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Cloud Computing

Cloud computing is one of the latest technology trends to capture the attention of businesses, consumers, and investors alike.

One of the choices for the future

Cloud computing - a hot topic of the future

IT practitioners believe that cloud computing offers many benefits to an organisation and even it may significantly change the way company delivers services and opens up rooms for innovation and costs saving. Yes, it is partly true, as cloud computing delivers computing as a service rather than a product over unlimited networks (typically the internet). As a result, it provides computation, software, data access and storage services that do not require end-user knowledge of the physical location and configuration of the system that delivers the services. With this model, cloud computing is a promising method to increase flexibility, responsiveness and cost savings of IT service delivery through better utilisation and decreased maintenance. In the end, an organisation may have a better return on technology investments. The

potential benefits that cloud computing can bring to the businesses, consumers and investors are perceived to be huge. A survey by PwC predicts that by 2014, the typical IT infrastructure for today's customers of ITO services will rely on cloud computing for more than a third of their IT resource base, including the public cloud as a small part of that.

What is cloud computing anyway?

Cloud computing, according to many people, is another name or an extension of computing virtualisation, a technology introduced in the mainframe computing era. It's somewhat true: virtualisation is one of the key underlying technologies that make cloud computing possible. Virtualisation consists of a set of technologies that enable systems and applications to share IT resources such as servers, storage, and networking. It masks the complexity of the resources being shared and their location, which effectively simplifies the use of the IT environment. Virtualisation technology reduces significantly the costs to acquire servers, storage, network, desktops or applications when they are properly adopted. There are three typical models of cloud computing: *public, private and hybrid clouds*. Each gives different benefits and challenges to an organisation.

Three models: Private, Public or Hybrid Cloud Computing

Private clouds

Private cloud computing already started in the mainframe era , as the mainframe data center was the original internal cloud within the enterprise. It also was the original virtualised computing platform.

That is probably why the mainframe data center veterans wonder why there are such high levels of interest in virtualisation, software as a service (SaaS) and infrastructure as a service (IaaS), or cloud computing, as it is not a new thing. Certainly, the technologies involved today have evolved considerably, but these data center veterans are correct from a historical perspective.

Today some might describe the enterprise data center, the classic glass house, as a private cloud simply because it is a single resource delivering IT as services over the network to applications and to users behind the corporate firewall.

This old-style private cloud actually introduced huge amounts of unused capacity and in case of any problems, a risky transition from one machine to the other during which applications would be unavailable for hours or days.

A better definition of private cloud computing is the acquisition, provisioning, and management of data center resources in a hyper efficient and agile way.

The private cloud definition above emulates the leading practices of public cloud service providers such as Amazon.com, Google, and Microsoft while adding the needed security and controls appropriate to specific enterprises needs.

Public clouds

The public cloud exists today and many organisations already use it for SaaS solutions or to augment their existing IT capabilities through IaaS offerings. Cloud computing, private or public, produces a highly dynamic technology environment that can drive multiple value propositions.

These include green IT, continuous application availability, and instant environment scale-up and scale-down in a consumption-based cost model.

Hybrid clouds

By extending the private cloud to access public cloud resources, usually IT infrastructure resources, the organisation creates a hybrid cloud, which combines both private and public cloud resources. This will provide plenty rooms for innovative services from an organisation.

Telco companies are in a very good position to promote cloud computing services, and even extend their business, with the network and infrastructure coverage they own. With the significant expansion of the need of data communication and data storage by the business, Telco companies will have advantages by offering private, public or hybrid cloud computing based services to companies in various industries.

What changes you need to consider?

Cloud computing is more than an advance in technology. It represents transformation for your entire organisation — people, processes, and systems, regardless of the industry.

Finance — Identifying cloud services and analysing accounting models will help your organisation determine how to proceed most efficiently and effectively with activities such as research and development and revenue recognition.

Internal audit — In order to accommodate the move to cloud computing, cloud service providers will need to modify, upgrade, or replace systems to process, measure, and control use. This will also be critical for billing. Providers should have the right SLAs in place, and a process to monitor those SLAs. Buyers of cloud services must give themselves the same controls and monitoring environment in the cloud that they do on internal networks and servers. This is much more challenging, as your organisation no longer controls the hardware. Methods of applications management may change significantly.

Tax —If you're buying or selling cloud computing services, it is critical to determine what you're buying or selling. You may be leasing equipment, making service payments, or paying a license for using software — these distinctions are important and can have an impact on your company's tax exposures. Current tax law does not necessarily reflect the realities of cloud computing. Cloud computing transactions aren't quite leases and aren't quite services, but tax law requires them to be classified in one of these two categories. Eventually, tax regulations will be updated and clarified. Now, there isn't enough consensus.

Risk and compliance — Cloud computing represents a risk, as it moves data and information into the hands of a third-party provider for storage, processing, or support. Buyers of cloud services will need to set the criteria for the evaluation of cloud computing providers; whereas providers will need to consider which cloud services to provide. Then, your organisation will need to be able to explain the next steps that are required in order to mitigate the risks of moving into a cloud computing environment.

Marketing and sales — New services and products lead to new sales models and customer interfaces. To realize the full potential of cloud computing, your organisation needs to understand the value of these products and services, and then price them correctly.

