to establish whether there is fibre to the building, whether it has the correct terminating equipment in stock, and whether there is any in-building cabling to be done. When it has this information, it can quote a delivery timescale and any additional costs. It will charge for any on-site survey that does not result in a firm order for the leased line, and this applies to both retail and wholesale customers.

An OLO, based on its own experience, has suggested that the first two questions can be handled by a desk survey, and that this enables it to quote a lead time, subject to any in-building work. It thinks that provides sufficient information for the retail customer. We understand that JT will make increasing use of desk surveys for leased lines above 2 Mb.

Conclusion
We encourage JT to make more use of desk surveys for leased lines above 2 Mbit/s in order to reduce costs, and suggest that JT and OLOs should discuss the matter at their regular liaison meetings (as discussed in Section 6.3.1).

5.4.6 Separation of private circuit products

The issue
At present JT offers a range of on-island leased lines. For both retail and wholesale leased lines, fibre links and fibre channels are charged differently for lengths above and below 300 metres, with the price difference generally being about 75%. For Megalink services there is a single price for any length of on-island circuit. At the end of 2008 JT had provided one fibre link or channel under 300 metres to wholesale customers (out of 38 such links) and 48 retail links (out of 312).

JCRA has suggested that the on island leased lines could be offered in more discrete categories, such as within exchange, and between exchanges. Other geographic divisions would be possible, such as within St Helier and outside St Helier.

Analysis
We discussed these options with JT and with the OLOs. They made the following points:

- leased lines rarely run from point to point, but are provided over SDH rings in order to provide resilience. These rings may physically take the lines along routes which travel around the island, with little reference to exchange areas or any other geography
- with current transmission technology, there is little difference in the operational costs of leased lines of different length
- geographic divisions are likely to cause more confusion for customers, who may not be familiar with the geography of the island, and will add an additional complication into the buying process
- any geographic division is likely to cause resentment for customers just outside the lower price categories
- the under 300m category was created to cater for point to point leased lines, which link premises of the same customer without going through a switch site.

As a result there was no enthusiasm for more discrete categories from either the OLOs or JT.

Some OLOs commented that there was little value in having the 300 metre category, and as they have only one leased line under this length, this is understandable. However about 15% of retail leased lines are under 300 metres, a significant minority, and removal of this category would increase prices significantly for these customers. While there may a more accurate description of this category (such as “point to

point"), the use of a definite distance gives clarity to customers and retail account managers. JT may like to consider renaming this category.

Recommendations

5.15 There should not be any further subdivision of JT's on island leased line categories.

5.16 JT should consider renaming the under 300 metres leased line category.

5.5 Broadband product offers

5.5.1 The present portfolio

At present the OLOs obtain a wholesale DSL service from JT, which is a form of bitstream service. JT provides connectivity to the customer, and a backhaul service from the DSLAM to the OLO's network, where the OLO provide connectivity to the Internet through a circuit to London or to Paris via Guernsey. The OLO is limited to the speeds and contention ratios provided by JT. JT provides the connection to the customer at a 40% discount to its retail prices, and charges separately for the backhaul links and the associated router.

The two options for further product development for broadband are local loop unbundling (plus line sharing), and the extension of bitstream to naked DSL. We consider each option below.

5.5.2 Local loop unbundling

The issue

Local loop unbundling (LLU) enables an OLO to rent the exchange line from the incumbent operator, and to provide broadband services over it. In one variant, the incumbent operator retains the narrowband spectrum for the provision of voice services, but the OLO uses the broadband spectrum (line sharing).

In many countries LLU has been mandated on the grounds that it enables OLOs to offer a differentiated service from the incumbent – they can choose to offer different speeds and contention ratios. However LLU has raised substantial difficulties because the OLOs have to locate their equipment as close as they can to the customer, and this means co-location in the incumbent's local exchange. Co-location and ensuring that the associated processes of line ordering, provisioning and repair are equivalent to those used for the incumbent's own retail customers have proved challenging for the national regulatory authority, OLOs and incumbent operators alike. There are a number of options for co-location:

- dedicated co-location (the incumbent operator provides a separate room or cage for OLOs in the same building as its own equipment)
- co-mingling (the OLO's equipment is housed in the same room as the incumbent's equipment without any caging)
- adjacent co-location (a building or space adjacent to the DSLAM is provided by the incumbent)
- distant co-location (the OLO uses a building outside the DSLAM site)

- virtual co-location (the incumbent provides a DSLAM specifically for the OLOs).

Analysis
At the end of 2008, JT had 1559 retail DSL lines and had provided 164 wholesale DSL lines, giving it 90% of the wholesale broadband access market and hence a dominant position. While our price comparisons suggest that prices for the services are reasonable, the absence of speeds above 2 Mb/sec on Jersey indicates that there is a lack of competitive pressure on JT to widen its range of services. Bitstream access will not enable OLOs to offer different speeds from JT, hence LLU is desirable in principle. At this point we do not know whether OLOs will require line sharing as well as LLU, or whether they will prefer to provide voice services over the broadband path.

JT has indicated that there are not insuperable problems with providing space in its existing exchanges, and one OLO has indicated that it would not require access to perhaps three of JT's exchanges. However any investment by the OLOs and JT in the existing exchanges would soon be redundant because these exchanges will be closed and replaced with about 30 MSANs as JT rolls out its NGN network. Hence there seems little point in requiring JT to provide co-location space in the existing exchanges.

We understand that space for the OLOs' racks (co-mingling) should be available in the JT MSANs. It may be necessary to provide additional power at some locations. However as most of these will be unmanned, the OLOs and JT will have to discuss and agree arrangements to permit OLOs to gain access to their equipment and maintain the security of the MSANs. JT and the OLOs will also need to agree a frequency utilisation plan in order to minimise interference from equipment.

As the MSANs are distributed over the island, it will be necessary for additional backhaul to be provided for OLOs which have co-located equipment in the MSANs, and a new wholesale product will be necessary for this service. This could be duct sharing (see Section 5.3.4), dark fibre or a bitstream backhaul service.

Implementation issues
Clearly there are several matters that JT and the OLOs need to discuss and agree, including the matters mentioned above. The customer transfer processes and maintenance procedures should be similar to those required for wholesale line rental. Detailed discussion will be necessary on where co-location will be required, and over what timescales.

We recognise that the roll out of LLU will depend on when the MSANs become available, and when customers are connected to them. Hence the OLOs may have to be flexible in their requirements for LLU roll out.

As with other new products, we suggest that LLU should be mandated by new Licence Conditions which should require JT to provide LLU, line sharing, co-location space, tie cables and other products needed to support LLU when required by an OLO.

Recommendations

5.17 JCRA should mandate the introduction of LLU (including line sharing) and co-location, and impose suitable Licence Conditions on JT

5.18 JT should work with the OLOs to identify where they require space in MSANs, to agree a suitable co-location arrangement, and to plan the necessary processes, plans and procedures for the implementation of LLU

5.19 Working with the OLOs, JT should develop a wholesale backhaul product from its MSANs.

5.5.3 Bitstream products and naked DSL

The issue

From the viewpoint of the OLO, bitstream is a less satisfactory wholesale product than LLU or line share because it does not allow the OLO to offer different speeds or contention ratios than those provided by the incumbent. However it does allow them to provide a service that competes on price, and does not require them to co-locate equipment at the incumbent's exchanges, thus saving a good deal of resources in negotiating for access and in equipment costs. With the extension of JT's fibre network to the MSANs, the length of the copper local loops from the exchange or MSAN will be considerably shortened, and hence will be capable of carrying much faster speeds than the current 2 Mbit/s. Hence JT will be able to provide a greater range of DSL services, and these will have to be available at the wholesale level. Naked DSL is a form of bitstream, except that there is no connection to the PSTN. As a result, the OLO can decide to provide and route voice calls over its broadband network. One OLO has expressed a strong interest in having naked DSL available as a wholesale service.

Analysis

If some OLOs wish to avoid the costs of co-location, they will require a bitstream service in order to offer broadband services to their customers. Some OLOs may prefer LLU to bitstream, and others may migrate from bitstream to LLU at some point in the future. Hence both forms of wholesale access will be desirable. The "ladder of investment" principle has been adopted by many national regulatory authorities, and this requires the provision of the full range of wholesale broadband products so that new entrants can move from one wholesale broadband product (or step) to another as they improve their knowledge of the market and wish to increase their investment in the market.

At this stage of the roll out of JT's NGN core network, it is not clear what forms of bitstream service will be available. It may be possible to provide bitstream services with a greater variety of speeds, contention ratios and quality of service. We therefore think that JT and the OLOs should discuss their requirements for bitstream services, including naked DSL, and agree a specification for bitstream services over the NGN.

Indicative pricing should form an important part of these discussions, so that the relative values of different forms of bitstream can be better understood. For example, the price for naked DSL may be significantly higher than the other bitstream products because all the line costs will be allocated to it, rather than split with PSTN telephony.

When PSTN telephony is provided over the same line as broadband services, all common costs are allocated to telephony.

Implementation issues
As a bitstream service is already offered by JT, there is no point in requiring it in a new Licence Condition. However if the discussions between JT and the OLOs on new forms of bitstream (including naked DSL) are not successful, we suggest that they raise a dispute, and if the dispute cannot be resolved between them, JCRA should determine the dispute on its merits.

Recommendation
5.20 JT and the OLOs should discuss new forms of bitstream products (including naked DSL and those forms that will become available as a result of JT's NGN). If they are unable to agree specifications for these new services, they should refer the disagreement to JCRA using the dispute process.

5.6 Product structures within LLU and WLR

We were asked to consider what product structures should be used for local loop unbundling and wholesale line rental. Following our discussions with JT and the OLOs, we consider that it is premature for us to make these recommendations, and that this matters should be decided between JT and the OLOs through the working groups recommended elsewhere in this report.

5.7 Pricing issues

5.7.1 Interconnection pricing

The issues
In Table 5.3 we show the main interconnection prices, which have undergone two major changes since competition was introduced in 2003. The first set of rates were not regulated. In its price control review of 2004, JCRA set the interconnection prices for 2005 at an average of 0.56 pence for fixed termination rates and 5.6 pence per minute for mobile termination rates, and 0.30 pence per minute for on-island transit. These were translated into three time of day periods, based on the retail price gradients. As the table shows, the peak time interconnection rates decreased when regulation was introduced in 2005.

Table 5.3: JT interconnection rates (day time, pence per minute)

Starting	May-03	Nov-05	Dec-08
Fixed termination rates	0.69	0.62	1.31
Fixed origination rates	0.69	0.62	1.31
Mobile termination rates	11.30	8.01	5.60
On island transit	0.70	0.33	0.84
Off island transit (exc settlement rate)	0.79	0.79	1.00

In 2008 the new retail prices were subject to a price cap, and JT calculated the interconnection rates from its separated accounts. The new rates showed a significant increase on the previous rates, with the fixed origination/termination rates and the on-island transit rate more than doubling. JT notified the resulting rates to JCRA, which indicated that it did not object to the rates. The OLOs threatened JT with a legal challenge over the new rates, but this dispute was tentatively resolved through a

compromise whereby the OLOs pay the new, increased RIO rates, JT receives the old, lower RIO rates, and the difference between the new and old rates is being held in escrow by the JCRA, pending the outcome of this review and any subsequent changes to JT's RIO prices. Pursuant to this compromise, JT's new rates have been implemented. If this study recommends a change in the rates, they will be backdated to the start of January.

There are three important issues to be considered:

- whether interconnection rates should be cost based
- what the process should be for approval of interconnection rates
- what controls should be placed on interconnection rates in the future

Cost based rates

Cost based rates can change from year to year as a result of changes in two factors – costs and traffic volumes. In the table below we illustrate this for JT's core network, showing the operational costs, with an annualised capital cost (based on the regulated return of 11.6% and an allowance for depreciation). We also show the volumes of traffic passing through JT's local exchange (plus its soft switch), and the resulting cost per minute[9].

Table 5.4: Costs of JT's core network

	2004	2005	2006	2007
Operating costs (£ 000)	redacted	redacted	redacted	redacted
Annualised capital costs (£ 000)	redacted	redacted	redacted	redacted
Total annual costs (£ 000)	redacted	redacted	redacted	redacted
Minutes at local switches (000)	redacted	redacted	redacted	redacted
Cost per switched minute (£)	redacted	redacted	redacted	redacted

Source: JT's separated accounts

As the table shows, JT's annual costs are declining slowly, and the volume of traffic is declined more rapidly. As a result the cost per minute is gradually increasing. It should be noted that the cost per switched minute in the table above does not relate directly to the interconnection rates. However, as we note in Section 3.2.4 and 3.3, we think that JT's costs are higher than they could be, and that there is not enough competitive pressure to make JT more efficient. Hence it is insufficient to base interconnection prices solely on JT's separated accounts as this method will simply lead to unnecessarily high prices.

Over the next few years JT should see some operational savings as a result of its investment in the core NGN. While some of these will be offset by the additional capital expenditure, the overall impact should be to reduce costs, and these cost savings should be passed on to retail and wholesale customers rather than retained in the business.

We therefore propose that JCRA should use a more intrusive process to force down interconnection prices to those which would be incurred by an efficient operator on

[9] The cost per minute shown here should not be taken as any guide to interconnection rates as no account has been taken of the cost or utilisation of different network elements.

Jersey, which in turn should result in more pressure being put on JT to become more efficient, and lead to lower retail prices.

Approval process

The interconnection rates introduced in 2009 were double those used in the previous year, and it is clear that such a significant change in the market place is damaging to competition on Jersey. This is because interconnection rates, which include call origination charges for calls routed through alternative operators through carrier selection, form a significant part of the costs of the alternative operators. Not only does this disrupt their business planning and erode confidence in the regulatory regime, but also necessitates changes in retail prices.

JT sought the JCRA's approval for these changes, and the JCRA responded by saying that it had "no objection". It is unclear from the RIO whether JCRA approval was required for JT to make these changes. This led to a dispute between JT and the OLOs over the new charges, which was resolved on an interim basis pending the outcome of our review.

Given these limitations, a more formal process is necessary, and there are a number of options for the setting of interconnection rates in the future:

- JT proposes prices to the other operators as part of the RIO and they are negotiated commercially, with recourse to JCRA in event of a dispute
- the prices are calculated each year from the costs and routing factors as set out in the separated accounts. Because the separated accounts are prepared some time after the end of the year in question, in some countries an interim price is used at the start of each year, which is then amended retrospectively when the actual costs are known. this process would be subject to oversight by the JCRA
- prices are set for a period of time using either a price cap with an element for inflation (as with the system used in Jersey for the retail price cap), or by setting the actual prices for a number of years. There are a number of ways in which the future prices can be set - a financial model projecting costs and traffic volumes may be used, a target for efficiency improvements may be set, or a glide path to a desired level of interconnection rates at the end of the period can be used.

