

# The New Zealand Tertiary Sector Capability Framework

Stephen Marshall, Victoria University of Wellington

The New Zealand Tertiary Education Commission (TEC) has initiated a project aimed at creating a framework focused on holistic improvement of TEO capability. This will support tertiary education organization (TEO)-led capability improvement investments by TEC, developing and maintaining effective systems for learning and teaching. It will enable a range of responses by TEC to different TEO capabilities and support a diversified and coordinated network of TEOs. By enabling high-capability TEOs to operate with greater latitude, and providing a framework for investing the improvement of all TEO's capability it will enable responsive, agile and flexible tertiary education system.

## Introduction

Tertiary education is widely recognised as being one of the major influences on social and economic well being. The Council of Europe describes the European tertiary system as “an exceptional asset which should be fully respected” (Council of Europe, 1997, 1). The historical benefits of education to society are widely recognised as extending well beyond the positive individual outcomes (Hout, 2012; Moretti, 2004; Pascarella and Terenzini, 2005).

There are however indications that these important contributions are under threat from wider changes in global society (Bok, 2010; Wolf, 2004). The challenges facing tertiary education systems are driven by long term trends that have been increasingly apparent over the last few decades. The forces acting on the system are complex and represent the interaction of many drivers that also act on society through political and economic change. They are widely recognised as including (Altbach, Reisberg and Rumbley, 2009; Wissema, 2009; Bok, 2013; Cunningham et al., 1997; Marginson and Considine, 2000; Shattock, 2003; Sporn, 1999):

- Demographic changes within individual countries changing the scale and scope of tertiary education, influenced by the complex changes described as globalisation which affect the movement of people and the demand for skills in internationalised economies. This includes complex shifts in the composition of the adult population and the need to engage educationally with people throughout their lives;
- Stakeholder influences shifting in the face of changing economic and political priorities, with new stakeholders in tertiary education acting to influence national systems and individual providers;
- Financial challenges reflecting the shift from public to private control of wealth, the changing nature of many economies, and the increased costs of provision associated with the scope and magnitude of education needed by modern societies;
- The significance of qualifications and the understanding of the intrinsic and extrinsic value of formal qualifications evolving in the face of changing employment patterns and expectations of graduates;
- Technological change affecting pedagogical models and organisational structures. The ability of technology to catalyse and shape the impact of other changes to national systems and to sustain a rapid pace of change.

The intersection of these forces creates a dynamic environment that can be characterised as a ‘wicked problem’ acting on a national system, which can trigger paralysis in decision making or lead to reactive responses that fail to drive systematic and purposeful improvement (Marshall, 2014). As an example, increasing scale of provision to an ever larger proportion of the population ultimately devalues qualifications such that they cease to have any extrinsic economic value. This decline is clearly apparent in the Korean system where roughly two thirds of young adults have undergraduate degrees (Yeom, 2016).

The relationship between the scale of education, the stakeholders and the financing of educational opportunities are also closely interrelated. Trow (2006) describes the social and political changes that result from a shift from a small scale elite experience of education with few stakeholders and minimal concern with costs or economic outcomes, through mass education with greater scale involving many stakeholders and substantial concerns with costs and economic value, culminating in universal education with massive scale potentially leading to a shift to the individual learner as the only significant stakeholder.

The New Zealand tertiary system shows every sign of struggling with the implications of these forces and the resulting complexity facing institutional leaders and government agencies (Marshall, 2014). Recognition of the issues resulted in the Ministerial instruction to the Productivity Commission that it undertake an investigation into new models of tertiary education. The terms of reference (New Zealand Government, 2015, p. 1) states that this investigation be on “how trends, especially in technology, tuition costs, skill demand, demography and internationalisation, may drive changes in business models and delivery models in the tertiary sector.” This investigation is expected to provide its final report and recommendations in early 2017, however the draft report has been circulated for comment (New Zealand Productivity Commission, 2016). The draft report identifies the forces acting on the New Zealand system broadly in alignment to those noted above and also notes that the regulatory context for tertiary education is a consequence and a contributor to the challenges facing the system. The draft report notes “over time central government has responded to fiscal pressure, political risks, and quality concerns by layering increasingly prescriptive funding rules and regulatory requirements on providers. These have the cumulative effect of tying the system down” (New Zealand Productivity Commission, 2016, p. 2). Throughout the draft report there are many criticisms of the regulatory and quality assurance systems in place and their imposition of an environment that is risk averse, conservative, inflexible and lacking the agility and responsiveness needed to engage with a dynamic and complex educational environment.

