

Submission No.47.....

Commercialisation Submission April 2005

QPSX

Commercialisation: Learnings and Success Criteria
**Submission to House of Representatives Standing Committee on
Science and Innovation**

April 2005



Copyright © QPSX Ltd

Terms of Reference addressed by This Submission

This submission includes reference to:

- Successful examples of Australian technological innovations;
- Pathways to commercialisation;
- Intellectual property and patents;
- Skills and business knowledge;
- Capital and risk investment;
- Business issues;
- Research and market linkages;
- Factors determining success;

Who we are

QPSX is Australia's only ASX listed company that is dedicated solely to the commercialisation of intellectual property assets from research institutions.

QPSX has a proven track record with over \$100M generated through licensing and sale of Australian R&D and has developed relationships with most of the major developers of intellectual property in Australia. QPSX has won major competitive commercialization tenders with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Defence Science and Technology Organisation (DSTO).

QPSX also has a strong reputation in the venture capital community for commercialisation, having incubated and secured \$6M in venture capital (from top-tier investors Technology Venture Partners, Starfish and Foundation Capital) for our investee company Xelor Software Inc (formally Cortec Systems), a spin-off company from the Australian Telecommunications CRC in 2004. We have recently added two more ventures to our portfolio, Inference Communications and Dimerix Bioscience.

QPSX has two divisions:

- IP Assertion
- Ventures & Licensing

Details of each of these divisions are provided in Appendix C.

Contact Regarding This Submission:

Graham Griffiths
Chief Executive Officer

QPSX Ltd
16 Ord Street
West Perth WA 6005
Phone: 08 9381 9518
Facsimile: 08 9381 9562
Email: graham.griffiths@qpsx.com
Website: www.qpsx.com

Executive Summary

QPSX's core business is extracting value from intellectual property ('IP'). In QPSX's Ventures and Licensing division, this is achieved through the creation and management of spin-off companies and licensing of new inventions to international corporations. Key recommendations arising from our commercialisation experience over the last decade are provided below.

1) Provide more government support for the main commercialization path, IP Licensing

For the majority of IP created in research institutions the most suitable commercialisation pathway is to licensing the IP to a corporation that is already a global leader in the target industry. The spin-off path is only suitable for a small proportion of technologies that have the potential to sustain a whole company. In their current form, many government funding programs such as AusIndustry's Commercial Ready and COMET do not adequately facilitate further development work for the licensing pathway.

Without sufficient support for commercialisation via licensing, many economically useful technologies and process improvements will remain "on the shelf" in R&D laboratories.

2) Encourage research institutions to seek experienced commercialisation partners

For both the licensing and spin-off commercialisation pathways, traction with investors, partners and licensees requires an experienced team with strong commercial skills. Recently published commercialisation statistics highlight a gap in the skills of commercialisation groups at research institutions.

Partnering between public sector commercialisation groups and experienced private sector groups should be encouraged. The recently formed Technology Transfer Advisor Group at the DSTO (Defence Science and Technology Organisation) is an example of a model that will improve commercialisation outcomes.

3) Ensure funding and grant structures do not inhibit international commercialisation efforts

Australia is a very small market, so successful commercialisation almost always requires global market development and exposure. We have found that some funding and grant structures implicitly discourage the establishment of corporate structures that maximise the likelihood of global success.

For instance, to attract US venture-capital investors, high quality management and partners it is often necessary to operate through a US-based corporate entity. In its current form, AusIndustry's Commercial Ready applies strict Australian ownership and control rules. These restrictions can sometimes mean that companies with real potential to attract significant national benefit and successful international commercialisation may be inhibited. We note that AusIndustry's policy in this regard is currently being reviewed and we support a more pragmatic approach to structuring ventures for global business.

4) Encourage more commercial analysis and screening of existing patents and future patent applications

After reviewing the patent portfolios of major research organisation we found many patents that have little commercial potential continue to be advanced through the costly patenting process. Often patents are maintained for the wrong reasons, such as maintaining inventor vanity, boosting commercialisation statistics or purely through lack of commercial assessment.

