Picking Winners in Industrial R&D[1]

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Summary

This document presents an interpretation of points made by some eighty participants / presenters at the Summer 2009 AIRG conference on the subject of "picking winners". R&D has an element of uncertainty, and there are often many potential opportunities and topics of interest to explore. Picking winners is important in optimising the use of scarce resources and in optimising value from investments for both industry and government. However the currency used for assessing value might depend on the circumstances, as we shall discuss.

Emerging themes were:

- Some matters of context – what constitutes a "winner" depends on who is making the assessment and what the selection pertains to. For example government and industry may have different views / selection criteria, and a new technology platform and a new product may have different selection criteria. Value created may be measured in terms of economic capital, social capital, knowledge capital or some combination of these things. It was also suggested that the job of government was to "create winners" through R&D capability development.
- Picking winners is a process having its own life-cycle. It is not an event. It involves framing propositions and supporting decision-taking, but how this is done is influenced by organisational culture
- People pick winners and winners pick people. Innovation is a team sport, and a blend of perspectives is useful in picking winners, but having the right team to implement the decision is critical.
- Both phases in the evolution of an innovative technology or product and potential gaps between phases have to be addressed in the selection process and subsequent implementation activities. Managing transitions in addition to making informed decisions about proceeding with a project is seen as important.
- Picking winners can be risky, and there are also some potential spin-off benefits in working with losers. Different tactics are needed for managing risk, for example having low exit barriers, than for managing uncertainty for example by learning more about the drivers of uncertainty
- Winning propositions may still need adaptation as things proceed, and staged review can support this.
- Imagining futures results in better propositions and better plans for implementation

[1] From the AIRG Summer Conference, Rendezvous Hotel, Melbourne, February 22 – 24, 2009

Introduction

The Australian and New Zealand Industrial Research Group (AIRG) is focused on sharing Best Practice in the management of and in delivering outcomes from commercially oriented technological research and development[2]. When the AIRG was first established more than 30 years ago, most of the members were managers of in-house research centres in larger companies. Over the last decade or more, some of the previously centralised R&D functions of larger firms have been devolved into operational units. A number of growing start-up firms became members. As governments encouraged more academic/government researcher collaboration with industry, more intermediary organisations such as Co-operative Research Centres have become associate members. This brings with it a healthy diversity of imperatives that may be discussed in annual conferences or in regional meetings in between.

The theme of the 2009 AIRG summer conference was "Picking Winners", and that theme was explored from a number of different perspectives. Broadly speaking, research managers need to "pick winners" for two reasons – firstly to optimise the research effort given limited resources, and secondly to maximise current and future returns from the funds expended on R&D. Some questions of interest prior to the conference were:

- Picking winners in a public sector environment. What is seen as the "Picking Winners" role with respect to the longer-term national interest in an environment characterized by global economies and global enterprises.
- "Make Versus Buy" decisions. Picking winners by technology licensing or though acquisition, in place of DIY R&D.
- Market research aspects of picking winners, (relative to "lab-based" focus of the participants.)
- CRC-based approaches. How to handle the complexity with so many independent members? What is the common interest versus specific partner interest? How will the new formulation of CRC selection alter processes in this respect? How to "pick winners" in public good CRCs? What are effective pre-commercial approaches where common interest works to pick the best alternative approaches in commercial consortiums? What is the basis that the ARC and/or NH&MRC now uses to "pick winners"? How do similar overseas bodies do it?
- What are considered to be the most significant portfolio selection issues relative to "picking winners" – e.g., corporate (examples in big pharma), in portfolio risk management in Venture Capitalists, in industrial R&D management, in CSIRO, etc.
- What approaches have been used across the Australian R&D and Innovation landscape (or elsewhere) to maximise return-on-investment by successfully "picking winners"? What are the greatest success stories?