Vendor lock-in — The viability and capabilities of small and startup cloud vendors could be a concern for long term continuity of service. Enterprises that are using proprietary vendor technology may incur heavy costs if they are to move to another cloud platform.

Regulation — Many countries demand on shore IT processing and storage. One of the objective is for an information security protection. As the cloud computing reduces the users' knowledge of the IT processing location, the information security regulation in some countries, on the other, protects the information processed or stored outside their jurisdiction.

Managing the use of cloud computing technology

Greater agility, accelerate innovation, flexibility

Cloud computing can help businesses meet demands for greater agility as it is changing the ability for companies to deliver solutions at the new speed of business.

Cloud computing solutions have the potential to accelerate innovation and time-to-market, enhance customer engagement, and improve connections across the network of suppliers, time zones, and cultures.

Cloud computing can deliver lower IT costs and increased efficiencies, and it also provides powerful new opportunities to drive business growth. Cloud computing allows companies to create new and broader lines of business by partnering with external providers.

It is critical to involve the CIO at the early stage

CIOs are uniquely qualified to lead a cloud strategy, thanks to their intricate knowledge of IT. While in-depth understanding of technology is critical, no less important is the ability to articulate the business impacts and opportunities of cloud computing to the C-suite.

CIOs should prudently evaluate all IT functions as candidates for cloud computing and be prepared to identify new business opportunities that will deliver the best return on investment.

CIOs can also proactively design governance mechanisms to evaluate, procure, implement, and consume cloud services.

Adoption of cloud delivery models can disrupt IT operating models, and the CIO must be prepared to manage the impact on the IT workforce.

The chief executives can set the tone for the cloud strategies

CEO

Cloud computing signifies an era of computing where flexibility in IT drives business agility and a higher level of innovation and customer engagement

Critical questions to consider:

- How can you communicate the transformational potential of cloud computing to senior management and the board?
- What business value does cloud bring beyond the IT benefits and how do you identify and gain those benefits?
- How can you exploit strategic opportunities while managing risk to the business (finance, tax, operational and IT)?

CFO

Cloud computing also shifts spend from capital expenditure to operational, allowing enterprises to make investments closer to the time of actual returns.

Critical questions to consider:

- How do you manage the unpredictability of costs in a pay as you go model?
- What are the implications of moving to a service model from an accounting and tax perspective?
- How can IT costs reflect the needs of individual business units?

CIO

An IT environment built with cloud principles — on-demand, elastic and usage-based pricing — delivers value to the end customer by linking the end customer experience to the enabling layers of the IT stack from infrastructure to applications.

Critical questions to consider:

- Which of the strategic imperatives can cloud solutions help right away?
- What is the roadmap that creates incremental benefits on the way to adopting cloud computing?
- How can IT better align with product development to support your changing business model?
- How does your talent strategy need to change to support an Evergreen IT infrastructure?

CAE

Chief Audit Executives need to take a proactive role engaging the C-suite and business leaders to understand what data and applications may be moved to the cloud.

They then should investigate specific risks and controls for near-term cloud adoption. They need to re-evaluate their annual risk assessment, audit scope, and resources to support its company's cloud strategy.

Identifying the right path for your company: Three scenarios

When it comes to the enterprise view of the cloud computing opportunity today, PwC has determined that companies fall on a continuum from not considering cloud computing atall to fully leveraging cloud computing. For conceptual simplification, however, PwC has defined three common paths that reflect where most organisations are today. Senior executives should identify which cloud path their organisation appears to be on, determine which cloud path is most appropriate for the future, determine if there is a significant gap, and set a strategy for closing the gap.

Path 1: Have strategy and pieces but need to connect the dots

- *Starting point:* Have some cloud components deployed and have a strategy
- *Desired outcome:* Transition to an internal cloud environment with the ability to connect to the external cloud as desired
- *Likely gaps:* Confusing governance; conflicting standards
- *Obstacles/challenges:* Filling in the remaining cloud components internally, connecting legacy back-end systems, and porting applications to the internal cloud
- *Next steps:* Continue to add cloud components, simplify governance, and enforce a single set of standards

Path 2: Have virtualisation and some cloud components but lack vision and strategy

- *Starting point:* Have deployed mainly virtualisation components and a few cloud components, and are implementing point solutions
- *Desired outcome:* Transition to a fully virtualized environment capable of transitioning to an internal cloud environment
- *Likely gaps:* Lack of vision; no cohesive strategy for cloud computing
- *Obstacles/challenges:* Educating both IT and management on the opportunities and value of cloud computing; lack of technical and business leadership on this issue
- *Next steps:* Identify a management leader, paint the organisation 's vision for virtualisation and cloud, and secure buy-in from management and IT

Path 3—Have the interest and vision but unsure of getting started

- *Starting point:* Have interest and the beginnings of a cloud vision, but are not sure where they stand in regard to virtualisation, IT automation, and cloud computing
- *Desired outcome:* Transition to an efficient IT environment that uses virtualisation, SOA, and cloud computing to achieve an agile organisation
- *Likely gaps:* Benchmarking needed to identify where they are and how to proceed
- *Obstacles/challenges:* Developing a workable strategy and beginning an orderly implementation of cloud components
- *Next steps:* Develop a business and IT strategy and initiate the implementation based on the results of benchmarking

Cloud computing certainly gives promises and hopes in creating new market opportunities and more innovative ways of delivering services and new businesses. In Indonesia, mobile operators will definitely play a key role in delivering the cloud computing infrastructures and services, considering the extensive network coverage , infrastructures and numbers of subscribers they have. Although, some issues such as increasing bandwidth capacity, network and data storage, information and data security, and regulations, will become the fundamental challenges in the future. The regulators on the other hands, plays an important role to set the tone and become the “driver” in embracing the cloud computing technology, both in public and private sectors.