This paper outlines a possible mechanism for engaging with the complex challenges facing New Zealand tertiary education using the relationship between one of the major sector agencies and the various organizations and stakeholders of the system. This work is part of an ongoing project to stimulate and sustain change in tertiary education and describes the current conception of how capability in a national system can be described and improvements made. The framework content is evolving over time in response to consultation and ongoing work, the processes for which are described below, and so nothing in this paper should be regarded as final. In particular it is important to emphasise that the ideas and analysis presented in this paper are entirely those of the author and should not be construed in any way as reflecting the views of his employer, or those of the Tertiary Education Commission (TEC) or any other government agency.

## **New Zealand Tertiary Education**

### **The New Zealand Tertiary System**

New Zealand tertiary education encompasses a system of over 700 Tertiary Education Organizations (TEOs) in 2015 (TEC, 2016c). TEOs include providers who offer formal qualifications, referred to as Tertiary Educational Institutions (TEIs), as well as 11 Industry Training Organizations (ITOs) which work to enable industry-based training such as apprenticeships. The range of TEIs includes 8 Universities, 3 Wānanga (providers operating according to Māori culture and protocols), 16 Institutes of Technology and Polytechnic (ITPs; technical, vocational and professional providers with a regional focus), 235 Private Tertiary Enterprises (PTEs; privately owned providers), and over 400 community education organisations. The scale of these range from small community groups working with a handful of students annually through to the University of Auckland with over 5000 staff and more than 42,000 students in 2015 (Universities New Zealand, 2016).

A wide variety of government agencies are also involved in various aspects of the system. The primary agencies are the Ministry of Education, responsible for tertiary legislation, policy and strategy, the New Zealand Qualifications Authority (NZQA), responsible for the New Zealand Qualifications Framework and accreditation of qualifications under that framework, and the TEC, responsible for allocating and managing the government funding for tertiary education. Other government agencies with stakeholder interests in tertiary education include Careers New Zealand, Education New Zealand, the Education Review Office, the Education Council, Immigration New Zealand, the Ministry of Foreign Affairs and Trade, Te Puni Kōkiri, the Ministry for Pacific Peoples, and the Ministry for Business Innovation and Employment.

The NZQA operate a quality assurance monitoring process for TEOs other than Universities, known as the External Evaluation and Review (EER). This process is undertaken every four years (more often if there are issues) and is focused primarily on the achievement of qualification outcomes. Universities operate a five-year audit process through the Academic Quality Agency for New Zealand Universities (AQA), which was established by the New Zealand Vice-Chancellor’s Committee (NZVCC) who appoint the AQA board. University qualifications are accredited by the NZVCC’s Committee on University Academic Programmes (CUAP).

The TEC negotiates an Investment Plan with each funded TEO that operates over a period normally of 1-3 years (TEC, 2015). The plan sets out the mix of qualifications offered by a TEO and the number of students

the TEO will be funded to educate, including specific goals relating to key groups and measures outlined in the New Zealand Tertiary Education Strategy (TES; Ministry of Education, 2014). The process of negotiating this plan is not a simple purchasing and supply contract discussion, but also reflects the role of the TEC as a steward of the national tertiary education system with the responsibility to help shape the system to better meet the country's needs as described in the Tertiary Education Strategy.

A number of performance metrics are collected and used by the TEC to monitor the sector. Overall outcomes are measured by Education Performance Indicators (EPIs; TEC, 2016a) that report the rates of student completion of courses and qualifications, their progression to higher qualifications, and retention in study. EPI data are reported publically for all TEOs and are used by both NZQA as part of the EER process and TEC in conjunction with its Performance Consequences Framework.

Other monitoring systems and tools used by the TEC to monitor TEOs include the New Zealand Benchmarking Tool, Capital Asset Management, the Performance Linked Funding Framework, the Performance Consequences Framework, the Financial Monitoring Framework, the Good Governance Framework and provision monitoring obtained through the Single Data Return process.