A list of presentations made by 20 experts from academic, industry and government organisations considering both process and people topics is provided in Annex 1, along with some cryptic observations relating to each one. Some great success stories were embodied in a number of the presentations, however in this document, we have focused more on emergent themes arising from the presentations and from discussion stimulated by them. Picking winners also means identifying losers too, and this is discussed. The most immediate messages were that firstly, there is no "silver bullet"; and secondly, what "winning" means depends on your enterprise's perspective, so we start by discussing some matters of context. Another clear message is that winners are both selected and made, and that a combination of process and people are important in achieving successful outcomes.

[2] There are organisations with similar aims in several countries, with the largest groups being in the USA (the Industrial Research Institute – IRI) and Europe (the European Industrial Research Management Association – EIRMA). The AIRG maintains close linkages with the IRI and EIRMA on topics of common interest.

Some matters of Context

Deciding who will win depends on how you keep score. It was suggested that different kinds of organisations use different forms of economic currency. Governments might be concerned with additionality and spillover effects whilst an investor may be interested in matters of timing and future potential in relation to finances. Sometimes there is a coincidence of interest, sometimes not, but there is certainly a web of interactions between government, academia, industry and the investment community where one may influence the other, for example in the use of government grants.

A recurring pattern, albeit expressed in different ways, (see Exhibit 1) was that there were background criteria for engagement in an R&D project that had to be satisfied, and criteria for selection of one project compared with other candidate ones.

Exhibit 1
Policies, Strategies, Deals and Ideas

- Government and policies – manage equitable allocation of resources for the public good
- Corporations and strategies – manage a balanced portfolio of technologies and products to sustain business viability
- Investors and deals – manage a balanced portfolio of opportunities to deliver returns commensurate with risk
- Start- ups and ideas – manage time to market to survive and sustain investor support

Some speakers reflected on their experiences in selecting basic research projects, whilst others discussed applied research and product development. Their perspectives depended on where they were in the product[3] development value chain. Both technology and its application were important in all cases, but the criteria for proceeding with a particular project seemed to depend on which part of the value chain it was related to, for example building a technology platform or launching a product in the marketplace. In Exhibit 2 we have adapted a form of value chain representation used by 3M and added some inputs identified from conference presentations and discussions

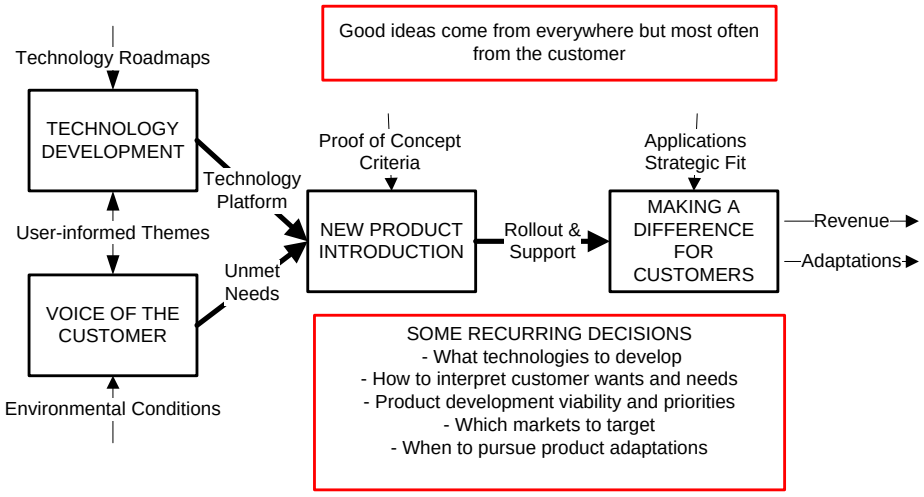


Exhibit 2 Picking Winners along the Product Value Chain

Industrial R&D may be carried out for a number of reasons – to create economic growth options; to solve operational problems or to inform technology acquisition[4]. Michael

[3] It is recognized that the outcome of some research will be an improved technological process and not a product per se, but here we use the word product in the context of an outcome of research activity

[4] For example the Australian Government's Defence Science and Technology Organisation researches emerging military technologies to help the Defence Department be a well informed buyer when considering major equipment acquisitions

Vitale from Monash University suggested that the job of government was to "create winners" through R&D capability development. In a government context, the "voice of the customer" (see Exhibit 2) for the CSIRO would be the Australian government and its research priorities, whilst for a start-up firm it might initially be a lead user and a regulatory authority. Exhibit 2 also embodies some other points made at the conference – that an excellent product may be beaten in the marketplace by a mediocre one with superior marketing and product support. R&D does not finish at product rollout, there is still research associated with maintaining and supporting the product, and in customising it for different markets. Dow presented a value chain approach to business in China that provided total customer solutions whilst reducing environmental impact and addressing matters of social corporate responsibility via a customer innovation centre and application research laboratories.