Proposed overhaul of accounting for leases - a significant issue for the telecommunications industry

Application: A final standard is expected in the first half of 2012. The application date is yet to be determined.

What is the issue?

On 17 August 2010 the International Accounting Standards Board and Financial Accounting Standards Board (the "boards") issued the Exposure Draft Leases ("ED"). The proposals describe an accounting model that would significantly transform lease accounting.

The ED proposes a new model for lessee accounting whereby a lessee's rights and obligations under existing and new leases would be recognised on the balance sheet.

The proposal requires lessees and lessors to estimate the lease term and contingent payments at the beginning of the lease and re-assess the estimates throughout the lease term. This activity will require more effort and judgement than under existing standards.

The boards received over 770 comment letters in response to their ED (key themes are discussed in the following pages). There is indication that the boards are willing to address some of the issues raised by constituents; however, formal decisions are yet to be made.

The boards are aiming to issue the final standard in H1 2012. A re-exposure or review draft is expected in Q3 2011.

The discussion in this paper is intended for companies who have adopted full IFRS issued by the IASB. Currently, Indonesian Financial Accounting Standard (IFAS) no. 30 (revised 2007) – Leases, was based on IAS 19 as at 1 January 2009.

Note. In this document we consider the proposed changes to accounting for leases in the ED. Any conclusions noted here are subject to further interpretation and assessment based on the final standard. Talk to your usual PwC contact for the latest updates.

Why is this significant for the telecommunications industry?

Considering the diversity of transactions in the telecommunications industry, most operators find themselves in lease contracts where they are both lessors and lessees. Typical agreements in which telecom companies act as a lessee include leases of land (for Base Transceiver Station ("BTS") sites), telecommunication infrastructure, office building leases, store leases, equipment leases, vehicles and other day-to-day operational assets. There are also a multitude of other agreements that could qualify as leases, depending on whether they fall within the scope of the ED. Such leases include capacity contracts, wayleaves and rights of access, satellite broadcasting contracts and IT outsourcing agreements.

If adopted, the proposals will have pervasive business and accounting impacts. In particular, the impact on financial reporting could be substantial in the telecommunications industry. For example:

- expense recognition patterns will change. While cash payments remain unchanged, the profit or loss will have a front-loading of expense. Cash payments versus expense recognition will further diverge, particularly for long term leases such as leases related to BTS sites. While cash payments remain unchanged, the profit or loss will have a front-loading of expense with higher expenses recorded in earlier years. Management's judgement concerning renewal options and contingent rents, such as lease payments based on capacity usage, may produce significant income statement volatility;

- most leases will generate a liability for lessees. Analysts and credit agencies are underestimating the significance of the liability when adding back "debt-like" items for operating leases. A material lease liability could be added to the balance sheet for significant' capital items such as BTS sites as well as offices and telecom service provider stores. As such, the liabilities may be substantial and have a significant impact on the debt to equity ratios of telecommunications companies, which in turn may have an impact on debt covenants;

- decision points and data needs will change. Structuring consideration will change to focus on liability and volatility reduction as opposed to obtaining operating lease treatment. Data needs for ongoing reporting will change significantly. Bonus plans and performance measures under EBITDA in the telecommunications industry will need to be reconsidered. In some instances, companies are considering a new measurement based on EBITDAR (earnings before interest tax, depreciation amortisation and rental costs);

- lease-versus-buy decisions should be revisited. Without the desired accounting treatment for operating leases, management may prefer to purchase assets rather than enter into lease arrangements, in particular for leases of small ticket items such as computers or office equipment. Lessors may want to consider how these proposals might affect their business strategies;

- IT systems and internal processes may need updating. Additionally, current leasing software and systems will be incapable of handling the new requirements necessitating upgrades and enhancements to the source code.

What are the overarching proposals?

The key elements of the proposals and their effect on financial statements are as follows.

Lessee accounting

The proposal effectively eliminates off-balance sheet or operating lease accounting for most leases. Most assets currently leased under operating leases would be brought onto the balance sheet. The board is currently considering if leases of approximately 12 months or less should continue being accounted for as operating leases. Entities in the industry have assumed that leases will apply accounting similar to the current guidance for finance leases; however, the measurement of the right-of-use asset and lease liability is significantly different to existing finance lease accounting. Also, the balance sheet impact has received the most press, but there are significant changes from operating leases to the tinning of the recognition of expenses in the income statement.