The multitude of monitoring instruments operated by the TEC and other agencies is clearly a significant imposition on the system. Given this existing volume of information it is important to consider why new forms of engagement with the sector are useful and appropriate.

### **Opportunities for Improvement**

The existing monitoring tools used by TEC and NZQA were externally reviewed in 2015 (Deloitte, 2015). The report concluded that the systems in place in both agencies were working but with room for improvement. The current systems were found to work well for the purposes they were designed for, including accountability for delivering specific qualification outcomes and managing financial resources. Deloitte, however identified issues with the ability of these systems to address risks including that of fraud. The current systems also do not consider whether the monitored capability is that needed in the future, particularly if that need involved a response other than scaling the range of provision currently on offer.

An example of this lack of future capability awareness and focus can be found in the recent New Zealand Office of the Auditor General (OAG) report on investment in tertiary education assets (OAG, 2017). Their message of educational investment effectiveness (admittedly acknowledged by OAG as simplistic) consisted of simply dividing the dollar asset value of a TEO by the number of student course completions (according to the EPI system operated by TEC). The limitations of this measure as a mechanism for guiding development of future capability in the tertiary system are immediately apparent, and are reflected in the OAG report which recommends that TEC and other agencies “[consider] further types of analysis, measures, and forecasting that could improve the collective effectiveness of the investment in tertiary education assets” (OAG, 2017, p. 6).

The focus of the existing monitoring instruments on financial accountability and probity and the volume of activity without nuanced measures of educational quality (see below) also means that the system has not been encouraged and supported in developing its organisational capability for self-critique and reflection. Benchmarking of New Zealand universities and ITPs has found little evidence of educationally oriented monitoring and pro-active self-improvement capability (Marshall, 2006a; Marshall, 2012; Neal and Marshall, 2008), which is problematic given the dependence of the NZQA EER and AQA Academic Audit processes on a willingness by TEOs to systematically identify and reflect upon opportunities for future change and improvement and identify pro-active strategies rather than account for past activity.

The recent TEC Briefing to the Incoming Minister (TEC, 2016c) notes that of the more than 700 TEOs, the TEC has significant concerns about three of them. This suggests that the vast majority of TEOs are being extensively monitored despite there being no significant issues. The expense and complexity of these systems could and should be mitigated. The Briefing also acknowledges the forces acting on the system, including particularly the challenge facing institutions attempting to scale their engagement with new and important models of education stimulated by technology.

In summary, the current system is widely recognised as needing to engage more actively with the future needs of the country. Current sector monitoring and accountability tools have created a robust and generally effective system but have not enabled future-focused leadership and risk-taking and are consequently suppressing the ability of the system to evolve and engage in innovative new models. As steward of the New

Zealand tertiary education system for current and future generations, the TEC recognises the need to respond to this challenge through the Improving System Stewardship goal of the Investment Approach, and the Capability Framework reflects that goal's focus and importance. An effective Capability Framework would support the ongoing conversation that TEC needs to have with TEOs in its role as funder of the system. It would move TEC's engagement from a commodity purchase focus to reflect the objectives of the investment approach as a tool for building future capability and capacity by enabling diverse providers and models to operate. Potentially over time the Capability Framework would enable a reduction in the tempo and intensity of the monitoring and compliance costs imposed on the system while sustaining the confidence of the Government and other agencies in the stewardship of the sector by TEC.

## Shaping the Future Capability of New Zealand Tertiary Education

The various monitoring and review instruments already in place in New Zealand tertiary education predominantly focus on quality as value for money and as fitness for purpose (Harvey and Green, 1993). These conceptions are recognised as typically lacking consideration of the focus and granularity of the definitions of value or fitness and the relative importance to a range of different stakeholders. They also focus on the current state of a system and lack the ability to guide the future shape of a system. Reframing quality as a tool for organisational and sector sense-making (Marshall, 2016) can stimulate change by re-examining the status quo, using the information gathered in response to a range of questions such as:

- What is being done to support systemic responses to a changing context and needs?
- How are providers encouraged to diversify and change?
- What is being done to enable experimentation with new or different approaches?
- How are diverse outcomes recognised?
- How is useful and informative failure recognised and valued?
- How are provider roles sustained while encouraging diversity and change?