The retail minus approach is not appropriate for all interconnection prices as there are no direct retail equivalents for call termination, call origination or call transit. It is not appropriate for services such as emergency services access or directory enquiries, where the retail price may not be charged or may not be cost based. However it is a valid option for some interconnection services, such as leased lines and DSL.

In selecting the best way forward, we think that the important criteria are:

- ensuring that the rates give the OLOs the correct economic signals on whether to buy network components from JT or to build their own networks
- providing certainty to both the incumbent and the OLOs about interconnection rates over a period of time
- giving the incumbent operator incentives to become more efficient

- minimising the resources required, both in the incumbent and in the regulator, to calculate and implement interconnection rates.

In the table below we show our assessment of how the three options fulfil the criteria above.

Table 5.5: Assessment of options for approval of interconnection prices

	Economic signals	Certainty	Efficiency	Minimum resources
Commercial negotiations	×	×	×	?
Separated accounts	✓	×	×	×
Price cap	×	✓	✓	✓
Retail minus	×	✓	×	✓

Given the importance we place on incentives for efficiency and providing certainty to the market in Jersey, we believe that the price cap method is the best way forward for RIO prices, especially considering the lack of resources in JCRA to carry out detailed assessments of separated accounts. We envisage that under this system JCRA would:

- propose a price cap system, either using a price cap formula or with set prices for a period of time
- carry out public consultation on the proposals
- following consideration of the comments received from the public consultation, issue a decision on future rates
- require JT to demonstrate its compliance with the price controls (as with the current retail price cap).

Future controls

We suggest that the RIO services should be grouped int a number of baskets, for example:

- mobile termination
- fixed termination and origination
- on island transit
- interconnection circuits
- other.

We also suggest that the period of the price cap should run for three years from January 2010 to December 2012. This period is likely to see significant changes in JT's costs as a result of its investment in its NGN, and this will allow a review after most of the NGN roll out has been completed, as well as providing stability during this period. The review should include whether the basic interconnection model needs to be changed in the light of NGN developments during this period.

Because of the changes in costs and the structure of the network as a result of the NGN, it is not feasible to build a financial model of projected costs and volumes as a basis for calculating what interconnection prices should be. We therefore propose that a target rate of price changes (the X factor) for each basket should be set by the use of

benchmarks and an analysis of JT's efficiency compared to other similar operators. The starting point would be the rates as calculated from JT's 2008 separated accounts, subject to any revisions proposed by Regulaid. A glide path would be set to allow a steady rate of change over the three year period. As this process will involve some subjectivity, we suggest that the resulting proposals should be subject to consultation, using the process set out above.

Recommendation

5.21 JT's RIO prices should be set through the use of a wholesale price cap on separate baskets of RIO services. The cap should be set for a period of three years, with the target prices being set by the use of benchmarks and the setting of an efficiency target.

5.7.2 Wholesale leased line prices

The issues

JT provides leased lines to OLOs at a 9% discount from its retail prices (alternatively, retail prices have a 11% markup on wholesale prices). The OLOs allege that this is insufficient for them to make a profit, and so is discouraging competition – in effect it is a price squeeze. Our analysis in Section 4.5.2 shows that JT makes large profits from its leased line business, and hence the 9% discount is not a good approximation for cost based wholesale prices. This raises the more fundamental question of whether the price wholesale leased lines should be provided based on retail minus, cost or some other form of price control.

Price controls options

The leased line market on Jersey is critical to effective competition because many business customers, especially in the finance sector, rely on them for effective communications with their customers and offices elsewhere. The OLOs told us that the margin of 11% is insufficient for them to recover their costs of sales, and that they do not sell on-island leased lines unless they are part of a wider sale. Based on the number of retail and wholesale leased lines provided by JT, it retains about 80% of the leased line market. Hence we conclude that margin is insufficient for effective competition in this market, and that a margin squeeze is likely to be present.

Should wholesale leased line prices be based on cost, a retail minus formula or some form of price control? A retail minus formula has the advantage of maintaining a competitive market (provided that the discount is adequate), and it is easy to calculate and implement. The advantage of cost based prices is that they enable OLOs to make an economically rational decision between investing in their own network and buying leased lines from JT. As the OLOs can provide their own infrastructure, build or buy is a realistic choice for them. However calculating the price of leased lines is not easy, especially as decisions over allocating fixed costs between the different types of circuit are difficult to make objectively. However if JT's costs are higher than those of an efficient operator, as we suggest in Section 3.2.4, cost based prices will result in wholesale and retail prices that are higher than they should be. As we discuss above, a multi-year price control has the advantages of providing greater certainty for future prices, and provides pressure on the incumbent operator to be come more efficient.

We think that it is important to make a distinction price controls between on-island and off-island leased lines, as has happened on Guernsey. Here a price cap has been

placed on on-island leased lines in order to bring these prices closer into line with costs, and a retail minus formula has been retained for off-island leased lines on the grounds that there is greater competition here and hence price are likely to be closer to cost[10]. We think that the same logic applies to Jersey, and that wholesale on-island leased lines should be subject to a price cap (as proposed for RIO prices above).

Leased line margins
When we compare the 11% margin available to OLOs in Jersey with those in other countries, the margin is usually much greater elsewhere.

Table 5.6: Retail minus price controls on leased lines

Country	Retail minus discount
Cyprus	-20%
Ireland	-8%
Portugal	-26%
Singapore	-30%

Source: Frontier Economics. A review of wholesale leased line pricing in the Bailiwick of Guernsey. January 2007 Annex 1

With the exception of Ireland, the discounts used are over 20%, and this is in line with retail minus controls used by other countries in other services (for example, bitstream). On Guernsey the price differential between retail and wholesale on-island circuits is between 21% and 24%, while the OUR set the retail minus control for off-island leased circuits at 30%. We note that in July 2004 JCRA set the discount for leased lines at 20% pending the preparation of separated accounts[11].

We therefore suggest that an appropriate discount for wholesale off-island leased lines would be 25%.

Recommendations
5.22 JCRA should place a price cap on JT's wholesale on-island leased lines

5.23 JCRA should require JT to provide a 25% discount to OLOs for its off-island leased lines.

5.7.3 DSL prices

We came across no complaints about the level of prices paid for wholesale DSL, and we believe that the present retail minus rate (40%) is in line with the practice in other countries. However as retail prices for DSL services fall, the value of the margin also falls, and if, as we propose, other prices for wholesale access products are cost based, there is a danger that the prices for wholesale DSL will become inconsistent with cost based prices. We therefore propose that the prices for wholesale DSL should move from being based on retail minus to being based on cost, and that they should also be controlled under a wholesale price cap.

[10] Office of Utility Regulation. Reviewing C&W Guernsey's wholesale leased line prices. 07/01. January 2007.
[11] JCRA. Direction of the JCRA 2004/05: re Jersey Telecom leased lines. http://www.jcra.je/pdf/040728%20Leased%20line%20Initial%20Notice%20and%20Direction.pdf

Recommendation
5.24 Wholesale prices for JT's DSL service should be based on cost, not on retail minus, and should be subject to a wholesale price cap.

5.7.4 DSL backhaul prices

The issues
JT charges for providing backhaul connectivity between its DSLAM and the OLO's network through its Private Connect Mains service, and makes a separate charge for its router at the edge of its network. Backhaul prices are not subject to price controls, and an OLO has complained that the prices for the router are not published and change frequently.

Analysis
Our analysis of backhaul prices (see Annex 2) shows that the cost of backhaul on Guernsey and Jersey is very similar. However backhaul is a critical element for the provision of competing DSL and bitstream services, and so we think that prices for backhaul should be controlled in the same way as wholesale on-island leased lines.

JT has explained to us that because there are many combinations of speeds and ports for routers, it would be very difficult to publish prices for routers, and that as OLOs increase their numbers of customers, the router has to be reconfigured for additional traffic, necessitating frequent price changes when an OLO's customer base is expanding. It suggested that the router price could be included in the cost of backhaul, as happens elsewhere, and then the pricing for different levels of traffic will be transparent. As the router is an essential part of the backhaul network, we think that this is a sensible solution.

Recommendations
5.25 JCRA should place a price cap on JT's DSL backhaul services

5.26 JT should include the router costs in its backhaul prices.

5.7.5 Publication of wholesale price changes

The issues
At present JT is required to give the OLOs 21 days' notice of any price changes, and this is done by publication in local newspapers and by letter. The same time period applies to retail prices. JT would like to save the cost of publication for wholesale prices, and the OLOs have indicated that they would be happy to be notified electronically. However they also have indicated that the 21 days period is insufficient for notifications about new products.

Analysis
We agree with JT that in an electronic age, publication of wholesale prices in the local newspapers seems to be an unnecessary cost, and with the OLOs that an email to the OLO's nominated contact point should be a sufficient alternative.

However the period of notice for wholesale price changes should be longer than the period for retail prices, so that the OLOs can have time to reconsider their retail prices as a result of the changes in wholesale prices, and inform their customers accordingly. Otherwise JT's retail arm is in a more favourable position as it will have known about

the changes in prices for a longer period of time. We suggest that a period of 30 calendar days should be required for wholesale prices.

The notice period for new wholesale products should be also longer than 21 days so that the OLOs have time to assess and plan for the new product. Indeed, a commercially minded wholesaler would give its customers as long a period as possible so that they are better placed to buy its new product at the launch. We would hope that JT would involve its wholesale customers at the earliest possible stage in the development of an entirely new wholesale product so that it can assess the demand for the product and ensure that its specifications meet the requirements of the wholesale customer.

The desirable period of notice for a new wholesale product and its price will vary depending on how innovative the product is – for example an OLO would need a long planning period for LLU compared to a faster speed leased line. We think that a minimum period of notice should be set for a new product, and suggest that this should be 60 calendar days.

Recommendations

5.27 JCRA should remove the requirement placed on JT to publish changes to wholesale prices in local press.

5.28 JCRA should require JT to provide electronic notification of changes to wholesale prices to the OLOs with at least 30 days notice of their implementation

5.29 JCRA should require JT to provide electronic notification of new wholesale products and their prices to the OLOs with at least 60 days notice of their implementation.

5.7.6 Penalties

In JT's Wholesale DSL Agreement (Sch 5) and Wholesale Leased Line Agreement (Sch 5) targets are set out for the delivery of services and for fault repairs. These targets appear to be in line with those used in other countries, do not discriminate between retail and wholesale customers, and no OLOs had any complaints about them. The schedules also include penalties for late delivery, and while these appear to be on the low side, we do not think that this is an issue because they would be rarely invoked. Again the penalty levels are the same for retail as for wholesale customers.

However the Agreements place the onus on the OLO to claim any penalty, and we think that this should be changed so that JT is responsible for the payment of penalties as they occur. It has adequate systems to monitor its performance against target, and we think that this change would make JT more aware of the importance of its wholesale customers. JT may wish to extend this principle to its retail customers.

Recommendation

5.30 JT should initiate the payment of penalties, not the OLO.

6 Wholesale and retail functions in JT

6.1 Reporting structures

6.1.1 Should there be changes in the reporting lines for the wholesale function?

Present position
JT's wholesale department consists of five posts:

- Head of Carrier Relations
- Senior Commercial Administrator (responsible for interconnect billing, invoicing, and setting rates and codes in the Cerillion system
- Commercial Administrator (responsibilities the same as the Senior Commercial Administrator)
- Assistant Regulatory Officer (responsible for commercial agreements and statistical reports)
- Operational Assistant (responsible for order processing)

In addition another Regulatory Officer, who is part of the Regulatory Affairs Department, is responsible for drafting the wholesale and retail agreements.

JT reorganised its structure in February 2009. The most relevant changes are:

- the wholesale department reports to the Director (Corporate Affairs), along with the regulatory affairs team and the fraud and revenue assurance team
- retail account managers now report to the Managing Director (Channel Islands), who is responsible for all business on Guernsey as well as on Jersey
- there is a separate operations department, reporting to the Chief Executive Officer
- there is a separate technology and planning department, also reporting to the CEO.

The issues
In our discussions with the OLOs, they expressed forcefully the view that JT's wholesale department lacks commercial initiative, and follows a legalistic approach to its business. They see this reflected in slow or negative reactions to their requests, a lack of initiative in developing new wholesale products, and a general frustration about being able to develop business with JT

Restructuring wholesale department
In the Regulaid report on Cable and Wireless Guernsey[12], we distinguished between three types of culture in wholesale departments:

[12] Regulaid. Review of C&W Guernsey's Wholesale Business. A report to The Office of Utility Regulation, Guernsey. March 2008

- antagonistic, where the incumbent operator may fear that its retail revenues and profits are threatened by the new entrants, and will therefore use its power in the wholesale markets to damage its retail competitors.
- legalistic, where incumbent operator still sees its retail business as its core business, and takes the attitude that it will comply with the letter of the national regulatory authority's rules and regulations, but no more
- commercial, where the incumbent operator recognises that its wholesale customers are important to it, and that it needs to compete for their custom. It also realises that competition is beneficial to it because it brings lower prices, better marketing and innovative services, thereby expanding the retail market for all operators.

From our discussions with the OLOs and JT, we have concluded that JT's wholesale department has a legalistic culture, and does not champion the interests of its wholesale customers within JT. The OLOs consistently report a lack of responsiveness, and when responses are received, they are based on what is (or is not) permitted by regulation. We think that this culture is reinforced by its reporting structure to the Director (Corporate Affairs), who is also responsible for Regulatory Affairs. We therefore think that this reporting structure should be reviewed by JT.

There are a number of options for changing the reporting structure, for example, the wholesale department could report to a commercial director, for example the Managing Director (Channel Islands). This option has a number of advantages and disadvantages:

- it would provide the wholesale function with a commercial discipline, which should lead to improved responsiveness and sales for JT
- it would reduce the separation between retail and wholesale because retail departments also report to the same Director, and increase the danger of information leakage between the two functions.
- in any conflict between wholesale and retail, the Managing Director (Channel Islands) is more likely to side with the retail side because this is the bigger earner of revenues

In another option, the wholesale department would become part of the Operations Department, which reports to the CEO. This would break the link with the legalistic culture of Corporate Affairs, and assuming that the unit was located with the rest of the operational staff at Minden Place, this step would provide physical separation from the retail staff. However it would place the unit in a department with a service, rather than a commercial culture. This would be an improvement on the present position, but would not give the wholesale unit an incentive to pursue business with the OLOs proactively.