The take-away from this section is that **what** defines a "winner" is context sensitive. It depends on the kinds of organisations involved (government, corporations, SME) and the point in the new product value chain the selection relates to (developing a technology platform or developing a product). However we have provided some ideas to help understand the points of difference. Some in government argue it is not their function to "pick winners". But in a community value context the do and should properly focus resources for the greater good. It was also suggested that the job of government was to "create winners" through R&D capability development.

Framing Propositions and Supporting Decision-taking

The conference attendees universally agreed that picking winners is a process that may take some time to enact. It is not a short-term event like a lottery. It involves developing propositions, doing some form of initial screening and considering appropriate assessment criteria. What is appropriate for a particular organisation depends on its cultural norms. David Hughes from Fronterra suggested that most firms use a bottom-up gated strategy leading to market, whilst some (including Fronterra) use top down approach. But there are many innovation leadership models – The market-place of ideas (Google), innovation through rigor (Samsung), innovation through collaboration (Vodaphone), and the visionary leader (Apple) that influence how the process works in a particular firm.

Each proposition is framed in the context of the idea being presented, the benefits it may deliver, its credibility in the marketplace and its alignment with the strategies and policies of the decision-makers. The assessment process may work in reverse. Tony Peacock from the Invasive Animals CRC described a four-stage assessment process that started with a review of how the proposition fitted the strategic plans of the CRC, then its attractiveness and feasibility, then the fit with organisational capabilities and capacity, and finally whether the right people can be assigned to it. At NICTA, it can take up to six months to iteratively develop an acceptable proposition that satisfies seven selection criteria.

Exhibit 3
Global Scenarios

At the Winter 2008 AIRG conference it was noted that more firms are accessing technology globally and this was reinforced in the context of picking winners.

Presenters from Dow and 3M described global culture-driven business models, a separation of R&D associated with technology platform development from that associated with product development (see exhibit 2), and some different criteria for selecting projects. Strategy drove platform development whereas product-oriented Divisions drove application project needs.

It was noted that ultimately customers decide what will win and what won't

Regardless of the context, Rowan Gilmore from the AIC suggests a blend of truth-seeking (and due diligence) and success-seeking (imagining futures and pathways to get there) is required to pick winners and implement the selected propositions. Andrew Kelly from BioPacific Futures highlighted the value of an experienced Board in establishing proper

governance and setting directions when taking critical decisions and implementing them. Doug McEachern from the University of Western Australia sees value in obtaining external views. UWA uses criteria of excellence, merit and peer review in considering basic research proposals, and requires external funding for applied research, on the basis it will have already passed the industry investment proposition test.

Takeaways from this section are that picking winners is a process, not an event. The process has its own life-cycle. It supports the development of well constructed propositions, requires due diligence, imagining futures and a structured set of acceptance criteria, supported by experienced, objective people offering a variety of views. But exactly **how** that process works is influenced by enterprise culture.

People Picking Winners and Winners Picking People

A number of presenters were invited to talk about people aspects of picking winners. Some discussed having the right people to develop propositions and make decisions (as noted earlier), whilst others highlighted the importance of having the right people to implement the decisions. Other presenters also stressed the necessity of having the right people at the right time in moving from idea to application. Jeremy Wurm from Brooker Consulting suggested that an inappropriate hire could cost 2.5 times salary – so put some effort into getting it right.

