

Value enhancing acquisition

21 April 2016

The acquisition by Cryptosoft, Tern's largest investment, of Californian security software specialist, Device Authority Inc., crystallises the value inherent in this maturing business, which has not up to this point been reflected in Tern's balance sheet. The consideration, settled in Cryptosoft shares, values the enlarged entity at £13.6m including c £1.35m new cash; £1.0m from Tern and US\$0.5m from US investor Alsop Louie, an existing DA investor and US West Coast based VC which specialises in security software. Those terms value Tern's 52.4% retained stake in the enlarged entity at £7.1m, equivalent to 10p/share.

Acquisition of Device Authority Inc. by Cryptosoft

The acquisition should materially enhance Cryptosoft's competitive advantages. It combines two complementary portfolios of proven data security solutions suitable for Internet of Things (IoT) and Machine-to-Machine (M2M) communications. It adds scale, a broader development engineering team, improved geographical spread and new authentication technologies backed by nine granted patents, with more pending. These all address a significant, fast growing market. The transaction is a significant step which generates a material uplift in the c £1.0m end FY15 book value of Tern's holding, builds on progress made since Cryptosoft appointed a new CEO in July last year, and the arrival of a new VP of Global sales a few months ago. This includes a growing sales pipeline and established strategic partnerships with Device Authority and Thingworx.

Estimated 11p NAV/share

This deal creates **a stronger entity from both product and sales perspectives**, better placed strategically and we believe, for profitable exit/higher valuation over the next two to three years. Cryptosoft (which will be renamed Device Authority Ltd) plans to capitalise upon enhanced products, **additional scale and improved access to clients** in key IoT markets in the UK and US. Cryptosoft is the largest component (c 94%) of Tern's portfolio and the only one where it has majority ownership (the other three are minority holdings of 0.5% to 1.0%). All are private technology companies focused on cloud computing and mobile ecosystems, and associated Internet of Things (IoT) and Machine-to-Machine (M2M) communications.

Our view of current NAV at 11p/share is adjusted for the acquisition with other stakes held at cost/last investment round. With no visibility on financials or current trading for Cryptosoft or Device Authority we have not undertaken detailed analysis of the combined entity's valuation. However, with a view to future exit via trade sale or IPO, the enlarged entity intends to build its profile as a leading provider of solutions which address a significant existing security challenge. This is intended to attract interest from potential acquirors seeking to improve their own position in this substantial niche.

Tern's valuation and prospects will pivot on this potential, and management's ability to devise and implement strategies for each of its portfolio companies to help them expand, build value and ultimately achieve exit at **a multiple of current book value**. This latest deal provides some useful validation of this process.



Investee acquisition validates end FY15 book value

Cryptosoft, Tern's biggest investee company (67% of end FY15 gross assets) has acquired US software company Device Authority Inc. in an all-share transaction. The terms value each entity at c £6.1m (excluding c £1.35m of new cash) well above Cryptosoft's c £1m end FY15 book value. Tern has also injected £1.0m cash into the new combined entity, with a further US\$0.5m contributed by Device Authority shareholder Alsop Louie.

Rationale: enhanced product portfolio and marketing reach

The merger combines two complementary portfolios of proven data security solutions suitable for Internet of Things (IoT) and Machine-to-Machine (M2M) communications. This is a significant, fast growing market whose specific needs cannot be fully addressed by legacy internet security. Cryptosoft will seek to capitalise on the competitive advantages and marketing scale derived from the enlarged group's new products, European and US marketing reach and a broader development engineering team.

The two entities are **well known to each other**. Last October they established a strategic partnership, under the terms of which Cryptosoft included Device Authority's D-FACTOR authentication technology in its device-based security and device-derived cryptography for its IoT data security platform. Complementary Cryptosoft/DA products are already often offered as a combined unit to provide end-to-end data security to target market sectors including automotive, healthcare, chip makers and MVNOs.

Tern will retain control of the new entity. Device Authority Ltd's HQ will be in Bracknell and Al Sisto will remain chairman, based in California, with Sales VPs located on the US East coast and West Coast. Al Sisto, also a director of Tern, has broad experience of the technology industry. The combined group has improved global coverage, use of resources and scale. The objective is to build value over the next two to three years then exit via trade sale or IPO.

Combines complementary internet security technologies

The new Device Authority Ltd's stated strategy is to put together leading IoT gateway and platform solution providers to provide device-driven trust and scalable, certificate-less security for the Internet of Things.