The sense-making approach to assessing the sector and individual TEOs, combined with a model of continuous organisational improvement, supported by future-focused and change ready leadership, create a holistic model of sector capability development.

### Theoretical Structure of the Capability Framework

Capability maturity models were created to support the development of organisational maturity, the state where an organisation is perfectly conditioned to achieve its objectives (Andersen and Jessen, 2003; Curtis, 1994; Humphrey, 1987). Maturity models model organizations on the stages of human learning (Biggs, 1979). Early stages reflect knowledge gathering, experience and sense-making. These are followed by attempts to impose order and structure, and then in the final stages, by the creation of flexible frameworks incorporating experience and knowledge but also able to cope with ambiguity and support innovative growth. Many maturity models exist addressing capability in a wide range of domains (Curtis and Alden, 2007; Mettler, Rohner and Winter, 2010; Röglinger, Pöppelbuß and Becker, 2012).

Maturity models summarise the growth of the organisation through hierarchical levels (Figure 1a). This holistic assessment of the organisation builds on an assessment of activities relevant to the domain being improved. The e-learning Maturity Model (Marshall and Mitchell, 2002) unpacked this holistic assessment of each activity into five capability dimensions, recognising that the complexity of organisational activity is rarely developed in a comprehensive and hierarchical fashion (Figure 1b).

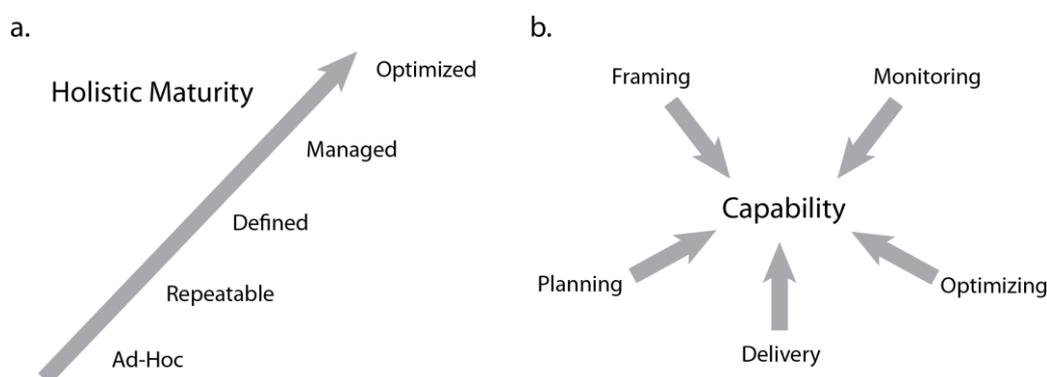


Figure 1: (a) Maturity model levels; and (b) dimensions

Conceptualising capability as a matrix of activities and dimensions has the benefit of supporting models of leadership that also reflect a matrix of relationships, skills and knowledge. These forms of distributed leadership are increasingly recognised as important enablers of organisational agility, flexibility and change (Bennis, 1999; Gattorna, 2010; Jones, Lefoe, Harvey and Ryland, 2012; Kniberg and Ivarsson, 2012; Marshall, 2006b). The importance of this new model of distributed, future-focused and change-ready leadership development was identified by (Scott, 2016) through engagement with 3700 international leaders in education. Scott identified the importance of a direct focus on capacity-building enabled by effective change leadership. He argues for creation of a ‘why don’t we’ not a ‘why don’t you’ culture recognising the importance of framing change as a complex (social) learning and unlearning process for all concerned.

### **Co-creating the Capability Framework – ‘Why Don’t We’**

Capability maturity models have three major components, a model of organisational improvement, the measures and evidence that are used to frame the assessment of the activities, and a set of activities. The activities form the scope of the assessment and reflect the domain within which the model operates, and their assessment ultimately defines what is meant by capability in the Capability Framework.

The model is as described above, drawing on extensive collaborations in New Zealand, Australia and internationally that have supported the eMM as FlipCurric projects and informed the resulting models of organisational improvement. The measures and evidence base that might inform any assessment also substantively exist through the range of monitoring processes and internal organisational management systems already in place.