Virtually all speakers highlighted the fact that innovation is a team sport, and that just having smart people is not enough – they have to be able to work together and respect their different capabilities and skills. Andrew Kelly form BioPacific Ventures likened successfully completing an R&D project to making a movie – there would be a long list of credits at the end. He also noted that star performers are in high demand, making personnel management and succession planning important practices. Rowan Gilmore from the AIC suggested that good teams had to have self-belief, but should also be prepared to accept advice. Vanessa Waddell from Velacor Therapeutics highlighted the need for good governance and communications, even in small teams, to help them work effectively

Mark Toner from Toner & Associates highlighted the need for creative people and suggested psychometric testing to help screen candidates, whilst group discussion highlighted the need to also have people who diligently finish things. Katrina Spence from Invetech listed some attributes sought in new employees and indicated that in one of the interview stages, candidates had to “pitch” their capabilities to likely future team-mates. Ken Mirams from Dow described how the use of a “brand” image is used to attract good people, demonstrating corporate responsibility, excellence and interesting opportunities for personal development. Both Katrina and Ken noted that people pick the company just as much as the company picks people

The underlying theme was that systematic people management practices support both picking winners and making winners Other takeaways from this section are firstly, that having experienced people either within or external to the enterprise supporting the process of picking winners enhances the chances of success. Secondly that innovation is a team sport, and the people who will carry an R&D proposition forward are an important consideration in assessing a particular proposition. Thirdly, it is suggested that establishing and maintaining a team of creative people requires some particular selection criteria, succession planning, governance and communication practices. Finally, it is also noted that people pick projects just as much as projects pick people.

Picking Winners and Making Winners - Understanding Phases and Transitions

Not seeking to pick winners was **not** considered to be a realistic option. However any notion of placing a bet then just watching the action unfold did not sit well with those at the conference. Andrew Kelly from BioPacific ventures described innovation as like a relay race where the baton had to be passed a number of times. That meant different people would be involved, and Jan Bingley from the CSIRO noted that researchers sometimes find it difficult to let go of their favourite project. Picking winners meant finding the right team for each leg of the relay and facilitating smooth handovers. It is not a one-shot deal. Decisions had to be taken at each handover point about the wisdom of continuing, and some assistance may have to be provided to satisfactorily make the transition. Most firms used a stage-gate model to map progress within a phase. Rowan Gilmore from the AIC placed an emphasis on "truth-seeking" at the idea generation end and "success-seeking" at the market end, although both skillsets were needed in all stages

NICTA has an "entrepreneurs-in-residence program to support researchers moving from the lab into a start-up company environment. The AIC, UWA, CSIRO and Aqua Diagnostics all talked about difficulties in bridging the gap between technology development and product development activities shown in Exhibit 2. The CSIRO advised that spinouts need some ongoing technical support. Richard Cooke from Haliplex talked about bridging the gap between product development and delivering benefits to customers (see Exhibit 2). Strategies adopted by a particular firm seemed market sector-specific. In one case both working through a product bundling strategic alliance with large firms and offering a low volume customised solution in parallel was the norm. The conference participants had the view that many good ideas fail in the marketplace. Phillip Burns from Varian described an advanced product that did not do well in the marketplace until it was re-designed using ideas from customers.

There were some interesting observations about different understandings of the same terms. For the CSIRO the term "proof of concept" related to demonstrating the validity of underlying scientific principles. To Phillip Burns from Varian, the same term meant demonstrating that a particular product design would work. There were views expressed that what governments see as R&D, industry sees as mostly big R with little d, making for potentially confusing interactions between the AIRG members and government

Takeaways from this section are that firstly, not seeking to pick winners is not a realistic option. Secondly, picking winners is like starting a relay race where different kinds of skills and resources are needed for each leg, and where there are frequently problems in passing the baton. Continuing interaction and support may be needed to ensure a win is recorded. And thirdly, different mental models, use of language and expectations may compromise handovers between different professional communities during the progression of an innovation, so the team picking winners must be able to understand these different perspectives.