The combined group can provide its customers with confidence in their ability to secure information assets at both the data and device levels. It offers a highly differentiated set of advanced security capabilities and operational benefits for large-scale IoT deployment and management. These provide secure data communication between remote devices without human intervention, are easy to use, simple to maintain and support.

The (Cryptosoft) technology platform is a data-centric security solution for IoT/M2M communications. It provides a single, simple abstraction of otherwise complex encryption and authentication methods, to reduce costs and complexity associated with solving data security challenges. Its proven software has been operational for over seven years within global enterprise customers. The acquisition adds Device Authority's D-FACTOR technology, which delivers more secure access and authentication by harnessing the power and defences within the network devices themselves. It provides adaptive high strength security for end-user access, cloud service infrastructure specifically applicable for IoT. Its technologies were developed in house and are backed by nine patents, with more pending.

Tern valuation: underpinned by NAV at 11p/share

Post a £1.1m placing in February - 9.17m shares at 12p/each – there are 71.92m Ordinary shares in issue. Cryptosoft was c £1m of end FY15 assets, so the uplift in value due to the acquisition and cash injection would suggest **c £7.8m or 11p/share of net assets**, similar to the current share price.

Tern's strategy is to build value in its investee companies and leverage a trend for large multi-national organisations to secure strategic acquisitions of newer players in fast growing and emerging niches. The exit outlook for all group investments is underpinned by continued growth in the markets for cloud and mobile solutions, on the back of continued commercial and consumer demand.

Over the next 18 months Device Authority Ltd will focus on revenue growth via sales to major global IT customers and further strategic partnerships. Additional scale should facilitate Tern's exit plans, conceivably via a trade sale to a major security software group for which this technology might represent a valuable bolt-on to its existing portfolio. **Although not a given, management's view is that this should generate a further material step up in valuation over the next few years.**

Portfolio: Cryptosoft key, all investments performing

Tern is building value across its portfolio, seeking to monetise its investments and planning a second major acquisition. It invests in established - currently all unquoted - private software companies in the mobile and cloud sectors.

Building value, revenues and client numbers ahead

All group investments increased revenues and customer numbers, and are reported to be performing to plan. At end FY15 total investment assets were £1.43m, £0.81m of investments and £0.62m of loans to investee companies. These do not necessarily reflect the 'market' value as stakes in private companies are held at cost or adjusted to the most recent funding round. Tern's portfolio is set out below.

Year acq.	Investment and stake	Cost	FY15 fair value	Description
2013	Flexiant (1.0%)	£0.14m	£0.27m	Global supplier of cloud orchestration software
2014	Push Technology (0.5%)	£0.12m	£0.12m	Producer of distribution technologies used by financial transaction businesses and now part of IBM's Bluemix
2014	Seal Software (0.5%)	£0.05m	£0.05m	A contextual search engine used by large companies and lawyers
2014	Cryptosoft* (100% A shares)	£0.34m	£0.96m	Data security software used worldwide

Source: Company

*Prior to acquisition, name changed to Device Authority Ltd

Cryptosoft c 67% of end FY15 portfolio, 94% post acquisition

Cryptosoft's (to be renamed Device Authority Ltd) value has been materially enhanced by its acquisition of Device Authority Inc., reflected in a similar uplift in Tern's FY15 net assets.

The all share deal values the enlarged entity at £13.6m including c £1.35m of new cash and Tern's 52.4% stake at £7.1m.

Tern provided £1m of that new cash, funded by a £1.1m placing in February primarily raised for additional investment in the existing portfolio, particularly opportunities for continuing development of Cryptosoft.

Its new merged product portfolio reinforces its credentials and profile as a leading provider of solutions specifically designed for fast growing IoT markets. **This should progressively be reflected in commensurate growth in the new entity's valuation and in due course, increase its attraction to potential 3rd party acquirers, including global software companies seeking to enhance their expertise in this specific niche.**

This builds on progress achieved last year. A Dec 2015 update confirmed that performance was on track with management focused on closing significant sales opportunities, building and expanding UK and North American sales pipelines. It had closed a relatively small sales opportunity, was pursuing larger contracts with multinationals and contracts under discussion with a number of global companies were expected to be of significant value.

It also confirmed emergence of two new products from collaborations with Device Authority and leading IoT/M2M application software provider Thingworx. Although these were generating new business opportunities; as products are incorporated by its clients into their own products it is difficult to forecast the timing of sales accurately, however, several significant opportunities have been in discussion for several months.