In a third option, the wholesale function would report to a commercially minded Director who is not responsible for retail functions, thus avoiding some of the disadvantages of the Managing Director (Channel Islands). We understand that such a solution has been introduced in C&W Guernsey, where the Wholesale Account Director reports to the Head of Pricing and then to the Head of Marketing, and that this has been successful in giving greater commercial impetus to the post. Previously the function reported to the Director of Legal and Regulatory Affairs.

We understand that JCRA has limited powers to enforce a change in reporting structures within JT, although it could use its influence with the Minister who acts as the public shareholder of JT. In the light of this, and that there is not an obvious solution to improving the reporting structure for the wholesale function, we suggest that JT should be invited to review the options for improving the commercial culture within the wholesale function and its reporting structure, and to provide its considered views to JCRA. Of course, it will be essential to maintain the appropriate separation between JT's retail and wholesale functions, as discussed below.

Recommendation

6.1 JCRA should invite JT to propose changes in its reporting structures which make its wholesale function more commercial.

6.1.2 Other aspects of commercial culture

We understand that along with other departments, the wholesale section may have its own business plan and profit and loss account. We think that these steps will be important in developing a commercial culture.

All JT staff receive a bonus, 80% is based on the manager's recommendations, which assess individual performance against personal targets and personal competencies. The remaining 20% is based on the JT performance against budgeted profit. In addition retail account managers receive commission on their sales, and we suggest that JT should consider developing a commission scheme for its wholesale staff. This would indicate to them that the company placed importance on developing the wholesale business, and provide them with additional motivation to increase the wholesale business.

We also think that JT needs to recognise corporately that wholesale customers are valuable to it, and provide some of its largest individual customers.

Recommendation

6.2 JCRA should invite JT to propose other changes in its management methods which make its wholesale function more commercial.

6.2 Internal separation between JT's retail and wholesale functions

6.2.1 Provisioning and fault repair processes

JT uses the same processes and systems for provisioning retail and wholesale services, and provided us with data that showed that its delivery timescales for wholesale and retail leased lines. This data showed that JT achieved 100% of its delivery targets for wholesale customers, while only 86% of retail leased line customers received their leased lines within the delivery targets. As no OLO had any complaint about delivery timescales, we did not find any evidence of discrimination or poor delivery service for wholesale customers.

The same process is used for retail and wholesale fault repairs, and again we were assured by JT that no discrimination takes place. We understand that all fault repairs carried out in 2008 were completed within the service levels agreements, and again no OLO had any complaints about JT's fault repair service.

Conclusion
We think that the provisioning and fault repair processes used by JT are non-discriminatory and provide services to OLOs that are equivalent to those received by retail customers.

6.2.2 Key Performance Indicators

JT collects KPIs on leased line deliveries and fault repairs for retail and wholesale customers, and provides OLO with reports on individual orders and faults. While senior management are provided with aggregate figures, these are not available outside JT.

While we did not come across any allegations from OLOs that JT discriminates in favour of its own retail arm in provisioning orders or carrying out fault repairs, we think that it would be valuable if JT published total figures showing its performance for leased lines and DSL lines as follows:

- actual delivery times as a quarterly average against the target for wholesale and retail customers
- percentage of wholesale and retail orders that are delivered after the target
- fault repair times as a quarterly average against the target for wholesale and retail customers
- percentage of wholesale and retail faults that are repaired after the target.

Recommendation
6.3 JCRA should require JT to publish total KPIs on its provisioning and fault repairs for leased lines and DSL lines, distinguishing between retail and wholesale customers

6.2.3 IT systems

The issues
JT uses the same systems and processes for product development, ordering, provisioning, billing and fault repair for wholesale customers as for retail customers. While this provides "equivalence of input" (as discussed above), it allows the sharing of information between retail and wholesale staff. We discussed the use of the IT system (Cerillion) by retail and wholesale staff with the IT staff in JT, and found three areas of concern:

- customer records
- ordering systems
- billing records.

Customer records
On a customer's record wholesale services are listed along with retail services, and this enables retail account managers to see what services are being supplied by a competitor. Of course, an OLO does not have the same information, and so JT is placed in a more favourable position (in contravention of JT's Licence Conditions 12 and 31). JT explained to us that in the case of residential customers, this information is valuable in cases when customers move house so that JT can remind them that they

need to move the services provided by the OLO as well as those provided by JT. We are inclined to accept this position in the short term. In the longer term, when competition in the residential market grows as a result of the additional wholesale products proposed in Section 5, we think that this information should not be available on the records of residential customers, and instead call centre staff dealing with customers wanting to make a move should ask the customer to contact the suppliers of other telecommunications services as well.

We think that the presence of information on JT's business customer records about alternative providers is unacceptable now because competition is greatest in this segment, and because business customers take a wider range of services. We do not think that the "moving" argument applies to business customers as they should be better organised than residential customers and more likely to contact all their suppliers when moving premises. We understand that JT has no operational reasons for wholesale information to appear on the records of business customers, and that it plans to remove this information from their records.

Ordering systems

The Cerillion system permits retail account managers to see wholesale orders, and this gives us considerable concern as JT's retail account managers could use this information to persuade customers to change their mind. We were told that both retail and wholesale staff were aware of the need for sensitivity about such information. JT recently has dismissed staff that breached data security in another area, and so it also assured us that it takes confidentiality matters seriously. JT also commented that by the time the order is placed on the system, it is too late to change the client's mind. However we think that access to wholesale orders can provide valuable information to retail account managers that a client or potential client is purchasing services from another supplier. We do not think that this situation is acceptable, and is in contravention of JT's Licence Conditions 12 and 31.

We understand that it may be possible to add security questions which limit access to wholesale orders to those staff who know the answers to the questions (the wholesale staff). While this is not a foolproof method, the alternatives, such as the development of separate retail and wholesale systems, would be much more expensive. At the least, a security question signals that access to this information is restricted, and that it should stop all but the very determined unauthorised users. In the longer term, JT will have to replace its systems (perhaps when it starts providing new retail services over its NGN), and it should then ensure that the retail and wholesale systems can be properly partitioned.

Billing systems

While JT's actual bills are compiled and printed by a third party (Jersey Post), itemised billing records are available to a limited number of staff within JT. These records show addresses for leased lines (which may include the name of the client in the case of hotels etc). Again these records could be misused to provide information about the customers of OLOs and the services they are taking, in contravention of JT's Licence Conditions. We understand that few staff need access to billing records, and that access could again be controlled through the use of security questions.

Recommendation
6.4 JT should restrict access to wholesale information on its provisioning and billing systems, and not show information about wholesale services on its customer records (with the possible short term exception of residential customers). JCRA should invite JT to indicate how it will comply with this recommendation.

6.2.4 Account managers for licensed operators

The issue
JT services a data centre provider, which holds a Class 1 Licence, with a retail business account manager on the grounds that it does not purchase regulated services (and hence is not eligible for wholesale prices). One operator told us that it recently has started to purchase services from a retail account manager because it obtains a better level of service than from the wholesale department. We are concerned that OLOs are, or are being required, to use retail account managers because this makes the control of sensitive wholesale information much more difficult. While "Chinese walls" can be imposed between the wholesale and retail functions can be achieved, this is almost impossible within the same retail function.

In any case, we think that the underlying problem is the definition of a wholesale customer. JT defines it as a purchaser of regulated services. We think it should be an entity that possesses a licence (Class 1, 2 or 3) from JCRA to provide telecommunications services to the public. These licensed operators compete with JT in the retail market, and may need access to its network and services in order to compete effectively. Whether or not a service is regulated depends on the objectives of regulation (such as price controls, universal service objectives) etc, and this definition is insufficient because an OLO may need a mixture of services from JT which are regulated and unregulated.

Recommendation
6.5 Any operator with a Class 1, 2 or 3 licence issued by JCRA should be eligible for wholesale services at wholesale rates from JT.

6.2.5 Physical separation

In some operators the wholesale and retail functions are located in separate buildings in order to minimise contact between retail and wholesale account managers. While JT's main office is in the Forum building (Grenville Street), it does have other office buildings in St Helier - at Minden Street (used by the operational staff) and in its engineering and data centre. The wholesale team have recently been relocated to the fourth floor of the Forum building, while the retail account managers sit on the first floor. With one exception (see Section 6.2.7), we had no complaints from the OLOs that suggested that information leaks between retail and wholesale functions within JT. Hence at present we see no need to change the location of JT's wholesale staff.

Conclusion
No changes should be made to the location of JT's wholesale staff

6.2.6 Internal RIO

The issue
JCRA has suggested that JT should have an internal Reference Interconnection Offer to govern relationships between JT's retail businesses and its network business. This

would not only cover interconnection services but also DSL, leased lines, and any other wholesale service provided by JT. It would set out all the terms and conditions for the provision of these services. While it would not be a legally enforceable contract between two independent parties, it would become part of JT's internal rules and procedures.

Analysis
An internal RIO would have the following benefits:

- it would ensure transparency of the relationships between the retail business and the network business
- it would create a greater distance between the retail business and the network business
- it would minimise discrimination between JT's retail and wholesale customers as the terms of the RIO would, as far as possible, be identical to the agreements with the OLOs.

The internal RIO would have the following disadvantages:

- it would take resources to draw up and to revise regularly, although this would be done in parallel with the OLO agreements
- it would reduce the operator's ability to change its organisational structure
- enforceability of the internal RIO is a matter for JT, and this may lead to a disregard for its provisions.

We are not aware of any examples of an internal RIO being used within an incumbent operator, except for the Faeroe Islands. Here FT Net has a formal contract with FT Communications, but this is mainly about the allocation of costs, and FT Net's wholesale contracts are more detailed than this contract. Of course, several fixed network operators will have a formal agreement with their mobile network arms for the provision of services between them.

When we consider the application of an internal RIO to JT, the contracting parties are not easily identifiable in the present structure. While the Jersey retail units report to the Channel Islands business, this unit includes some of the supplying functions (Engineering and Installation and Maintenance), and other supplying functions are found in the Operations Department and the Technology and Planning Department. While these problems are surmountable, responsibility for the internal RIO becomes divided, and this may lead to a lack of commitment to it.

On balance, we do not recommend that JT should introduce an internal RIO at present. This is partly because its enforcement will require the commitment of top management, and if this is present, there is probably no need for an internal RIO. Without such commitment, an internal RIO will not command respect. Moreover, we think that the problems present in JT's wholesale relationships (principally a lack of commercial culture in the wholesale department) will not be improved by an internal RIO. We would rather see the solutions recommended elsewhere tried before this step is imposed by JCRA.

Conclusion
JT should not be required to develop an internal reference offer.

6.2.7 CPE equipment maintenance staff

The issue
The staff that carry out the reprogramming of CPE equipment have to service both retail and wholesale customers. At present this unit (Installation and Maintenance) is part of the Channel Islands Engineering Department, which reports to the Managing Director (Channel Islands). JT explained that one of the benefits of this arrangement is that the engineers are able to spot opportunities for retail sales when on customer premises installing or maintaining equipment. However this role becomes difficult when they are carrying out work for an OLO, and information on OLO customers may leak informally to retail account managers.

Analysis
We think that the closeness of the Installation and Maintenance Unit to the retail business could create the suspicion of collusion, and its role of spotting opportunities for retail sales could cause conflicts when working for OLOs. There are three possible solutions:

- the Channel Islands Engineering department becomes part of the Operations Division, providing support to both retail and wholesale customers at arms' length
- the Channel Islands department becomes responsible for both retail and wholesale operations, and so has an interest in both retail and wholesale customers (see Section 6.1.1 above)
- it remains in its present reporting structure, but moves to separate offices (but in the same building if necessary) from the retail account managers.

We understand that the Installation and Maintenance Unit could fit into almost any structure as it is relatively self contained and has a well established process. We think that the first option is preferable to the others as it provides a cleaner break with JT's retail interests and would seem to fit in best with the other operational functions.

Recommendation
6.6 JCRA should invite JT to consider moving the Installation and Maintenance Unit to the Operations Division.

6.3 JT's administrative and operational practices

6.3.1 Liaison meetings

The issue
According to the RIO (Schedule 4, clause 2.2), regular liaison meetings between JT and the OLOs should take place at least quarterly; the OLOs report that these meetings do not now take place. JT told us that meetings do occur with the OLOs, but this is on an "as needed" basis or happens as a result of meeting organised for other purposes (such as liaison meetings on Guernsey). Is it worth restarting the regular liaison meetings on Jersey?

Analysis
We think that regular liaison meetings between JT and the OLOs are essential, and believe that some of the breakdown of trust between the organisations would be avoided if these meetings continued. However they have to provide value to both parties, and clearly there is no point in holding meetings solely because of the commitments in the RIO. Nevertheless the RIO provides a good, if heavyweight, model for the liaison meetings.

We suggest that the OLOs and JT should commit themselves to holding a bi-lateral quarterly meeting for the next 12 months with an agenda and written action points, which should be sent to JCRA for information. If, after the end of the 12 months, both parties agree that a specific quarterly meeting is not necessary, it should be cancelled.

Recommendation
6.7 The OLOs and JT should commit themselves to holding a quarterly meeting for the next 12 months with an agenda and written action points. Thereafter meetings should be cancelled only by agreement of both parties.

6.3.2 Forecasts

The issue
The OLOs are required by the RIO (Schedule 4, section 3) to produce regular forecasts, and there is a detailed process for reviewing them at liaison meetings. However the OLOs report that they no longer do this, and JT's network planners say that they rely more on indications of spare capacity.

Analysis
We think that forecasts are of limited value to individual operators because of the errors inherent in any forecasts, and to an incumbent operator because it cannot estimate how much double counting is taking place between the operators. The process in JT's RIO is onerous, (especially the penalties for under-forecasting), and we are not surprised that the system has fallen into disuse. However forecasts do enable the incumbent operator to plan its allocation of resources and ordering of equipment, and hence ensure a smooth supply of services to wholesale customers. One useful compromise is that used by Belgacom, which allows OLOs to opt in to a forecasting system, and in return Belgacom will guarantee that it will make resources available to fulfil their orders.

We suggest that JT and the OLOs should review the forecasting requirements in the wholesale agreements, and agree a suitable arrangement. As a minimum, JT may need to know about exceptional changes in the OLOs requirements, and this could be best handled through the liaison meetings.

Recommendation
6.8 JT and the OLOs should review the requirements to submit regular forecasts in Schedule 4 of the RIO, the Legal Framework of the wholesale DSL Agreement (Clause 2) and in the Legal Framework of the Wholesale Private Circuit Agreement (Clause 2), and agree on suitable replacements.

6.3.3 Dispute resolution

The issue

There is no clear process for resolving disputes between JT and the OLOs, apart from technical disputes (Clause 2.6.1 of Schedule 4 of the RIO), penalty payments (Clause 3.8.1 of Schedule 4 of the RIO), or third party arbitration (Clause 37 of the RIO legal framework). Hence other disputes, such as commercial disputes, are not resolved quickly, or are referred directly to JCRA.