Winners, Losers, Uncertainty and Risk

Attempting to pick winners is always risky, simply because it involves making judgements about future activities and performance. A number of speakers referred to the "innovation funnel" where a large number of candidate projects are filtered down to successively reduced numbers of better developed projects. Larger enterprises and the investment community talked about managing portfolios of projects to balance risk, but this was not practical for SMEs. Richard Cookes from Haliplex talked about the risk of not remaining focused in an SME environment, offering four suggestions. Firstly be clear about requisite outcomes: ask the right questions – "does this activity lead us to become a leader in this market segment" – if not then don't do it. Secondly focus on what you are good at

outsource the rest to preserve capital. Thirdly, build the business on what others would value in it – for example if your product could be manufactured anywhere then manufacture it anywhere and focus on IP intensive activities. And fourthly, use other peoples' market channels through bundling and focus on unique channels you may need in a particular market niche.

The matter of risk and time-frames was raised in various ways. SMEs with one product have to establish cash flow quickly or have strong equity support. Even then, the investors may need some return within a few years. The focus here is on short times to market. Others such as Michael Yay-Lee from the New Zealand Institute for Plant and Food Research spoke about respecting the long time frames for realistic product development and market trials. But long projects run the risk of changes in the external environment during the development time-frame compromising the potential market value of the R&D. Doug McEarchen from UWA observed that in a risk-averse university environment, some projects may be abandoned even before they had a chance to fail. This leads to a focus on the quality of the research rather than its perceived viability. In summary, there is an interplay between time, timing and risk.

One round-table discussion group highlighted the differences in managing risk and managing uncertainty. Risk management is about avoidance and containment of impact, for example by having low barriers to exit. Management of uncertainty is about focused and rapid learning. It was observed that risk management can sometimes become risk avoidance, leading to mediocre results. Managing potential impact not managing out risk should be the focus for R&D projects

Specific approaches to managing risk and uncertainty and matters of timing were discussed, although not necessarily expressed in those terms. Managing a portfolio of investments, appreciating that some may not progress as expected was one approach. David Skellern from NICTA referred to a project rating system having seven assessment criteria. He noted that scores against each criterion may change with time, influencing when a project is ready for acceptance into a portfolio of projects. Phillip Burns from Varian suggested making it difficult for projects to get past the proof-of-concept stage. The common theme here is an incremental commitment of resources to contain financial risk.

Rowan Gilmore from the AIC observed that his SME clients are rarely winners as they are early adopters of technology and their main exit strategy is to work until they run out of cash. However those that fail do learn something and ideas are recycled into new opportunities. Client firms are supported through skill development, establishing networks and providing advice, whilst "rising stars" are given advice about intellectual property and collaboration. Some perspectives on "losers" were offered by participants. Doug McEarchen from the UWA observed that a failed experiment still provided valuable learning about what doesn't work and helps develop people. The first stage of the process of picking winners is weeding out losers. If you win, celebrate. If you lose, get over it. Coming second in a talented field may still place a proposition favourably in a different context (Olympic silver medallists are still good at what they do). A "loser" in a large corporation context may be established as a successful spinout by passionate people working in a different context

Takeaways from this section are firstly, that picking winners too early may be risky if there are too many unknowns. Secondly the management of risk and the management of uncertainty require different tactics. The management of risk involves drawing on past experience to imagine what might go wrong and introduce appropriate management safeguards. Having low exit barriers was specifically mentioned as an example. The management of uncertainty involves exploration of possibilities and learning about possible futures. Thirdly there was a discussion of working with losers to gain a net benefit through lessons learned, spin-off benefits and strategic interventions (for example governments addressing with market failures)

The Need for Active Adaptation

There was a perceived need for R&D managers to not only pick winners, but help make winners. In spite of the effort put into picking winners, there is only a modest chance of everything going to plan when developing something innovative. This may be good news (e.g. something unexpected is discovered) or bad news (e.g. the external environment changes), but it does not mean that an inappropriate decision has been made. The concept may be satisfactory but the game-plan has to change. It was noted that SMEs must pick winners or go out of business. Jan Bingly from the CSIRO mentioned the need to provide ongoing R&D support to firms they have spun-out, and about how the technology may be initially underdeveloped. Rowan Gilmore from the AIC noted that the cost of a research organisation working with an SME could be quite high, and that some of the IP to be transferred may not be readily identifiable. In this situation, getting started and constantly adapting makes sense. Rowan also pointed out that each interaction tended to be unique, and that skills, agendas and cultures may have to be adapted for the next project. Vanessa Waddell from startup firm Velacor Therapeutics suggested that success depends on how well you go back and re-evaluate current positions and plans. Charlie Day from Melbourne Ventures highlighted that skill requirements may change in unexpected ways as a project unfolds, and there needs to be an early appreciation of the value of external contributions from consultants, advisors and users of a technology / product.