The missing, and most important piece is the set of activities that are the focus of the Capability Framework. A potential set are outlined below but it is important to emphasise that these reflect an initial TEC perspective offered as a means of facilitating a conversation with the sector about the real set of activities that will populate the Framework in its first implementation. The complex nature of capability, particularly when framed in terms of future change, means that no one perspective can identify all of the important activities needed to support and sustain the sector.

High capability organizations have demonstrated the necessary characteristics to allow the TEC and other agencies to have a high degree of confidence that the organization can operate with a high level of autonomy. High capability organizations are trusted to manage the risks of new models of delivery or forms of provision and supported practically in their initiatives.

Capability in the context of this framework can be defined in general terms as: the ability of an institution to ensure that its activities, systems and infrastructure are operating in a manner that will support a flexible, agile and responsive approach to learning and teaching aligned to the mission and purposes of the institution. Critically, capability includes the ability of an institution to *sustain* learning and teaching in a dynamic and rapidly changing environment in a manner that contributes to the overall system’s ability to meet the needs of New Zealanders, particularly as defined by the Tertiary Education Strategy.

In reality, the details matter and the real definition of capability will emerge as the Framework activities and measures are identified in collaboration between the TEC, the sector and key stakeholders. The framing of these activities presented in the next section will be used as starting points for engagement. A series of workshops are planned and in motion for 2017 where the project team will meet with sector and stakeholder groups to actively develop, edit, reform and shape these activities into a robust description of capability that is collectively owned.

### **Scope of the Capability Framework**

The scale and diversity of the New Zealand tertiary system defines the scope of the Capability Framework. The intention is that the resulting activities and picture of TEO capability be relevant for small providers as well as the large universities. It is focused on the governance and the other organisational systems enabling provision of learning and teaching, recognising that while research is important it is independently sustained and developed (Figlio and Schapiro, 2017; Hattie and Marsh, 1996), and that financial and asset management activities are already rigorously addressed.

The framework does not assume any particular model of provision, including the use made of any technology. It is also unconcerned with whether a TEO is a public or private organisation, and operating

either as a non-profit or commercial profit-making enterprise. Evidence of past performance is only of value under this framework to the extent that it speaks to future capability.

An initial review of the quality literature, framed particularly by the eMM and FlipCurric projects and feedback from a panel of independent external experts (Professor Sally Kift, Professor Ulf-Daniel Ehlers and Professor Geoff Scott) as well as by the goals and priorities of the TES, resulted in the identification of seven major areas that the Framework could assess:

- Governance;
- External stakeholder engagement;
- Continuous quality improvement;
- Infrastructure;
- Provision of educational experiences;
- Support for students as learners;
- Support for staff as teachers.

Within each of these areas there will be a small number of activity statements that capture the future improvement orientation of the Framework through the associated dimensional measures. Table 1 illustrates how this assessment of the TEO mission within the governance context could be specified in the Framework.

<b>G.1. The TEO has a differentiated and future-oriented educational mission.</b>		
G.1.1.	Delivery	The TEO explicitly identifies an educational mission aligned to specific learner contexts.
G.1.2.	Planning	Operational and strategic plans are explicitly linked to key objectives of the TEO educational mission.
G.1.3.	Planning	Operational and strategic plans include investment in substantive programmes of work intended to sustain TEO differentiation in a dynamic environment.
G.1.4.	Planning	Operational and strategic plans include milestones and success measures for activities intended to develop TEO differentiation.
G.1.5.	Framing	The educational mission recognises and explicitly addresses a dynamic environment.
G.1.6.	Framing	The educational mission explicitly addresses the ongoing development of TEO differentiation.
G.1.7.	Monitoring	Regular analysis of and reporting to governance groups of strategic and operational activities addressing TEO differentiation activities.
G.1.8.	Monitoring	Regular analysis of and reporting to governance groups of strategic and operational activities addressing the dynamic TEO environment.
G.1.9.	Optimising	Educational mission, strategic and operational plans are regularly reviewed by the governance group to ensure they are sustaining TEO differentiation.
G.1.10.	Optimising	Educational mission, strategic and operational plans are regularly reviewed by the governance group to ensure they are responsive to the dynamic TEO environment.