In autumn 2015 Tern provided Cryptosoft with a further £0.5m secured loan facility to provide finance whilst cash flow grows. This debt is repayable by end 2016 or convertible into new Cryptosoft shares at par at Tern's option. In March it announced integration with Symantec's Managed PKI Service to provide Authentication and Encryption Services for the IoT. As Symantec is the leading online security business this arrangement adds to Cryptosoft's profile and credibility. Symantec currently uses certificate based authentication which is not ideal for IoT. It is however the leading Certificate Authority (CA) and one of the most trusted providers of SSL certificate products, solutions and services worldwide. It has already secured over a billion IoT devices.

This new platform integration is intended to deliver secure access and storage of data across connected devices. Cryptosoft customers can leverage Symantec's new Roots of Trust (RoT) for IoT devices that authenticate and verify devices at the hardware level. Combined with Cryptosoft's platform client devices can trust that the information being shared is between only authorised and secured devices. Cryptosoft customers will be able to issue, renew and revoke Symantec digital certificates. This could be used to power strong authentication, encryption and digital signing applications, and protect communications by preventing unauthorised access to systems and networks.

Other investments adding clients and growing revenues

During 2015 **Flexiant** released new, simpler to use versions of its products, signed major new accounts in Brazil, Italy, Mexico, Turkey, Uruguay and the USA and reported a material increase in user numbers. **Push Technology** has secured new markets for its software, including take-up by telcos, large companies and banks, reflected in high customer numbers and revenues. In 2015 it released new products and updates for SaaS solutions and the enterprise market, launches products on IBM's Bluemix and Cloud platform. **Seal Software** similarly reported higher revenues and client numbers, and won a number of awards in 2015 including Red Herring's Top 100 Global Award.

Cryptosoft: building trust in the Internet of Things

The enlarged group's products deal directly with security issues related to roll-out of new internet-connected products, the so-called **Internet of Things** (IoT). This fast growth market has potential to expose security vulnerabilities and create major headaches for manufacturers, especially where the latter's strategy for emerging IoT services and applications relies on legacy security solutions. Although the latter are widely deployed, none was designed to meet the specific challenges of Machine-to-Machine (M2M) security, and each has a number of specific disadvantages.

Cryptosoft's data security platform was however built for IoT use and significantly reduces the end to end attack surface of data assets. It replaces vulnerable, hard to manage static certificates with dynamic, device-based authentication and data centric security suitable for large scale IoT volumes. It seeks to establish trust and security by providing a standards-based platform designed to enhance the value of existing security assets while reducing risk. Achieving this will facilitate wide adoption and acceleration of IoT initiatives.

Its technologies simply and seamlessly provision massively scalable authentication and encryption services to connected machines. Its platform allows organisations to add security services anywhere within a workflow without disrupting existing business processes or recoding existing applications. It lowers operational costs, reduces authentication complexity and IoT management overheads.

Although this has broad applications, specific areas of expertise and clients are as follows:

Cryptosoft activities

Automotive	Industry experts expect all new cars will be connected in some way by 2025, with the market for connected vehicle technology to reach US\$54bn by 2017.
Transportation	The IoT market in intelligent transportation systems is put at US\$143.93bn by 2020, with material improvements in vehicle and highway safety and efficiency.
Smart Cities	The risks inherent in enabling embedded technologies and leveraging the IoT in city infrastructure must be considered and monitored to maintain citizen security.
Healthcare	Explosive growth in data includes personalised sensors which can record health parameters and minimise need for direct patient-physician interaction.
Utilities	This industry is investing in IoT to increase overall equipment efficiency, lower quality and compliance cost, and improve customer service levels.

Source: Company

Cryptosoft's platform takes an agnostic approach to use of encryption algorithms and security protocols. Where possible it leaves the choice of native algorithms to the customer. That provides openness and flexibility in downstream data decryption and the same policy is applied to keys. It supports a number of symmetric and asymmetric key methods, as its customers may already have made significant investments in this area.

Its policy driven device authentication and data payload encryption reduces the attack surface for IT data. Its policies apply simple rules to determine how data is secured via its native web console, or dynamically constructs policy from a client's own console or application. Its platform makes this a relatively rapid process followed by transparent, seamless deployment to its distributed agents to ensure that data is secured end to end.