Exhibit 4
Work with Change

Tony Peacock from the Invasive Animals CRC noted that partnership arrangements may change over time. Different skill-sets may be needed for the next project or corporate strategies may change. Consider partnerships as a series of short-term relationships, and confront any need for change

Some speakers observed that deviations from the original plan or concept may be fortuitous or otherwise. Andrew Kelly suggested that in deciding to launch a "winner", one should also emphasise the expectation that change is not only normal, it is for the better. David Hughes from Fronterra suggested that stage –gated or similar "gated" review processes have almost become mandatory in new product development. At a "gate", a project may proceed as planned, proceed to a modified plan or not proceed. A project may be put on hold for a variety of reasons, a new project may be established based on what has been learned, or the project team may be re-assigned. Taking Andrew Kelly's view, there are a lot of new opportunities identified.

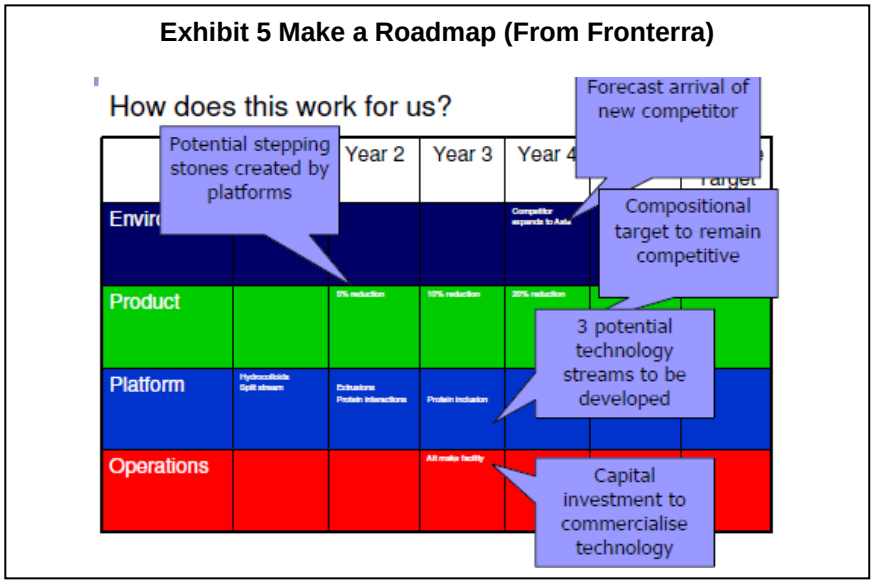
On the other hand, several speakers highlighted the value of belief and persistence as an individual attribute and in pursuing project goals. Balancing this against knowing when to give up or hand the baton over to the people running the next stage of development called for skilful transition management.

Takeaways from this section are firstly, that in spite of the effort put into picking winners, there is only a modest chance of everything going to plan when developing something innovative. This may be good news (e.g. something unexpected is discovered) or bad news (e.g. the external environment changes), but it does not mean that an inappropriate decision has been made. The concept may be satisfactory but the game-plan has to change. One has to focus on "making winners". Secondly striking the right balance between belief/persistence and knowing when to give up is not easy. The use of stage-gate ideas provides for planned opportunities to make appropriate adjustments and define new directions if appropriate. Adaptability may be facilitated by avoiding lock in and having low barriers to change.