Analysis

We think that the lack of a clear procedure for disputes that are not related to technical or penalty payment matters contributes to the poor relationships between JT and the OLOs. What may be a dispute to an OLO may not be treated seriously by JT, or the OLO may refer direct to JCRA when the matter could be resolved better and more quickly between the parties.

A typical dispute process consists of a number of escalation points within specified timeframes, for example:

Table 6.1: Typical dispute resolution process

Level in Dispute Resolution Hierarchy	**Description**	**Disputes that are typically expected to be resolved at this level**
1. (Lowest)	Operational level - involving the operational staff of each Party up to Field Supervisor level	Operational disputes associated with the interpretation and implementation of detailed operating processes and practices – as the dispute arises
2.	Management level - involving the managers in charge of operational units	Operational disputes escalated from the Operational level – 7 days after a failure to resolve at level 1
3.	Senior management level	All disputes associated with the implementation of the Interconnection Agreement, including disputes arising in the course of negotiations to change or amend an Interconnection Agreement, or 7 days after a failure to resolve at level 2
4.	Chief Executive level - involving the CEOs of each Party	All disputes associated with the implementation of the Interconnection Agreement, including disputes arising in the course of negotiations to change or amend an Interconnection Agreement, or 14 days after a failure to resolve at level 3.
5.	Independent third party including the *NRA*	Disputes that the Parties cannot resolve requiring, in the view of one or both of them, the involvement of an independent Arbitrator, Mediator, or the *NRA*, or 14 days after a failure to resolve at level 4.

Either party has the right to raise the matter at any level in the process, or to escalate it once the deadline has passed without a satisfactory resolution of the issue. Additional clauses may be necessary to cover the appointment of an arbitrator or mediator, and the allocation of their costs. A formal dispute notification will be necessary, and this should be copied to the Chief Executive Officers of the relevant operators and to the JCRA when it is first raised. We suggest that some matters, such as resolution of issues related to wholesale prices and products, would be referred to JCRA, not to an independent arbitrator or mediator, so that a consistent policy can be applied by the regulatory authority.

We think that such a process should be agreed between the OLOs and JT, and JCRA should consider taking on cases only when the dispute process between the operators has been exhausted. If JCRA considers that the dispute is of such importance that it should consider the matter without it going through the normal process, it could call the matter in once it has been notified at the start of the process.

Recommendation

6.9 The OLOs and JT should agree a process for resolving all disputes between them. Under this process, disputes should be brought to the JCRA only after the dispute process between the operators has been exhausted. The overall process should be sanctioned by the JCRA

6.3.4 Regulatory training

The issue

Every new entrant in JT goes through an online induction course, which includes regulation and appropriate protection of data. The entrant has to answer online questions in order to reinforce learning. There appears to be no follow up training or refresher courses, and managers will remind staff of regulatory constraints only after specific problems have arisen. There is no regulatory handbook describing the regulatory constraints on the actions of staff.

Analysis

We think that this situation is inadequate, and should be addressed as a matter of urgency by JT. Elsewhere we propose a significant change in the regulatory environment on Jersey, and we believe that JT should design and undertake appropriate training for all staff both on the current regulatory environment and on the new regulatory environment as it develops. This should consist of:

- improved induction training
- a refresher course for all staff
- a more detailed course for retail and wholesale staff and their managers
- a regulatory handbook which is given to the relevant staff in paper form and is available to all staff electronically.

JCRA has investigated a number of cases where regulatory processes within JT have not been followed, for example by retail staff who have introduced special offers without providing JCRA with the required notification. JT should consider documenting its procedures for retail and wholesale staff so that staff are much clearer about the impact of regulatory requirements in their work and the processes that must

be followed to ensure compliance. JT could aim for the ISO 9002 standard, which requires documentation of procedures for qualification.

Recommendation

6.10 JT should make proposals for improvements in its regulatory training and process documentation so that its staff are fully aware of regulatory constraints on their work.

6.11 JT should undertake documentation of its processes so that it can ensure full compliance by all its staff with regulatory processes and requirements.

6.4.4 Regulatory vetting of retail products

We understand that JT's Regulatory Affairs Unit is closely involved in ensuring that retail products conform to regulatory requirements. All price changes, including special offers and discounts, are referred to the Regulatory Affairs Unit so that they can carry out the notification process as required. The group also ensures that the price can be cost justified and that other regulatory requirements are met (eg margin squeeze on DSL). The prices are then posted on the product system so that it is not possible to deviate from these prices.

The Regulatory Affairs section is responsible for deciding whether retail discounts should be offered to OLOs, but it has no clear principles for making this decision. We make some proposals in Section 5.2.3.

Conclusion

Subject to the adoption of our proposals on discounts, we are satisfied with the role of the Regulatory Affairs Unit in reviewing whether JT's retail products satisfy regulatory requirements.

7 Next Generation Networks issues

7.1 Review of JT's plans for introduction of, and migration to, NGN and NGA

The first important point to note is that when JT introduce their NGN platform this year, it will not be the first NGN in Jersey. The three mobile networks already use IP-based switches.

JT had started looking at NGN about 5-6 years ago when evaluating a replacement for System X, which has been in service since 1986 intended for a 12 year lifetime. For their Wave venture in Guernsey, they needed an on-island switch and deployed the Marconi SoftSwitch NGN product which was subsequently supplied to Kingston, Gamma telecom and several overseas networks. But because of the takeover of Marconi by Ericsson this switch won't be supported beyond March 2010, so a replacement has to be found and another system identified for System X replacement. JT started to look at firm requirements for NGN in 2007. Aside from replacing the existing System X network, their key aims are to shorten loops (some existing are as long as 7km) down to about 3.5km better to support broadband; and provide greater diversity in their switching network, as currently half of their entire switching is in one building. Hence, it is probably true to say that JT are not rolling out NGA at all – they have no plans for providing services via Fibre to the Cabinet/Home and no plans for IP-TV.

Seven companies responded to the NGN tender and the US/Chinese firm UT Starcom was chosen, as this best fitted a small island solution. This system has not been used so far in the British Isles but has been used by Tiscali in Italy and PLDT in the Philippines. This created quite a development load on UT Starcom - some existing PSTN features have been dispensed with (e.g. 30kohm loops, Subscriber Private Metering), but they did develop ISDN and the UK/IUP version of SS7. Development is now complete except for Analogue Centrex. JT are currently engaged in CPE compatibility testing. JT plans to start service for new and churn customers from July 2009 with migration of existing customers starting in September with a planned completion by 2Q/2011. JT is deliberately going for phased switchover – there will be no big-bang exchange changeovers. All lines will be equipped with 'combi-cards' allowing ADSL2+, allowing significantly higher broadband speeds than today, though not in the range traditionally associated with Next Generation Access.
JT has given some information on its NGN plans to OLOs, but this is widely considered by them to be inadequate. JT is however stressing that in the short term, no changes to wholesale products will occur.

7.2 Implications for existing wholesale products

As JT is keen to stress, in the short-term, there is likely to be no change in the type and location of interconnect and other wholesale services. These will remain on the System X network and not migrate to the NGN until 2010/11. Indeed, they stressed the point that it would be sensible to test the NGN interconnect interface with BT first. This would still be a traditional TDM/C7-IUP interface. However, JT is likely to introduce an earlier interconnect in Guernsey, where the Wave network will have a

Media Gateway interconnect to C&W (G). JT will also be maintaining the TDM/C7 interconnect with its own mobile IP network.

This careful approach may be right for telephony, but it is likely that they may be early interest in Bitstream access to the faster services on ADSL2+ lines, all of which will be on the NGN.

7.3 Development of future wholesale products

There are several drivers for future wholesale products on the NGN. These include:

1. Services allowing access/interconnection with JT's data services on the NGN;
2. An IP-based replacement for the TDM telephony interconnect;
3. Interfaces allowing the integration of several access/interconnection products in a single IP pipe;
4. Services not possible on JT's current network;
5. Other opportunities for JT to sell wholesale products.

Considering each of these:

1. It is common knowledge that JT (and indeed other operators) are launching services which provide high speed reliable data to customers, utilising IP/MPLS and routers based on the customer's premises. There is a concern that JT could use this configuration to 'bottleneck' other services, so there are demands for wholesale access to such services to allow customers to enjoy OLOs' services over such pipes.
2. While most operators see the transition to IP based interconnection for telephony as some way off, all agree that long term it cannot be sensible to interpose a TDM interconnection between IP-based NGNs and indeed it will add cost and quality challenges from the extra group-delay caused by transcoding. For its part, JT would not want to make such a transition until the necessary services and interfaces had been provided on the interconnection with BT. They see this using the SIP-I interface; that is, SIP encapsulating UK-ISUP. Pure SIP is unlikely to support all UK requirements, notably CLI and many current variants of 'pure SIP' are proprietary. Nevertheless, Newtel would like to have a SIP interface with JT, but they may be somewhat naive in believing that JT would provide such an interface just for them or that it is reasonable in expecting JT to face the cost of converting to their particular interface.
3. Several OLOs saw the need for a general purpose Ethernet/IP interface product, which could integrate several wholesale services. It was stressed that buying interconnect in E1 modules was inefficient and such an IP product would be more flexible and scalable. Several operators quoted a Gigabit Ethernet interface, which might be used for very high speed services, such as required for Storage Area Networks.
4. Amongst services stated as 'currently required' by OLOs but not available on the current network were Carrier Pre-Selection and higher speed bitstream. In

particular, Newtel saw a current need for bitstream service to support Quality of Service – so that their telephony service is not degraded by data bursts. JT claim this won't be available even on their new NGN MSANs, though Newtel believe that this isn't true but that JT has no plans to exploit this feature. It would indeed be odd for a NGN/NGA not to support Quality of Service as this ultimately is what distinguishes NGN from the generic Internet. JT's technology team seem unaware of these demands, suggesting that the Wholesale team within JT do much to rebuff demands and do not communicate throughout the company. For the future, an NGN era bitstream service would include several features not found today:

a. Ability for OLO to control more of the service parameters, e.g. contention, rather than having to use the same parameters as provided to JT's own retail service.

b. Ability to provide different qualities of service according to the type of service being carried, e.g. real-time voice/video, broadcast, generic data.

c. Faster implementation, as MSANs have integrated DSLAM capability and do not require manual jumpering in order to provide broadband.

5. Some wholesale services may be generic 'Access products' and not be based on current or future retail products of JT. One such possibility was suggested by Airtel, which stated that it would be keen to procure from JT a general IP-based aggregation service that would combine traffic from several base stations and deliver it to them over a single pipe.

The key issue is how such future wholesale demands would be handled. JT sees this in a simplistic way: OLOs just approach them and they consider whether they wish to provide it; that is, whether it is in their interest to do so – which with access/interconnection is often likely not to be so. JT seemed unsighted on the principle that the JCRA could demand the provision of such services as remedies to dominance.

The overriding requirement is that JT should not discriminate in the provision of wholesale services to OLOs, including the provision to its own retail arm. Bilateral negotiation with the first-requesting OLO is unlikely to produce an optimum outcome and lead to excessive demands for variants from those who engage in the process later. One approach would be to discuss such product development in a group with all operators, but any Competition Authority is likely to consider this a form of cartel behaviour. Many jurisdictions have found that this problem can only be solved by a public consultation process where OLOs can suggest changes to the RIO/RAOs and for the regulator to give ultimate approval for the services to be added, after taking all views into account. Multi-party meetings may be part of this process, but the JCRA should always be in attendance in an observing role (since it may need to distance itself from any consensus if a dispute subsequently emerges).

It would be prudent to initiate some form of multi-operator forum as soon as possible, as this would assist in the communication of JT's plans and allay fears which exist due to the paucity of hard dates and facts surrounding the NGN migration. As one operator put it: "JT can't have it both ways – they can't say that nothing will change

when NGN is introduced, while telling us that our requested services won't be possible until the NGN arrives".

7.4 Commercial aspects of future wholesale services

There are three sets of issues that should be addressed when considering the commercial aspects of the introduction of NGN/NGA. They are:

- What are the appropriate charging mechanisms for wholesale services in the NGN era?
- Where wholesale charges are regulated, what cost accounting issues arise as a result of the migration to NGN?
- Where wholesale access to new facilities is mandated, how should charges be set in order to promote investment on the one hand and pro-competitive access on the other?

7.5 Charging mechanisms

Current wholesale charging systems are simple and well understood. Telephony is widely charged on a pence/minute basis, while other services are generally charged per line, taking into account the bandwidth of the capacity being used. Services are subject to both connection and rental charges as appropriate. These systems have been widely adopted because they are simple and have their origins in early agreements which were simple discounts on the charging structures in the retail market. Even though prices are now more likely to be set based on forward looking LRIC, the traditional structures remain. It has always been true that recovering costs on a pence/minute basis has its challenges, as the marginal costs of a single extra call have always been very low and most of this volume based charge is actually used to recover fixed costs deeper in the network[13]. This means that such prices can only be correctly calculated as long as the total volume of the market is known. Historically, incorrect assumptions about the total market size and its expected growth have been the main factor causing wrong prices to be set, but this has usually been accompanied by the regulator erring on the side of caution, thereby ensuring the incumbent does not make a loss, albeit at the expense of competition. But there is a more important factor in deciding the wholesale charging structure which has received far less attention but which may be far more significant in deciding on structures for the future. Even when per-minute charges are based on LRIC, it is usually the case that these are then 'de-averaged' by a time of day gradient and that this gradient is copied from the relevant retail market, even though such an action has almost no objective basis when considering wholesale costs. Alternative schemes, based on capacity charging, have rarely been applied as there has not been an easy way to deal with the problem of 'shifting peaks'[14].

The prime reason why wholesale charges are subject to a retail time of day gradient is because this minimises the possibility of margin squeeze. This has important

[13] Recovery of the immediate interconnect link cost has always been outside the pence/minute charging system.

[14] If capacity outside the busy hour is carried free, then it could generate a new non-busy hour peak which increases wholesale costs.

implications for the future. Increasingly retail calls to ordinary geographic lines are not charged per minute but included in the fixed periodic charges (the 'rental'). If the retail market has lump sum charges, there could be margin squeeze problems if wholesale outpayments continue to be on a pence/minute basis. Equally, if retail revenue continues to a time duration basis, commercial difficulties can occur if outpayments are on a fixed capacity basis[15]. So to the extent that the retail market migrates to alternative charging structures, there is a strong argument that the wholesale market should mimic those schemes to avoid margin squeeze and thereby promote competition. Nevertheless, it is likely that a pence/minute system will endure for premium rate calls, international calls and the reverse charging for freephone calls. Despite the above arguments, some commentators have thought that if all services are delivered in an integrated IP environment, that charging might emulate the current systems used on the Internet, namely that larger operators will peer with one another on a 'free' basis, while smaller operators will buy capacity from larger operators on a bulk capacity basis. Hence some have proposed that 'Sender Keeps All' would be an appropriate model. This is, on the whole, a mistaken view. The commercial framework of the Internet reflects the fact that what is offered to other operators is bulk, generic, 'best efforts' capacity, with no distinction between traffic types and no quality of service agreements. In contrast, the single biggest differentiator between an NGN and the present Internet is the concept of QoS control and Service Level Agreements (SLAs) between operators.