QPSX has developed a developed clear set of Go/No Go criteria for early stage projects. The process assesses risk in the areas of intellectual property protection, intellectual property ownership, market,

development capability and execution capability. It is recommended that minimum standards for opportunity screening be established.

5) New venture incubation needs to provide interim management teams rather than just mentoring or pre-seed cash

New ventures require experienced entrepreneurial teams to be successful. Researcher mentoring programs or pre-seed venture-capital is usually insufficient to fill this skills gap, especially where the new venture is a spin-off from a research institute and only contains technical staff. These ventures need to select partners who can provide the full range of 'hand-ons' skills required in early stage ventures, such as business development, marketing, finance, legal and IP management.

Many start-up technology ventures do not reach their full potential because their management teams do not have the range of commercial skills and experience necessary to attract venture capital funding or international partnerships.

6) Ventures need to be fully "investment ready" prior to approaching sources of venture capital

Raising capital is not simply a matter of having a business plan, technology and a team. Usually there is only one chance to impress a potential investor and we have found that most companies are grossly under-prepared for the investor presentation. As well as preparing all of the documentation required for attracting investment, venture managers need to ensure the company is 'investment-ready' from a legal, accounting and governance perspective and that the company is able to provide clear evidence of the market need for their technology. A company needs to be fully 'investment ready' before approaching capital sources to ensure success and that the terms of the deal are beneficial to both parties.

TABLE OF CONTENTS

1.0 INTRODUCTION7

2.0 DIFFERENT COMMERCIALISATION PATHWAYS7

3.0 CRITERIA FOR SUCCESS.....7

3.1 *Success Criteria for Spin-off Pathway*8

3.2 *Success Criteria for Licensing Pathway*8

4.0 BENCHMARKING COMMERCIALISATION SUCCESS AND SKILLS.....9

5.0 CONCLUSIONS AND RECOMMENDATIONS.....9

APPENDIX A: CASE STUDY: XELOR SOFTWARE INC (FORMALLY CORTEC SYSTEMS PTY LTD).....10

APPENDIX B: CSIRO AND DSTO PARTNERSHIP MODELS.....11

APPENDIX C: QPSX DIVISIONAL PROFILES12

1.0 Introduction

QPSX's core business is extracting value from intellectual property ('IP'). In QPSX's Ventures and Licensing division, this is achieved through the creation and management of spin-off companies and licensing of new inventions to international corporations. Success factors for both commercialisation pathways are discussed in this submission.

2.0 Different Commercialisation Pathways

While many research organisations focus on putting technologies into spin-off companies, for the vast majority of IP created within research laboratories, the most suitable commercialisation path is licensing the IP to a corporation that is already a global leader in the target industry. Technologies of this kind tend to have incremental benefits over competitive offerings available on the market and often need to be presented in combination with complementary technologies to provide utility to the target customer. In addition, Australian Centre for Innovation *et al*¹ suggests that licensing is most likely to be the preferred route for mature industries and technologies.

While the licensing model may seem to offer lower overall returns than taking an equity stake² for research organisations, most IP created does not have the characteristics needed to derive real sustainable competitive advantage in the marketplace and achieve returns required to attract venture capital investment. In addition, the risks and resource requirement associated with licensing of technologies are much lower than in venture start-up and licensing can provide an early and steady cash flow to the organisation over a period of time, rather than waiting for a distant liquidity event of low probability.

3.0 Criteria for success

QPSX has learnt that the keys to successful IP commercialisation lie in not only providing the resources to assist progression of good projects, but also in quickly ceasing projects that have low chances of commercial success. We believe there is little point in tying up resources in a less than desirable project, at the expense of progressing projects with a strong chance for commercial success.

QPSX regularly assesses intellectual portfolios and has developed clear go/no go criteria for early stage projects whether they are suitable for a spin-off or licensing commercialisation pathway. The process assesses risk in the areas of intellectual property protection, intellectual property ownership, market, development capability and execution capability. Examples of issues that would lead to halting of a commercialisation project are provided below:

¹ Australian Centre for Innovation, Howard Partners & Carisgold, 2002, 'Best Practice Processes for University Research Commercialisation', [Online] Available from: < http://www.dest.gov.au/highered/respubs/best_practice/exec_summary.htm >

² Bray, M. J. & Lee, J. N., 2002, 'University Revenues from technology transfer – Licensing fees vs equity positions', *Journal of Business Venturing*, Volume 15, Issue 5, September, pp385-392.