Imagining Futures

One aspect of picking winners is imagining where a particular project might lead and reflecting on how this aligns with where we want to be. Conversely, one might imagine a desirable future position and define a project to get there. David Hughes from Fronterra suggested that most companies use the "bottom-up" approach. Many enterprises define "innovation arenas", but few use top-down tools to translate strategy into an innovation portfolio. There is some research evidence that firms adopting top-down methodologies out-perform their peers[5]. Andrew Holmes from Bio21 reflected on a quote attributed to Louis Pasteur that "Chance favours the prepared mind" and suggested that having the right project team would include people who could challenge existing ideas and draw on international linkages to provide a variety of perspectives.

Exhibit 5 Make a Roadmap (From Fronterra)



Phillip Binns from Varian highlighted the value of having thought though specifications of end-game requirements up front. David Hughes from Fronterra presented a simplified version of a top-down technology roadmapping methodology where mapping key events in the business environment, product, technology and operations requirements to realise a visionary product over a five year period facilitated coherent project management. David also provided advice on five traps to avoid in roadmapping:

- Incrementalism. The suggested cure is to set ultimate targets
- Clutter. The suggested cure is to only map the first instance of an influence factor
- Complexity The suggested cure is to keep things in annual boxes
- Proliferation. Agree a minimal set of roadmaps up front
- Chicken and egg standoffs. Use synthesis events

Takeaways from this section are firstly, that "Chance favours the prepared mind" (Louis Pasteur) and preparation involves imagining future scenarios, accumulating information on alternative pathways. This is particularly important in working in the disruptive innovation space. Secondly, both forward and backward planning strategies should be considered. Forward planning involves learning from the past and projecting forward to improved outcomes. Backward planning involves imagining a future need or possibility and working backwards to evolve requisite technologies and business pathways. In either case, a plan with key milestones is established. Thirdly, making complex plans simple to understand supports the alignment of all stakeholders.

[5] Cooper, R. G., Edgett, S, J, Kleinschmidt, E, J. "Benchmarking Best NPD Practices II", Research Technology Management, May-June. 2004, pp. 50–59

Annex 1: AIRG 2009 Summer Conference Presentations

Speaker(s)	Topic	Some Observations
Rowan Gilmore, Australian Institute for Commercialisation	The National Interest Perspective	Economically rational governments don't pick winners – or do they? AIC clients are rarely winners, lacking resources, many end up failing. Transaction costs in working with small firms is high for research organisations. Offer services to help winners win, think about working with "losers"
Michael Vitale, Monash University	Creating Winners – the real task of Government	The government should continue to support R&D capability development to "create winners". The goal of government support for commercial R&D is to encourage projects with large social benefits but inadequate returns to private investors and there is ongoing dispute about "picking winners"
Peter Gray, 3M	Picking Winners at 3M – Aligning Technology and Business Strategies	Culture of innovation drives business model that is focused on adding value for customers. Internal alignment of multi-level strategic plans. Technology platforms established at a corporate level, project priorities set at a divisional (market) level drawing on "voice of the customer"
David Hughes, Fronterra	Picking Winners – a Top-down or a Bottom-up Process	Most firms use a bottom-up gated strategy leading to market, some (including Fronterra) use top down, but there are many innovation models – The market-place of ideas (Google), innovation through rigor (Samsung), innovation through collaboration (Vodaphone), the visionary leader (Apple)
Ken Mirams, Dow Chemical	Branding a Company to Attract Innovative R&D Employees	Be the largest, most profitable and respected chemical company in the world and attract winners –example of establishing "green" credentials in China. Invest in infrastructure and people that deliver great ideas, purposeful actions and sustainable profits
Andrew Holmes, Bio 21	Getting the Chemistry Right in a University Environment	" Chance favours only the prepared mind" - choose the right people (practice to perfection) and the right opportunities (that suit infrastructure and established development practices)
Tony Peacock, Invasive animals CRC	Herding Cats: Picking and Managing Winning Projects in a feral CRC	Four pass selection process – CRC criteria, attractiveness/feasibility, organisational and people fit.
Doug McEachern, University of Western Australia	Picking Winners in Research – Comfort and Risk	As a University, rely on external tests of what is worth funding (excellence, merit, and peer review). Use external funding for applied research (already passed the investment proposition test). BUT there is a perceived gap between fundament and applied regimes.
Roger Knight, Aqua Diagnostics	Development and Commercialisation of a new water quality measuring device by Aqua Diagnostics	Key Influences for Early Stage Companies: business Goals, state of completion of original technology, time to commercialization. Short term focus on commercial success influences R&D plans and goals