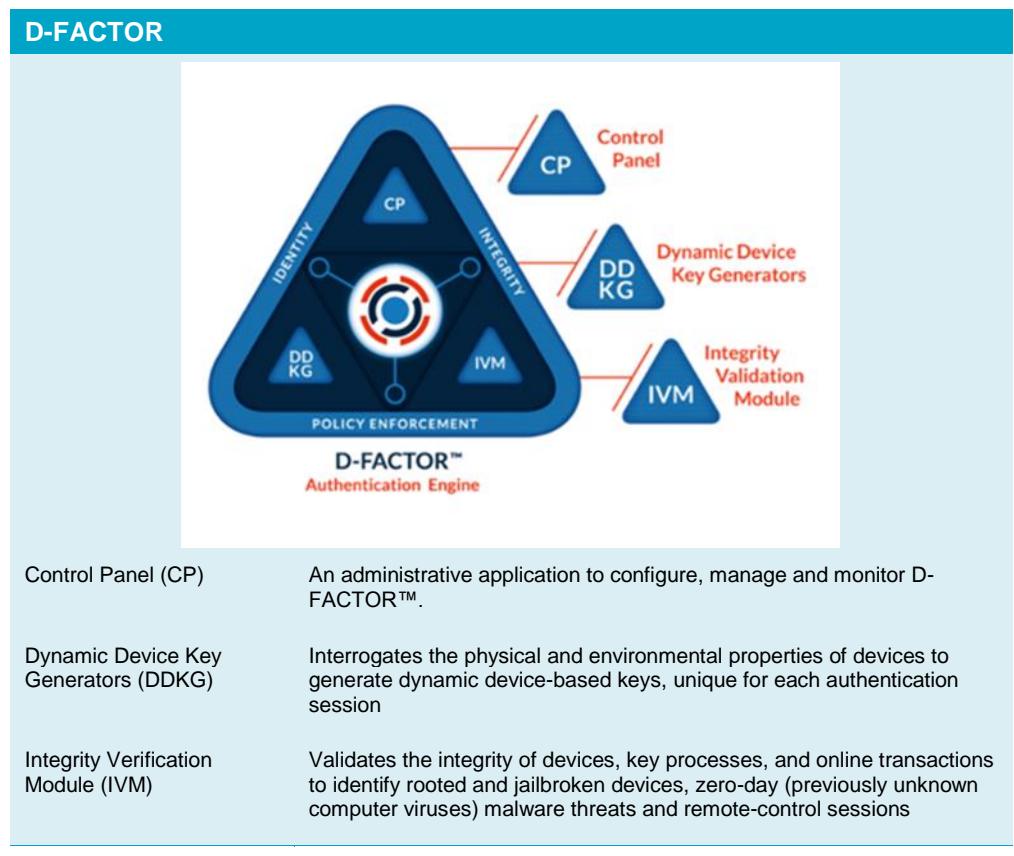
Complemented by Device Authority's technology

Device Authority (DA) and Cryptosoft have **complementary product portfolios**. DA is a leading provider of advanced, device-based security and authentication for multi-factor and machine-to-machine (M2M) applications, based on its patented D-FACTOR device authentication technology.

Data security typically requires authentication and a secure channel and traditional solutions would include data encryption and where practicable, a closed system. D-FACTOR delivers more secure access and authentication by harnessing the power and defences within network devices themselves. It provides adaptive high strength security for end-user access, cloud service infrastructure specifically applicable for IoT. These technologies, developed in house, are backed by nine patents, with more pending.

Device Authentication vs. Device Identification

DA technologies provide authentication for remote and mobile equipment and recognise distinctions between device authentication and identification. It may be relatively easy to identify a device connected to a network, but authenticating its identity is more challenging. Its core authentication technology executes a unique authentication challenge based on a specific device's physical and environmental attributes, which enables reliable device authentication without impairing the user experience. D-FACTOR enables an organisation to establish which devices are authorised to access a particular user account, communicate with another system or access specific networks. It transforms devices into dynamic security tokens which require nothing else from the user. As a result, it dramatically reduces the scale of threat across a network and enhances security of existing user credentials.



This dynamic device authentication technology is different from most identification solutions which use device fingerprinting to establish identity. It generates a unique authentication challenge for each session based on each device's physical and environmental attributes. This enables fast, reliable authentication of authorised devices.

That addresses some shortcomings of traditional, endpoint security solutions, which rely heavily on the integrity of 3rd party manufacturing and service provider security controls. These can't establish the underlying trust necessary for M2M authentication and secure communications between connected devices, IoT gateways, cloud service applications, control systems and IoT users, and can create a universal threat surface for large device populations.