Risk Area	Typical Issues
Intellectual Property Protection Risk	<ul style="list-style-type: none"> • IP Protection strategy does not cover major markets (i.e. US, UK, Europe, Japan, Australia).
Intellectual Property Ownership Risk	<ul style="list-style-type: none"> • Joint ownership or rights as a result of research collaborations and grants from industry. • Poor student/staff IP assignment processes within the research organisation resulting in inability to assign IP
Market Risk	<ul style="list-style-type: none"> • Technology development has been conducted in isolation and the technology offers little/no benefits above competing and superior products already available on the market. • The research organisation chooses to spin-off a company with the technology, when really a licensing model is more appropriate as the technology needs to be integrated into market leader products before being adopted • Adoption of the technology would require significant and unrealistic changes to target customer behaviour.
Development Capability Risk	<ul style="list-style-type: none"> • The resources needed to develop the technology to a licensable/saleable state would be prohibitive from a cost perspective. • The window of opportunity for the technology either has expired or would expire before the product was ready for market.
Execution Capability Risk	<ul style="list-style-type: none"> • The inventor has either left the research organisation or is fully committed to other projects and the technology requires further development to a licensable/saleable state. • There is not enough organisational commitment to make the project work.

3.1 Success Criteria for Spin-off Pathway

Many start-up technology ventures do not reach their full potential because their management teams do not have the range of commercial skills and experience necessary to attract venture capital funding or international partnerships. QPSX provides an interim management team of experienced entrepreneurs to build young start-ups into "investment ready" international enterprises.

In addition to a strong and experienced commercial team, successful commercialisation by the spin-off pathway requires:

- A strong IP position (i.e. patents filed) in all global markets where the technology is applicable.
- A world-class technical team with entrepreneurial ambitions that is committed to transferring from the research institution or company to the new venture.
- Broad 'platform' technology with applications in many high growth markets
- Fits the typical profile of a VC investment (i.e. potential to be huge with a likely exit opportunity within a 3-5 year timeframe).

In addition, many ventures seek investment when they are really not 'investment ready'. Being 'investment ready' means developed a package that enables investors to clearly understand the value of the opportunity and gain confidence that the team can execute their plan. Through partnering with groups like QPSX, spin-off companies can have access to the range of commercial skills and experience needed for successful commercialisation.

Appendix A contains a case study for Xelor Software Inc, a QPSX incubated company.

3.2 Success Criteria for Licensing Pathway

The success criteria for licensing are less strict than for the Spin-off pathway, but there are a number of key parameters that must be met:

- Patents must be granted or filed patent applications (PCT-stage or later stage).
- The benefits of the technology must be demonstrable to potential licensees, either via a prototype or proven customer validation.
- Must offer end-user benefits over competitor offerings or benefits to licensees (e.g. cost savings, enable licensee to charge a premium).

- The inventor(s) of the technology must be available for technology transfer of the technology. Licensees want more than simply the patent, know-how and experience are part of the whole technology transfer package.
- Strong commercial skills are needed to present the licensing opportunity appropriately to entice interest from potential licensees.

One of the key barriers QPSX finds in licensing of IP from research institutions is that in some cases the technology requires further R&D work to develop it to a point to enable demonstration to potential licensees. However, in their current form, government funding programs such as AusIndustry's Commercial Ready do not adequately facilitate development work for the licensing pathway.

4.0 Benchmarking commercialisation success and skills

In October 2004, the Department of Education, Science and Training (DEST) conducted a survey into measures of commercialisation for 2001 and 2002. This study found that the top 20 average licensing revenue as a percentage of R&D expenditure was 2.5% for Australian research organisations compared to 6.3% for US research institutions in 2002³.