The significant impacts of the proposals include:

- a right-of-use asset (representing the right to use the leased item for the lease term) and an obligation (representing the obligation to pay rentals) would be recognised and carried at amortised cost, based on the present value of payments over the term of the lease;

- following re-deliberations, the lease term would include optional renewal periods that have a `significant economic incentive'. During re-deliberations, the boards tentatively decided that extension options are those that provide 'a significant economic incentive' for an entity to exercise an option. In practice, this means that lease terms may be similar to those determined under the existing standards. However, determining whether a renewal option is expected to be exercised is not dependent on management intent or past practice; rather it is based on whether a significant economic incentive exists at the time of the assessment;

- under the ED, the use of an `expected outcome' approach to estimate lease payments was proposed in order to measure the initial value of the lease asset and liability. This approach would include consideration of certain contingent amounts, such as rents linked to variables such as the Consumer Price Index ("CPI"). However, in recent re-deliberations, the boards have tentatively decided that the estimate should only include contingencies that are: i) based on a rate or index; ii) are 'disguised' as a fixed lease payment; and iii) have residual value guarantees which are expected to be paid. This would mean that estimated lease payments will not be as subject to judgement as originally proposed in the ED;

- under the ED, lease renewals and contingent rents would need to be continually reassessed by entities, and the related estimates adjusted as facts and circumstances change. However, in recent re-deliberations, the boards have decided that reassessment of the lease term should be performed only under certain circumstances. This would substantially reduce the time entities would need to invest in reviewing estimates and updating correlating numbers; it was a common issue raised by entities in response to the proposals;

- the boards had tentatively decided that leases would be allowed to (but not required) to account for short-term leases similar to current operating lease accounting. However there is clear indication that board members are uncomfortable with this earlier decision and would prefer materiality to be used to determine whether a lease is recognised by a lessee. A decision is yet to be made; and

- a tentative decision has been made that, where there is a modification to a lease contract, the modified lease should be accounted for as a new lease. Where there is a change in circumstances that would affect the assessment of whether a contract is or contains a lease, both lessee and lessor should perform a reassessment. If this changes the conclusion as to whether a contract does or does not contain a lease, the lease should either be recognised or derecognised accordingly.

Presentation and disclosure

Due to the significantly expanded use of estimates and judgements in the proposed lease standard, disclosure requirements will go well beyond those required under the current leasing standard. This may include: quantitative and qualitative financial information that identifies and explains the amounts recognised in financial statements arising from lease contracts and a description of how leases
may affect the amount, timing; and uncertainty of the entity's future cash flows.

Specific disclosures would also be required. For example, a description of the nature of an entity's leasing arrangements, the existence and terms of optional renewal periods and contingent rentals, and information about assumptions and judgements. In addition, any restrictions imposed by lease arrangements, such as dividends, additional debt, and further leasing should also be disclosed.

The following disclosures would also be required under the proposals.

- Information about the principal terms of any lease that has not yet commenced if the lease creates significant rights and obligations (such as significant leases of land with a view to erect BTS sites).

- A reconciliation between the opening and closing balances of right-of-use assets and obligations to pay rentals, disaggregated by class of underlying asset.

- A narrative disclosure of significant assumptions and judgements relating to renewal options, contingent cash flows, and the discount rate used. For example, the renewal options included in many leases of land for BTS sites. In the past such contracts may have given the operator an option to renew indefinitely. The assumptions used to determine the lease term are critical and would need to be disclosed.

- A maturity analysis of the gross obligation to pay rentals showing: (a) undiscounted cash flows on an annual basis for the first five years and a total of the amounts for the remaining years; and (b) amounts attributable to the minimum amounts specified in the lease and the amounts recognised in the balance sheet.

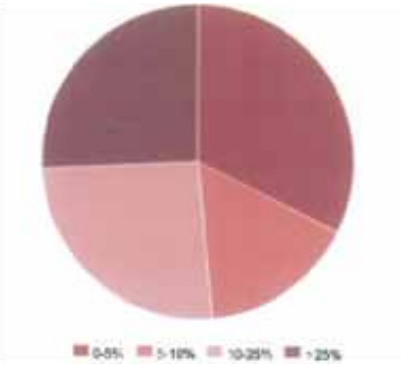
- Additional disclosures would apply if: (a) the simplified option for short-term leases is elected; (b) significant subleases exist; or (c) there is a sale-leaseback transaction (which is often the case where SRS sharing takes place).

How would typical terms & conditions in the telecommunications industry be affected?