Internet of Things: massive growth opportunity

Recent years have seen significant growth in demand for access to both the internet and enterprise network resources from an increasingly broad range of connected devices. These new 'users' are the devices generated by IoT applications. Where these initially comprised desktop computers, laptops and smart phones, they now include cars, medical devices such as insulin pumps and baby monitors, drones, home automation, wearable tech and myriad other devices. Their predicted size and scope is expected to drive parallel demand for technologies that provide trusted access and authentication to secure critical IoT devices.

A recent McKinsey Global Institute report estimated that the networking efficiencies and opportunities created by the Internet of Things may have a global economic impact of as much as **\$11 trillion per year by 2025** across multiple sectors.

Settings where value may accrue & estimated market size in 2025			
		Low est. (\$trn)	High est. (\$trn)
Factories	Operations management, predictive maintenance	1.2	3.7
Cities	Public safety and health, traffic control, resource mgmt	0.9	1.7
Human	Monitoring and managing illness, improving wellness	0.2	1.6
Retail	Self-checkout, layout optimisation, smart customer relationship management	0.4	1.2
Outside	Logistics routing, autonomous (self-driving) vehicles, navigation	0.6	0.9
Work sites	Operations management, equipment maintenance, health & safety	0.2	0.9
Vehicles	Condition-based maintenance, reduced insurance	0.2	0.7
Homes	Energy mgmt, safety and security, chore automation	0.2	0.3
Offices	Organisational redesign and worker monitoring, augmented reality for training	0.1	0.2
	Total	4.0	11.0

Source: McKinsey Global Institute Analysis

McKinsey also considered some of the challenges inherent in the transition from traditional enterprise IT to an IoT optimised architecture. It identifies elements of current corporate technology which may need to be redesigned to support billions of interdependent processing events annually, from millions of products, devices, and applications. As networked devices are always on a company will need to be able to react to customer and system requests in real time. That will demand seamless connectivity and collaboration across IT and business units which were traditionally siloed. Companies will need to be able to securely and efficiently collect, analyse and store data from their refined IT architectures.

Growth estimates: 34bn internet connected devices by 2020

According to Business Insider projections there will be **34bn devices connected to the internet by 2020**, vs c 10bn currently. IoT devices will account for c 24bn of this and traditional computing devices (e.g. smartphones, tablets, smartwatches etc.) 10bn. It estimates that nearly \$6trn will be spent on IoT solutions over the next five years with businesses the top adopter of IoT solutions, followed by government, then consumers.

For businesses IoT offers ways to improve profitability by lowering operating costs, improving productivity and access to new markets, possibly by development of new product offerings. Governments will be driven by similar needs, plus a focus on improving their citizens' quality of life. If consumers bring up the rear, they are expected to purchase a massive number of devices and thus also invest significantly in IoT ecosystems.

Security issues need addressing

This sets new challenges for providers of online security due to these devices' evolving vulnerabilities and threats. An unsecured IoT could generate new types of threats to public infrastructure and industrial systems. Furthermore, once a network has been subject to a successful attack the entire network and connected devices are at risk. Legacy security technologies are unfit for purpose and a potential bottleneck for IoT growth e.g. reliance on X.509 endpoint certificates to handle billions of devices. The new entity's security platform can deal with data security and device authentication challenges posed by IoT growth. It significantly reduces the end to end attack surface, and protects critical customer data.

Static endpoint certificates have intrinsic key management, deployment, expiration tracking and security vulnerabilities which make them an untenable scalable security solution for endpoint authentication and encryption. Data transfer mechanisms using legacy security protocols are at risk and cannot be guaranteed to secure data end to end. Most IoT endpoints sit in potentially hostile environments with **little or no security** on the devices to protect them from attacks targeted at their data.

To deliver performance and scalability suitable for IoT growth device authentication solutions must eliminate the need for endpoint certificate deployment and management. Cryptosoft's advanced M2M authentication can instantly deliver key and certificate generation for mass-scale IoT deployments. These eliminate theft and duplication vulnerabilities associated with static certificates, prevent device spoofing and cloning.

Another issue for legacy technology is that static endpoint certificates and shared keys are not verifiably bound to a specific device; they can be captured, duplicated and used on other devices. Reliance on 3rd party manufacturing controls, external certificate authorities and complex Public Key Infrastructure key management processes add to operational overhead and undermine operational efficiency for large scale IoT deployment.