These results suggest a gap in commercialisation skills within the commercialisation arms of publicly funded research organisations in Australia compared to the United States. The Defence Science and Technology Organisation (DSTO) is one such group that has recognised its shortcomings in this area and has set-up a Technology Transfer Advisory Group (TTAG) to assist it with assessment of the commercial viability of its projects and assist in their commercialisation. QPSX is a member of DSTO's TTAG. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) has also realised the benefit of engaging external commercialisation partners, having tendered for a commercialisation partner to review its dormant patent portfolio for commercial potential. QPSX won the tender in collaboration with its commercialisation partner, BTG (www.btgplc.com). Details of the CSIRO and DSTO partnerships are provided in Appendix B.

5.0 Conclusions and Recommendations

It is clear that Australia's innovation system is in crisis and universities and publicly funded research organisations cannot do it alone. QPSX provides the following recommendations and insights to the House of Representatives Standing Committee on Science and Innovation:

- Provide more government support for the main commercialization path, IP Licensing
- Encourage research institutions to seek experienced commercialisation partners
- Ensure funding and grant structures do not inhibit international commercialisation efforts
- Encourage more commercial analysis and screening prior to the submission of patent applications
- New ventures need access to interim management teams rather than just researcher mentoring or pre-seed cash. Partnering with groups like QPSX provides access to the range of commercial skills and experience needed for successful venture incubation.
- Ventures need to be fully "investment ready" prior to approaching sources of venture capital

³ Department of Education and Training, 2004, 'National Survey of Research Commercialisation Years 2001 and 2002: Selected measures of commercialisation activity in universities and publicly funded research agencies', [Online] Available from: <http://www.dest.gov.au/highered/commercialisation/documents/part_a.pdf>

Appendix A: Case Study: Xelor Software Inc (formally Cortec Systems Pty Ltd)

Cortec Systems Pty Ltd was founded in September 2002 as a joint venture of QPSX and the Australian Telecommunications Cooperative Research Centre ("ATCRC") to further develop and commercialise an innovative solution to major problems with Voice over Internet Protocol ("VoIP") technology. While VoIP provides enterprises with access to telephony services at a lower cost and with greater functionality than traditional telephony networks, call quality can be poor and highly complex network administration is often required. Cortec Systems developed a product that enables the network administration to be automated and provides a guaranteed level of call quality for each individual phone call or video conference.

QPSX provided all of the company's commercial, legal and financial resources as an interim operational management team on a "sweat equity" basis as well as some seed cash. Commercial functions conducted by the team included the development of the Business Plan, product definition, channel development, capital raising, financial and legal management, and human resources management.

In February 2004 QPSX led the company's successful A\$6M capital raising from three of Australia's leading venture capital firms, Foundation Capital, Technology Venture Partners and Starfish Ventures and led the process resulting in the award of a \$1.2M government grant, engagement with major US-based vendors, and the establishment of the US-based company Xelor Software Inc. Our venture-incubation team has now transitioned to a highly-credentialed full-time management team based in Boston, USA.

VC Feedback: "one of the smoothest transactions we've completed"

What worked well

- Setting up interim management team with strong commercial skills and experience from the start rather than the traditional 'incubation' model of mentoring the researchers to be 'commercial'.
- Bringing in the commercial resources very early (before product development) and establishing trust between commercial and technical teams to align interests.
- Having strong partner engagement from leading IP Telephony vendors in the target market.
- Cash conservation – QPSX interim management team worked on a "sweat equity" basis.
- Flexibility of QPSX effort – could ramp-up or reduce effort based on activity
- A formal 'Market Analysis' deliverable –the fundamentals of the value proposition etc.
- Having in-house legal and financial expertise (via QPSX) helped enormously in preparation of 'investor ready' – shareholder documentation, DD preparation.
- Equity in spin-off company provided strong incentive for the technical team
- Board level involvement (QPSX provided internationally experienced founding Chairman)