Richard Cookes, Haliplex Utility Specialists	Picking Winners at Haliplex	There are lots of great ideas, success or failure comes from where and how you go to market. Mediocre products will still beat brilliant products if they have better/complete go to market plans. Remove distractions and understand what is valued by others
Vanessa Waddell, Velacor Therapeutics	Picking Winners in Early Stage Drug Development	Good science gets you a seat at the table, but successful execution requires blending indication/market size and dynamics, IP considerations, funding profile and people matters
Anton Yannakou	People practices for R&D in the 21st Century	Bottlenecks are moving from money and people to time and knowledge, structures flatter and less hierarchical leading to changing roles and values. Need a balanced mix of "apprentices", "independent contributors", "integrator/mentors" and "directors"
Katrina Spence, Invetech	Finding, Selecting and Retaining Innovators	Have the right people – some selection criteria: persistence, ability to remove self-limiting inhibitions, take risks, make mistakes, escape, writing things down, find patterns & create combinations, curiosity. Retaining innovators – provide variety and support
David Skellern, NICTA	Cultivating Talent: How NICTA grows Research Winners and Delivers Outcomes	Research philosophy – use-inspired basic research, research themes related to specific business areas. Matrix structure of projects and thematic research topics. Require both excellent researchers and excellent implementers. Seven project selection criteria
Mark Toner, Toner & Associates	Some Characteristics of Creative People	Imagine, create, innovate – all require creative people, and psychometric testing can help identify suitable candidates.
Jeremy Wurm, Brooker Consulting	Picking Winners – Some Practical Advice	Hiring the wrong person costs about 2.5 times salary. Finding "stars" means casting the net wide, including head-hunting and checking, checking, checking. Look after the whole family.
Andrew Kelly, BioPacific Ventures Fund (NZ)	Do Venture Capitalists just back People?	Innovation is like making a movie – there will be a long list of contributor credits at the end. Need to actively manage incentives and succession – people in demand, change jobs often – set expectations that change is normal. Innovation is like a relay race – there needs to be baton changes at times. Need both people and process and an experienced Board setting directions helps.
Michael Yay-Lee	Plant and Food Research Product Development and Commercialisation	New Zealand Crown Research Institute that must compete for government and industry funding, but has a strong royalty stream. Funds early and mid-stage product development over long periods. Need persistence.

Jan Bingley, CSIRO	Commercialisation of Research at the CSIRO	Get technology out of CSIRO, into the private sector. Benefit to Australia is the most important factor in determining appropriate return for CSIRO. Some potential issues - Letting go" can be difficult. Lack of capital for early-stage, high risk opportunities. Limited pool of experienced entrepreneurs. Mismatch of expectations between research institute & commercial partner - Technology undercooked, Role confusion. Negotiation failure. Partnership is key
Phillip Binns, Varian	The other side of the commercialisation spectrum	Developing reliable equipment – don't compromise quality, have clear up-front requirements. Innovation framework (external partners and informed users, knowledge of product, multi-skilled workforce) combined with six-stage process flow. Innovate quickly and constantly
Rowan Gilmore, David Hughes, David Skellern and Michael Vitale	Panel and Discussion – what have we learned about picking winners?	- Picking winners depends on goals, have clear objectives and vision - Pick the right people and the right teams - Think about managing losers - Balance "truth seekers" and "success seekers" - Need systems to pick winners - Mange transitions, pick the right team for the right job
Participant small group discussions	Discussion – what have we learned about picking winners?	- Inconsistency between risk identification and assessment procedures. Not the same approach as dealing with uncertainty, which involves learning strategies - The value of a project goal-seeking roadmap and consideration of alternative futures - What is the appropriate decision system for you? The danger of trying to make one size fit all.