Table 1: Example of a possible Capability Framework focus statement and associated dimensional measures.

The dimension statements are ultimately intended to reflect a single aspect of capability that can be demonstrated through clear evidence. All of these statements need to reflect the goal of the Framework to assist TEOs in improving their capability for the future

### Benefits of a Capability Framework for New Zealand

The positive outcomes of benefits that are hoped from the implementation and application of the Capability Framework include those of value to TEOs, both as direct incentives and more general benefits, those of value to the sector collectively, and of value to the TEC in terms of its role as investor and steward of the national system.

From the TEC perspective, the Capability Framework is a powerful tool capable of supporting an analytical and evidence-based view of sector and TEO capabilities. This knowledge supports the TEC in focusing investment where it will be most effective in meeting both current needs and in developing capability in ways that respond to the future needs of the country. This investment will occur in the context of a powerful conversation between TEOs and with the TEC, supporting TEO leadership and governance in aligning their organisation to learner and community needs and building capability in alignment with their mission and values.

The collective sense of capability that the Framework provides will help the sector and TEC align ongoing strategy, policy and the operation of administrative and accountability systems undertaken by agencies. In so doing it provides a means by which compliance burdens can be reduced and greater autonomy achieved, including through the use of simplified and stable funding over longer time frames. The overview of TEO capability is also likely to be of great value to governance groups, including boards and councils, as they work with TEO leaders to shape the organisation.

The ability of the Framework to provide greater certainty and financial security to TEOs is an important enabler of another key outcome; the support of greater agility and flexibility in models of provision. Rather than imposing avoidance of any risk as the current monitoring does, the Framework will enable management of risks by the TEC and TEOs in order to support new initiatives with the potential of building new capability and knowledge for the system.

The Capability Framework also provides a mechanism for strengthening the ability of key stakeholders including learners, communities, employers, and industries to engage with TEOs and influence the ability of the tertiary system to meet their needs. The Framework reflects the importance of these groups to the country and uses this as a mechanism to support TEOs generating outcomes of significance to the stakeholders as well as the TEO.

Strengthening the shared sense of responsibility within the system for a diversity of models and the collective roles TEOs have in supporting learning is key to the TEC stewardship of a sector, as opposed to a purely competitive market. The Capability Framework emphasises the importance of contextualisation in provision, encouraging a diversity of providers working within a specific context. The goal is not merely cooperation or cooptation, but genuine collaboration including shared participation in investment activities aimed at building or maintaining infrastructure and in provision.

## Conclusion

The Capability Framework is ultimately aimed at strengthening the New Zealand tertiary system, working through individual TEOs, but with very much a holistic view of the system. This is an ambitious project, working across a diverse group of organizations in a complex system that has importance consequences for New Zealand's social and economic outcomes.

Invariably, given the scale of its ambition, the project will fail to completely deliver a Capability Framework that is complete, robust and effective at rapidly building capability in the sector and within individual TEOs. It will however provide the starting point from which improvements can be made. This project represents in a microcosm the macro forces acting on tertiary education in every country. It will itself have to be agile and flexible if it is to grow with the sector.

The initial version of the Capability Framework will reflect the engagement between TEC and the Sector and stakeholders that is already underway. As discussed above, much of what is described in this paper is provisional in that it has yet to be shared with the sector and as such represents one possible set of focus areas and benefits. The expectation is that the consultation that occurs throughout 2017 will be genuine and open, and will help the sector, including all of the TEOs and agencies involved, achieve a collective outcome of value and significance to New Zealand.

## Acknowledgements

The author wishes to acknowledge the funding, support and involvement of the TEC in this work, particularly the work of Murray Johnson and Frances Broatch. This work is guided by the expert perspectives and feedback generously given by the project expert advisors Professor Sally Kift, Professor Ulf-Daniel Ehlers and Professor Geoff Scott, and the author wishes to thank them for their wisdom,

encouragement and support. The feedback and engagement of sector agencies and TEOs is essential to the success of the Framework, thank you for the contributions made so far and anticipated in the future.