Terms	Example	Existing accounting	New accounting	Potential impact on the telecommunication industry
CPI escalations	In many cases certain assets used by telecoms are leased rather than owned. These contracts have built-in rent escalation clauses for each anniversary date based on the change in the published CPI.	Treated as contingent rent which is not included in 'minimum lease payments' used for straight line rent purposes; rather the expense is recognised in each annual period based on actual increase in that period.	The new standard would require the lessee to include CPI escalations using the spot rate to measure its lease liability under these provisions for whatever lease term is utilised (including potential extension options) and include them in the calculations.	Management would need to determine the CPI escalations based on CPI curves obtained from the market. Alternatively management will need to apply judgements and estimates. This may in future preclude the use of such clauses.
Optional long term renewal periods (options to extend)	A telecom company enters into a lease of land for ten years for the purposes of erecting a $'I'S site. The provisions of the contract state that the lease can be renewed for an additional 20 years at the end of the current ten year lease.	The current lease model would include only those optional renewal periods that are 'reasonably certain' to be exercised. The lease of land may be considered an operating lease and thus "straight lining" would result in a constant periodic expense over the lease term.	The new leasing model would require the lease term to include the option renewal periods where there is a 'significant economic incentive'. This requirement is a different hurdle than 'reasonable certainty' and could feasibly result in different terms being included in the lease term. Consideration of 'significant economic incentives' may include factors such as rent payments in subsequent terms or the cost to replace the leased asset.	Telecom companies significantly affected by these changes should consider the terms of a renewal option. Management may in future not include 'option for renew' clauses in order to avoid the accounting thereof.
Capacity-usage rent	A telecom company enters into a capacity contract that meets the definition of a lease. As a lessee to the arrangement, the telecom company will pay a fixed fee per month for a specified level of capacity. Should this be exceeded, an additional charge will be levied on a per-unit-of-capacity basis.	These lease payments are treated as contingent rental arrangements which are not included in 'minimum lease payments' used for straight-line rent purposes; rather, the expense is recognised based on actual capacity when it becomes probable that capacity usage will exceed the specified level of capacity.	The boards need to finalise the 'definition of a lease' in the new lease model. There is consideration whether a lease for a 'non-physically distinct' portion of assets (such as capacity in a fibre optic cable) would meet the definition of a lease. If the arrangement meets the definition of a lease, the boards tentatively decided that variable rents based on performance or usage are excluded from the estimate of lease payments. As a result, percentage rent may continue to be treated the same as under the existing rules.	Management may need to consider the specificity of the asset being leased. Only specified assets are in the scope of the new lease model. The capacity usage rent is not expected to have an impact on business strategy.
Debt covenan	A telecom company has debt covenants which are close to being exceeded. The telecom company enters into leases for the majority of its assets and these are classified as operating leases.	No additional liabilities will be raised as these leases are classified as operating leases.	Liabilities would need to be raised for all leases regardless of classification. The debt covenants will be exceeded as these were not previously excluded from determining the debt covenants.	Management may need to consider debt covenants and lease terms when negotiating with banks to obtain additional credit. The implications will also need to be considered on current finance arrangements.
Foreign exchange	A telecom has a functional currency of Russian Ruble and signs a lease contract in Euros for an office in Moscow.	Currently, the Euro is closely related to a Russian company as the currency is commonly used in Russia. No embedded derivative would be required.	The liability will need to be determined in Euros and translated every reporting period into Russian Ruble. This will introduce significant volatility into the profit and loss due to foreign exchange risk.	Lease agreements should be entered into the functional currency of the entity to avoid volatility in the profit and loss.

How will this affect the financial metrics of telecommunication companies?

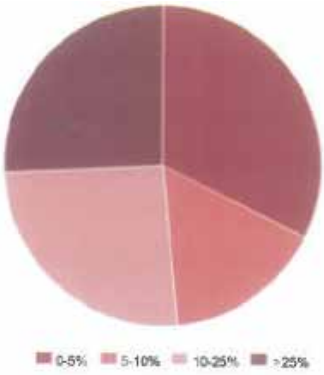
Chart 1 Relative increase in EBITDA



PwC has performed a benchmark study to assess the impact of the leasing proposals on the financial statements and key financial ratios of a sample of 125 listed telecommunication companies from 32 countries.

The study identifies the minimum impact of capitalising the operating lease commitments disclosed in the published financial statements. In view of the proposed inclusion of likely lease renewals, contingent rentals and residual value obligations, the eventual impact may be much greater and may also have an impact on the amounts currently recognised for finance leases. In addition, the study takes no account of any transitional reliefs that will be available on first-time adoption of the new standard. Nevertheless, it provides an indication of the impact that the proposed lease accounting model may have.

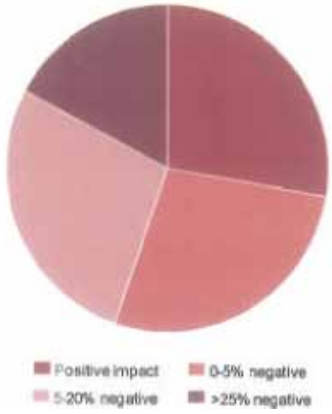
Chart 2 Relative increase in debt/equity ratio