Learnings

- Raising capital takes longer than expected (11 months in total, resulting in the requirement for bridging rounds). Without QPSX assistance with bridging finance, the VC's would have been able to negotiate an unacceptable percentage of equity.
- Engage with appropriately qualified patent attorneys to ensure IP prior-art searching is conducted early rather than wasting resources and risk potential freedom-to-operate issues down the track.
- Role of an 'interim-CEO' very important to provide clear reporting lines and streamlined decision making.
- Structured financial reporting needed early in the start-up process.
- Obtain referees with 'end-customer pain', rather than just indirect reports as market validation to minimize delays in the capital raising process.
- Incentives for interim management roles need to be linked to the startup's performance

Appendix B: CSIRO and DSTO Partnership models**CSIRO**

In 2002, CSIRO commissioned a tender process for an external commercialisation partner to review its dormant patent portfolio of 35 technologies from 15 divisions. QPSX won the tender in collaboration with our strategic alliance partner BTG Plc (www.btgplc.com), the world largest IP commercialisation company.

QPSX proposed a license option model, in which in exchange for an exclusive time-limited option on CSIRO's dormant patent portfolio, QPSX would provide a commercial assessment of the technologies in the portfolio. If QPSX elected to commercialise one or more of the technologies, the option would be exercised and QPSX/BTG would pay all commercialisation costs going forward and share the revenue received with CSIRO.

In the project, QPSX developed strong assessment criteria and conducted a considerable information gathering exercise involving surveys and interviews with the researchers. QPSX then prepared a business plan including detailed feedback for the opportunities considered not to have commercial potential and preliminary commercialisation plans (including commercialisation path, licensing targets and revenue projects) for those with commercial potential. At the end of the option period, QPSX provided a business plan to CSIRO and chose to exercise the option for four of the technologies. Of these four technologies, one was sublicensed to a commercial partner in North America, one was withdrawn by CSIRO, one is being developed further to enable licensee traction and one was abandoned. Since the original option, QPSX has reviewed over twenty further technologies from CSIRO.

Learnings

- Both parties committed to a long term relationship, which built trust and credibility.
- Developing relationships at different levels with CSIRO (Divisions and corporate, scientific and commercial) as worked well as commitment from senior management.
- License Option model is a cost-effective way for IP portfolio assessment and an efficient process as negotiations done upfront, saving time and effort down track.
- Commercial assessment requires breadth of expertise across many technology fields and commercial disciplines.
- If technologies offered for licensing were developed a number of years ago then considerable effort may be required to ensure that IP ownership is clear and unencumbered prior to licensing
- Commercialisation is difficult if not impossible if inventor or technology champion is no longer available

DSTO

In early 2005, QPSX won a competitive tender to provide commercialisation advisory services to Australia's Defence Science and Technology Organisation (DSTO). As a member of the DSTO's Technology Transfer Advisory Group (TTAG), QPSX reviews DSTO's portfolio of opportunities for both civilian and military markets. QPSX's role is to assist DSTO with the evaluation and commercialisation of technologies as well as train DSTO staff in key aspects of technology commercialisation.

Implementation of the DSTO's TTAG is at an early stage.

Appendix C: QPSX divisional profiles

QPSX's IP assertion division

QPSX manages a portfolio of 'IP Assertion' programs, where QPSX assists companies and research institutions to ensure that IP rights are protected and that any unauthorised use is prevented or alternatively, some consideration is paid to the owner.

Many companies go to significant effort and incur substantial costs to protect their valuable IP. Unfortunately, few companies have the resources, capability or appetite to assert those IP rights against unauthorised users or infringers of their IP.

QPSX's management includes lawyers and licensing professionals with extensive experience in undertaking negotiated or litigated resolutions of IP disputes in the US, Europe, the UK and Australia.

QPSX's Ventures & Licensing division

QPSX's Ventures and Licensing division brings the next generation of technologies to life by creating new start-up companies, licensing intellectual property, and providing technology commercialisation services

QPSX's Ventures and Licensing division finds breakthrough technologies at leading research laboratories and invests in their commercialization.

We transform early-stage R&D projects into commercial products and processes by providing cash and management expertise for two types of commercialisation programs:

- VENTURES: the creation and management of spin-off companies
- IP LICENSING: licensing of new inventions to international corporations

SERVICES: We also provides a range of services that help owners of IP make best-practice commercialisation decisions.