## References

- Andersen, E.S. and Jessen, S.A. (2003). Project maturity in organisations. *International Journal of Project Management* 21:457-461.
- Bennis, W. (1999). The end of leadership: Exemplary leadership is impossible without full inclusion, initiatives, and cooperation of followers. *Organizational Dynamics*, 27, 71-79.
- Biggs, J. (1979). Individual Difference In Study Processes And The Quality Of Learning Outcomes. *Higher Education* 8(4): 381-394.
- Council of Europe (1997). *Convention on the Recognition of Qualifications concerning Higher Education in the European Region*. Strasbourg, France: Council of Europe. Retrieved from <http://conventions.coe.int/Treaty/en/Treaties/Html/165.htm>
- Curtis, B. A. (1994). A mature view of the CMM. *American Programmer* 7(9):19-28.
- Curtis, B. and Alden, J. (2007). *Maturity Model du Jour: A Recipe for Side Dishes*. <http://www.bptrends.com/publicationfiles/10-07-COL-maturitymodeldujour-CurtisAlden-final.pdf>
- Deloitte (2015). *Review of Tertiary Education Organisation Monitoring Framework: New Zealand Qualifications Authority and the Tertiary Education Commission*. Wellington, New Zealand: Deloitte Touche Tohmatsu Limited.
- Figlio, D.N. and Schapiro, M. (2017). *Are great teachers poor scholars?* Brookings Evidence Speaks Reports Vol 2, #6. Washington, DC, USA: The Brookings Institution. [https://www.brookings.edu/wp-content/uploads/2017/01/es\\_20170126\\_figlio\\_evidence\\_speaks1.pdf](https://www.brookings.edu/wp-content/uploads/2017/01/es_20170126_figlio_evidence_speaks1.pdf)
- Gattorna, J. (2010). *Dynamic supply chains: How to design, build and manage people-centric value networks*. Harlow, UK: Pearson Education Limited.
- Harvey, L. and Green, D. (1993). Defining Quality. *Assessment & Evaluation in Higher Education* 18(1): 9-34.
- Hattie, J.A.C. and Marsh, H. W. (1996). The relationship between research and teaching - a metaanalysis. *Review of Educational Research* 66: 507-542.
- Hout, M. (2012). Social and Economic Returns to College Education in the United States. *Annual Review of Sociology* 38: 379-400.
- Humphrey, W. (1987). Characterizing the software process: a maturity framework. *IEEE Software* 5 (2): 73-79. doi:10.1109/52.2014. <http://www.sei.cmu.edu/reports/87tr011.pdf>
- Jones, S., Lefoe, G., Harvey, M. & Ryland, K. (2012). Distributed leadership: a collaborative framework for academics, executives and professionals in higher education. *Journal of Higher Education Policy and Management*, 34(1), 67-78. DOI: 10.1080/1360080X.2012.642334
- Kniberg, H. & Ivarsson, A. (2012). *Scaling agile@ Spotify*. <http://wordpress.com/2012/11/113617905-scaling-Agile-spotify-11.pdf>.
- Marshall, S. (2006a). *New Zealand tertiary institution e-learning capability: Informing and guiding e-learning architectural change and development*. Wellington, New Zealand: Victoria University of Wellington.
- Marshall, S. (2006). *Issues in the development of leadership for learning and teaching in higher education*. <http://www.olt.gov.au/resource-issues-development-leadership-learning-macquarie-2008>