However, there is one area where Sender Keeps All is being seriously considered. In a future converged network, it may be the case that the networks terminate calls on a fixed or mobile line according to the current requirements of the called party. Where such calls are charged at mobile rates, the networks may over-recover costs where a fixed termination is selected. Given the continuing view that mobile termination charges in Europe are still well above cost, this increases the concern. So some commentators are considering a revised system of call termination charging where all calls, be they fixed or mobile are subject to a single low termination rate – sometimes referred to as 'Near Zero' call termination. This would then allow calls to fixed and mobile lines to be subject to the same retail price (as in the USA and Canada), while requiring the mobile operators to recover any higher cost of termination from the rental cost of the line. In former times, this US system of 'called party pays' was thought to be regressive, in that it encouraged users to keep their phones switched off to avoid paying for incoming calls. However, in practice, strong competition in the mobile market soon led to such charges being first included as 'inclusive minutes' in the rental and then competed down to the point where in practice, inbound calls are free. So, while largely criticised by Europeans in earlier years, the US system now has identical prices to call mobile phones as fixed and no supplementary charges for receiving calls.

It would be important that 'Sender Keeps All' or 'Near Zero' termination only applied to the final termination and not interconnection at the transit level. This would be to avoid the problem that 'free peering' can lead to on the Internet, often called the 'Hot Potato' problem. If you have to pay little or nothing to terminate calls on another network, then there is a strong motivation to pass on the call to someone else as early

[15] However, the telecoms industry has always been capital intensive and had to recover largely fixed costs by volume based retail prices

as possible. The same would occur for calls in the reverse direction, leading to a differing routing according to direction. 'Near Zero' has other problems too. It is clearly inconsistent with the normal principle of cost causation and taken to extremes could cause quality problems – if you are not paid for a service there is a lower commitment to provide it at high quality. Hence any adoption of such a system would require strong SLAs between operators. It will probably not be appropriate for JCRA to implement such a radical approach unless and until it has been shown to be effective in other administrations. However, in the more near term, the deployment of NGN should allow reductions in the wholesale prices of fixed and mobile call termination, so a wholesale price cap for the next 3 years is likely to be appropriate.

7.6 Cost accounting issues

The main cost accounting issue is that JT should continue to collect costs in its separate accounts so that costs in the NGN era can continue to demonstrate the build up of costs and transparency with respect to wholesale charges. Some NGN equipment remains specific to the telephony service, such as:

- Telephony Call Servers (Soft Switches)
- Telephone Media Gateways
- Telephone Signalling Gateways

Multi-Service Access Nodes (MSANs) costs are joint between Telephony and Broadband Access and an appropriate cost driver will need to be set to divide the cost appropriately.

The core IP network is common to all services that use it. The most obvious way to divide the cost is according to the share of total bandwidth. This is not as easy as it might first appear, since while the bandwidth used by a phone call can be calculated, data service usage is subject to bursts and peaks of traffic. However, in many cases, MPLS may be used to provide defined bandwidth paths within the network and this may simplify identifying the bandwidth set aside for a given service.

Both the cost allocation of the IP network and the division of the MSAN joint cost could, even if based on objective principles, lead to a discontinuity in the total costs allocated to the telephone service or possibly make some high bandwidth data services far more expensive than before. Therefore, some intervention might be required to ensure a less disruptive impact on both the wholesale and retail markets. The JCRA might need to approve proposals for these difficult cost allocations, either to allow a non-cost reflective allocation or to provide for a glide-path from today's charges to the future. Some commentators have suggested that it might be appropriate to allocate such common costs on a modified Ramsey Principle, where the costs are allocated taking into account service elasticity; more costs being allocated to the least elastic services. This might avoid the problem that high bandwidth video services become too expensive to become popular, while telephony services are given away for almost nothing, despite the users' willingness to pay. But elasticity is a difficult concept in the wholesale market. If wholesale charges fall, in most cases OLOs will not decide to purchase more, as services like call termination are largely inelastic, unless significant discounts at the retail level can be applied. Any application of elasticity might need to refer to the retail market, not the wholesale market.

7.7 Balancing risk and reward in the NGN era

Where regulators set wholesale charges, these have traditionally been based on forward looking LRIC, although in some markets Retail Minus is occasionally employed. It is argued by many incumbent operators that if the traditional LRIC approach is imposed on NGN services, there will be no incentive to invest, so they won't build the NGNs. This argument, to the extent that it is valid, only applies to Next Generation Access. As noted above, all operators are moving to NGN core networks as these are the only equipments now being sold by vendors. They are low risk investments from the commercial viewpoint (though perhaps technically risky in the early stages), so do not require any leniency by regulators in their regulatory approach. Indeed, NGN core networks are likely to bring significant reductions in operational costs.

NGA is a different picture, in that while everyone clamours for more bandwidth, the real demand by users to pay for very high bandwidth services, such as IP-TV is still unknown. So NGA investment could be said to be risky and therefore a different regulatory approach could be justified in setting bitstream access charges. There are perhaps 6 approaches that regulators could take:

1 Impose traditional 'cost plus' on broadband origination

As described above, with this option there would be little incentive to build if the NGA investment seemed risky.

2 Forbear from all regulation

Originally proposed in Germany, but unlikely to be sustained due to EC's serious concerns about 'regulatory holidays'. With this approach, wholesale access is unlikely to be available on a reasonable basis, reinforcing the market power of the incumbent.

3 Price Access at 'retail minus'

This option does help avoid margin squeeze, although the price remains one set by the incumbent. However, different figures could arise according to which retail service is used in the Retail Minus calculation. Should it be broadband Internet access, IP-TV, or corporate VPN access?

4 Rely on non-discrimination and 'no margin squeeze' alone

This is the approach used in the UK by Ofcom for regulating current generation bitstream access. The incumbent can set any wholesale charge it wants, as long as all downstream retail products are sold above cost; that is, with no margin squeeze. It is simple to administer, but works best when there is real competition in the market for other means of broadband supply, e.g. by Local Loop Unbundling, Cable or Fixed Radio. However, the effect will vary according to how much is included in the bitstream service. A large incumbent will enjoy significant scale economies in its backhaul IP network that an LLU operator might not be able to match.

5 Mandate access with a market-specific rate of return

This approach provides appropriate reward for risks by reflecting the investment risk in the regulated rate of return allowed under the Cost Plus

approach. However, as a modified form of the traditional Cost Plus approach, it still requires the base LRIC figure to be calculated and this can prove challenging for new technologies where long run costs may not yet be evident.

6 A co-investment model

With this approach, the incumbent's risk is mitigated by allowing Access Seekers to share the investment by committing to purchase given volumes of access at an agreed price. In order to give the flexibility to reach such agreements, this probably requires a relaxation of the usual non-discrimination rules. Some business groups have raised concerns about the effect of this model, as they see it as allowing cartel-like behaviour between the incumbent and the Access Seekers.

Amongst the above concepts, there may well be a workable solution that provides for adequate wholesale access while providing adequate returns to the incumbent given the investment risk. However, none of this may be relevant to Jersey, as JT does not seem to be planning to deploy a risky NGA network. Rather, its plans are more modest, to make the best current generation broadband access (ADSL2+) available to as many customers as possible by reducing the length of the local loop to around 3.5km maximum. Demand for current generation broadband is proven and has far less risk attached, so no new approach is called for, aside from recommendations elsewhere concerning the basic level of bitstream charges.

7.8 Recommendations

7.1 JT should communicate more details of its planned NGN migration to the OLOs.

7.2 JCRA should set-up a multi-operator forum to discuss the issues and opportunities flowing from the NGN deployment. In order that JCRA does not become fettered by decisions taken by this forum, it should ideally be independently chaired, but in any event, JCRA should be an observer to avoid any suggestion of cartel style discussions.

7.3 In particular, there needs to be more multi-lateral discussion about the need and demands for new wholesale services. Some of these may need to be subject to regulatory imposition. However, the first step would be for the OLOs to provide outline Statements of Requirements for each new wholesale service.

7.4 There also needs to be an agreed longer-term view on the migration of telephony interconnect, e.g. agreement on SIP-I.

7.5 Charging mechanisms for wholesale products are likely to remain as at present for the immediate future, though there might be a need for a capacity based interconnect charge for services which are bundled at the retail level with the line rental.

7.6 JCRA and JT will need to agree the specific NGN network elements that will be subject to detailed cost accounting and the drivers for allocating joint and common costs to NGN era products.

7.7 Since JT does not seem to be deploying a risky Next Generation Access network, there is no need for a particular lenient regulatory approach to bitstream access. However, it is important that a fit-for-purpose NGN era bitstream service is provided.

8 Implementation

8.1 Implementing our recommendations

The analysis of Section 3 demonstrates that there are gaps in the ex-ante regulatory framework in Jersey, and we believe that these gaps have a major effect on the competitive environment in Jersey. The lack of certain wholesale products restricts the ability of OLOs to compete with JT, and a reliance on ex-post regulation weakens the attractiveness of Jersey to potential investors in alternative telecommunications. How can JCRA most effectively fill these gaps? We think that there are three alternative courses available to JCRA:

- rely on cases being brought by the OLOs
- require changes in JT's licence that implement our recommendations
- update the market analysis process and impose suitable remedies on dominant operators.

We do not recommend the first option as it has resulted in the present unsatisfactory position. The last option follows the process used in the European Union, where it provides a firm foundation for future regulation as the telecommunications market changes. However this process, including the necessary consultation phase, takes time and resources.

JCRA can only impose regulatory remedies through changes in licence conditions (the second option). For the future, it would be preferable for remedies which result from market reviews be implemented by means of licence conditions. The remedies adopted by the European Union would form a good model for the powers required by JCRA.

In order to implement the changes we recommend in this report, we suggest that JCRA should undertake a market review to underpin remedies on operators with significant market power, and then implement these remedies through changes in licence conditions. The market definitions used by JCRA in 2002 have the advantage of being few in number (six), but since then the European Union has significantly reduced the number of its pre-defined markets from 17 to 7. It has focussed on wholesale markets, recognising that if wholesale markets are competitive, the corresponding retail market will be competitive. We think that this is a sound principle, and in the table below we show JCRA's markets and the new EU market definitions, along with our own proposals for markets in Jersey.

Table 8.1: Market definitions

JCRA 2002	European Union	Regulaid proposals for Jersey
Fixed line networks	Access to the fixed network	Access to the fixed network
Fixed line services	Fixed call origination	Fixed call origination
	Fixed call termination	Fixed call termination
Leased circuits	Terminating leased lines	On island wholesale leased lines
		Off island wholesale leased lines
Mobile networks	Mobile call termination	Mobile call termination
Mobile services		
Fixed line broadband services	Unbundled access to local loop	Fixed line wholesale broadband services
	Wholesale broadband access	

We have proposed separate on-island and off-island leased line markets because the supply of submarine cables is more competitive than the on-island leased lines, and have proposed the combination of the two EU broadband markets given the undeveloped state of the wholesale broadband market on Jersey. With the recent introduction of competition in the mobile market and mobile number portability, we think that JCRA should regard the mobile services market as prospectively competitive, and not undertake a separate analysis of it. As part of the market review, we suggest that JCRA should consider whether some or all of the ten markets recently discarded by the EU are still relevant to Jersey.

We suggest that JCRA should undertake a brief analysis of these seven markets, identify the operators with significant market power, and propose a range of remedies that should be imposed on them, including the steps proposed elsewhere in this report. This analysis would be reviewed from time to time in the light of changing market circumstances.

Recommendation

8.1 JCRA should update 2002 - 04 market analysis work, and include suitable remedies in order to stimulate a competitive market. This work should be initiated as soon as possible.

8.2 Developing new wholesale products

In Section 5 we analysed the position on new wholesale products. The OLOs have expressed strong interest in wholesale line rental, fixed number portability and some form of bitstream access or naked DSL, and limited interest in carrier pre-selection. One operator is interested in local loop unbundling and duct sharing. In addition JT's core NGN will change the location of the points of interconnection, provide opportunities for SIP based interconnection and different levels of quality of service, and change arrangements for backhaul. All these areas require close working between JT and the OLOs in order to agree specifications, supporting processes and associated commercial arrangements. All operators have limited staff resources with the appropriate levels of expertise. What is the best way forward?

We suggest that the operators should form two working groups, consisting of the relevant staff from JT and the OLOs, with a representative of JCRA and an independent chairman. It is likely that they will need additional external assistance in

order to achieve their work programme. The first group would focus on well established wholesale products, where specifications and processes have been developed and tested in other countries. The second group would focus on NGN related products and liaison over the NGN roll out where work is needed to agree the specifications and timetable for the roll out of new products. It would, be possible for these products then to be handed over to the first group for implementation.

In this model, the first group would have the following terms of reference:

> to draw up the detailed specifications for wholesale line rental, local loop unbundling and fixed number portability, design the supporting processes, and agree commercial arrangements, with the objective of implementing these products by the end of December 2010.

The group may wish to form separate technical and commercial working sub-groups.

The second group would have the following terms of reference:

- to liaise over the roll out of JT's next generation network, to co-ordinate the implementation of the NGN between the operators, and to provide input into the plans for new wholesale products based on the NGN
- to discuss and agree specifications for NGN bitstream/ naked DSL services, the provision of differentiated quality of service, and DSL backhaul services, and to agree a timetable for implementation
- to design the supporting processes, and agree commercial arrangements for these products, with the objective of implementing them by the end of June 2011 (the last task may be undertaken by the first group).

While there will be some overlap between the two groups, we think that co-ordination between them should be achievable informally in such a small community without the need for a formal co-ordination mechanism.

Recommendation

8.2 JCRA should request the operators to form two working groups, one to plan for the introduction of new wholesale products, and one to co-ordinate the introduction of JT's NGN and associated wholesale products.

8.3 Demand for new wholesale products

In the past, discussions between JT and the OLOs about new wholesale products have made little progress. We think that this is in part due to JT's doubt about the seriousness of the demand for these products. JT has wanted to see a detailed specification from the OLOs before it can respond, and then would assess the likely demand for the product before investing resources in its provision. The OLOs see this lack of response as "stonewalling", and in any case, consider that JT is not in a good position to give an unbiased view on the demand for wholesale products.