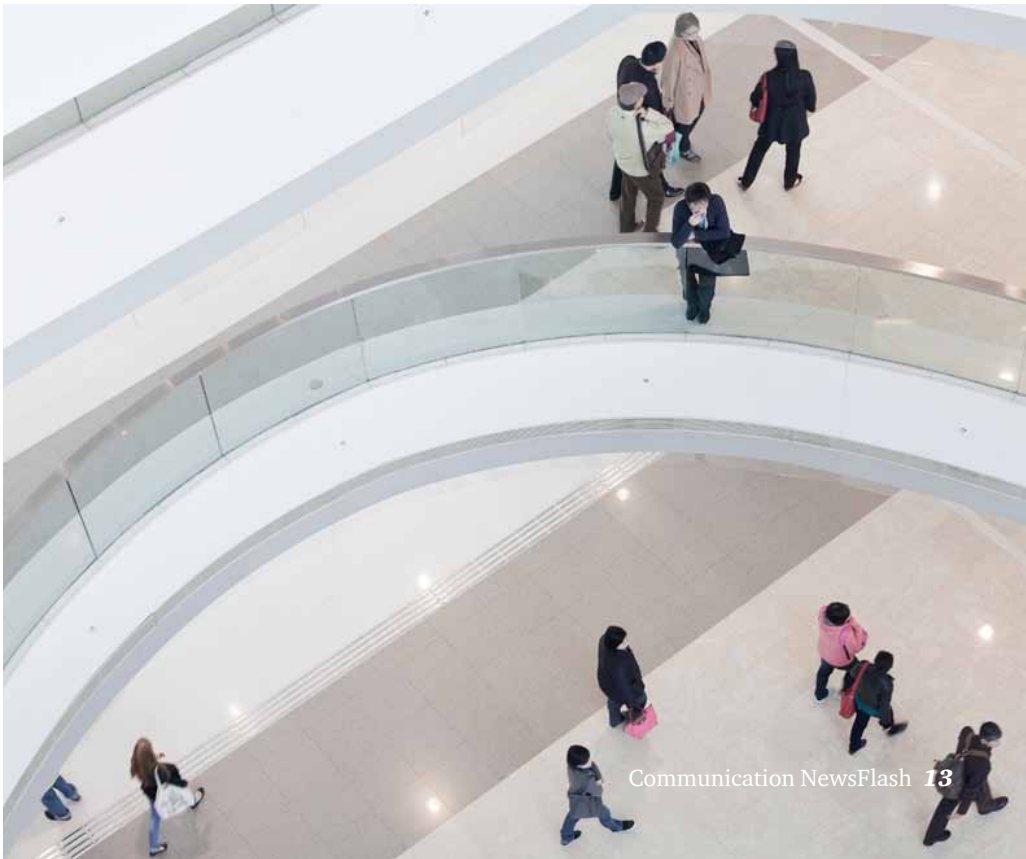
The effects on financial metrics can easily be seen when considering EBITDA, a key performance measure within the telecommunications industry. EBITDA is expected to increase due to the replacement of the lease expense by amortisation and interest. Out of the telecommunication companies surveyed, more than a third are expected to see an increase in EBITDA of more than 10% (refer to Chart 1).

If we consider the debt to equity ratio, our study concludes that the ratio is expected to increase by more than 10% for more than half of the telecommunication companies, and by more than 25% for nearly a quarter of those surveyed (see Chart 2).

Chart 3 Impact on EBITDA/Interest coverage



The combined effect of increasing debt and interest expense, combined with an increase in EBITDA on a telecommunication company's EBITDA/interest ratio, is uncertain. For 28% of the companies in our study, the combined impact is positive. For 45%, however, the impact is more than 5% negative, for 18% of these the impact is more than 20% (see Chart 3).



Staying relevant in a mobile data world

The timing of issuing VAT invoices – new guidance

Recently, the Director General of Taxes (DGT) finally issued guidance regarding VAT invoices in the form of Circular Letter No.SE-50/PJ/2011 (SE-50), which provides clarification and certainty on the times at which Value Added Tax (VAT) invoices must be issued.

In general, VAT collection is based on the accrual principle, whereby VAT must be collected at the time of delivery of taxable goods or services. The term delivery, in this case, is defined as the time when risk and ownership of goods have been transferred or when income from a service delivery can be reliably estimated or measured. In the accrual system, income or receivables are acknowledged when a transaction takes place, regardless of whether the transaction has been paid for or not. The recognition of revenue or receivables is indicated by the issue of a commercial invoice, which is a source document for this recognition and a basis for recording it.

SE-50 specifically laid down examples of the time of delivery for each type of taxable goods and services, i.e. the delivery of movable and immovable tangible goods, the delivery of intangible goods and the delivery of taxable services. Examples of the time at which a combined VAT invoice must be issued in relation to deliveries made to the same recipient during one calendar month are also provided in this regulation, as set out below.

No.	Period of usage/ delivery of taxable services	Period of revenue recognition	Timing of revenue recognition	Issue of commercial invoice	Deadline to issue VAT invoice
1a	1 – 30 June 2011	1 – 30 June 2011	June2011	30 June 2011	30 June 2011
1b	1 – 30 June 2011	1 – 30 June 2011	June 2011	5 July 2011	5 July 2011
1c	1 – 30 June 2011	1 – 30 June 2011	June2011	31 July 2011	31 July 2011
2	26 May – 25 June 2011	26 May – 25 June 2011	June2011	6 July 2011	6 July 2011
3	16 May – 15 June 2011	16 May – 15 June 2011	May 2011	20 June 2011	20 June 2011
4	16 May – 15 June 2011	16 May – 15 June 2011	June 2011	20 June 2011	20 June 2011
5	16 May – 15 June 2011	16 – 31 May 2011	May 2011	31 May 2011	31 May 2011
		1 – 15 June 2011	June 2011	15 June 2011	15 June 2011

A VAT invoice does not have to be separate from the commercial invoice. The VAT invoice may be in the form of a commercial invoice or a particular document designated as a VAT invoice by the DGT.

SE-50 also confirms that a VAT invoice shall be issued at the time of:

a. the receipt of a term payment of a delivery of partial work, in relation to the delivery of taxable goods or services that are finished within a particular period; and
b. when a taxable entrepreneur sends an invoice, in relation to the delivery of taxable goods or services to a government treasury as VAT Collector.

Before the issuance of the SE-50, there was a risk that the Indonesian Tax Office may impose a tax penalty of 2% from the invoice value (tax imposition base) for the late issuance of invoice (under the VAT law, the invoice must be issued at the latest by the month end of the telecommunication services rendered). In practice, the Telco Companies issue a commercial and VAT invoice in the following days after the month end.