- Marshall, S. (2012). E-learning and Higher Education: Understanding and Supporting Organisational Change in New Zealand. *Journal of Open, Flexible and Distance Learning* 16(1): 141-155.
- Marshall, S. (2014). Technological Innovation of Higher Education in New Zealand, A Wicked Problem? *Studies in Higher Education*. DOI:10.1080/03075079.2014.927849
- Marshall, S. (2016). Quality as Sense-making. *Quality in Higher Education*. DOI: 10.1080/13538322.2016.1263924
- Marshall S. and Mitchell G. (2002) An e-learning maturity model? *Proceedings of the 19th ASCILITE Conference*, Unitec, Auckland.  
<http://www.ascilite.org.au/conferences/auckland02/proceedings/papers/173.pdf>
- Mettler, T., Rohner, P. and Winter, R. (2010). Towards a Classification of Maturity Models in Information Systems. D'Atri, A., De Marco, M., Braccini, A. M. and Cabiddu, F. (Eds.) *Management of the Interconnected World*. Heidelberg, Physica. pp 333-340.
- Ministry of Education (2014). *Tertiary Education Strategy 2014–2019*. Wellington, New Zealand: Ministry of Education.
- Moretti, E. (2004). Estimating the Social Return to Higher Education: Evidence from Longitudinal and Repeated Cross-Sectional Data. *Journal of Econometrics* 121: 175-212.  
 DOI:10.1016/j.jeconom.2003.10.015
- Neal, T. and Marshall, S. (2008). *Report on the Distance and Flexible Education Capability Assessment of the New Zealand ITP Sector*. Report to the New Zealand Tertiary Education Committee and Institutes of Technology and Polytechnics Distance and Flexible Education Steering Group. Wellington, New Zealand: Tertiary Education Commission.
- New Zealand Government (2015). *Terms of Reference – New Zealand Productivity Commission Inquiry into New Models of Tertiary Education*. Wellington, New Zealand: New Zealand Productivity Commission.  
<http://www.productivity.govt.nz/sites/default/files/tertiary-education-terms-of-reference%20-%20327Kb.pdf>
- New Zealand Productivity Commission (2016). *New Models of Tertiary Education: Draft Report*. Wellington, New Zealand: New Zealand Productivity Commission.  
[http://www.productivity.govt.nz/sites/default/files/FINAL%20Tertiary%20education%20draft%20report\\_2.pdf](http://www.productivity.govt.nz/sites/default/files/FINAL%20Tertiary%20education%20draft%20report_2.pdf)
- NZQA (2016). *Annual Report 2015/16*. Wellington, New Zealand: New Zealand Qualifications Authority.
- OAG (2017). Investing in tertiary education assets. Wellington, New Zealand: Office of the Auditor General. <http://www.oag.govt.nz/2017/tei-assets/docs/tei-assets.pdf>
- Pascarella, E.T. and Patrick T. Terenzini, P. T. (2005). *How College Affects Students, vol. 2, A Third Decade of Research*. San Francisco, CA: Jossey-Bass.
- Röglinger, M., Pöppelbuß, J. and Becker, J. (2012). Maturity Models in Business Process Management. *Business Process Management Journal* 18(2): 328-346.
- Scott, G. (2016). *Transforming graduate capabilities & achievement standards for a sustainable future*. Report on a Office for Learning and Teaching Learning & Teaching National Senior Teaching Fellowship.  
<http://flipcurric.edu.au/sites/flipcurric/media/107.pdf>
- TEC (2015). *Plan Guidance for 2017 & 2018*. Wellington, New Zealand: Tertiary Education Commission.
- TEC (2016a). *Performance of tertiary education organisations*. Wellington, New Zealand: Tertiary Education Commission. <http://tec.govt.nz/funding/funding-and-performance/performance/teo/>

TEC (2016b). *Performance consequences framework*. Wellington, New Zealand: Tertiary Education Commission. <http://tec.govt.nz/funding/funding-and-performance/monitoring-tertiary-education-sector/performance-consequences-framework/>

TEC (2016c). *Briefing for the Incoming Minister for Tertiary Education, Skills and Employment*. Wellington, New Zealand: Tertiary Education Commission

Trow, M. (2006). Reflections On The Transition From Élite To Mass To Universal Access: Forms And Phases Of Higher Education In Modern Societies Since WWII. In James J.F. Forest and Philip G. Altbach (eds.), *International Handbook of Higher Education*, pp. 243–280. Dordrecht, The Netherlands: Springer.

Universities New Zealand (2016). *Briefing for the Incoming Minister*. Wellington, New Zealand: Universities New Zealand. <http://www.universitiesnz.ac.nz/files/BIM%20-%20Universities%20New%20Zealand%20December%202016.pdf>

Yeom, M-H. (2016). Critical reflection on the massification of higher education in Korea: consequences for graduate employment and policy issues. *Journal of Education and Work* 29(1): 48-63. DOI 10.1080/13639080.2015.1049026