We recognise that the provision of new wholesale products will impose some costs on the operators, especially JT. and that until these costs are understood, it is not possible to derive a price for the product. However without the price, it is difficult for OLOs to

indicate their demand for the product. Especially in a small market such as Jersey, it is important to avoid wasted investment in products that no one requires. How can the working groups resolve the issue of demand?

We think that one of the benefits of the working groups proposed above will be that JT and the OLOs can improve their understanding and confidence in each other's plans (provided that the Chinese walls discussed in section 6 work effectively). Once the groups have agreed a specification for a new wholesale product, they should develop an indicative price. This task could be given to a specific commercial sub-group.

We think that the price should be based on the following principles:

- JT should be permitted to recover the costs incurred in providing the wholesale service, either through one off charges, periodic charges or per event charges as agreed with the OLOs
- the allowable costs should be the incremental costs incurred by an efficient operator
- the costs should be spread over the OLOs and JT's retail activities so as to ensure replicability (see Section 5.2.1).

As JT is implementing its core network NGN during the period of these discussions, the costs of providing the new wholesale services should be much lower as they should be available as standard services on the new softswitches.

Once the indicative price has been established, the OLOs should then give a "good faith" commitment to take up the service. If no operator is willing to do this, then the discussions on the product should be suspended, and JT would be able to deem that the service had not been demanded by an OLO and therefore it was not under an obligation to provide it under the terms of Recommendation 5.1.

If the process suggested above breaks down at any point, either JT or the OLOs would be able to refer the dispute to JCRA for resolution. JCRA's membership of the groups should ensure that it understand the issue and is able to resolve it quickly.

8.4 Next steps

We would like to suggest how JCRA should proceed with the draft report from Regulaid, and what work it may consider undertaking over the next few months.

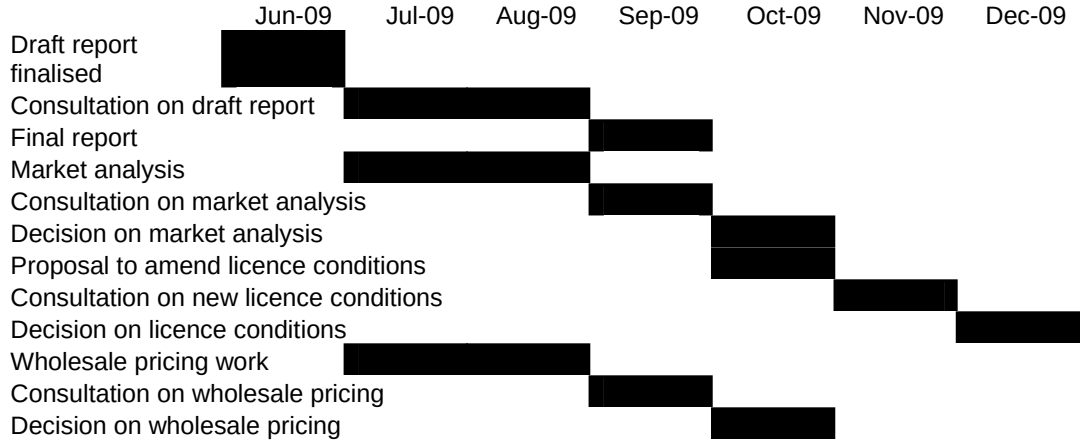
We suggest that JCRA should put the draft report out to public consultation, and invite comments from the operators and other interested groups in Jersey on our analysis and proposals. We will then be able to produce a final report with the benefit of these comments.

We have already discussed the desirability of updating the market analysis exercise undertaken by JCRA in 2002/04, and suggest that this could be done over a period of three months, including public consultation. This would then provide an underpinning for the changes in licence conditions necessary to put the final recommendations into effect.

In Section 5.7.1 we suggested a radical change in the way that wholesale prices are regulated, based on our pricing analysis and performance analysis (see Sections 3.2.3, 3.2.4, and 3.2.5). During the consultation period, we suggest that more work should be done on the pricing comparisons and the performance analysis, and more detailed proposals are drawn up for price controls. We expect that it would take about two months to carry out further analysis of pricing and performance, and to draw up these proposals. We suggest that they would be subject to a separate consultation exercise, making the duration about three months for this task. The objective would be to have the new wholesale prices implemented for the start of 2010.

In Table 8.2 we show a possible timetable:

Table 8.2: Possible implementation timetable



Recommendations

8.3 JCRA should undertake a public consultation based on the findings of this report

8.4 JCRA should draw up proposals for the future of controls on JT's wholesale prices, and these proposals should be subject to public consultation.

8.4 Regulatory impact assessment

Our recommendations in this report will have a significant impact on the players in the Jersey telecommunications market, on their customers, and on the wider economy of the island. Are they worth implementing?

In the table below we show our assessment of the recommendations that will impose costs, and the organisations likely to bear these costs.

Table 8.3: Costs imposed by our recommendations

Recommendation	Subject	Costs imposed on
5.1, 5.7, 5.9, 5.10, 5.14, 5.17, 5.18, 5.19, 5.20	Development of new wholesale products	JT, OLOs
5.3, 5.6	Increased regulatory compliance	JT
5.8, 8.3	Participation in working groups	JCRA, JT, OLOs
5.7, 5.9, 5.10, 5.17	Changes in JT's licence conditions	JCRA
5.23 -26	New wholesale price controls	JCRA, JT
5.30	Initiation of penalties	JT
6.1, 6.2, 6.6	Changes in reporting structures and commercial culture	JT
6.3	Publication of KPIs	JT
6.4	Changes in IT systems	JT
6.7	Participation in liaison meetings	JT, OLOs
6.9, 6.10	Disputes process	JT, OLOs
6.11	Regulatory training	JT
6.12	Process documentation	JT
7.1-4	Participation in NGN liaison group	JCRA, JT, OLOs
8.1	Update market analysis	JCRA
8.2	Operator working groups	JCRA, JT, OLOs
8.3	Public consultation on report	JCRA, JT, OLOs
8.4	Public consultation on price controls	JCRA, JT, OLOs

Most of these costs will be in the time of staff from JT and the OLOs. We are not in a position to put a cost on these proposals, but we do not think that they will in total be substantial. We see these proposals as a package necessary to ensure that competition becomes effective in Jersey's telecommunications market.

As well as incurring costs, we think that the players will benefit from our proposals, as follows:

- JT and its shareholder will benefit from a more efficient organisation which will lead to increased value (although this may result in some job losses or at least the loss of employment opportunities), a reduced cost of dealing with investigations from the JCRA, and increased freedom to provide bundled services
- the OLOs and their shareholders will benefit from a larger and more viable business opportunity, generating additional employment
- JCRA will benefit from a reduction in the number of disputes it has to resolve.

The main beneficiaries of a more effective wholesale market will be the business and residential consumers of Jersey. They should see the benefits of new services, improved quality of service, increased choice and lower prices for both business and residential customers.

The size of the benefits may be substantial. As we show in Table 8.4, the fixed network telecommunications market is worth about £35m per year in Jersey.

Table 8.4: Fixed telecommunications market in Jersey (£000, 2008)

	Narrowband	Broadband	Leased lines	Total
JT	redacted	redacted	redacted	redacted
Newtel		redacted	redacted	redacted
C&W	redacted		redacted	redacted
	redacted	redacted	redacted	redacted
Total	redacted	redacted	redacted	redacted

Source: Operators' returns to JCRA

In Section 3.2.2 we noted that retail prices are higher on Jersey than on Guernsey by between 2% and 27%, depending on the user profile. If, as a result of our proposals, retail prices in Jersey are reduced by 12% over a three year period, we calculate that the benefit to consumers will be about £9m over this period, equivalent to about £150 for every fixed line customer on Jersey.

Of course, lower prices may result in increased revenues for the operators, as price reduction may lead to increased volumes of traffic (including wholesale revenues for JT). A more competitive market may lead to new uses, especially as higher broadband speeds are introduced. These benefits would be reflected in additional benefits in the form of producer surpluses.

We do not consider it is worth undertaking a detailed cost benefit analysis of each of our proposals. Apart from the technical problems of estimating and forecasting costs and benefits, it will be difficult to separate the costs and benefits of the individual proposals from each other. Moreover, a detailed cost benefit analysis is not required under Jersey's Telecommunications Law.

Overall we believe that the costs of our proposals are easily outweighed by the benefits. As a result of the successful implementation of our proposals, both customers and operators will be better off, and Jersey' telecommunications sector will face a reinvigorated and successful future, with benefits to the island's wider economy.

Annex 1 Review of JT costing model

Please see separate file: Review of JT costing model.doc

[The JCRA is not releasing this Annex for this consultation]

Annex 2 Price comparisons

A2.1 Introduction

As part of its review of Jersey Telecom (JT)'s wholesale business, Regulaid has been asked to advise JCRA on the introduction of new wholesale products, and to consider the relationships between the retail and wholesale functions of Jersey Telecom.

In order to understand where the competitive market in Jersey may be ineffective or inefficient (and hence in need of regulatory remedies such as new wholesale products), we have carried out a comparison of retail and wholesale prices of the two incumbent operators in Jersey and Guernsey. We have restricted the comparison to these two operators because operators in other countries are less comparable in terms economies of scale and scope, demand characteristics (level of income, population size, etc) and market characteristics.

A2.2 Retail price comparisons

Retail prices

We have taken the retail prices charged by JT and by Cable and Wireless Guernsey (C&W) as at April 2009, and constructed retail price baskets for six fixed line customer types:

- residential customer (low user)
- residential customer (medium user)
- residential customer (high user)
- business SOHO customer (small office/home office)
- business SME customer (small and medium enterprise)
- leased lines business customer

For the first five types, we have replicated the price baskets used by the OECD. For the large business customer we used only a basket of leased lines because similar call charges are applied to large business customers as to the SOHO business customers. All the prices are before GST on Jersey, and no tax is charged on telecommunications prices on Guernsey.

Residential narrowband customers

We compare the prices for exchange lines in the table below:

Table A2.1: Comparison for price for residential exchange lines (£)

Guernsey			
Connection charge		69.99	
Monthly rental	basic	7.99	
	Homeone	12.99	includes free on island offpeak calls to fixed
	Hometwo	14.99	as above plus 33% off national and international off peak calls
	Homethree	19.99	as above plus 33% off national and international calls at all times
Jersey			
Connection charge		120.49	
Monthly rental	Coreline	12.00	
	Talk 100	16.00	100 free local calls per month and 20% off top ten numbers
	Talk 250	24.00	250 free local calls per month and 25% off top ten numbers
	Talk Unlimited	28.00	Unlimited free local calls per month and 30% off top ten numbers

The connection charges on Jersey are substantially greater than on Guernsey. At first sight the monthly rental charges also seem much higher, but we calculate that the value of the free local calls on Jersey is about £3 for low users, £5 for medium users, and £8 for high users, thus making the basic line rental figures more comparable.

The next table shows the charges for calls from a fixed line.

Table A2.2: Call charges for residential customers (pence per minute)

	Guernsey		**Jersey**		
	Peak	**Off peak**	**Day**	**Evening**	**Weekend**
Local calls	1.7	1.7	2.3	2.3	2.3
Channel Islands and UK	4.0	3.5	3.5	3.5	3.5
Calls to on island mobiles	14.8	14.8	12.0	10.0	9.0
Calls to Jersey mobiles	14.8	14.8	20.0	15.0	13.5
Calls to UK mobiles	27.0	21.0	20.0	15.0	13.0
France	6.3	6.3	7.0	7.0	7.0
Ireland	4.9	4.9	7.0	7.0	7.0
USA	4.9	4.9	7.0	7.0	7.0

The main differences are that prices in Guernsey are lower for local calls and international calls, but higher for calls to on island and UK mobiles. On Jersey there is a minimum call charge of 7p, and we have used this figure where the value of the call is less than the minimum charge. There are no minimum call charges on Guernsey.

The OECD[16] has calculated price baskets for three types of residential user – low, medium and high users, and each generate different numbers of calls (50, 100 and 200 calls per month respectively), and have slightly different patterns of calls by time of day and destination. In Table 3 we show our calculations of these call baskets, which include the fixed costs of the monthly line rental plus the connection charge spread over five years. On both Guernsey and Jersey residential customers are offered the options of line rentals (as shown in Table A2.1), and we have calculated which option

[16] European Commission. Progress report on the single European electronic communications market 2008 (14th report), Volume 2, section 8. March 2009.

would be most economical for the three profiles. On Guernsey the customer is best off with the lowest priced line rental, while on Jersey the low user is bests off with the basic Coreline rental, and the other two profiles are best off with the Talk100 package.

Table A2.3: Fixed residential customer baskets (£ per month)

	Low user		Medium user		High user	
	Guernsey	Jersey	Guernsey	Jersey	Guernsey	Jersey
Line rental	9.16	14.01	9.16	18.01	9.16	18.01
Call charges	6.76	6.93	15.02	9.08	32.32	24.28
Total	15.92	20.94	24.17	27.09	41.48	42.29

The main difference is that the line rental on Guernsey is much cheaper, while on Jersey the cost of the Talk100 rental package is offset by reductions in call charges. When the free and discounted calls under the Talk100 package are excluded, the call charges on Jersey are very similar to those on Guernsey – in other words the differences in the prices noted in Table A2.2 cancel each other out.

However the totals in Table A2.3 show that low users are much worse off in Jersey than in Guernsey (by 32%). The medium users are worse off by 12% and high users by 2%. These differences between the baskets are mainly due to the greater proportion of calls to mobiles in the medium and high user baskets. The price for these calls is lower in Jersey than in Guernsey.

The OECD calculates price baskets for 30 countries, and if Jersey was included in these comparisons, it would be 17th for the low user basket, 14th for the medium user basket, and 8th for the high user basket[17].

Residential broadband customers

We have also compared the subscriptions to a DSL service, and the prices for the retail DSL service on the two islands are shown below.

Table A2.4: Retail residential DSL services

Guernsey		Jersey		
Speed	Price per month	Speed	Download limit	Price per month
2 Mb/256	24.99	2 Mb/384	up to 20 Gb	17.99
4 Mb/512	49.99	2 Mb/384	up to 40 Gb	24.99
8 Mb/768	79.99	2 Mb/384	up to 60 Gb	34.99

In Jersey a connection charge of £50 is added, while in Guernsey no connection charges are made. DSL speeds on Jersey are limited to 2Mb, while on Guernsey up to 8Mb is available. There are no limits on downloads on Guernsey, but the entry level price on Jersey is much lower.