The clarification and certainty on the issuance date of VAT invoices as outlined in the SE-50 is very essential for the Telco Operators in order to mitigate the significant penalty of 2% from the invoice value.

Type of export services that attract zero-rated VAT

On 3 August 2011, the DGT issued a Circular Letter No.SE-49/PJ/2011 (SE-49) which provides guidance to tax officers regarding VAT on export of services. SE-49 confirms that zero-rated VAT is only applicable to the three types of services stated in the Ministry of Finance Regulation No.PMK-70:

a. toll manufacturing services;
b. repair and maintenance services which are attached to services or movable goods utilized outside the Customs Area; and
c. construction services which are attached to services or immovable goods located outside the Customs Area.

Other than the services listed in PMK-70, services provided to customers outside of the Customs Area are:

a. considered as locally delivered, if performed within the Customs Area, and are therefore subject to the regular VAT rate of 10%; and
b. considered beyond the scope of the VAT Law, and hence not subject to VAT, if performed outside of the Customs Area.

Therefore, IDD call income earned by the Indonesian Telco Companies is arguably not subject to Indonesian VAT because the services is performed outside of the Indonesian Customs area. Whilst the interconnection income earned by the Indonesian Telco Companies from offshore Telco Operators will be subject to 10% VAT because the service is performed within Indonesian Customs Area. Despite of this, there are several tax rulings confirming that the interconnection income earned from the offshore Telco Companies is not subject to VAT.

Technology Neutral Spectrum Licensing

Indonesia's radio spectrum regulator plans to adapt a technology neutral approach when licensing (through an auction process) part of the 2.3GHZ spectrum next year. The plan also includes giving the option – with an additional license fee – for Indonesia's existing WiMax spectrum license holders in 2.3GHz to do in-band migration from WiMax 802.16d to 802.16e.

But, what does "technology neutral" mean in the context of spectrum licensing? A technology neutral spectrum license gives the right to use the spectrum without regard to the type of technology being used within the specified spectrum and, in some cases, the use of spectrum can be altered during the license period. Essentially, regulators are reducing market-entry requirements for new technologies by introducing a simpler spectrum licensing regime.

Why a technology neutral approach?

Economists have long argued that market mechanisms should be applied to radio spectrum. Seminal papers in this area start with Coase in 1959 [R. H. Coase, "The Federal Communications Commission", Journal of Law and Economics, 2, 1–40, 1959]. The essential idea here is to allow pricing mechanisms to act as an incentive for holders of spectrum to optimize their use – buying more if their business case can justify it, selling spectrum if they have excess, and including adopting new technologies that can use spectrum more efficiently where economically viable; hence the technology neutral approach. Economic theory suggests that in a market which is performing well, this will lead to a division of spectrum that maximizes economic value. Under such an approach the regulator sets out rules that enable markets to function while ensuring that interference is controlled and then takes a back seat, leaving it to the market to determine the use and users of the spectrum.

Due to the rapid development of new technology and the speed of market willingness in adopting it, regulators are having difficult time playing catch up. The only viable option for the regulator is to let the market decide which technology to apply through a careful and well thought allocation mechanism. (See BOX for cases)

Flexible property rights resulted in increased spectrum economic values. Spectrum value differs for each spectrum license holder and is determined by the future cash flows that a spectrum license holder expects to generate by utilizing the spectrum compared to the next best alternative (acquiring no spectrum). Although there are many factors involved during spectrum allocation process (e.g. auction) that will influence the spectrum values, the freedom in choosing the best technology when utilizing the spectrum will increase the economic value of the spectrum itself. From the regulators point of view, it is their main objective to create and get the maximum economic value from the spectrum which is considered as one of the scarce national resources.

Limitation/restriction in applying a technology neutral approach

In practical terms, a true technology neutral approach cannot be achieved. There are several restrictions inherent in technology neutral licensing. First is the interference problem and second is restriction in technology choice. Choice of technology is influenced by factor such as economies of scale and international standards set by ITU.

Interference problem

Adjacent spectrum blocks use for FDD and TDD will interfere with each other and have to be managed, for example by applying a guard-band in between. Applying a guard-band results in technical inefficiency – wasted spectrum for guard-band and this may also create economic inefficiency due to higher price of the spectrum, since the guard-band spectrum price has to be taken into account.

Choice of technology

- *Economies of scale.* Although different technologies and standards can be deployed in the same spectrum band, spectrum license holders have to take into account that efficient economies of scale - decreases in the cost of equipment and technology development –are key. Economies of scale can be achieved, in the short and medium term, by standard determination. In the longer term, standard has to be improved, enhanced and if necessary replaced.