Many current solutions rely upon reactive antivirus and malware detection software for online security which would not, for example, be able to cope with rapid development of state-sponsored cyber threats. As IoT related threats are seen as physical and potentially catastrophic, security strategies must focus primarily on prevention, rather than detection and remediation. Connected devices also lack the necessary processing and storage resources to handle these solutions or facilitate regular updates to antivirus protection.

Financials

Tern has not released detailed financial data on the performance of its investments or indeed Device Authority. As the group's major investment, Cryptosoft contributed the majority of Tern's FY15 results, which reflects investments currently in their pre-revenue phase, requiring further investment in building product portfolios and sales and marketing capacity. Prior to the acquisition, Tern confirmed that Cryptosoft's sales pipeline was building and that it saw potential for it to secure major acquisitions during the current year.

Income Statement		
Year to 31 December	2014	2015
	£	£
Turnover	41,000	162,500
Movement in fair value of investments	100,000	63,492
Gross profit	141,000	225,992
Administration costs	(161,654)	(298,896)
Share based payment charge	-	(99,523)
Operating loss	(20,654)	(172,427)
Finance income	105	11,786
Finance costs	(33,146)	(24,480)
Loss before tax	(53,695)	(185,121)
Tax		
Loss for the period	(53,695)	(185,121)
Earnings per share		
Basic EPS	(0.33)	(0.37)
Fully diluted EPS	(0.33)	(0.37)

Source: Tern FY15 accounts

As at end FY15 the group had c £0.43m of cash, which has since been supplemented by the proceeds of a £1.1m placing. Tern has invested £1m of this into the enlarged entity formed by the combined Cryptosoft/Device Authority and is committed to providing further funding as necessary until it reaches a self-financing state.

Earlier this year (post the end of FY15) three directors converted Convertible Unsecured Loan Stock with £85,500 face value into 6.84m new ordinary shares at 1.25p per share. This CULS was provided in September 2014 and £112,000 remains unconverted.

Balance Sheet		
As at 31 December, £	2014	2015
Assets		
Non-current Assets		
Investments held for trading	631,978	810,350
Loans to investee companies	-	619,413
	631,978	1,429,763
Current Assets		
Trade and other receivables	301,056	117,042
Cash and cash equivalents	434,274	278,456
	735,330	395,498
Total Assets	1,367,308	1,825,261
Equity and Liabilities		
Share capital	1,310,613	1,314,118
Share premium	7,563,193	8,393,536
Loan note equity reserve	53,624	20,650
Share option and warrant reserve	797,773	897,296
Retained earnings	(8,781,572)	(8,933,719)
	943,631	1,691,881
Current Liabilities		
Trade and other payables	162,763	35,986
Total current liabilities	162,763	35,986
Non-current liabilities		
Borrowings	260,914	97,394
Total non-current liabilities	260,914	97,394
Total liabilities	423,677	133,380
Total equity and liabilities	1,367,308	1,825,261

Source: Tern FY15 accounts

Group cash flows similarly reflect an investment group with a portfolio in the pre-revenue phase. During FY15 Tern committed a further £0.9m to Cryptosoft via two secured loan facilities to provide finance whilst cash flow grows. This debt is repayable by end 2016 or convertible into new Cryptosoft shares at par at Tern's option. This further funding was covered by a share issue which raised c £0.7m (net).

Statement of Cash Flows		
	2014	2015
For year ended 31 December, £		
Net cash used in operations	(326,328)	(79,159)
Investing Activities		
Purchase of investments	(407,952)	(114,880)
Loan to investee companies		(610,000)
Net cash used in investing activities	(407,952)	(724,880)
Financing Activities		
Proceeds from share issues	757,500	720,000
Share issue expenses	(35,868)	(34,900)
Proceeds from issue of convertible loan notes	300,000	-
Proceeds from exercise of warrants	-	10,748
Repayment of loan stock	-	(50,000)
Interest received	105	2,373
Net cash from financing activities	1,021,737	648,221
Increase/(decrease) in cash and cash equivalents	287,457	(155,818)
Cash and cash equivalents at beginning of year	146,817	434,274
Cash and cash equivalents at end of year	434,274	278,456

Source: Tern FY15 accounts



Contacts

Lucy Williams
Corporate Broking
020 7469 0936
Lucy@pcorfin.com

Duncan Vasey
Corporate Broking
020 7220 9797
Duncan@pcorfin.com

Charles Goodfellow
Corporate Broking
020 7220 9791
Charles@pcorfin.com

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