[17] European Commission. Progress report on the single European electronic communications market 2008 (14th report), Volume 2, section 2.5.3.2. March 2009. As the OECD figures are stated including VAT, we have added the 3% GST to the Jersey figures. It should be noted that if the OECD figures are quoted without VAT, Jersey's position would be worse as VAT rates in OECD countries are usually greater than 3%. In making the pound/euro currency conversions, we used the exchange rates prevailing when the OECD figures were compiled (October 2008).

The speed of DSL lines on Jersey is behind the rest of Europe, where 14% of broadband lines are now 10 Mb and above[18].

Business narrowband customers

We start this analysis by comparing the line rental packages available to business customers.

Table A2.5: Comparison for price for business exchange lines (£)

Guernsey			
Connection charge		69.99	
Monthly rental	basic	8.00	
Jersey			
Connection charge		120.49	
Monthly rental	Coreline	12	standard call charges apply
	Encompass	15.88	Includes £4 of free calls, 10% off daytime local and national calls and 12% off daytime international calls

Again the connection charges are much higher on Jersey, and the lowest line rental is also much higher. On Jersey the Encompass call package is a much better deal than the Coreline connection as it provides £4 of local calls for an additional £3.88, and we have assumed that our business customers will make use of this option.

Table A2.6: Call charges for business customers (pence per minute)

	Guernsey	Jersey			
	Peak	**Off peak**	**Day**	**Evening**	**Weekend**
Local calls	4.8	4.8	2.3	2.3	2.3
Channel Islands and UK	4	3.5	3.15	3.5	3.5
Calls to on island mobiles	14.8	14.8	10.8	10	9
Calls to Jersey mobiles	14.8	14.8	20	15	13.5
Calls to UK mobiles	27	21	20	15	13
France	6.3	6.3	6.16	7	7
Ireland	4.9	4.9	6.16	7	7
USA	4.9	4.9	6.16	7	7

The call charges are similar to those for residential customers, with the exception of the local call charges in Guernsey (which are 4.8p per call). The Jersey daytime prices for national, mobile and international calls reflect the discounts applied as part of the Encompass package.

Jersey Telecom has a minimum charge of 7p per call, and as business SOHO and SME customers have lower call durations than residential customers, this charge will apply to local calls, and we have included the minimum charge where applicable. JT has introduced volume discounts for business customers, depending on the level of monthly spend. In the Premier scheme, discounts of 30% on local calls, 10% on national calls and calls to mobiles, and 12% on international calls are available. In the PremierPlus scheme, these discounts rise to 50% for local calls and 42% for other call types for a spend of over £500 per month. Additional discounts are available for spends in excess of these monthly expenditures.

[18] European Commission, ibid. Figure 107, page 114.

C&W Guernsey also makes discounts available to business customers. These range from 10% off call charges for a monthly spend of £50 to 60% off for expenditure of over £20,833 per month.

The OECD has developed two profiles of business customers for its price baskets – a SOHO customer (with 150 calls per month), and a SME customer (which has 30 lines, each carrying 233 calls per month). In Table A2.7 we show the basket calculations for Guernsey and Jersey.

Table A2.7: Business customer baskets (£ per month)

	SOHO		**SME**	
	Guernsey	**Jersey**	**Guernsey**	Jersey
Line rental	9.16	17.89	274.90	536.65
Call charges	18.04	10.61	568.33	536.18
Total	27.21	28.50	843.23	1072.83

Prices are higher in Jersey for SOHO business customers by 5% and by 27% for SME customers. The differences between the call baskets reflect the greater proportion of international and peak time calls in the SME basket, and the greater number of calls per line for SMEs. The higher line rental on Jersey is offset by the discounted call charges. On both islands the SME customer would qualify for volume discounts, and we have included these in the calculations above. If the volume discounts are excluded, retail prices are 19% greater in Jersey for SOHO customers and 11% greater for business customers.

In comparison to the 30 OECD countries, Jersey would stand at 14th for both SOHO and SME customers.

Business broadband customers

The prices for DSL broadband services for business customers are shown in Table A2.8.

Table A2.8: Retail business DSL services

Guernsey		**Jersey**		
Speed	**Price per month**	**Speed**	**Download limit**	**Price per month**
4 Mb/512	49.99	2 Mb/512	up to 40 Gb	35.99
8 Mb/768	79.99		up to 80 Gb	49.99
			unlimited usage	74.99

As with residential customers, a £50 connection charge is payable for the DSL service on Jersey. The difference in speeds, and the absence of download limits in Guernsey makes comparisons between the two islands difficult, but the average small business is probably paying the same monthly rental (£49.99) on both islands. The lack of faster speeds on Jersey is probably a bigger concern for business customers than for residential customers.

Business leased line customers

In order to make a fair comparison between the retail leased lines prices charged to business customers on Guernsey and Jersey, we have created a simple basket, reflecting the likely needs of a small business with a number of branches on the

island, with connections to the other Channel Island and to the UK. We show the assumed number of leased lines bought by this business below.

Table A2.9: Retail leased line basket (number of leased lines)

	On island	Guernsey/Jersey	To UK
2 Mb	10	2	
34/45 Mb			1

We have calculated the monthly cost of buying this set of leased lines on Guernsey and on Jersey (including any connection charges spread over 5 years). On Guernsey this basket would cost £6,770 per month, and on Jersey £7,051 per month, a difference of 4%.

A2.3 Wholesale price comparisons

Wholesale prices

In this section we have calculated the wholesale prices that would be paid by an alternative operator to the incumbent operator in order to provide the basket of services used in the retail price benchmarks. This enables us to compare the wholesale prices on both islands, and to calculate the profit margin available to the alternative operator.

In Table A2.10 we set out the termination and transit rates charged by each incumbent operator.

Table A2.10: Termination and transit rates (pence per minute)

	Guernsey			Jersey		
	Peak	Off peak	Sunday	Day	Evening	Weekend
Fixed termination rates	0.347	0.258	0.258	1.31	0.74	0.74
Fixed origination rates	0.605	0.436	0.436	1.31	0.74	0.74
Mobile termination rates	6.75	6.75	6.75	5.60	5.60	5.60
On island transit	0.248	0.189	0.189	0.84	0.47	0.47
Off island transit (exc settlement rate)	0.823	0.587	0.587	1.00	0.56	0.56

With the exception of mobile termination rates (all periods) and off island transit rates (off peak), the rates on Jersey are greater than those on Guernsey. In the case of fixed termination rates and on island transit rates, they are about three times greater, and almost twice for the fixed origination rates.

In order to calculate the wholesale baskets, we have taken the same calls basket as used in the retail benchmarks, and used the appropriate origination and termination rates for each call type. For off island calls, this results in the termination rates on the other Channel Island or foreign destination being used, and as a result the large differences noted in Table A2.10 are more muted in the following analysis.

In addition to origination and termination charges, operators have to install interconnection links, and we have included an estimate of these costs in our wholesale calculations. We have assumed that operators will use an in-span interconnection link, and we show the relevant prices below.

Table A2.11: In span interconnection link prices (£)

	Guernsey		Jersey	
	one off charge	monthly rental	one off charge	monthly rental
CTU	28,500	553	41,263	530
Fibre termination			812	
Fibre street cabinet			936	
New duct per metre			135	
New fibre per metre			3	
Fibre and duct maintenance				42
Duct and cabling per metre	68			

In our calculations we have assumed that the link will require 50 metres of new duct and cabling. On both islands a minimum of 2 x 2 mb links are required, and we have assumed that 250,000 minutes per month pass over each 2 mb link[19]. The additional cost per minute on Guernsey is 0.22 pence per minute, and on Jersey 0.28 pence per minute, a difference of 29%.

We have assumed that the other licensed operator (OLO) will use their own transmission links between the two islands and to the UK. Of course, the costs of these links, along with other network and support costs, have to be recouped from the profit margin made on these calls.

In the retail baskets we included the line rental and connection charges in the baskets in order to make a proper comparison between the two islands. We have omitted these charges from the analysis below because there is no wholesale line rental available on either island.

Residential narrowband customers

In the table below we show the cost of the three call baskets (low, medium and high users) at retail and wholesale rates, and calculate the profit margin available to the OLOs if they charged the same retail rates as the incumbent.

Table A2.12: Retail and wholesale residential call baskets (£ per month)

Basket	Guernsey			Jersey		
	Retail	Wholesale	Profit as % retail	Retail	Wholesale	Profit as % retail
Low user	6.76	3.14	54%	6.93	4.60	34%
Medium user	15.02	6.74	55%	9.08	7.62	16%
High user	32.32	14.49	55%	24.28	19.92	18%

On Guernsey the alternative operator can make a margin of more than 50% on the call baskets, but this is not possible on Jersey. For the medium user basket, the alternative operator makes only 16%. This is because 100 free local calls are included in the line rental, and as the number of local calls is within this allowance, the retail call prices

[19] This figure is based on calculations carried out by national regulatory authorities for pricing capacity based interconnection – see Sunrise Consultants Ltd. Capacity based interconnection – has its time come? July 2006. Available at http://www.sunriseconsultants.com/cbi.html

are reduced. The percentage is slightly higher for the high user call basket because this basket has a greater number of chargeable calls in it. The free calls offer is not available to the alternative operator, which has to pay origination and termination charges for each call.

If the value of the free local calls and other discounts (£4 per month) are added to the retail baskets, the profit margins available to the alternative operator rises to 42% and 55% for the medium and high user baskets. These figures for the medium basket are still below those available in Guernsey, while they are the same for the high user basket.

However when we include the costs of the interconnection links in the termination and transit fees, the margins available to OLOs fall, as shown in Table A2.13.

Table A2.13: Retail and wholesale residential call baskets with interconnection link charges (£ per month)

	Guernsey			Jersey		
	Retail	Wholesale	Profit as % retail	Retail	Wholesale	Profit as % retail
Low user	6.76	3.99	41%	6.93	5.56	20%
Medium user	15.02	8.46	44%	9.12	9.60	-5%
High user	32.32	17.58	46%	24.28	23.71	2%

The interconnection link charges reduce the margins available to OLOs by about 11 percentage points on Guernsey, and by about 14 percentage points on Jersey. As a result, an OLO serving a medium user on Jersey makes a loss because of the number of calls that are free in the retail package, whereas an OLO has to pay for each call at the retail level.

Residential broadband customers

On both islands a wholesale DSL service is available, and in the next table we show the retail and wholesale prices for the entry level services. On Jersey a connection charge is included for both retail and wholesale products, and we have spread this over five years in our calculations.

Table A2.14: Retail and wholesale residential DSL services (£ per month)

	Guernsey			Jersey		
	Retail	Wholesale	Profit as % retail	Retail	Wholesale	Profit as % retail
2 Mb	24.99	16.00	36%	18.82	11.53	39%

The profit margin available is similar on both islands, although below some of the margins available for calls. In addition to the line charges, ISPs have to pay charges to the incumbent operator for backhaul to their point of presence, and for transport to the point of access to a Tier 1 ISP. In Table A2.15 we show the costs involved in backhaul, where we have assumed that the ISP will have two on-island circuits and one off-island circuit (at twice the price of a half circuit). This analysis excludes costs such as servers, power, buildings and retail costs.

Table A2.15: DSL backhaul costs (£ per month)

	Guernsey			Jersey		
	Product	one off charge	monthly rental	Product	one off charge	monthly rental
On island backhaul	SP 100 mb	14213	2100	Private connect mains 155 Mb over 300 m	8986	1047
Router						1460
Router cards			150			150
Off island backhaul	Guernsey - UK 100mb over Hugo		4004	Half circuit Jersey - UK 100 Mb Ethernet	2375	7997
Internet access			6000			6000
Monthly total			18833			18039
Cost per customer			6.28			6.01

The cost of backhaul links are about £6 per customer per month. This calculation assumes 3,000 customers, and not surprisingly the profit margin depends strongly on the number of customers. In Table A2.16 we show how the available profit margin (calculated as the wholesale line charge plus the backhaul costs as shown above as a percentage of the incumbent operator's retail price) varies according to the number of customers.

Table A2.16: DSL margins

Number of customers	Guernsey Cost per customer (£/month)	Margin %	Jersey Cost per customer (£/month)	Margin %
1000	18.83	-39	18.04	-57
2000	9.42	-2	9.02	-9
3000	6.28	11	6.01	7
4000	4.71	17	4.51	15
5000	3.77	21	3.61	20
6000	3.14	23	3.01	23

We have made some calculations based on the published wholesale prices for broadband products. As the table shows, an ISP needs to have about 5,000 customers before it can start making over 20% on its DSL service. This represents a market share of around 10%. After 6,000 customers, the ISP would need to increase the size of its on island and off island backhaul as well as the size of the router, leading to additional costs and a reduction in margin.

Business narrowband customers

We have repeated the retail baskets for SOHO and SME customers, using prices available to wholesale customers, and we show the results in the table below.

Table A2.17: Retail and wholesale business call baskets (£ per month including discounts)

Basket	Guernsey			Jersey		
	Retail	Wholesale	Profit as % retail	Retail	Wholesale	Profit as % retail
Business SOHO	18.04	7.58	58%	10.61	9.45	11%

Business SME	568.33	306.49	46%	536.18	408.59	24%

The margins available to the OLOs on Jersey for SOHO customers are very low in comparison to Guernsey, and are probably below that needed to recover other network, sales and operational costs. This is again partly due to the retail discounts available to business customers, which are not available to wholesale customers. In the next table we show the same data as in Table A2.17 ignoring the discounts.

Table A2.18: Retail and wholesale business call baskets (£ per month excluding discounts)

	Guernsey			Jersey		
	Retail	**Wholesale**	**Profit as % retail**	**Retail**	**Wholesale**	**Profit as % retail**
Business SOHO	18.04	7.58	58%	14.61	9.45	35%
Business SME	811.91	306.49	62%	760.85	408.59	46%

The margins available on Jersey rise to 35% and 39% for SOHO and SME business customers, but are still significantly below those available in Guernsey. The differences are now due to the higher call origination and call termination rates in Jersey. If the rates applicable in Guernsey were used in Jersey, the profit margin available to the OLOs in Jersey would rise to 56% (SOHO) and 61% (SME), comparable to those available in Guernsey.

When the costs of the interconnection links are added, OLOs on Jersey make a loss on serving SOHO business customers, and the margin available for SME customers is only 11%, as shown below:

Table A2.19: Retail and wholesale business call baskets (£ per month including discounts and interconnection link charges)

	Guernsey			Jersey		
	Retail	**Wholesale**	**Profit as % retail**	**Retail**	**Wholesale**	**Profit as % retail**
Business SOHO	18.04	8.86	51%	10.61	10.86	-2%
Business SME	568.33	366.56	36%	536.18	475.19	11%

Business broadband customers

In the table below we show the wholesale and retail prices for DSL services for business customers (using the figures in Table 18 for 3,000 customers). The profit margins available to the OLOs are very similar on Guernsey and Jersey.