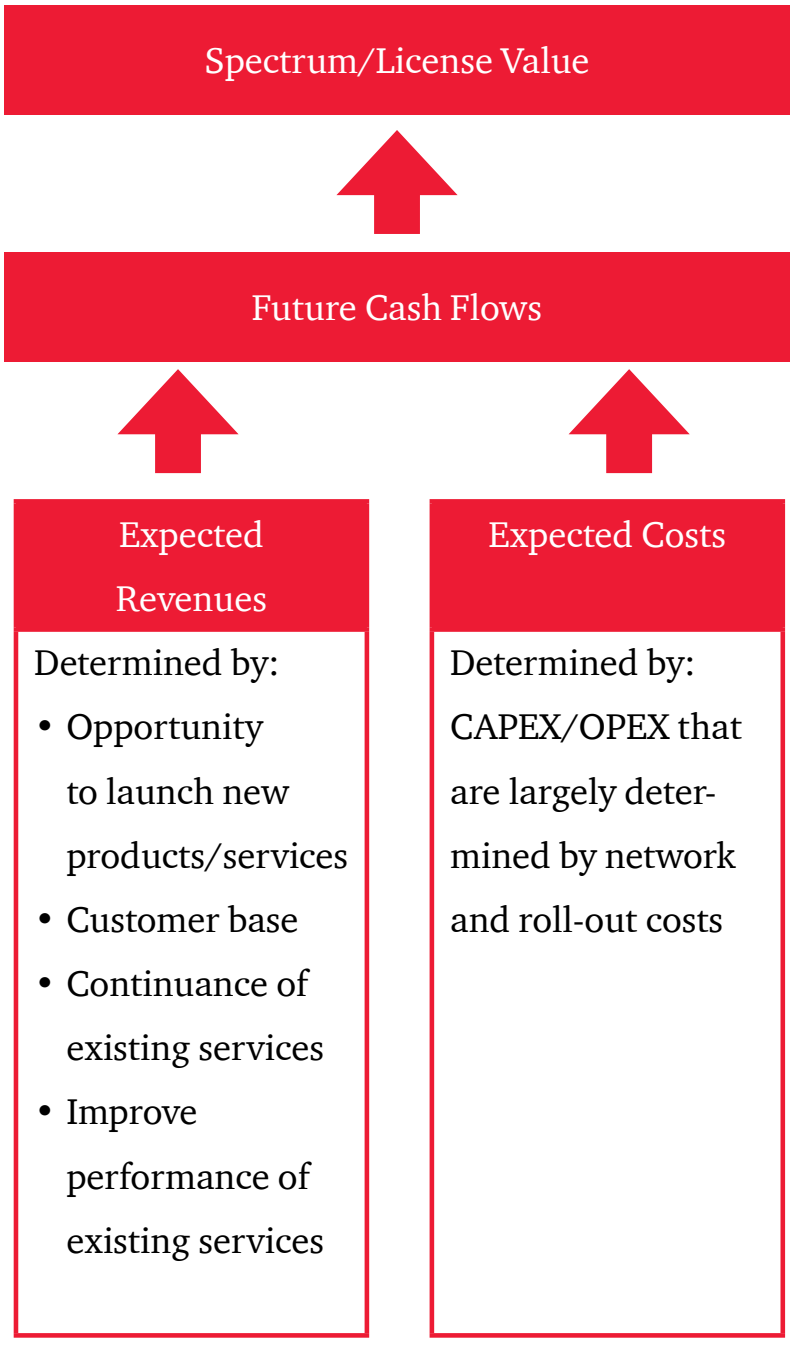
- *International coordination.* ITU radio regulation is the regulations applied by ITU members in determining the spectrum usage within its jurisdiction. The ITU regulations basically limit the extent of technology neutral implementation.

For (future) technology neutral license holders

A technology neutral approach is interesting but do not forget the basics when planning to win a technology neutral spectrum license:

- Diligently estimate the expected revenue and expected cost for utilizing the spectrum to come out with the future cash flow in order to determine the spectrum/license value.

- Review the spectrum license mechanism (e.g. auction) and spectrum property rights set by the regulators. Factors such as roll-out obligation, reserve price, network sharing, spectrum natural characteristics (lower spectrum frequency valued higher than higher frequency spectrum) are important and have to be taken into account when determining the spectrum/license value.



Source: PwC (2009), "Timing is everything - releasing the value of spectrum"

Market knows best – cases:

1 *WiMax adoption in Indonesia*

In 2009, the Government of Indonesia (GOI) awarded a WiMax license to several operators. The spectrum allocated was 2.3GHz. The GOI specifically stated in the license that only WiMax 802.16d was allowed to be rolled out. Unfortunately, WiMax adoption in the world has shifted to a new standard, which is 802.16e. Due to this fact, the economical critical mass for WiMax 802.16d adoption in Indonesia has never been reached and this forced the GOI to allow for in-band migration to WiMax 802.16e which is planned to take place in 2012.

WiMax 802.16d is essentially a fixed wireless broadband and it can be seen as a competitor for DSL but not as competitor for mobile wireless broadband technology such as 3G or LTE. For example, it is not possible to have a USB dongle for WiMax 802.16d.

On the other hand, WiMax 802.16e is a portable form of wireless broadband and it provides the ability for users to connect to a WiMAX cell from a variety of locations and perform cell handover.

2 *Move to LTE*

While the move from 2G to 3G brought a massive increase in speed and capacity, the advantages of LTE over the latest version of 3G (HSPA+) are surprisingly limited, with overall spectral efficiency difference only around 30% to 50%, and substantial speed improvements dependent on large amount of contiguous spectrum being available. Given the main purpose of LTE is to serve smart phones, and it may be some time before all (or even most) new smart phones have LTE built in, some operators may choose to stick with 3G for the time being (REF: Enders Analysis – "UK 4G spectrum consultation: preserving the big 4" – March 2011).

This case brings up the question that currently (or in the near future) faced by regulators: should regulators allocate spectrum specifically for LTE or allocate using a technology neutral approach?

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