Table A2.20: Retail and wholesale business DSL services (£ per month)

Speed	**Download limit**	**Retail**	**Wholesale**	**Profit as % retail**	
				without backhaul	**with backhaul**
Guernsey					
4 Mb/512		49.99	32.00	36%	23%
8 Mb/768		79.99	49.00	39%	31%
Jersey					
2 Mb/512	up to 40 Gb	36.82	22.33	39%	23%
	up to 80 Gb	50.82			
	unlimited usage	75.82			

Business leased line customers

A comparison of the wholesale and retail prices for the leased line basket shows that the profit margin available on Jersey (11%) is half that available on Guernsey (22%). It is unlikely that the margin available on Jersey covers the cost of sales and marketing of the alternative operators.

Table A2.21: Retail and wholesale leased line basket (£ per month)

	Guernsey			Jersey		
	Retail	**Wholesale**	**Profit as % retail**	**Retail**	**Wholesale**	**Profit as % retail**
Monthly cost	6770	5252	22%	7051	6248	11%

A2.4 Further analysis

We have made detailed comparisons between the retail and wholesale prices on Guernsey and Jersey. This is because we think that the conditions on the two islands are very similar, and that it would be reasonable to expect similar prices. The use of price baskets has enabled us to even out differences between individual prices, which are to be expected in different jurisdictions. However the comparisons have illustrated some important issues, which we analyse further below.

Retail narrowband prices

Retail prices on Jersey are overall higher than on Guernsey. We summarise the difference between the two islands for the six baskets in Table A2.22.

Table A2.22: Price basket comparison (£ per month)

Basket	Guernsey	Jersey	Difference
Low user residential	15.92	20.94	32%
Medium user residential	24.17	27.09	12%
High user residential	41.48	42.29	2%
Business SOHO	27.21	28.50	5%
Business SME	843.23	1072.83	27%
Business leased line	6770	7051	4%

The comparisons with the OECD countries show that the overall level of prices on Jersey are in the middle of the range for OECD countries, and for the high user residential, business SOHO and business leased line baskets the price differences between Guernsey and Jersey are minor. However continued pressure on retail prices through the retail price control will be necessary to bring them closer to those in Guernsey.

The difference between the low user basket reflects the higher line rental in Jersey, which is more significant in the low user basket than in the other baskets. The differences between the business SME baskets reflect the greater discounts available on Guernsey.

Retail broadband services

The retail DSL prices for both business and residential customers are similar on the two islands. However the lack of faster speeds on Jersey should be a matter of

concern, and as noted in a recent newspaper article[20], this points to a lack of innovation in Jersey Telecom.

Wholesale margins

The most important conclusion from this analysis is the lack of sufficient margins for the OLOs on Jersey. We summarise the margins available to the OLOs for the six call baskets below.

Table A2.23: Profit margins available to the OLOs

Basket	Guernsey	Jersey
Low user residential	54%	34%
Medium user residential	55%	16%
High user residential	55%	18%
Business SOHO	58%	11%
Business SME	46%	24%
Business leased line	22%	11%

In all cases the margins available on Jersey are significantly below those available on Guernsey. Except in the case of the business SME and the low user residential baskets, the margins are below the 20% figure often used in retail minus pricing formulae. It is important to remember that these margins are the maximum margins available as the OLOs usually have to offer prices below those of the incumbent operator in order to attract customers. The OLOs also have to recover their retail costs, costs of transmission and a return on capital from these margins.

As the analysis above shows, the low margins are due to three main causes:

- the bundling of calls and line rental packages, which are not available to alternative operators
- the large discounts available to large users, which bring some retail prices below the sum of the origination and termination prices
- the high call origination and call termination charges in comparison to retail prices.

Bundling of calls and rental

The OLOs cannot replicate Jersey Telecom's bundle of line rental and calls because there is no equivalent of wholesale line rental available. To be properly replicable, wholesale line rental, carrier pre-selection and fixed number portability must be made available by Jersey Telecom. To provide Jersey Telecom with an incentive to provide these wholesale products quickly, it could be prevented from offering the residential and business bundles until an acceptable wholesale equivalent was available.

Business discounts

In Table A2.24 we analyse the cost of providing calls, as measured by the price of origination and termination, and compare it with the price charged after the discount has been taken into account. We have used the origination rate charged by Jersey Telecom for all calls, and the following termination rates (as used in the basket calculations above):

[20] Peter Body. Have we got our priorities right on the telecoms scene? Jersey Evening Post 26 May 2009

- local calls – the Jersey Telecom termination rate
- national calls – the C&W Guernsey termination rate
- international calls – the termination rate charged by France Telecom
- calls to mobile – the mobile termination rate charged by Jersey Telecom.

Table A2.24: Price and cost of discounted calls (pence per minute)

Monthly spend	**Local calls**			**National calls**		
Premier	**Price**	**Cost**	**Profit margin**	**Price**	**Cost**	**Profit margin**
£0 - £99	2.3	2.6	-14%	3.5	1.7	53%
£100 - £499	1.6	2.6	-63%	3.2	1.7	47%
£500 - £1499	1.6	2.6	-63%	2.4	1.7	30%
£1500 - £2999	1.6	2.6	-63%	2.3	1.7	28%
£3000 - £4999	1.6	2.6	-63%	2.2	1.7	26%
£5000 - £6499	1.6	2.6	-63%	2.2	1.7	24%
£6500 - £8499	1.6	2.6	-63%	2.1	1.7	21%
£8500 - £10499	1.6	2.6	-63%	2.0	1.7	18%
over £10500	1.6	2.6	-63%	2.0	1.7	15%
PremierPlus						
£100 - £499	1.6	2.6	-63%	3.5	1.7	53%
£500 - £3500	1.2	2.6	-128%	2.0	1.7	18%
£3501 - £7499	1.2	2.6	-128%	1.9	1.7	12%
Over £7500	1.2	2.6	-128%	1.8	1.7	9%
Premier	**International calls**			**Calls to mobile**		
£0 - £99	7.0	2.4	65%	12.0	6.9	42%
£100 - £499	6.2	2.4	60%	10.8	6.9	36%
£500 - £1499	4.5	2.4	45%	7.7	6.9	10%
£1500 - £2999	4.3	2.4	44%	7.4	6.9	7%
£3000 - £4999	4.2	2.4	42%	7.2	6.9	4%
£5000 - £6499	4.1	2.4	40%	7.0	6.9	1%
£6500 - £8499	3.9	2.4	38%	6.7	6.9	-3%
£8500 - £10499	3.8	2.4	35%	6.5	6.9	-7%
over £10500	3.6	2.4	33%	6.2	6.9	-11%
PremierPlus						
£100 - £499	7.0	2.4	65%	12.0	6.9	42%
£500 - £3500	4.1	2.4	40%	7.0	6.9	1%
£3501 - £7499	3.8	2.4	35%	6.5	6.9	-7%
Over £7500	3.6	2.4	33%	6.2	6.9	-11%

As the table shows, all local calls are below cost, especially in the PremierPlus scheme. If we assume that a margin of 20% is necessary to recover retail related costs, most of the calls to mobile are also below cost. Given that over 50% of the SME call basket is spent on these two call types, these discounts have a serious impact on the ability of the OLOs to compete with these discounts. As Jersey Telecom sets both the wholesale and the discounted retail prices, it appears that a price squeeze is present for local calls and for most calls to mobile from large business customers. Moreover, the loss on certain calls must be cross-subsidised from profits elsewhere, and this is contrary to Clause 30.1 of JT's licence (which prohibits unfair cross subsidies).

High interconnection prices

As Table A2.10 has shown, the termination, origination and on-island transit rates on Jersey are at least double those charged on Guernsey. This is an unacceptable position because:

- costs of origination, termination and transit rates and charges for interconnection links on Jersey should be similar to those on Guernsey
- differences in the rates are not reflected in retail prices, which are similar on the two islands
- margins available to the OLOs on Jersey do not promote competition.

To date interconnection prices have not be subject to detailed regulatory oversight, and we suggest that a system for controlling and approving wholesale prices is urgently needed in Jersey.

Annex 3 Performance analysis

A3.1 Method

We undertook a comparison of the performance of JT and C&WG in order to understand the reasons for the price differences between the two operators discussed in Annex 2 and whether there is a need for additional pressures on JT's costs. We have restricted the comparison of JT to C&WG because it is the closest comparator to JT in terms of scale and market.

We have based this comparison on an analysis of JT's separated accounts for 2007 and C&WG's separated accounts ending 31 March 2008[21]. We have identified four relevant items:

- turnover (revenues from external sources excluding transfer receipts within the business)
- direct operating costs
- profit (defined as turnover minus direct operating costs)
- tangible fixed assets (as representing investment in network assets)

In our turnover calculations for the fixed business we included transfer receipts from the mobile and other businesses, and in the calculations for the mobile business transfer receipts from fixed and other businesses were included. These receipts were excluded from our calculations for all businesses. In the calculations of direct operating costs, transfer payments are treated in the same way.

A3.2 Results

We have calculated performance ratios and figures for the fixed network business, mobile network business, and all businesses (which include other activities as well as the fixed and mobile businesses). In Table A3.1 we show the raw data for the three business areas. JT is the larger of the two operators, with greater turnover, operating costs and fixed assets in all businesses.

Table A3.1: Accounts for fixed, mobile and other businesses (£ 000)

	Fixed		Mobile		All businesses	
	C&WG	JT	C&WG	JT	C&WG	JT
Turnover	30,426	redacted	21,282	redacted	58,574	redacted
Direct operating costs	22,254	redacted	14,459	redacted	43,275	redacted
Profit	8,172	redacted	6,823	redacted	15,299	redacted
Tangible fixed assets	23,731	redacted	5,733	redacted	32,945	redacted
Tangible fixed assets at HCA					28,140	>>d

C&WG values its fixed assets on a current cost basis, while JT uses an historic cost basis. However C&WG's accounts provide a reconciliation with its statutory

[21] Cable and Wireless. Statements of published separated regulatory accounts for the year ending 31 March 2008. Available at http://www.surecw.com/guernsey/PDF/Statements%202008.pdf

accounts, and this has allowed us to show its total fixed assets on an historic cost basis.

We have taken four simple measures of performance:

- operating costs as a percentage of turnover (including transfer receipts)
- profit as a percentage of turnover
- turnover as a percentage of tangible fixed assets
- return on assets (profit as a percentage of tangible fixed assets).

The first measure gives an indication of operational efficiency, the second a measure of overall efficiency, and the last two a measure of the efficiency of asset utilisation.

Table A3.2: Performance ratios

	Fixed		Mobile		All businesses	
	C&WG	**JT**	**C&WG**	**JT**	**C&WG**	**JT**
Operating costs as % of turnover	73%	redacted	68%	redacted	74%	redacted
Profit as % of turnover	27%	redacted	32%	redacted	26%	redacted
Turnover as % of assets	128%	redacted	371%	redacted	178%	redacted
Return on assets	34%	redacted	119%	redacted	46%	redacted
Return on assets (HCA)					54%	<%

While C&WG has a slightly higher proportion of operating costs in its fixed business, JT has a much higher proportion of operating costs in its mobile business, and this is reflected in a higher profit percentage for C&WG's mobile business. C&WG achieves a better utilisation of its assets in all business areas.

We also analysed the two operators' performance by the number of fixed and mobile customers they had at the end of 2007. We think that this is a good measure of output as several costs are directly related to the number of customers (line costs and retail costs, for example). We did examine the number of minutes, but found it difficult to find comparable figures between the two islands. As this measure will not capture the leased line and broadband markets, we decided not to use it. We show the number of customers used in our analysis below.

Table A3.3: Customer numbers at the end of 2007

	C&WG	**JT**
Number of fixed customers	55,285	58,771
Number of mobile customers	48,000	70,895

Sources: Office of Utility Regulation. Telecommunications Market Report January – June 2008. 09/04. February 2009.

Jersey Competition Regulatory Authority. Telecommunications Statistical Review 2007

In the following table we show the turnover, profit, operating costs and the value of fixed tangible assets on a per customer basis.

Table A3.4: Performance per customer (£)

	C&WG	JT	JT as % of C&WG
Fixed			
Turnover per customer	550	redacted	>>%
Operating costs per customer	403	redacted	>>%
Profit per customer	148	redacted	>>>%
Fixed assets value per customer	429	redacted	>>>>%
Mobile		redacted	
Turnover per customer	443	redacted	>>%
Operating costs per customer	301	redacted	>>>%
Profit per customer	142	redacted	>%
Fixed assets value per customer	119	redacted	>>>%
All businesses			
Turnover per customer	567	redacted	>>%
Operating costs per customer	419	redacted	>>>%
Profit per customer	148	redacted	>%
Fixed assets value per customer	319	redacted	>>>>%
Fixed assets value per customer (HCA)	272	redacted	>>>>%

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On this measure, JT has a higher turnover and profit per customer (except for its profit in the mobile business), and a higher operating and capital cost per customer in all businesses. In the fixed network, JT's operating costs in the fixed network are <>% greater, and its capital costs <>% greater. For the fixed and mobile businesses, C&WG's fixed assets are valued on a current cost basis, and while we do not have these figures on an historic cost basis, it is likely that the asset ratios would be lower than shown above because C&WG's fixed assets for all its businesses is lower.

In order to compare the total cost base of the two operators, we have annualised the fixed network assets by adding together:

- depreciation (calculated at 18% of the value of fixed assets, which was derived from JT's statutory accounts, and using the same ratio for C&WG)
- return on capital employed (calculated at 11.6%, which is the regulated rate of return on both Jersey and Guernsey)

We show the results below.

Table A3.5: Comparison of annualised costs (£ per customer)

	C&WG	JT	JT as % of C&WG
Fixed			
Operating costs	403	redacted	>>%
Annualised capital costs	128	redacted	>>>%
Total annual costs	530	redacted	>>%
Mobile			
Operating costs	301	redacted	>>%
Annualised capital costs	36	redacted	>>>%
Total annual costs	337	redacted	>>>%
All businesses			
Operating costs	419	redacted	>>>%
Annualised capital costs (HCA)	81	redacted	>>>>%
Total annual costs (HCA)	500	redacted	>>>%

JT's operating and capital costs are overall <>% greater than C&WG's in the fixed network business, and by <>% in the mobile business. Of course, C&WG is the smaller of the two operators, and hence JT should benefit from some additional economies of scale, especially in its mobile network. Hence on a like for like basis, the difference may be slightly greater.

A3.3 Conclusions

We conclude that the differences in retail prices between Guernsey and Jersey described in Annex 2 are due to higher operating and fixed network costs in Jersey Telecom, and that there is significant scope to improve the efficiency of JT through reductions in its operating and capital costs.